The Revolution Will Not Be Televised: The Prehistory and Early History of Home Internet Access in the UK, 1979-2001

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List of abbreviations

ACM	Association for Computing Machinery
ACPO	Association of Chief Police Officers
ADSL	Asymmetric Digital Subscriber Line
AOL	America OnLine
ARPANET	Advanced Research Project Agency NETwork
ASA	Advertising Standards Authority
BBC	British Broadcasting Corporation
BBS	Bulletin Board System
BCC	British Chambers of Commerce
BCS	British Computer Society
BT	British Telecom
CAMRA	CAMpaign for Real Ale
CICI	Confederation of Information Communication Industries
CIX	Compulink Information eXchange
COMDEX	COMputer Dealers' EXhibition
CSFB	Credit Suisse First Boston
CUT	Campaign for Unmetered Telecommunications
CWC	Cable and Wireless Communications
DTI	Department of Trade and Industry
EC	European Commission
EFF	Electronic Frontier Foundation
EMAP	East Midlands Allied Press
FDP	*Freie Demokratische Partei* (English: Free Democratic Party)
FRIACO	Flat Rate Internet Access Call Origination
FT	Financial Times
FTSE	Financial Times Stock Exchange 100 Index
GCHQ	Government Communications HeadQuarters
GMG	Guardian Media Group
GPO	General Post Office
HMSO	Her Majesty's Stationery Office

ICT	Information and Communications Technology
IEEE	Institute of Electrical and Electronics Engineers
IMVS	Internet Movie and Video Services
IP	Internet Protocol
IPO	Initial Public Offering
ISP	Internet Service Provider
ISPA	Internet Service Providers Association
ISPCON	Internet Service Providers CONvention
IT	Information Technology
ITAP	Information Technology Advisory Panel
ITN	Independent Television News
IWF	Internet Watch Foundation
LSE	London Stock Exchange
MIT	Massachusetts Institute of Technology
MP	Member of Parliament
MUD	Multi-User Dungeon
NCET	National Council for Education Technology
NGfL	National Grid for Learning
NSA	National Security Agency
NSFNET	National Science Foundation NETwork
NYSE	New York Stock Exchange
OECD	Organisation for Economic Cooperation and Development
Ofcom	Office of Communications
OFT	Office of Fair Trading
Oftel	Office of Telecommunications
OLR	Off-Line Reader
ONS	Office for National Statistics
PBS	Public Broadcasting Service
PC	Personal Computer
PM	Prime Minister
PTO	Public Telecommunications Operator
RIPA	Regulation of Investigatory Powers Act
SME	Small and Medium-sized Enterprises

TCP	Transmission Control Protocol
Telco	Telephone Company
Telecoms	Telecommunications
UCLA	University of California, Los Angeles
VCR	Video Cassette Recorder
VHS	Video Home System
VOD	Video On Demand
WELL	Whole Earth eLectronic Link

Definitions of technical terms

Bandwidth	Refers to the maximum rate at which data can be transferred over a given path (e.g., a network cable). Typically expressed in bits/bytes per second. See **broadband** and **narrowband** below.
Broadband	Data transmission systems with high bandwidth (i.e., high data transfer rates), in contradistinction to narrowband systems. See **bandwidth** above and **narrowband** below.
Ceefax	Teletext service operated by the BBC. See **teletext** below.
Coaxial Cable	Cables comprised of an inner conductor surrounded by an insulating layer which reduces interference. Have a high bandwidth compared to standard copper telephone cables, leading to their widespread use in conveying cable television signals and, later, providing broadband Internet access. See **bandwidth** and **broadband** below.
Dial-up	Used in relation to online services, indicating that the service is accessed via the public telephone network and thus requires 'dialling-up' a telephone number to connect.
Internet	The network of all interconnected networks using the Internet protocol suite (TCP/IP) to communicate.
Local Loop	Also called the 'last mile' or 'subscriber line'. Refers to the physical cable connecting a premises to the edge of a telecommunications network.
Minitel	French videotex service rolled out by the national telephone network operator. See **videotex** below
Modem	Contraction of 'modulator-demodulator'. A device which converts computer data into an appropriate format for transmission over the analogue telephone network.
Narrowband	Data transmission systems with low bandwidth (i.e., low data transfer rates), in contradistinction to broadband systems.

	See **bandwidth** above and **broadband** above.
Optical Fibre Cable	Also referred to as 'fibre optic' cable. Cables comprised of transparent optical fibres, typically made of glass or plastic, which use light to transmit data. Have an extremely high potential bandwidth compared to electrical cables. See **bandwidth** above.
Oracle	Teletext service operated by ITV. See **teletext** below.
Prestel	Publicly available viewdata service launched by the British General Post Office. See **viewdata** below.
Teletext	A standard for displaying pages of basic computer graphics (primarily text) on televisions equipped with a suitable adapter. Information is transmitted as part of the standard television broadcast signal.
Videotex	A general term for interactive computer systems which transmitted data via telephone or cable television lines and displayed on a video display terminal or television set. While this broader definition might be used to cover a wide variety of services, I use the term herein only in reference to services which self-described as videotex services.
Viewdata	An implementation of videotex developed by the British General Post Office. See **videotex** above.
World Wide Web	Also referred to as just 'the Web'. A platform for the distribution and retrieval of information over the Internet (not to be confused with the Internet itself). See also **Internet** above.

Abstract

Like most rich English-speaking countries, by 2001, a significant proportion of people in the UK had home Internet access. What was unusual about the UK, however, was that the vast majority of these people had gone online only very recently: for most of the 1990s comparatively few people in the UK were Internet users, and this number was growing slowly. Then, from late 1998, home Internet access took off dramatically. This poses two key questions. Firstly, why were levels of home Internet use so low in the UK for so long? And secondly, why did use levels increase so dramatically from late 1998?

In this thesis, I argue for the importance of looking beyond the Internet to other preceding and competing visions for mass market online services to answer these questions. I show how the slow growth in home Internet access in the UK was primarily the product of high metered telephone call costs, which had also undermined the growth of earlier online services. The roots of this problem lay in plans for a 'cable revolution' in the 1980s, strongly influenced by a vision of future online services as a form of interactive television and a desire to build new high-bandwidth communications networks, which established a unique model for the development of telecommunications based on competition in infrastructure. The persistent struggles of the cable industry in the UK critically undermined this model, and telephone call costs remained high, deterring significant numbers of people from accessing the Internet.

The accelerated growth in Internet use from late 1998, then, was the result of an innovation in Internet access pricing which reduced the cost of going online significantly. Eventually, the government began to address the high cost of Internet access in the UK, but only when it considered widening access to be important for improving the country's economic competitiveness. Overall, I argue, this reflected how the Internet was primarily of concern in UK policymaking only where it was articulated as relevant to the country's economic performance.

Declaration

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

Copyright statement

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Introduction

In June 1992, when the first British consumer internet service provider (ISP) was founded, very few people outside of corporate and academic computer networks were online in the UK. CompuServe, the US online service, had recently officially launched in Europe and had accumulated several thousand users in Britain, and there was a small but active bulletin board scene, but not much beyond this. That first consumer ISP, Demon Internet, had therefore been created with the modest goal of gaining a few hundred subscribers by the end of the year, and maybe a thousand in two.[1] Nine years later, the UK telecoms regulator, Oftel, estimated some 40% of all households had Internet access.[2]

That there was a major increase in Internet use in the 1990s in a rich English-speaking country like the UK is in itself hardly novel: other wealthy Anglophone countries like the US, Canada, Australia and New Zealand all also left the 1990s with high levels of home Internet access.[3] What is curious about the British case, however, is quite how recently the vast majority of those using the Internet at the end of the decade had come online. Estimates for Internet users in mid-1997 ranged from just 1 million (less than 2% of the British population) to 4 million people (just under 7% of the British population).[4] Using even the most generous estimate, this was unusually low when compared to other rich Anglophone countries, representing, at best, less than half the penetration level of the United States. The European Commission estimated the UK had the second lowest proportion of its population using the Internet among Anglophone OECD countries (higher only than the Republic of Ireland), and that it ranked around the middle for OECD countries overall.[5] Eszter Hagittai's data on Internet host computers per 10,000

[1] Dorian Rutter, 'From Diversity to Convergence: British Computer Networks and the Internet, 1970-1995' (PhD, University of Warwick, 2005), pp. 220-22.

[2] Figure for May-August 2001. Oftel, 'Consumers' use of the Internet - Oftel residential survey Q8 February 2002', *Oftel* (February 2002) <https://web.archive.org/web/20020602052316/http://www.oftel.gov.uk/publications/research/2002/q8intr0402.htm> [accessed 28 September 2021].

[3] Eszter Hargittai, 'Weaving the Western Web: explaining differences in Internet connectivity among OECD countries', *Telecommunications Policy*, 23 (1999), 701-718 (707).

[4] Oftel, 'Competition in e-commerce'; NOP Research, 'One in twenty-five British households now linked to Internet', *NOP Research* (14 October 1997) <http://web.archive.org/web/19981202150952/http://www.nopres.co.uk/internet/surveys/in07.htm> [accessed 28 September 2021].

[5] 'Percentage of households with internet use in the United States from 1997 to 2019', *Statista* (27 January 2021) <https://www.statista.com/statistics/189349/us-households-home-internet-connection-

inhabitants among OECD countries for January 1998 also ranked the UK second lowest among Anglophone countries, and ninth out of 18 total OECD countries, behind, in order, Finland, the US, New Zealand, Australia, Sweden, Denmark, Canada, and the Netherlands.[6]

It is important to note here that calculating the number of Internet users in a country in the 1990s was an inexact science, with significant variance between estimates. A variety of methodologies were used to make these estimations: industry analyst NOP Research, for example, based its estimates on surveys of representative samples of the public.[7] As Hargittai noted in their survey of international variation in levels of Internet use, one of the only concrete data points that could be known was the number of host computers (i.e. discrete computers connected to the Internet) in a given country from which user numbers had to be estimated, as each host could represent multiple users. Hosts per number of inhabitants was therefore both the most precise measure of Internet use levels in a country, but also the most conservative, representing a definitive lower bound for user numbers.[8] Other methodologies returned less conservative estimates, but varied more substantially between each other. The results of a large number of estimates of the number of Internet users in the UK compiled by Oftel in April 2000 varied by as much as six million users for any given month in the preceding three years.[9]

Despite the significant variation in estimates of numbers of Internet users in the UK over this period, all methodologies agreed there was a massive and rapid increase in the number of Internet users in the late 1990s. Using the surveys compiled by Oftel in April 2000, between early 1997 and late 1999, the number of Internet users increased by a minimum of 6 million (more than doubling from 4 to 10 million), and by a maximum of more than 17 million (from 1 million to 18 million).[10] Oftel's own figures estimated as much as a quadrupling of the proportion of homes with Internet access between the start

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subscription/> [accessed 28 September 2021]; European Commission, *Content and Commerce Driven Strategies in Global Networks: Building the Network Economy in Europe* (Luxembourg: European Commission, 29 September 1998), p. 12

[6] Hargittai, 'Weaving the Western Web', p. 707.

[7] NOP Research, 'One in twenty five British households now linked to Internet - with significant increase in future usage', *NOP Research* (14 October 1997) <https://web.archive.org/web/19981202150952/http://www.nopres.co.uk/internet/surveys/in07.htm> [accessed 28 September 2021].

[8] Hargittai, 'Weaving the Western Web', p. 707.

[9] Oftel, 'Competition in e-commerce: a joint OFTEL and OFT study', *Oftel* (April 2000) <https://web.archive.org/web/20020602052114/https://www.oftel.gov.uk/publications/research/econ0400.htm> [accessed 4 August 2022].

[10] Oftel, 'Competition in e-commerce'.

of 1999 and early 2001, from 10% to 40%.[11] The consensus was clear: there was a massive jump in Internet use in Britain in the last quarter of the 1990s, and the only source of disagreement was quite how massive it was. As shown above, international surveys also agreed that amongst rich countries in general the UK was only middling in its levels of Internet penetration as late as early 1998, and just shy of last place when compared to rich native English-speaking countries.

The UK, on paper, however, should have by all means been a world leader in terms of Internet use by 1997. Besides being rich and Anglophone (that is to say having a population more likely to be able to afford going online, understand the primarily English-language content available, and interact with the primarily English-speaking userbase), it also had high levels of home computer ownership and a competitive telecommunications market which, in theory, should have been delivering low access costs.[12] Yet it was estimated that of 6 million households with PCs in late 1997, only 1 million were connected to the Internet, a smaller fraction than the proportion of all US households (not just those with PCs) with Internet connections.[13] Even those who already had home computers were, by a significant margin, not connected to the Internet. Furthermore, not only was home Internet use low in the UK, it appeared at the time to be growing slowly, too. A benchmarking study conducted for the government in early 1998 had estimated that, based on current growth rates, UK home Internet penetration could be expected to reach just 14.6% of households by 2000.[14]

Then, quite suddenly, Internet use exploded. The proportion of households connected to the Internet in 2000 was, by Oftel's metrics, double what had been estimated in early 1998, and reached 40% by 2001.[15] The UK, suddenly, began to catch up. If rich Anglophone countries all similarly left the 1990s with high levels of home Internet use by global standards, what marks the UK out as unusual is the split pace of

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[11] Oftel, 'Consumers' use of the Internet - Oftel residential survey Q8 February 2002'.
[12] European Commission, *Content and Commerce Driven Strategies in Global Networks*, p. 12; Charles Arthur, 'Magazine of the US digerati fails to hack it here', *Independent*, 9 February 1997, p. 10.
[13] Chris Barrie, 'BT heralds new high-speed Internet surfing at drop in the ocean cost', *Guardian*, 8 November 1997, p. 4.
[14] Quoted in Culture Media and Sport Committee, *Second Report: The Communications White Paper* (London: HMSO, 7 March 2001), p. viii.
[15] Oftel estimated 30% of households had Internet connections by November 2000. Oftel, 'Consumers' use of Internet: Summary of Oftel residential survey, Q3 November 2000', *Oftel* (November 2000) <https://web.archive.org/web/20010219024322/www.oftel.gov.uk/research/2001/q3intr.htm> [accessed 28 September 2021].

this growth through the decade, between a slow period of expansion up to late 1998, and a subsequent period of rapid growth afterwards. This thesis thus attempts to answer two central questions: why was the growth of home Internet use so slow in the UK before this point, and why did it accelerate so rapidly afterwards?

To properly answer these questions, I argue, it is necessary to reframe home Internet access in the mid-1990s as simply the latest and most successful of a number of approaches to making 'going online' into a mass market activity since the late 1970s. These previous approaches shared in a vision of mass market online services as being accessed via televisions rather than computer terminals as the Internet would be, as it was thought to be easier to convince the public to go online through a technology most people were already familiar with. In the 1980s this vision, alongside calls for Britain to develop broadband communications infrastructure in order to meet the needs of the 'information revolution', strongly influenced the Thatcher government's approach to the privatisation and marketisation of telecommunications in the UK. This approach saw cable television companies as the agents to build this new communications infrastructure (over which, it was imagined, a range of online services would be delivered alongside broadcast television) and emphasised the promotion of infrastructure competition. As I show through the rest of this thesis, the system of regulations developed to promote this 'cable revolution' would have long lasting consequences for the development of home Internet use in the 1990s and beyond.

Reframing the Internet

The lack of historical attention home Internet use in the UK has so far received means that understanding the broad contours of how home Internet access developed in the 1990s is a necessary precursor to studies seeking to address other dimensions of this phenomenon. This thesis therefore does not pretend to offer a comprehensive history of the Internet in the UK but instead provides an important foundation for further historical inquiry. In short, the goal is to provide context for these prospective further studies. The current lack of historical attention to the development of home Internet access in the UK this thesis seeks to redress can be attributed to the predominance of a particular approach to the history of the Internet which, I contend, has led to the presumption that the development of home Internet access in the UK was wholly typical, and therefore not

deserving of historical inquiry.

That millions of people, primarily in developed countries, began going online from home for the first time in the 1990s in order to access the Internet is well known. The technical and regulatory developments that precluded this expansion in the US have been well documented in Internet histories, describing the process of how a largely academic computer network was opened up to commercial interests at the start of the decade, and in turn, how access to the Internet came to be sold to the public at large.[16] In standard accounts, this moment is situated within a history of the network's development and expansion, typically traced back to the original four-node ARPANET in 1969, and sometimes prefaced by an intellectual pre-history describing the ideas that inspired the network.[17] As Martin Campbell-Kelly and Daniel Garcia-Swartz put it, these standard accounts conceptualise the development of the Internet as like the growth of a tree from an acorn, expanding outwards from an original point.[18] In this framing, the Internet's popularisation in the 1990s can be seen as the blossoming of that tree – the coming to fruition of decades of behind-the-scenes development. The story of 'going online' is assumed to be synonymous with the development of the public Internet, framing parallel and preceding forms of online activity as inconsequential in turn. The UK's relevance to Internet history has, therefore, only been considered to be where British actors played some role in this story of invention.[19]

In more recent Internet histories, however, this standard narrative has begun to be upended as historians have argued for situating the history of the Internet within the broader context of a multiplicity of 'net' histories.[20] This frames the Internet not as synonymous with 'online', but as one way of going online among various other preceding and parallel forms. This approach has fed into and been bolstered by a growing attention to global Internet (and net) histories, which have helped create an increasingly rich

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[16] Janet Abbate, *Inventing the Internet* (Cambridge, MA: MIT Press, 1999), pp. 181-220.
[17] See e.g. John Naughton, *A Brief History of the Future: The Origins of the Internet* (London: Phoenix, 2000); Johnny Ryan, *A History of the Internet and the Digital Future* (London: Reaktion Books, 2010).
[18] Martin Campbell-Kelly and Daniel Garcia-Swartz, 'The history of the internet: the missing narratives', *Journal of Information Technology*, 2018 (2013), 18-33, p.18.
[19] Peter T Kirstein, 'Early experiences with the Arpanet and Internet in the United Kingdom', *IEEE Annals of the History of Computing*, 21 (1999), 38-44; Peter T Kirstein, 'The early history of packet switching in the UK', *IEEE Communications Magazine*, February 2009, History of Communications, pp. 18-26.
[20] Kevin Driscoll and Camille Paloque-Berges, 'Searching for missing "net histories"', *Internet Histories*, 1 (2017), 47-59.

picture of a diverse range of non-Internet networking activities around the world. Campbell-Kelly and Garcia-Swartz thus suggest, in opposition to the model of the tree, that the 'networked world' was more akin to a super-saturated salt solution which just required a single crystal of salt to change state; that salt crystal being the TCP/IP protocols on which the Internet was based.[21] The task for historians, therefore, is to rediscover these 'missing narratives' of the networks that constituted this super-saturated salt solution.

If, in turn, we look at forms of going online other than Internet access and begin to compare the UK with other countries, we find that the particular course of development the UK took was by no means the only possible path. If we view going online, or at least its popularisation, as synonymous with Internet access, it would be taken for granted that very few people were online in the UK before the first consumer ISP launched. However, if we look to the US and France, two countries which have recently had their net histories explored in more substantial detail, we find significant numbers of people were online well before public Internet access became available. While in the US, hundreds of thousands of people were subscribed to commercial online services like CompuServe and Prodigy, and there were an estimated 60,000 bulletin board systems in operation by the early 1990s, in France there were at the same time over six million terminals connected to the Minitel network accessing more than 20,000 sites and services, representing approximately one in five telephone subscribers.[22]

If we look beyond the Internet, then, we see that the number of people 'online' in these countries circa 1992 was in fact very significant, and the small number of people online in the UK, far from being taken for granted, requires explanation. Considering that, as mentioned above, there had been various attempts to bring online services to the mass market from the late 1970s, the question becomes one of why these plans failed in Britain where others succeeded abroad. Here I argue the same key problem that undermined the growth of home Internet access in the 1990s had also undermined the development of

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[21] Campbell-Kelly and Garcia-Swartz, 'The history of the internet: the missing narratives', p. 18.

[22] In 1991 CompuServe claimed 750,000 subscribers, while Prodigy claimed 600,000. Michael Banks, *On the Way to the Web: The Secret History of the Internet and Its Founders* (New York: Apress, 2008), p. 143. The figure of 60,000 bulletin board systems in 1993 is cited by Howard Rheingold, *The Virtual Community: Homesteading on the Electronic Frontier* (Boston, MA: Addison-Wesley, 1993), p. 9. Julien Mailland and Kevin Driscoll, *Minitel: Welcome to the Internet*, eBook (Cambridge, MA: MIT Press, 2017), ch. 1.

earlier online services similarly based on the use of the telephone network.

That problem was that going online via the phone network was prohibitively expensive in the UK, due to high, metered local call costs, and the persistence of this problem was a result of the failure of a policy of infrastructure competition in communications, which had been developed and sustained since the mid-1980s. Examining why this policy persisted as long as it did, and what it took to finally overturn it, can provide us with valuable insights into how the Internet contrasted with earlier ideas about the form mass market online services would take, and into how the Internet and communications infrastructure were thought about and approached in British politics. The particular course of development of home Internet use and preceding online services in the UK, I conclude, emerges from this analysis as inextricably tied to the establishment of a neoliberal common sense in British politics from 1979.

Thesis structure

This thesis is split across four body chapters covering significant phases in the development of online services and home Internet access in the UK.

Chapter one addresses the period from 1979-1990, and is divided into two halves. In the first half, I discuss the predominant vision from the late 1970s that mass market online services would be accessed via television sets, and how this idea shaped Prestel, the first online service in the UK targeted at the mass market. I then explore how this influenced the government's plans to promote a 'cable revolution'. This plan, I argue, critically influenced the development of home Internet access in the UK in the 1990s by cementing competition in infrastructure as the guiding principle for the regulation of telecommunications in Britain through the process of its privatisation and marketisation. In the second half of this chapter, I explore an alternative means of going online, through home computers connected via modems to the public telephone network. Home computer users proved the most viable group of early adopters for online services in contrast to the failure of mass market-oriented television-based services, a fact exemplified in the success of a computer-user oriented section of Prestel called Micronet 800, which temporarily managed to save Prestel in the residential market. I also examine the early development of a bulletin board scene in the UK in the late 1980s in parallel to Micronet, and contrast the scale of this activity in the UK with the huge proliferation of

local boards and online services in the US. Here, I argue, the key difference lay in the cost of using the telephone network in each country, with high metered local call costs in the UK deterring home computer users from going online in greater numbers.

Chapter two looks at the period from 1990-1998, and begins by examining how debates about how new broadband telecoms infrastructure (now under the moniker of 'information superhighways') was to be built in Britain were reignited in 1994. The cable and telecoms industries were, at this time, in both Britain and the US, excitedly discussing their eagerness to lay down optical fibre cables to every home to deliver lucrative new interactive television services. With Labour having accepted the marketisation of telecoms, debate cantered on the precise regulation of the market which would spur this information superhighway building spree. The Conservatives backed commitments to the cable industry, and Labour backed BT, which pleaded to be deregulated, though they eventually backed down after being attacked for undermining the sacrosanct principle of Conservative telecoms regulation: infrastructure competition. As it turned out, regardless, interactive television services were a flop, with their economics severely misjudged. The superhighways were never built. As in chapter one, I argue the failures of this vision of mass market online services as interactive television continued to shape the fortunes of online services accessed via the telephone network. I examine this through the failure of the first UK edition of *Wired*, launched in anticipation that the explosive growth in Internet use in the US would soon follow in the UK. This enterprise was undermined by the small scale of the online scene in the UK, and the slow growth of home Internet access relative to the US, which I examine in greater detail in the final section of this chapter. Here, I argue that the slow growth of home Internet use was the result of the same problem which had undermined the development of a bulletin board scene in the UK from the late 1980s: high metered local call costs.

Chapter three examines another dimension of UK Internet history from 1990-1998, specifically, how it came to be established that children should be given access to the Internet, conceptualised as an unparalleled educational resource, and the consequences of this on how Internet use was promoted in British politics in this period. My central argument here is that the small scale of home Internet use in the UK at this time, in contrast to the US in particular, meant that the educational framing of the Internet was unusually pronounced in Britain, and can be seen as a product and extension of the strong emphasis placed on computers as an educational technology in the 1980s. In

British politics, the adoption of this framing of the Internet as an educational resource saw both the government and the Labour Party endorsing the connection of every school in the country to the Internet by 1995, signalling that all children would, eventually, become Internet users, irrespective of whether they had home Internet connections or not. In the second half of this chapter, I examine how this commitment, combined with a growing awareness of the existence of obscene and illegal material on the Internet, prompted the establishment of a system of Internet service industry self-regulation. Overall, these moves played a significant role in normalising the Internet, both by promoting its use by children and providing a minimal set of controls to reassure the public that the network was safe, opening the door for New Labour to pursue more ambitious plans for the Internet in education upon coming to power in 1997.

Chapter four covers the period from 1998-2001, where growth in home Internet connections in the UK accelerated rapidly before plateauing again, signalling a phase of 'catching up' with the majority of other rich Anglophone countries. This rapid increase in home Internet use was, in large part, down to the success of a single ISP, Freeserve, which caused a tectonic shift in the consumer Internet services market by introducing subscription-free Internet access. This model, made possible by a quirk of how Britain's marketized telecoms infrastructure was regulated, reduced the cost of going online enough to convince hundreds of thousands of people to connect to the Internet for the first time in the months after Freeserve's launch in September 1998. At the same time, the New Labour government was becoming increasingly interested in promoting the development of electronic commerce in Britain. Plans to implement relevant legal reforms, however, were waylaid by the shoehorning of cryptographic controls into e-commerce legislation, highlighting tensions in government regarding the regulation of the Internet between the pro-business attitudes of the Department of Trade and Industry (DTI) and the paranoiac security concerns of the Home Office, with any obvious concern for civil liberties conspicuously absent. As the government stumbled over these internal conflicts, the flotation of Freeserve on the London Stock Exchange began a UK dotcom boom that would end almost as soon as it had begun. In the final section, I discuss attempts to bring to market the 'next big thing' in Internet services: unmetered access. The failure of various companies attempting to offer unmetered services on top of metered costs brought into stark relief the need for reform in telecoms regulations. The government, interested in promoting wider Internet access as a means of encouraging

the growth of e-commerce, gradually began to put pressure on the industry regulator, Oftel, to compel BT to offer unmetered services to competitors. The basic fact that this intervention was needed from the regulator to provoke BT into offering a service for which there was widespread demand for, clearly indicated the failure of the policy of infrastructure competition and began the process of re-regulation to promote services competition as well.

Finally, in the conclusion, I draw out the key themes that defined the development of home Internet access in the UK, arguing for the importance of looking beyond the Internet to other forms of and visions for computer networking to better understand the process of this technology's popularisation in the 1990s. I end by drawing out the ways this history reflects on how the Internet was thought about and responded to in British politics in particular, before pointing to areas for further research.

Methods

When I began research for this project, I chose to focus on sources which were easily accessible and fully searchable, as substantial amounts of this work would require building a basic narrative of the development of particular networks, technologies, and policies in the UK context, which precluded the more systematic analysis of a discrete corpus of texts. To this end, I have drawn heavily on digital archives of national newspapers, in particular the *Guardian*, *Daily Telegraph*, *Daily Mail*, *The Times*, *Independent*, and *Financial Times*, as well as the *Economist* magazine. As government policy is a central concern of this thesis, I also extensively reference government and parliamentary reports, including in places information and analysis from reports by other organisations including the European Commission, OECD, and Oftel.

Choosing these sources for their practicality of access during the time available to me during this research project (and given the constraints imposed by the COVID-19 pandemic) has necessarily come at the cost of representativeness, and this thesis inevitably reflects the priorities of my source base, and what they did and did not decide to cover. To compensate for this, I have tried to supplement opinions and analysis extracted from my sources with more concrete data and with analysis from contemporaneous academic literature, in order to avoid simply reproducing the broadsheet press's interpretation of events, and to bring in critiques of dominant

narratives. In future, I hope user-focused studies might be produced and brought into dialogue with my work here, bringing into sharper relief the biases and omissions of the source base I have drawn on, but such a granular level of research was beyond the scope of the project at hand.

In addition to this primary source base, chapter four, which covers from 1998-2001, benefitted from the far better preservation of online news sources from that period, and so I was able to incorporate information, most importantly, from the *BBC News* website, as well as from the IT-focused sites *The Register* and *ZDNet*, which both closely covered the ISP industry in that period. Overall, though, the archiving of online material from the 1990s is very poor. This is especially true of early UK government websites: there has been no systematic effort to preserve these and the majority of captures that do exist on the Internet Archive are simply broken.[23] Where possible, I have tried to find original online sources, but have, in many places, had to rely on references in secondary material instead.

I have also tried to supplement, where possible, these textual sources with broadcast material, though archives of this are very limited. ITN has made available online a significant number of the news reports it has made for British television, while amateur efforts to upload old VHS recordings of British television series and adverts to *YouTube* have also proved a valuable resource, especially as much older content is otherwise entirely available. An important reference to the high cost of Internet access in the BBC sitcom *2point4 Children* in 1994 would have been functionally impossible to find if not for the fact that the relevant part of that episode had been uploaded to *YouTube*. For chapter one, in particular, the BBC's online archive of its computer literacy project programmes has been immensely valuable.[24]

[23] <https://archive.org>.

[24] <https://clp.bbcrewind.co.uk>.

Literature review

A central question in recent surveys of the field of Internet history has been a fundamental one: what is the Internet that is the object of these inquiries?[25] The answer to this question has been and still broadly remains in popular discourse, a technical one, defined in terms of 'hardware and software', typified, as Janet Abbate notes, in the definition of the Internet given on Wikipedia as 'the global system of interconnected computer networks that use the Internet protocol suite (TCP/IP).'[26] This technical interpretation of the Internet frames it as a singular technological system, the proper history of which is one of invention in which the protagonists are its inventors. As such, as Thomas Haigh, Andrew Russell and William H Dutton observe, 'popular discourse around Internet history has rarely strayed far beyond the apparently simple question: Who invented it?'[27] This particular interpretation typified early Internet histories, both academic, in the form of Janet Abbate's foundational *Inventing the Internet* (1999), and popular.[28]

Where Abbate's work was a self-conscious starting point for further and more varied histories, popular histories have remained, by and large, stuck in this traditional mould, emphasising invention and inventors, and simply adding more names to the list of protagonists as new Internet-related technologies rise to significance.[29] The predominance of this emphasis on invention and inventors, paired with a reverence for the singular historical significance of the Internet, has tended towards 'hagiography', as Andrew Russell observes, 'rife with an implicit sense of admiration and deference' to those considered the creators of the Internet.[30] A particularly pronounced example of this

[25] Thomas Haigh, Andrew L Russell and William H Dutton, 'Histories of the Internet: Introducing a Special Issue of Information & Culture', *Information & Culture*, 50 (2015), 143-59 (p.144). See also Janet Abbate, 'What and where is the Internet? (Re)defining Internet histories', *Internet Histories*, 1 (2017), 8-14.
[26] Abbate, 'What and where is the Internet? (Re)defining Internet histories', p.9; quoting from <https://en.wikipedia.org/wiki/Internet>.
[27] Haigh, Russell and Dutton, 'Histories of the Internet', p.150.
[28] Katie Hafner and Matthew Lyon, *Where Wizards Stay Up Late* (New York: Simon & Schuster, 1996); *Nerds 2.0.1: A Brief History of the Internet*, PBS, 25 November 1998; Naughton, *A Brief History of the Internet*
[29] Thus for example John Naughton, writing in 2000, added Marc Andreessen to his narrative. Naughton, *A Brief History of the Internet*, pp. 241-54.
[30] Andrew L Russell, 'Hagiography, revisionism & blasphemy in Internet histories', *Internet Histories*, 1 (2017), 15-25 (17).

reverence can be seen in Werner Herzog's documentary *Lo and Behold, Reveries of the Connected World* (2016), which begins with a pilgrimage to the first Internet Message Processor, contained in a room at UCLA, which sent the first message over the Internet. 'This is the birthplace of the Internet', declares Herzog in voiceover, after which the curator, Leonard Kleinrock, describes the Processor as if it were some holy relic – in his own words, 'where a revolution began.'

In academic histories of the Internet, by contrast, there have been a variety of moves in different directions which have extended the bounds of the field well beyond this narrow (some would say myopic) focus on building a narrative of the technology's invention, which I have drawn on to inform the scope and approach of this thesis, and which I examine in more detail in the rest of this chapter.[31] I begin by showing how the object of Internet histories has been extended by reformulations of the nature of the Internet which go beyond purely technical definitions, pointing towards the necessity of situating the Internet within a more expansive field of 'net' histories to properly understand it as a historical phenomenon. Next, I describe how this has intertwined with a growing interest in non-US Internet and net histories, before drawing attention to the distinct lack of coverage the UK has received in this regard, despite a number of unique characteristics which make it a valuable case study for Internet historians.

Beyond the Internet

Perhaps the most significant turn in recent Internet historiography has been the situating the Internet within the context of preceding and parallel technologies and networks, and therefore moving beyond the narrow confines of histories of invention. The first such intervention was by Martin Campbell-Kelly and Daniel Garcia Swartz in a 2005 article on what they call the 'missing narratives' of Internet history.[32] The predominant mode of understanding the Internet, the authors argue, treats it as if it grew like a tree from an original seed in the form of the ARPANET. In doing so, the histories of

[31] James Curran, 'The internet of history: Rethinking the internet's past', in *Misunderstanding the Internet*, ed. by James Curran, Natalie Fenton and Des Freedman (Abingdon: Routledge, 2016), pp. 48-84 (p. 48).
[32] The article was originally published online through SSRN in 2005 (available at <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=867087>), and later in the *Journal of Information Technology* in 2013. All page references are for the latter.

countless other forms of computer networking, a great many of which eventually became parts of the Internet, are erased. 'The Internet did not come out of a vacuum', they conclude, and therefore to be properly understood as a historical phenomenon, it must be placed into historical context alongside other technologies and networks.[33] This moves Internet histories away from teleology or 'whig' history, and towards a proper comprehension of the Internet's (and Web's) popularity as a contingent historical phenomenon, the success of which was by no means pre-determined. Haigh, Russell and Dutton later made a similar call for Internet histories to better reflect the 'many different social, cultural, and technical streams of development that come together in the modern Internet.'[34]

The work of Kevin Driscoll in particular proves instructive in understanding how this extension of Internet history beyond a purely technical definition functions in practice. By rethinking the Internet as a space of virtual social interaction, Driscoll finds its immediate antecedents not in the proto-Internet networks of the ARPANET and NSFNET, but in the broader and largely 'forgotten' history of personal computer networking, in particular, the tens of thousands of professional and hobbyist dial-up bulletin board systems that dotted North America before public Internet access was even available.[35] Bulletin boards can thus be seen as earlier forms of the 'social media' now so closely associated with the recent Internet, on which larger numbers of people had their first experience of the novel kinds of virtual social interaction made ubiquitous through modern platforms like Facebook.[36] We can also look to Joy Lisi Rankin's work on academic time-sharing computer networks in the US in the 1960s and 1970s, which uncovers a whole world of pre-Internet and even pre-PC experiences of 'social computing' which sits outside both conventional ARPANET-centric Internet histories, and what Rankin calls 'Silicon Valley mythology', or to Paolo Bory's work on the 'lost networks' of the Socrate and Iperbole projects in Italy.[37]

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[33] Campbell-Kelly and Garcia-Swartz, 'The history of the internet: the missing narratives', p. 31.
[34] Haigh, Russell and Dutton, 'Histories of the Internet', p.158.
[35] Kevin Driscoll, 'Hobbyist inter-networking and the popular Internet imaginary: forgotten histories of networked personal computing, 1978-1998' (PhD, University of Southern California, August 2014).
[36] Kevin Driscoll, 'Social Media's Dial-Up Ancestor: The Bulletin Board System', *IEEE Spectrum* (4 October 2016) <https://spectrum.ieee.org/social-medias-dialup-ancestor-the-bulletin-board-system> [accessed 28 September 2021].
[37] Joy Lisi Rankin, *A People's History of Computing in the United States* (Cambridge, MA: Harvard University Press, 2018), pp. 2-3; Paolo Bory, *The Internet Myth: From the Internet Imaginary to Network Ideologies*

This pluralistic approach has now become the dominant strand within the field of Internet history, as signalled by the field's first dedicated journal (launched in 2017) being deliberately called 'Internet Histor***ies***' (emphasis mine).[38] Agreement on the need for this conceptual shift has also prompted a number of authors to put forward suggestions for how to name this meta-field within which the Internet is to be situated and which contains the 'missing narratives' Campbell-Kelly and Garcia-Swartz identify. Andrew Russell and Valérie Schafer opt for the term 'networking history', for example, while Julien Mailland has suggested the term 'online worlds'.[39] I favour here the term coined by Kevin Driscoll and Camille Paloque-Berges, 'net histories', which they chose for its 'self-conscious ambiguity' as it suggests at once computer networks in general and the capital 'I' Internet.[40]

Beyond America

A focus on the invention of the Internet has, naturally, resulted in a focus on the United States in histories which follow this narrative. This focus on the US has also extended to cultural histories of the Internet and, in particular, those which have examined the imaginary surrounding the network. The most significant early texts in this regard are Vincent Mosco's *The Digital Sublime* (2004), and Patrice Flichy's *The Internet Imaginaire* (2007). Both authors draw on overwhelmingly North American sources to construct accounts of how the Internet has been mythologised and made into a symbol. Where Mosco analyses the 'myths' that surrounded the development of the Internet, Flichy analyses the comparable 'imaginaire', to which end media scholars Gabriele Balbi and Simone Natale regard Mosco and Flichy as both writing in the mould of the 'technological sublime' school of the history of technology.[41] In a more sociological vein,

(London: University of Westminster Press, 2020), pp. 69-115.

[38] Niels Brugger, Gerard Goggin and Valérie Schafer, 'Introduction: Internet histories', *Internet Histories*, 1 (2017), 1-7.

[39] Andrew L Russell and Valérie Schafer, 'In the Shadow of ARPANET and Internet: Louis Pouzin and the Cyclades Network in the 1970s', *Technology and Culture*, 55 (2014), 880-907, p. 881; Julien Mailland, 'Building Internet policy on history: lessons of the forgotten 1981 network neutrality debate', *Internet Histories*, 2 (2018), 1-19 (p. 3).

[40] Driscoll and Paloque-Berges, 'Searching for missing "net histories"', pp.49-50.

[41] Vincent Mosco, *The Digital Sublime: Myth, Power, and Cyberspace* (Cambridge, MA: MIT Press, 2004), pp. 2-3; Simone Natale and Gabriele Balbi, 'Media and the Imaginary in History', *Media History*, 20 (2014),

Fred Turner's *From Counterculture to Cyberculture* (2006) charts the development and influence of a potent cultural milieu in California centred on Stewart Brand and the *Whole Earth Catalog*, which would go on to powerfully influence the cultural construction of personal computers and the Internet, and culminate in the creation of *Wired* magazine. Thomas Streeter's *The Net Effect* (2011), meanwhile, attempts to understand the ideological construction and emotive attachments the Internet inspired in early 1990s America through analysing its interconnection with a discourse of 'romantic individualism'.[42]

What these texts all share is a singular focus on the US, examining the production and circulation of particular ideas about the Internet therein. This focus on the US is self-conscious in each (though Mosco is prone to using the presumptive 'we' when discussing common sense regarding the Internet), and none of these texts presume to speak beyond it, but as Flichy notes at the end of his monograph, a 'major ambiguity in the development of the Internet' lies in the fact that 'the Internet imaginaire, like the technology accompanying it, was born in the particular context of the United States but subsequently became universal.'[43] I do not wish, therefore, to accuse these texts of engaging in a vulgar 'hypodermic' model of media effect, whereby their omission of any discussion of non-US contexts is read as an implicit claim that other cultures uncritically imported US-produced ideas wholesale.[44] The overall impression generated by this overwhelming focus on the US is, however, that there were neither any competing sites of the production of ideas about the Internet, nor any significantly divergent enough interpretations of US-produced ideas to warrant historical analysis.

Taking a net history approach provides an important corrective to this impression. By shifting our focus from the technical history of the Internet towards a multiplicity of net histories, we not only reframe our understanding of the context in

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203-18, pp. 203-204. On the concept of the 'technological sublime' see David E Nye, *American Technological Sublime* (Cambridge, MA: MIT Press, 1994).

[42] See also Thomas Streeter, 'The Internet as a structure of feeling: 1992–1996', *Internet Histories*, 1 (2017), 78-79.

[43] E.g. 'We call it the Age of the Computer' (p. 2), 'a new (virtual) space we call Cyberspace' (p. 56). Mosco, *The Digital Sublime: Myth, Power, and Cyberspace*. Patrice Flichy, *The Internet Imaginaire* (Cambridge, MA: MIT Press, 2007), p. 211.

[44] As Evans notes, it is not certain the 'hypodermic' model was ever anything more than a straw man, as those guilty of employing the model have been seldom named. William A Evans, 'The Interpretive Turn in Media Research: Innovation, Iteration, or Illusion?', *Critical Studies in Mass Communication*, 7 (1990), 147-68 (p. 148).

which the Internet emerged, we also find, suddenly, that a whole world of networking projects beyond the United States suddenly comes into view, with significant degrees of international divergence clearly evident.

French net history has emerged as an especially rich vein in this regard, in particular, the history of Minitel, a hugely popular computer network which was rolled out across the country with state support in the 1980s, reaching millions of users. Most significantly, Julien Mailland collaborated with Kevin Driscoll to produce the first English language monograph on Minitel in 2017, arguing for its significance as 'the first computer network to reach mass-scale participation' and presaging the later mass adoption of the Internet.[45] Andrew Russell and Valérie Schafer have also written about the French research network Cyclades, created in the early 1970s, which experimented with packet switching parallel to the ARPANET, and Mailland has also uncovered a forgotten network neutrality debate conducted in France in 1981.[46] As Anne Bellon has shown, the existence of Minitel created a significantly different context in France compared to the US into which public Internet access was introduced in the 1990s, and therefore makes a clear case for the importance of net histories to understanding capital 'I' Internet history, while also showing clearly how significantly the particularities of national contexts have influenced the shape of Internet history.[47]

As Mailland and Driscoll point out, Minitel is of particular interest to net historians precisely because its size and scale were so exceptional prior to public Internet access. Though the Minitel network holds a privileged position as the first mass-scale pre-Internet public computer network in the world, other less successful networking projects have, in the last decade, begun to attract substantially more attention as well, often of interest for their competing visions of what a 'net' might look like, and for how and why they failed. Building on Slava Gerovitch's earlier work, for example, Benjamin Peters has

[45] Mailland and Driscoll, *Minitel*.

[46] Russell and Schafer, 'In the Shadow of ARPANET and Internet: Louis Pouzin and the Cyclades Network in the 1970s'. See also Schafer's related work on the RENATER network. Valérie Schafer, 'Part of a Whole: RENATER, a Twenty-Year-Old Network within the Internet', *Information & Culture*, 50 (2015), 217-35. Mailland, 'Building Internet policy on history'.

[47] Anne Bellon, '" Goodbye Minitel, welcome to the internet". The Hourtin speech as a turning-point for French internet policy', *Internet Histories*, 4 (2020), 373-89. See also Valérie Schafer and Benjamin G Thierry, 'From the Minitel to the Internet: The Path to Digital Literacy and Network Culture in France (1980s-1990s)', in *The Routledge Companion to Global Internet Histories*, ed. by Gerard Goggin and Mark McLelland (New York: Routledge, 2017), pp. 77-89.

written a comprehensive study of the Soviet Union's failure to build its own internet 'with the mission of saving the entire command economy by a computer network'.[48] This work thus finds itself closely aligned with Eden Medina's earlier study of the Cybersyn project in early 1970s Chile, where a similar vision of cybernetically-enabled economic control was also pursued.[49] Medina's work was, it is worth noting, itself a conscious response to a general neglect of contexts outside Europe and North America in the history of computing.[50]

This interest in global net histories has both been part of and influenced by a growing body of work on global histories of the capital 'I' Internet as well. The push to look beyond the story of the Internet's invention has seen a rising interest in the history of the Internet as it has been used, parallel to rapidly expanding sociological interest in the Internet which has foregrounded the situatedness of Internet users, articulating distinct local narratives of Internet history in contrast to the singular, US-centric narrative of invention. As Abbate notes, while the Internet is a global network, for users, it is always experienced locally.[51] This reached a significant milestone in 2017 when a large number of studies of non-US Internet histories were collected in the *Routledge Companion to Global Internet Histories*, covering topics as diverse as the evolution of the ISP industry in Israel, to 'e-resistance' in South Korea and mobile communications in Myanmar.[52] This was of course also the same year *Internet Histories* was founded, and non-US histories have been a recurring feature of the journal, with published articles covering, among others, African histories of the Internet, the development of Han character-based scripts online, and the evolution of Danish Internet infrastructure.[53]

This subsequent blossoming of global Internet histories has provided an

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[48] Slava Gerovitch, 'InterNyet: why the Soviet Union did not build a nationwide computer network', *History and Technology*, 24 (2008), 335-50; Benjamin Peters, *How Not to Network a Nation: The Uneasy History of the Soviet Internet* (Cambridge, MA: MIT Press, 2016), p. 2.

[49] Eden Medina, *Cybernetic Revolutionaries: Technology and Politics in Allende's Chile* (Cambridge, MA: MIT Press, 2011).

[50] Medina, *Cybernetic Revolutionaries*, p. 7.

[51] Abbate, 'What and where is the Internet? (Re)defining Internet histories', p.11.

[52] *The Routledge Companion to Global Internet Histories*, ed. by Gerard Goggin and Mark McLelland (New York: Routledge, 2017).

[53] Hermes Wasserman, 'African histories of the Internet', *Internet Histories*, 1 (2017), 129-37; Mark McClelland, 'Early challenges to multilingualism on the Internet: the case of Han character-based scripts', *Internet Histories*, 1 (2017), 119-28; Sofie Flensburg and Signe Sophus Lai, 'Networks of power. Analysing the evolution of the Danish internet infrastructure', *Internet Histories*, 5 (2021), 79-100.

important counterpoint to the US-centrism of earlier cultural histories. Perhaps the most sophisticated of these has been Stephanie Ricker Schulte's *Cached: Decoding the Internet in Global Popular Culture* (2013). Particularly relevant to this thesis is chapter four, *Self-Colonising eEurope*, which explores in detail the European response to the Internet, from popular culture to policymaking, finding both significant differences and resonances with the US response. Schulte finds, at the level of EU policymaking, the failure of an initial attempt to put a 'particularly European stamp' on Internet regulation, culminating in the eventual adoption of a US-style free-market capitalist approach.[54] In this way, she shows how the neat adoption of an American-made 'imaginaire' regarding the Internet cannot be presumed in different parts of the world, even somewhere as developmentally similar as Europe, in turn asserting the value of non-US net and Internet histories.

The UK

Schulte's work on the reception of the Internet at the European level provides an excellent meta-narrative into which national Internet histories can be situated. As mentioned above, France has received substantial attention, and other European Internet histories have received attention as well, but one country that appears conspicuously absent is the United Kingdom, a gap which scholars of contemporary British history have also noted. 'Given the flourishing historical interest in techno-politics and material histories of subjectivity,' wrote Hilton, Moores, and Sutcliffe-Braithwaite in a 2017 survey of histories of the UK in the 1980s, 'space clearly exists for further work examining the precise implications of new information technology as it impacted economically, culturally and socially during the 1980s.'[55] This gap the authors identify, it should be added, is even more pronounced with regard to the 1990s and the Internet.

There have been a number of histories of computing in the UK, though most do not extend into the 1980s, let alone the 1990s, and none have covered the Internet in any detail. Jon Agar's *The Government Machine* (2003) provides a comprehensive history of computers and computerisation projects within the British state, situating this within a

[54] Stephanie Ricker Schulte, *Cached: Decoding the Internet in Global Popular Culture* (New York: New York University Press, 2013), p. 115.
[55] Matthew Hilton, Chris Moores and Florence Sutcliffe-Braithwaite, 'New Times revisited: Britain in the 1980s', *Contemporary British History*, 31 (2017), 145-65, p.156.

broader history of the mechanisation of government, though he dedicates just one chapter to the third year period from 1970-2000.[56] *Programmed Inequality* (2017), Mar Hicks' history of how women's expertise was discarded in the post-war British computer industry, meanwhile, ends even earlier, in 1979.

The 1980s has only more recently begun to be understood in more detail, owing in large part to Thomas Lean's excellent work on the history of the home microcomputer boom in the decade.[57] In *Electric Dreams* (2016), Lean provides some useful sketches of the kinds of home computer networking people were engaged in the 1980s, but these are allotted limited space within his broader discussion of microcomputer use in general, and his study does not extend into the 1990s when home computer networking became a genuinely popular activity with the advent of public Internet access. Neil Selwyn has also written extensively on the place of IT within British educational policy since the 1980s, but his work has been very specifically focused on this area of education and not beyond.[58]

In popular histories of the Internet, the UK only enters the frame when British actors are associated with some element of the technology's creation, typically, Donald Davies for his work in the development of packet switching and Tim Berners Lee for 'inventing' the Web – the particular 'Britishness' of either, however, has never been significant to their stories.[59] Scholarly studies of the Internet in the UK, meanwhile, have been almost entirely present-centred, covering, for example, legally-oriented studies of Internet governance in the UK, sociological and ethnographic work focused on Internet users, and studies of the Internet as it has interacted with political processes.[60] There are

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[56] Jon Agar, *The Government Machine* (Cambridge, MA: MIT Press, 2003), pp. 367-89.

[57] Thomas Lean, 'Mediating the microcomputer: The educational character of the 1980s British computing boom', *Public Understanding of Science*, 22 (2012), 546-58; Thomas Lean, *Electronic Dreams: How 1980s Britain Learned to Love the Computer*, eBook (London: Bloomsbury, 2016).

[58] A non-exhaustive list includes Neil Selwyn, 'Learning to Love the Micro: The Discursive Construction of 'Educational' Computing in the UK, 1979-89', *British Journal of Sociology of Education*, 2002, 23, pp. 427-43; Neil Selwyn, 'Realising the Potential of New Technology? Assessing the Legacy of New Labour's ICT Agenda 1997-2007', *Oxford Review of Education*, 34 (2008), 701-12; Neil Selwyn, ''Micro' politics: mapping the origins of schools computing as a field of education policy', *History of Education*, 42 (2013), 638-58; Neil Selwyn, 'Making the most of the 'micro': revisiting the social shaping of micro-computing in UK schools', *Oxford Review of Education*, 40 (2014), 170-88.

[59] See coverage in e.g., Naughton, *A Brief History of the Internet*.

[60] Richard Collins, 'Three Myths of Internet Governance Considered in the Context of the UK', *Prometheus*, 22 (2004), 267-91; Richard Collins, 'Internet Governance in the UK', *Media Culture & Society*, 28 (2006), 337–58; Richard Collins, 'Networks, Markets and Hierarchies: Governance and Regulation of the UK

only two academic articles dedicated to the history of the Internet in the United Kingdom, both by Peter Kirstein, who was involved in establishing the first UK ARPANET node. Both explicitly work in the traditional mould of a history of invention, viewing the UK only as relevant where it was involved in the technical development of the Internet.[61] Stood effectively alone as a historical study covering the development of the public Internet in the UK at all is Dorian Rutter's doctoral thesis, 'From Diversity to Convergence: British Computer Networks and the Internet, 1970-1995' (2005). Rutter's work is, however, very technically focused, discussing neither public perceptions, popular cultural representations nor policy. Due to his extensive coverage of a wide variety of networking efforts, Rutter is also only able to dedicate some twenty pages to the Internet specifically.

Much has been written about the net and Internet history of France, and, increasingly, a great number of other countries outside the US, but little is known of either history in the UK, in spite of several unique factors which make it an interesting case study. The UK was in fact the first country to launch a viewdata service (Minitel being France's effort) in the form of Prestel, but also an early country within Europe to adopt neoliberal market reforms which, as Schulte notes, would later become common policy across the European Union.[62] A critical plank of this agenda for the Thatcher governments was the privatisation of telecommunications, at the same time as the government publicly embraced and promoted information technology.[63] This places the UK in diametric opposition to the dirigiste policies of the Mitterand government in France and the development of the Minitel network, and more closely aligns it with the United States in its economic policies, but also places it in an advanced position within Europe in this

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Internet', *Parliamentary Affairs*, 59.2 (2006), 314–30. On children's use of the Internet see Sonia Livingstone, *Children and the Internet* (Cambridge: Polity Press, 2009). Rachel K. Gibson and Stephen J. Ward, 'U.K. Political Parties and the Internet: "Politics as Usual" in the New Media?', *Harvard International Journal of Press/Politics*, 3 (1998), 14–38; Stephen Ward and Rachel Gibson, 'On-Line and on Message? Candidate Websites in the 2001 General Election', *British Journal of Politics and International Relations*, 5 (2003), 188–205; Todd Graham, Dan Jackson, and Marcel Broersma, 'New Platform, Old Habits? Candidates' Use of Twitter during the 2010 British and Dutch General Election Campaigns', *New Media & Society*, 18 (2016), 765–83; and Rosalynd Southern and Benjamin J. Lee, 'Politics as Usual? Assessing the Extent and Content of Candidate-Level Online Campaigning at the 2015 UK General Election', *Journal of Elections, Public Opinion and Parties*, 2018, 1–20.

[61] Kirstein, 'Early experiences with the Arpanet and Internet in the United Kingdom'; Kirstein, 'The early history of packet switching in the UK'.

[62] Schulte, *Cached*, p. 137.

[63] Jacob Ward, 'Financing the Information Age: London TeleCity, the Legacy of IT-82, and the Selling of British Telecom', *Twentieth Century British History*, 30 (2019), 424-46.

regard, as the EU became a force for 'disciplinary neoliberalism', enforcing UK-style privatisations on other member states through the 1990s.[64] Studying the history of home Internet access in the UK thus promises to provide important insights into the factors that shaped and influenced the popularisation of home Internet access, about how different political and cultural contexts responded to the Internet and its 'imaginaire', and how the neoliberal turn in UK politics strongly impacted the development of the Internet and other online services, making this this thesis of interest not just to Internet historians but, as Hilton, Moores, and Sutcliffe-Braithwaite indicate, to historians of contemporary Britain as well.

[64] Stephen Gill, 'European Governance and New Constitutionalism: Economic and Monetary Union and Alternatives to Disciplinary Neoliberalism in Europe', *New Political Economy*, 3 (1998), 5-26.

Chapter 1 – Two information revolutions (1979-1990)

In the UK, between 1979 and 1980, great predictions were made in a slew of books and television documentaries that the interlinked microprocessor and information revolutions they claimed to be underway would soon be transforming British society.[65] In the arguments of authors such as the hugely influential American futurist Alvin Toffler, these changes would be profound – a 'third wave' of social transformation equivalent in significance to the agrarian and industrial revolutions.[66] Initial concerns about technologically-induced mass unemployment were augmented over time by the idea that information technologies (IT) might in fact bring a host of positive changes to work and leisure, presenting the UK with a historic opportunity to transform itself into an 'information society'.[67] The UK also gained a new government in 1979 which would soon begin to integrate these ideas into its agenda, promoting the embrace of new information technologies as a path to national economic rejuvenation. In 1981, an Information Technology Advisory Panel (ITAP) was created to work through the Cabinet Office, the first Minister of State for Information Technology was appointed (Kenneth Baker), and 1982 was symbolically designated as 'Information Technology Year' (IT82).[68] At the same time, as Jack Schofield, the *Guardian*'s technology editor, would later recall, 'the mass media went computer crazy'.[69] Computers became regular topics of discussion for television news and factual programming, with the BBC alone producing dozens of programmes intended to educate the public about computers in particular.[70]

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[65] A non-exhaustive list includes 'Now the Chips are Down', *Horizon*, BBC Two, 31 March 1978; Christopher Evans, *The Mighty Micro: The Impact of the Micro-Chip Revolution* (London: Coronet Books, 1979); Anthony D Smith, *Goodbye Gutenberg: The Newspaper Revolution of the 1980s* (Oxford: Oxford University Press, 1980). Alvin Toffler, *The Third Wave* (New York: Bantam Books, 1980) by American futurist Alvin Toffler was also hugely influential. See Frank Webster, *Theories of the Information Society* (London: Routledge, 2006) for a more detailed analysis of these various 'information society' theories and their development.

[66] Toffler, *The Third Wave*.

[67] Maureen McNeil, 'The old and new worlds of information technology in Britain', in *Enterprise and Heritage: Crosscurrents of National Culture*, ed. by John Corner and Sylvia Harvey (London: Routledge, 1991), pp. 113-32, pp. 116-17.

[68] Peter Humphreys, 'Legitimating the communications revolution: Governments, parties and trade unions in Britain, France and West Germany', *West European Politics*, 9 (1986), 163-94, p. 166.

[69] Jack Schofield, 'The end of the game for home micros', *Guardian*, 11 January 1990, p. 31.

[70] A full list of BBC Computer Literacy Project programmes can be found at <https://clp.bbcrewind.co.uk> [accessed 26 September 2021].

But it was not only the media and government that went computer crazy: so, too, did the British public. From about 1981 to 1985, Britain experienced a massive boom in home microcomputer sales, with millions of units sold within just a few years, and an oft repeated (though unverified) statistic by the middle of the decade was that Britain had more microcomputers per capita than any other country in the world.[71] After the hugely successful and incredibly cheap Sinclair ZX81 launched in March 1981, the domestic microcomputer industry flourished, and in its wake came a deluge of computer magazines, with the most popular titles having circulations over 80,000 by 1983.[72] From obscure beginnings as a toy for hobbyists in the late 1970s, by 1984, the General Household Survey estimated that about 9% of British homes had a microcomputer.[73]

Much has since been written about the phenomenon of the microcomputer boom in 1980s Britain as an effect of this wave of interest in IT at all levels of British society in the early 1980s, but little has been said about how this wave of interest also saw not only a flourishing of ideas about how mass-market online services might become a reality, but also attempts to make them a reality.

In this chapter I argue that consumer online services were split between a speculative mass market for services accessed via advanced television sets and a real, but comparatively niche, market for services accessed via personal computers. I begin by showing how the former vision shaped the development of Prestel, the first mass market targeted online service in the UK, and analyse how and why this service failed to gain the sufficient number of users it needed to be sustainable. I then show how the idea of interactive television services influenced the formulation of government plans for a 'cable revolution', a particularly British response to the widely claimed need for soon-to-be information economies to develop higher bandwidth communications networks. Here, subscription television services were framed as the carrot which would draw private investment in to build broadband cable networks, which could then, it was assumed, be used to provide more advanced online services. The persistent unpopularity of cable television services floundered this plan, but the government refused calls to intervene.

In the second half of this chapter, I examine how home computer users emerged

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[71] Leslie Haddon and David Skinner, 'The Enigma of the Micro: Lessons from the British Home Computer Boom', *Social Science Computer Review*, 9 (1991), 435-49 (pp. 438-439).
[72] Lean, 'Mediating the microcomputer', p. 547.
[73] Lean, 'Mediating the microcomputer', p. 546.

as the key early adopters of online services, even managing to save Prestel – for a time – and working to create a small but active bulletin board culture. The growth of this scene was, however, crucially limited by problems relating to the cost of using the telephone network which would not be fully resolved until 2001. Overall, the kind of home computer networking that showed sustainable growth in the UK in the 1980s was, unexpectedly, that which involved both the use of personal computers and the public telephone network. Prestel had not been designed with the former in mind, and a newly privatised BT which was rapidly reorienting to prioritise business users and international growth at the expense of domestic network users in the UK, showed little interest in addressing the problem of the high telephone call costs that were inhibiting wider use of online services.

Television

At the turn of the 1980s, the television was a mass market technology in a way that even the telephone was not in the UK. In 1978, television ownership was near universal, with at least one TV set in 95.6% of households.[74] That same year, only 62% of households had telephones, though this rose to 87% by 1990.[75] In 1978, home computer ownership was virtually non-existent, but by the end of the decade this had grown dramatically to 16.8%, though this still paled in comparison to the ubiquity of television.[76] Among those developing online services intended for the mass market and those merely speculating about them, an acknowledgement of this fact produced a particular common sense: that if an online service were to reach the mass market, it would necessarily be delivered via the television. 'The world market everybody knows will be there by the 1990s', wrote the *Economist* in 1980, will be 'for the ordinary domestic television set turned into a home computer which can make reservations, buy tickets, communicate with a bank and order for home delivery.'[77]

In this section, I trace how this particular idea influenced the first attempt to bring

[74] Hughie Mackay, 'Patterns of Ownership of IT Devices in the Home', in *Information Technology and Society: A Reader*, ed. by Nick Heap and others (London: Sage, 1995), pp. 311-40 (p. 319).
[75] Mackay, 'Patterns of Ownership of IT Devices in the Home', p. 314.
[76] Mackay, 'Patterns of Ownership of IT Devices in the Home', p. 330.
[77] 'Prestel: Who'll buy?', *Economist*, 15 March 1980, pp. 63-64.

online services to the mass market in the UK in the 1980s, and how it helped shape, alongside Conservative commitments to private enterprise and market competition, a particularly British response to increasingly urgent calls being made in light of the ongoing 'information revolution' for the country to build a new, high bandwidth communications infrastructure.

Prestel

> Here in Britain we're not so far behind the Americans as you might think. In many ways, we're ahead. This is a new application for the new technology developed by the Post Office, and it's called Prestel.
>
> – Bernard Falk on *The Silicon Factor*, 1980[78]

The first great hope for mass market online services in 1980s Britain was a service called Prestel. It was intended as a realisation of the concept of an 'information utility', which had its origins in speculation about the future of computing following the establishment of the first timesharing computer system at MIT in 1961.[79] Promoters essentially proposed that the future of information retrieval would be through the use of distributed terminals connected to centralised computers via the telecommunications network. News, educational material, entertainment, and much more would all be accessed by connecting remotely to these central computers. By the mid-1970s, the idea had gained significant traction at a number of companies and organisations around the world, not least the British General Post Office (GPO), then also still in control of the British public switched telephone network.[80] The project to develop such a utility at the GPO culminated in the creation and launch of Prestel in 1979 to much fanfare, and with high hopes that the service would be a world-first in realising this idea of a public information utility.[81] Launched in the midst of widespread

[78] 'So What's It All about?', *The Silicon Factor*, BBC Two, 19 March 1980.
[79] Martin Campbell-Kelly and others, *Computer: A History of the Information Machine* (Boulder: Westview Press, 2014), pp. 204, 210.
[80] Laurence I Press, 'Arguments for a Moratorium on the Construction of a Community Information Utility', *Communications of the ACM*, 17 (1974), 674-78, p. 674.
[81] For a more detailed account of the development of Prestel, see Rutter, 'From Diversity to Convergence', pp. 105-58.

excitement about new information technology, and when the UK seemed like it might leave the 1980s a global leader in the area, expectations for Prestel were high.[82] By the early 1990s, however, the final nails were being hammered into its coffin.

Prestel itself was essentially comprised of a large library of colourful pages of information (about 100,000 at launch) on a wide variety of subjects, maintained and updated by various information providers, stored on a network of minicomputers spread throughout the country and accessed via the telephone network.[83] Graphically, it strongly resembled Ceefax, the BBC's teletext service launched a few years earlier in 1974. This aesthetic similarity came from the GPO's early commitment to co-developing a joint display standard for Prestel and teletext, the logic being that, as Rutter explains, standardisation would help drive down the cost of decoders for.[84] Like teletext, Prestel was primarily intended to be accessed through a television set, provided the television was equipped with the right receiver. Unlike teletext, however, it allowed for users to input as well as receive data via a remote control, opening up space for interactivity and even communications and commercial services like shopping and banking.

[82] Peter Large estimated that 'few would have forecast' Britain's later surrender of leadership in IT in 1980. Peter Large, 'A decade of squandered opportunities on computer front', *Guardian*, 2 January 1990, p. 8.

[83] Lean, *Electronic Dreams*, ch. 6.

[84] Rutter, 'From Diversity to Convergence', p. 109.

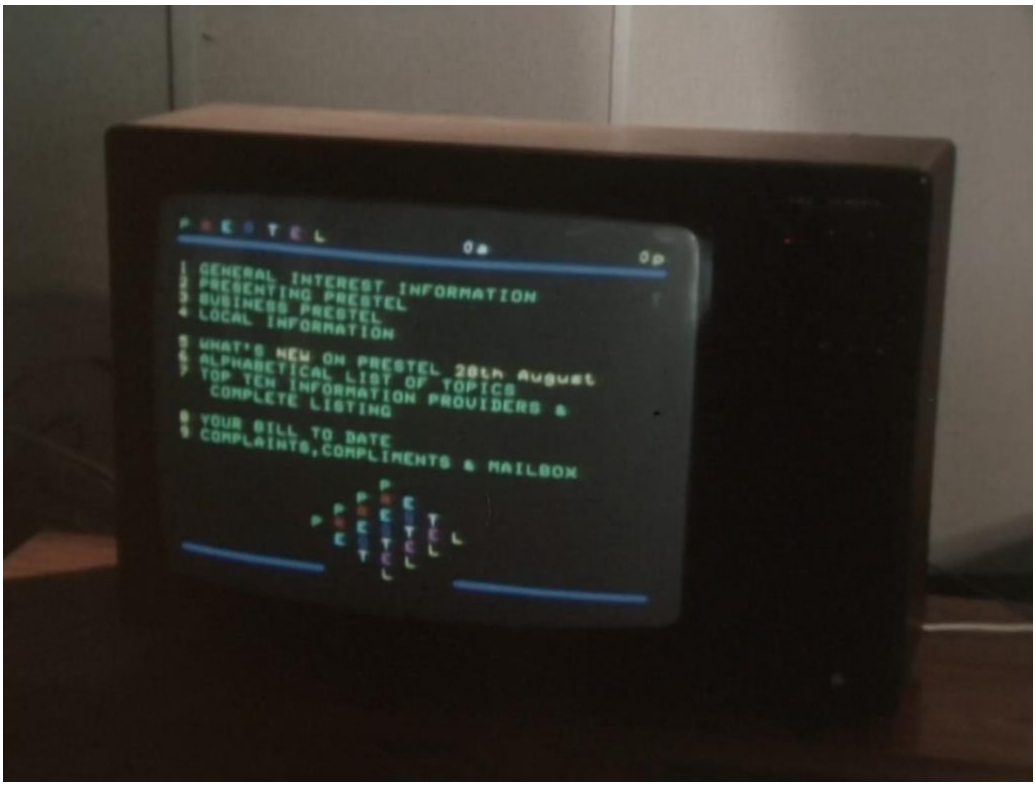

Figure 1. The front page of Prestel displayed on a television set.

Figure 2. A Prestel remote control.

The British media, in the midst of computer-mania, were highly enthusiastic about the potentials of this new service at launch. Anthony Smith demonstrated a Prestel terminal in *Goodbye Gutenberg* (1980), remarking that a 'huge new industry' was already springing up around the service, and taking it as a sign of the coming information society. It was also excitedly demonstrated in the first episode of the BBC's *Computer Programme*, being used to book a plane ticket and thus demonstrate the proliferation of computer networks around the country, which the programme argued hailed a future of vastly improved convenience.[85] Prestel was demonstrated in more depth again in the series' fifth episode, 'The New Media', showing its recently added mailbox function. This would have been one of the first demonstrations of an electronic mail system shown on UK television, and certainly the first of a system that was actually available to viewers at that very moment.[86] There was also a demonstration of Minitel, the equivalent French system and its use as an online phone directory, and the German Bildschirm system and its online banking facilities. The *Times* in a major report on videotex (the collective term for these early interactive online services) in 1981, citing Anthony Smith, posited that Prestel was a sign that in the not too distant future lay the possibility of 'fireside access to [the] sum of human knowledge', precisely the kind of dream that lay behind information utility schemes.[87] 'In this time, it is abundantly clear that the new Alexandria will be with us,' wrote the newspaper, 'drawing on a virtually infinite store of knowledge, on request, and at our fireside.' As I describe in chapter three, this exact same framing would be mobilised to promote a different network, the Internet, as an educational resource over a decade later.

Despite these grandiose claims, not long after launch, Prestel had proved itself to be nothing short of a flop. Initial hopes at the Post Office had been for 100,000 subscribers by the end of 1980, and one million by 1983.[88] As Frank Burgess, a former General Manager of the Prestel project later recalled, 'we were all fired up with enthusiasm that information retrieval was what everyone wanted. We all assumed people would rush out

[85] 'It's Happening Now', *The Computer Programme*, BBC Two, 11 January 1982.
[86] 'The New Media', *The Computer Programme*, BBC Two, 8 February 1982.
[87] Michael Hamlyn, 'Fireside access to sum of human knowledge', *The Times*, 24 February 1981, pp. 15-17. 'Viewdata' was the name for the particular implementation of the videotex technology which Prestel ran on.
[88] Rutter, 'From Diversity to Convergence', pp. 114-15.

and buy a Prestel set.'[89] The reality was starkly different. By June 1982, there were just 16,530 terminals connected, crawling up to around 45,000 by late 1984.[90] 'After five years, Prestel in the UK remains what it was', wrote Jack Schofield in 1984,

> a wonderful idea with enormous potential. But the idea that (except for a few home computer users) it can be an entertaining way to pass the time is a delusion that will cost British Telecom many more millions before it faces the truth.[91]

Prestel had been marketed as 'new' for several years by this point, but this claims reached its limits by 1984.[92] At its peak, Prestel would reach just 90,000 total users, and would never pass the 100,000 mark the service was initially estimated to reach within just twelve months of coming online.[93] As presenter Ian McNaught-Davis put it in an episode of the BBC's *Micro Live* in February 1986, 'this, we were told, was the start of an information revolution, but despite its world lead Prestel failed to take off as planned.'[94]

Prestel's failure was typically put down to two factors. The first was that the Prestel service itself was deeply underwhelming, with its graphics allowing for very limited amounts of information to be displayed on a single page, while its tree-like hierarchical page structure and lack of a search function made navigation a chore. A study for the National Consumer Council looking into the ease of retrieving information domestic users might require thus found the process complicated and laborious.[95] Michael Bywater, *Punch*'s resident computer expert, argued that the lack of any search facility was particularly damning for Prestel, especially when it was compared to other online databases where such a facility was a basic feature.[96] Its rather primitive structure came, he thought, from its being a service developed before the microcomputer boom of the early 1980s, yet most of its users now went through a microcomputer to use it. Prestel itself had originally been designed to be accessed, like teletext, through a television with

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[89] Quoted in Rutter, 'From Diversity to Convergence', p. 115.
[90] Jack Schofield, 'How the Post Office failed to deliver', *Guardian*, 13 September 1984, p. 17
[91] Schofield, 'How the Post Office failed to deliver'
[92] See e.g. 'The New Media', *The Computer Programme*, BBC Two, 8 February 1982.
[93] Lean, *Electronic Dreams*, ch. 6.
[94] *Micro Live*, BBC Two, 7 February 1986.
[95] D Bennison, 'Domestic viewdata services in Britain: past experience, present status, and future potential', *Environment and Planning B*, 12 (1985), 151-64 (152). See also Schofield, 'How the Post Office failed to deliver'.
[96] *Micro Live*, BBC Two, 7 February 1986.

a special adapter, and using a simple numerical keypad rather than a keyboard. On top of these problems, the decision for Prestel to act as a 'common carrier' with no responsibility for organising content left the system overall fractured and badly organised, with content varying widely in quality.[97] This stance was important to absolving the GPO of responsibility for any controversial content hosted on Prestel. Thus, a brief tabloid scandal in 1980 over Prestel's carrying a service titled 'A Buyer's Guide to Dirty Books', as *The Economist* observed, embarrassed the GPO only 'mildly', for the corporation could justify its editorial neutrality on the grounds that it was 'only a common carrier'.[98] As I discuss in the latter half of chapter three, this exact same argument would later be mobilised by Internet service providers to absolve themselves of responsibility for controversial Internet content.

These technical limitations of Prestel were compounded by Prestel's second major problem: cost. Prestel-capable TV sets were expensive, costing upwards of £1,100 for a colour set in 1980.[99] On top of this, there were a number of cumulative charges: quarterly subscription costs, costs for viewing specific pages, costs for subscribing to a closed member group, and metered telephone call costs.[100] Rutter notes that viewing just three pages of information on Prestel in 1979 would cost a user 9p at a time when an entire newspaper cost just 10p, with the latter containing incalculably more information.[101] Emails cost 5p per message when the mailbox function was launched in 1981, and had to be composed while online, thus incurring an ongoing phone charge, making sending even short messages potentially expensive.[102] For comparison, a first class stamp in 1980 cost just 12p.[103] In contrast, Minitel was thought to have benefited greatly from a simpler and cheaper billing system, with only a single charge based on the time spent online.[104]

Even disregarding additional charges, the fact that using Prestel required making lengthy telephone calls meant it was an expensive proposition in the UK where, unlike in

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[97] Bennison, 'Domestic viewdata services in Britain', pp. 152-53.
[98] Lean, *Electronic Dreams*, ch. 6; 'Prestel: Who'll buy?'.
[99] 'Prestel: Who'll buy?'.
[100] Lean, *Electronic Dreams*, ch. 6; Bennison, 'Domestic viewdata services in Britain', p. 153.
[101] Rutter, 'From Diversity to Convergence', pp. 128-29.
[102] Rutter, 'From Diversity to Convergence', p. 127.
[103] 'Stamp prices: how have they changed since 1980?', *Guardian* (27 March 2012) <https://www.theguardian.com/news/datablog/2012/mar/27/60p-price-stamp-royal-mail> [accessed 30 July 2019].
[104] Volker Schneider and others, 'The Dynamics of Videotex Development in Britain, France and Germany: A Cross-national Comparison', *European Journal of Communications*, 6 (1991), 187-212 (196-197).

the US, even local calls were metered, and accessing Prestel at local call rates was only possible for customers in a select number of large cities in the UK where information retrieval centres had been built.[105] This also meant, of course, that while using Prestel, a household telephone line could not be used for anything else. As discussed later in this chapter and in chapters two and four, high telephone call costs would prove critical in inhibiting the growth of other narrowband dial-up online services in the UK for many years afterwards.

Using teletext was, in contrast, an incredibly cheap affair, with a teletext-capable television set costing just £100 more than a standard set by 1983, and only £1 more per month to rent, while the service itself was completely free to use.[106] Teletext offered relatively little content compared to Prestel (just 200 pages each for the BBC's Ceefax and ITV's Oracle, though many of these were updated frequently) and was non-interactive, but its cheapness and ease of use saw uptake skyrocket. Prestel therefore faced steep competition against a visually very similar, if relatively simplistic, information service which was well established by the time of Prestel's launch, and not only cheaper to buy into but free to use. By 1987, 4.2 million households in the UK would have teletext-capable televisions, representing a 19% market penetration rate.[107] This disparity in uptake was reflected in how both services were talked about in the media – in 1984, the *Guardian* felt the need to explain to readers what Prestel actually was, and did so using teletext, which they were assumed to be familiar with, as a reference point.[108] As Lean notes as well, the blocky, low-resolution, static graphics of Prestel also compared unfavourably to another technology which was exploding in popularity at the time and undergoing rapid development in audio-visual sophistication: the microcomputer.[109]

The possibility of the cost of Prestel sets coming down was dependent upon sufficient uptake by early adopters, but these proved few and far between.[110] Prestel therefore seemed trapped in a paradoxical situation. As Sam Fedida, Prestel's inventor, explained alongside journalist Rex Malik in 1979, 'no mass market, no Viewdata', for mass

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[105] See Rutter, 'From Diversity to Convergence', p. 121, for a map of the Prestel network in 1980.
[106] Rutter, 'From Diversity to Convergence', p. 129.
[107] Ross L Davies and Jonathan Reynolds, *Teleshopping and Teleservices* (Harlow: Longman Group UK, 1988), p. 8.
[108] Schofield, 'How the Post Office failed to deliver'.
[109] Lean, 'Electronic Dreams', Ch. 6.
[110] 'Prestel: Who'll buy?'.

market uptake was needed to justify the large costs of the system.[111] As a mass market targeted service, however, the costs involved were far too high for the large majority of people to consider and, as I explore in the second half of this chapter, the only group in the residential market who expressed any substantial interest in the system were home computer users, who were not interested in accessing the service through adapted televisions, and even then, as Michael Bywater indicated, often found the system frustrating to use, hobbled by its television-centric design. Computer terminals had actually been considered as an access option during Prestel's design stages, but the costs of producing them were thought to be too high to ever reach mass market affordability.[112] With Minitel, by contrast, this problem was overcome through offering terminals for free, leading to production in sufficient volumes to reduce the cost of manufacturing significantly.[113]

Even if all the other costs associated with Prestel came down significantly, the simple fact that it required a phone call to access the service meant it would always be more expensive than teletext as a means of accessing information. And when those costs were substantially higher, the additional information Prestel offered over teletext was not widely considered worth it. The edge videotex services like Prestel and Minitel had over other means of accessing information was their capacity to offer new forms of communication to users. As Jean-Marie Charon observed in 1987, the vision behind the development of early videotex systems had been the creation of making computerised information available to the public – of an 'information utility'. The common experience of videotex systems upon reaching the public was general disinterest in this information retrieval function. What made Minitel the exception was both the realisation of the unexpected popularity of communication services, and a relatively decentralised structure which allowed entrepreneurial service providers to capitalise on this realisation.[114] In Britain, by contrast, the GPO acted as joint network operator and service provider and so, as Charon put it, entry into new activities followed the lead of the telecoms operator. When, in the case of Prestel, that telecoms operator remained ignorant of the potential popularity of communications services, videotex languished

[111] Sam Fedida and Rex Malik, *Viewdata revolution* (London: Associated Business Press, 1979), p. 20.
[112] Fedida and Malik, *Viewdata revolution*, pp. 19-20.
[113] Schneider, 'The Dynamics of Videotex Development', pp. 193-94.
[114] Jean-Marie Charon, 'Videotex: from interaction to communication', *Media, Culture and Society*, 9 (1987), 301-332. See also Driscoll and Mailland, 'Minitel', Ch. 4.

where in France it thrived.[115]

Figure 3. 'I'm afraid the only way we could afford a Prestel set was by not paying our telephone bill'. Ken Pyne, *The Listener*, 1983.

The initial failure of Prestel to reach the mass market prompted a change in management strategy in an attempt to salvage the service from 1982.[116] The head of Prestel, Richard Hooper, described this new approach as 'rifle shot targeted marketing', indicating clearly that the service had abandoned its earlier dreams of widespread uptake.[117] At this point, Prestel had just 5,000 residential subscribers, and had until the end of 1984 to break even before being axed entirely by BT as a costly failure.[118] In an attempt to improve home market penetration, a handful of new services were launched in a desperate attempt to reverse Prestel's fortunes.

Club 403 (named after its index page number) was launched in December 1982 in a handful of the more affluent areas of the West Midlands as an experiment in assessing the sorts of services the public would actually want from a viewdata service. Available

[115] Charon, 'Videotex', pp. 304-305.
[116] Bennison, 'Domestic viewdata services in Britain', p. 153.
[117] 'At the End of the Line', *Making the Most of the Micro*, BBC One, 14 March 1983.
[118] According to the *Sunday Times,* in March 1983 Prestel had 25,00 subscribers, 80% of which were business users, the rest being domestic. Richard Brooks, 'Prestel's gamble: Is there no place like home?', *Sunday Times*, 27 March 1983, p. 64.

utilities included home shopping, several travel and leisure booking facilities, and local news and information.[119] Initial uptake was slow, reaching only 1,000 users by 1984 and just 1,500 users at its peak (compared to initial hopes of gaining 2,500 customers within six months of launch), resulting in Club 403 being terminated in 1986.[120] Telecard Supershop, a further foray into viewdata teleshopping, was launched in December 1985 in five London boroughs, targeted, much like Club 403, for their high proportion of above average income and economically active households.[121] The service received some good publicity from Ann Leslie, the *Daily Mail*'s self-confessed 'born-again telecommunications freak' in early 1986, who raved about the convenience of being able to do the shopping from home and even order in advance, and stressed that prices were relatively reasonable.[122] However, the service failed very shortly afterwards with only 800 registered users after fifteen months in operation, and in an area with one of the highest concentrations of middle and upper income households in the UK, and off the back of the Club 403 experiment.[123] Even in an area where people could readily afford it, few took to Prestel despite the introduction of these new services.

Another project was Homelink, Nottingham Building Society's home banking service, launched in September 1983 in association with the Bank of Scotland to greater success than home shopping services, but also ultimately proving a failure.[124] Like Club 403 and Prestel in general, an initial high target for users (100,000 by the end of 1986 in this case) was proven to be absurdly overambitious. At its peak in the mid-1980s, Homelink only had 5,500 users, and by April 1991, Nottingham Building Society announced they would be closing the service.[125] Philip A Dover, in his 1993 assessment of why home banking had 'bombed' in Britain in the 1980s, argued that the causes for failure were myriad, but perhaps foremost was simply that demand from the general public for home banking services, much like every other service Prestel had attempted to

[119] Bennison, 'Domestic viewdata services in Britain', p. 155.
[120] Lean, *Electronic Dreams*, ch. 6; Davies and Reynolds, *Teleshopping and Teleservices*, p. 33; Bennison, 'Domestic viewdata services in Britain', p. 154.
[121] Davies and Reynolds, *Teleshopping and Teleservices*, p. 35.
[122] Anne Leslie, 'Super shopping… yet I never even have to leave the house', *Daily Mail*, 4 March 1986, p. 26.
[123] Davies and Reynolds, *Teleshopping and Teleservices*, p. 36.
[124] Bennison, 'Domestic viewdata services in Britain', p. 155.
[125] Philip A Dover, 'Why home banking bombed in Britain', *Journal of Retail Banking*, 15 (1993), 30-38.

offer, simply did not exist.[126] *Database* presenter Tony Bastable's scepticism towards the real usefulness of home banking and shopping in July 1984 thus seems to have been shared by the public at large. While interviewing John Webster, the head of Nottingham Building Society, about Homelink, Bastable cuts straight to the point: 'Now this must have been a pretty good publicity tool, wasn't it, for you? Because the Nottingham Building Society wasn't exactly nationally known for this.' Webster insisted it was a genuine and fully-fledged product, but Bastable remained unconvinced.[127] Despite Nottingham Building Society's best efforts, so too did the British public.

Despite its failure to reach the mass market that had originally been hoped for it, Prestel's failure was not total. It found some not insignificant success with the travel industry and business markets, where users were willing to pay the premium price for instant access to up-to-date information.[128] Consumers, meanwhile, were far more price-sensitive, and viewdata-capable televisions were prohibitively expensive – a problem that could only be solved by increasing volumes of sales.[129] What Prestel needed, then, was a sizeable enough base of early adopters willing to pay the early high cost of entry. The only consumers willing to foot the cost of going online with Prestel in any significant number were, it turned out, computer users, who began using the Micronet 800 service when it was launched in 1983 as part of renewed efforts to grow Prestel's consumer user numbers. Prestel suffered, therefore, as Michael Bywater had observed, from the fact that it had been developed before the home microcomputer boom, and was therefore built without any thought to the possibility that it might be accessed primarily by home users via any kind of computer terminal.[130] As it turned out, however, it was home computer users who were the most viable body of early adopters, though even among these users, as I show in the latter half of this chapter, Prestel faced stiff competition from bulletin board systems which were designed from the ground up by, and for, microcomputer users.

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[126] Dover, 'Why home banking bombed in Britain'.
[127] *Database*, Thames Television, 5 July 1984.
[128] McIntyre, 'Prestel resurgens?'.
[129] Bill Johnstone, 'In search of a policy to help sales', *The Times*, 24 February 1981, p. 16.
[130] *Micro Live*, BBC Two, 7 February 1986.

The cable revolution

> Some of these [interactive television] services could literally change the fabric of the society in which we shall be living in the course of the next few years. […] These potential services, linked to information technology, open very exciting prospects. In the long run, I believe that the revolution that they will bring about will have more far-reaching effects on our society than the Industrial Revolution 200 years ago. […] This is the biggest industrial opportunity and the biggest industrial investment programme before our country in the next 15 to 20 years. It is as important as that.
>
> – IT Minister Kenneth Baker, 20 April 1982[131]

While Prestel struggled to get off the ground in the consumer market, there were hopes that even more advanced forms of the services it promised would find their way into people's homes through the construction of a new, higher bandwidth (broadband) communications infrastructure. Government plans for a 'cable revolution' represented a particularly British response to arguments that advanced industrial economies would, in transitioning into 'information economies', require new, broadband information networks to carry increasing volumes of information. The Conservative vision saw subscription television as the carrot that would lead private investment in this new cable infrastructure, forming part of a broader goal to introduce greater competition in television services and infrastructural competition in telecommunications, as well as provide a spur to the development of domestic information technology industries.

The success of the cable television industry in the US juxtaposed against the small scale of existing networks in Britain created the impression that, with the right regulatory reforms, similarly rapid growth could be achieved in the UK. By 1980, cable already reached 14.5 million US homes, and was expected to reach as many as 26 million by the end of 1981.[132] At the beginning of the 1980s, by contrast, cable television networks in the UK were small and primitive. In 1973, about two million households, or 13% of households possessing televisions, received programming via cable.[133] Cable was almost

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[131] House of Commons Debate, 'Satellite and Cable Broadcasting', Hansard, vol. 22 (20 April 1982), cols. 174-238 (col. 229).
[132] Toffler, *The Third Wave*, p. 162.
[133] Home Office, *Report of the Committee on the Future of Broadcasting* (London: HMSO, March 1977), p. 391.

exclusively used to relay broadcast television signals in areas of weak signal coverage, but the continued improvement of broadcast signal coverage meant that fewer and fewer people needed this relay service.

Shortly before the Conservatives came to power in 1979, the dominant vision for how Britain would build a broadband cable infrastructure had been quite different. A report into the 'future of broadcasting' led by Lord Annan concluded in 1977 that, while in the future a national broadband cable network would become important for a variety of broadcasting and communications uses, building such a network would be a lengthy and immensely expensive public undertaking, costing anywhere between £500 million and £1.5 billion, depending on the technological sophistication of the network. Based on the current economic state of affairs, the committee estimated the country would not be ready to contemplate such an investment until the 1990s, by which time the necessary technologies would also hopefully be cheaper.[134] Despite the impeding effects of this high cost, though, the Committee was adamant that the project should be conducted as a public project under the Post Office (then still responsible for telecommunications), on the grounds that such an infrastructure was, like the telephone network, an obvious natural monopoly. 'Our country has a choice', they concluded,

> we can give the green light to a multitude of cable companies who could install their own systems of cable, much as the electricity companies did at the end of the last century, and we should find at the end of the day that all the different companies and systems have to be bought out and re-organised at considerable cost in order to create a national network. Or we can flash a red light and say that such a development ought to wait until this small country can install a national network under the Post Office.[135]

When the Conservatives came to power, a reform of cable was not initially on the agenda, but information technology soon was. To this end, the Cabinet Office Information Technology Advisory Panel (ITAP), comprised of top executives from the IT industry, was set up in the summer of 1981 to advise the Prime Minister and Cabinet on areas of importance related to information technology. Since the Annan Report in 1977, interest in new cable infrastructure had developed significantly, and awareness that other countries were looking to invest in advanced networks raised concerns that Britain might

[134] Home Office, *Report of the Committee on the Future of Broadcasting*, p. 392.
[135] Home Office, *Report of the Committee on the Future of Broadcasting*, p. 393.

be left behind.[136] In late 1981, ITAP submitted a report to the government on the prospect of developing cable systems in the UK which was subsequently published in March 1982, during Information Technology Year.[137]

The recommendations of the report were the polar opposite of the Annan Committee's, arguing both that the construction of broadband cable infrastructure was necessary in the near term, and that it should be built through a system of private cable television franchises, with relaxed restrictions on the kinds of television content that could be shown (until then restricted to BBC and ITV programming). IT Minister Kenneth Baker stated in typically grandiose terms that 'the most important thing that this Government can do this year is to settle the future of cable television.'[138] Nothing less than the prosperity of the country was claimed to be at risk. The government sounded its approval of these proposals, marking the end, as the *Daily Telegraph* put it, of 'Annanism'.[139] The promise was immense: that with the right regulations, investors could be convinced to throw in the estimated £2.5 billion needed to build a new communications infrastructure that could provide a cornucopia of new services, providing a significant boost to the domestic IT industry. As Dutton and Blumler observed in 1988, 'the mobilisation of support behind an image of cable as a strategic resource for information technology has been central to any explanation of Britain's policy shift over cable system development.'[140] The ITAP report's inclinations were also, crucially, compatible with the neoliberal economic inclinations of the Conservative government. As the *Economist* put it, ITAP's claim that 'we see no need for any public subsidy to cable systems' was 'music for Tory ears'.[141] Simultaneously, it promised to fulfil another important Conservative goal of introducing greater competition in the broadcast television market.[142]

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[136] William H Dutton and Jay G Blumler, 'The Faltering Development of Cable Television in Britain', *International Political Science Review*, 9 (1988), 279-303 (283). France, for example, was developing a plan for recabling at the time known as the 'Plan Câble' and approved by the French government in November 1982. Peter Humphreys, 'Cable: the heroic French experiment examined and compared with the British and German examples', *Journal of Area Studies*, 6 (1985), 37-41.

[137] Information Technology Advisor Panel, *Cable Systems* (London: HMSO, 1982).

[138] Guy de Jonquieres, ''Lift curb on cable TV' report recommends', *Financial Times*, 1 March 1982, p. 1.

[139] 'An end to Annanism', *Daily Telegraph*, 3 April 1982, p. 18.

[140] Dutton and Blumler, 'The Faltering Development of Cable Television in Britain', p. 297.

[141] 'The Tories discover the wired society', *Economist*, 6 March 1982, pp. 25-26.

[142] As King argues, satellite television was promoted as another vehicle for increasing competition in broadcast television. Anthony King, 'Thatcherism and the emergence of Sky Television', *Media, Culture &*

The media reported excitedly about the promises of this new infrastructure. The *Times*, for example, asked readers to imagine 'the cable network that would link up your life', while talk of another IT 'revolution' began to be bandied around.[143] As Peter Humphreys observed, 'the government's plans were characterised by a large measure of technological and industrial hype', with much talk about an 'entertainment-led "cable revolution"'.[144] ITAP urged speed, arguing that to dither in regulating would be to throw away the opportunity for a leading position in the international IT race, and that 'a delayed decision now equals a negative decision', and so the race was on to get Britain 'wired up'.[145] An inquiry, led by Lord Hunt, was commissioned shortly after the ITAP report's publication, and reported just six months later on 29 September 1982. This was followed by the Home Office white paper *The Development of Cable Systems and Services* in April 1983.[146] Here the government reiterated its vision that new 'entertainment channels' were simply the draw for investment in networks that could deliver a far wider range of online services, explaining that 'the range of non-broadcasting services which the new systems can support is seen as a crucial aspect in the development of these systems.'[147] With the costs of building this new broadband network covered by lucrative entertainment services, it was envisaged that these new online services could be offered to subscribers at 'marginal price levels', and the promise of mass market online services could in turn be realised.[148]

The government moved quickly, and the Cable and Broadcasting Bill was put forward in February 1984, but by then a number of significant issues had already begun to beset the cable industry. Changes by the Chancellor to tax allowances on capital investment forced cable companies to revise estimations of their profitability, leading many to withdraw investment completely, while concerns were raised about the basic appetite for cable television among the British public and about the sophistication of the

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Society, 20 (1998), 277-93.

[143] Bill Johnstone, 'The cable network that would link up with your life', *The Times*, 22 March 1982, p. 15; 'The cable revolution', *Guardian*, 23 March 1982, p. 12.

[144] Humphreys, 'Legitimating the communications revolution: Governments, parties and trade unions in Britain, France and West Germany', p. 167.

[145] Iain Murray, 'Race to get Britain wired up', *Observer*, 5 September 1982, p. 9.

[146] Home Office and Department of Industry, *The Development of Cable Systems and Services* (London: HMSO, April 1983).

[147] Home Office and Department of Industry, *The Development of Cable Systems and Services*, p. 15.

[148] Home Office and Department of Industry, *The Development of Cable Systems and Services*, p. 15.

technology cable companies would be using. By the time the bill came into force in July, all of the eleven pilot franchises established in the intervening period were experiencing financial difficulties, with their costs having climbed by as much as 45%. The government, sticking to its free market guns, refused any incentives to save the struggling industry.[149] In April 1984, CIT Research even suggested that, with the achingly slow rollout of pilot cable networks and the continued protracted decline in numbers of subscribers to the old relay networks, the total number of cable TV subscribers in the UK in 1990 could actually end up being lower than in 1980.[150] Just as soon as the cable revolution had officially started, the ITAP began an investigation into how it had gone so wrong.[151] By 1986, just 1.1% of UK households with televisions received cable television, compared to 41% in the US.[152] A year later, 1.2 million households had been passed by cable plant, but only 16% of those passed had subscribed to cable TV services, representing a total penetration rate of just 2% of all television households.[153]

Besides supply side problems, there are also indications that the British appetite for cable TV services just wasn't there in the same way it was in the US. Curran and Seaton suggest that a critical difference between the US and the UK was the high level of penetration of VCRs in the UK relative to the US. This, they argue, fundamentally undermined the appeal of cable television.[154] Data compiled by Hughie Mackay in 1995 certainly bore out the claim that VCR adoption in the UK was exceptionally rapid and widespread. From 30% in 1985, by 1991, 65% of British homes had VCRs (at which time the global penetration level in TV-owning households was just one in three) and climbing to 79% just two years later. This meant the UK had, at the time, the second highest VCR penetration rate of any country.[155] By 1991, it was estimated that about a third of television viewers in the UK watched at least an hour of recorded television programmes each week (making it more popular than watching even pre-recorded video), with the average VCR household making 3.75 recordings a week.[156] One researcher in 1983

[149] Dutton and Blumler, 'The Faltering Development of Cable Television in Britain', p. 287.
[150] Peter Large, ''Snags' in cable TV plans', *Guardian*, 3 April 1984, p. 20.
[151] 'A mess of a non-policy on the media', *Guardian*, 11 February 1985, p. 12.
[152] Davies and Reynolds, *Teleshopping and Teleservices*, p. 17.
[153] Dutton and Blumler, 'The Faltering Development of Cable Television in Britain'.
[154] James Curran and Jean Seaton, *Power Without Responsibility: Press, broadcasting and the internet in Britain* (London: Routledge, 2003), pp. 192-93.
[155] Mackay, 'Patterns of Ownership of IT Devices in the Home', p. 323.
[156] Mackay, 'Patterns of Ownership of IT Devices in the Home', pp. 327-28.

claimed VCR penetration was three times higher in the UK than the US, though they provide no reference for this claim.[157]

In light of the failure of cable television in the UK, among other setbacks, in its 1988 review of the state of the British IT industry the Trade and Industry Committee concluded that it felt the government no longer viewed IT as a 'frontier industry', and had abdicated any leadership or sponsorship of the sector, indicated by the abolition of the post of Minister for IT in 1985.[158] While a number of earlier government projects had suggested something akin to a national strategy for IT was being formulated, the Committee found this to have been merely illusory. The situation, they concluded, was the same as in the early 1970s when the Science and Technology Committee had described government involvement in these areas as consisting of nothing more than sporadic, isolated interventions lacking any greater cohesion. An area where the Committee placed emphasis on the need for direction from the government was in telecommunications. 'We have no doubt of the crucial importance of a proper telecommunications infrastructure to this country', they wrote, 'and we await a clear statement from the government on a proposal for a nationwide fibre optic cable network'.[159] The current cable franchising system, clearly, had not delivered anything like this. The Committee insisted on the urgent need to build such an infrastructure in order to help the development of the UK IT industry and the uptake of IT within other sectors of the economy, comparing the need for good data infrastructure to support IT to the need for a good road system to make the most out of cars.

The concerns expressed by the Trade and Industry Committee were far more urgent than those the Home Affairs Committee had expressed in its report on the future of broadcasting, published just a few months prior. While that report showed a clear interest in the development of a fibre optic network in Britain, it noted that the extension of this network to the 'local loop', the last leg of public telecoms networks: the lines connecting individual premises to local exchanges, would be extremely unlikely under present conditions except in areas with exceptionally high densities of data traffic, namely the City of London and the premises of large businesses, as to do so was

[157] Cento Veljanovski, 'UK Cable Policy in the Eighties', *Fiscal Studies*, 4 (November 1983), 29-45 (31).
[158] Trade and Industry Committee, *First Report: Information Technology* (London: HMSO, 23 November 1988), p. xli.
[159] Trade and Industry Committee, *First Report: Information Technology*, p. vi.

uneconomical in lower traffic areas.[160] As Ian Vallance, chairman of BT, explained in his evidence before the Home Affairs Committee, while the trunk and junction network were being move to fibre optic, the question remained of whether to install cable into the local loop, 'and that is dictated solely by economics'.[161] As the levels of computer data sent and received by typical residential customers were at the time virtually non-existent, Vallance argued that the only feasible means of increasing consumer demand for bandwidth would be through offering cable television, which BT was, at the time, barred from transmitting. He pointed, as well, to the potential for growth in online services such as teleshopping and remote banking in the future, but he emphasised that cable television was assumed to be the high-returns service capable of recouping the cost of building the infrastructure these online services would rely upon.[162] In the opinion of the Home Affairs Committee, this was a complex question, but one that also lacked any urgency: something to take up in 1990 when telecommunications policy was due to be reviewed.[163]

The government, in its official response to the Committee's report, agreed to this view.[164] They made clear that the state would be taking no part in promoting the construction of new cable infrastructure, stating that 'it is not for the government to usurp the role of the market, to impose particular technological options, or to dictate the timing of their introduction.'[165] The construction of a national fibre optic network was to be pursued reactively, in response to consumer demand, not proactively by the state in the hopes of facilitating increased data traffic and services in the future. Against the government's indifference towards the construction of such an infrastructure, Labour, the Liberal Democrats, and a number of commentators in the press all asserted the necessity of rapidly beginning the construction of this network as a necessary and critical infrastructure needed for the further development of an information society. This was what the ITAP had argued in 1982, and the government, in particular Kenneth Baker, had echoed this language about the urgent need for new information infrastructure. When

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[160] Trade and Industry Committee, *First Report: Information Technology*, p. xiii.
[161] Home Affairs Committee, *Third Report: The Future of Broadcasting* (London: HMSO, 22 June 1988), p. 197.
[162] Home Affairs Committee, *Third Report: The Future of Broadcasting*, p. 200.
[163] Home Affairs Committee, *Third Report: The Future of Broadcasting*, p. xiii.
[164] Government of the United Kingdom, *Government Reply to the Third Report from the Home Affairs Committee Session 1978-1988* (London: HMSO, 14 November 1988), p. v.
[165] Government of the United Kingdom, *Government Reply to the Third Report from the Home Affairs Committee Session 1978-1988*, p. ii.

the cable industry floundered at launch, however, they took no action to intervene to save it, as what had been previously welcomed as daring vision with a much-needed sense of urgency descended into a 'mess of a non-policy', as the *Guardian* put it.[166] The Cabinet Office never published the results of the ITAP's investigation.[167]

Labour, previously largely uninterested in the issue of cable infrastructure, in its 1989 draft industrial strategy, proposed in radical opposition to government policy that fibre optic broadband connections should reach every home by 1999; that, drawing inspiration from France's immensely successful state-backed Minitel network, every home should also be given a free computer terminal in order to capitalise on this network; and that this project should be undertaken by a re-nationalised BT.[168] Paddy Ashdown, leader of the Social and Liberal Democrats, in the same year, harangued the government for its hands-off approach to Britain's telecommunications infrastructure, which he saw as necessary to an information economy. 'Just as our Victorian forebears thought it right to construct an infrastructure of roads, railways and canals to carry the commodities to support their industrial revolution,' Ashdown argued in Parliament, 'so we will need a modern infrastructure to carry the commodity of our industry. That commodity will be information. A fibre optic network will be as essential for our future industry, based on high technology, as were the railways, canals and roads in the past.'[169] Ashdown in particular attached great importance to the construction of this network, highlighting the project at his party's conference in March 1989 as the kind of innovative idea needed to reinvigorate a Britain he saw as in the grip of an increasingly staid Tory administration.[170]

Peter Large, the *Guardian*'s technology editor, who had closely documented the failures of Tory cable policy, argued that Britain was being left in the lurch by government indifference to fibre optic broadband.[171] And, he added, he was on the side of majority opinion, pointing to the sheer number and variety of actors and organisations allayed

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[166] 'A mess of a non-policy on the media', *Guardian*.
[167] 'Cable report unlikely to be published', *Guardian*, 14 March 1985, p. 22.
[168] Prior to this, 'the Labour Party limited its involvement in debate and committee meetings, indicating that it did not place a high priority on cable issues.' Dutton and Blumler, 'The Faltering Development of Cable Television in Britain', p. 286. Peter Large, 'Indifference blocking the UK's optical highways', *Guardian*, 21 April 1989, p. 15.
[169] House of Commons Debate, 'Investment in The Future', Hansard, vol. 151 (19 April 1989), cols. 344-88 (col. 350).
[170] Anthony Bevins, 'Ashdown dispels doubts with call for realignment', *Independent*, 6 March 1989, p. 4.
[171] Large, 'Indifference blocking the UK's optical highways'.

against the government's stance: as well as the National Communications Union, Labour, and the Social and Liberal Democrats, the Confederation of Information Communication Industries (CICI) (comprised of 30 trade associations of IT firms) was preparing a policy statement 'bewailing the Government's indifference' and even proposing the setting up of a new national cable company to bypass BT. Recalling the fiasco of earlier plans, Large argued that Britain was once again straggling behind the Continent. Without intervention, he saw Britain as being destined for 'skivvydom' once more. [172]

When Lord Young was recalled before the Trade and Industry Committee on 26 April 1989 alongside department deputy secretary Alistair MacDonald, the differences in ideological commitments between himself (representing both the DTI and the government) and the Committee and their supporters was made extremely clear. The hearing concluded with the Committee grilling Young and MacDonald over their insistence that the state should play no part in encouraging the development of broadband infrastructure. Young insisted that such an infrastructure should be built by the private sector alone, and that this construction must be demand-driven. As demand was not currently there, it would go unbuilt for some time. 'The idea of actually putting down cable without a real use for it at the end of the day is something which I think is not economic', he stated.[173] Young took Thatcherite market fundamentalism to heart, arguing that private enterprise alone should engage in such a project, driven by economic calculation; the state was relegated to taking on a regulatory role and nothing more. Young even went so far as to spell out his economic principles. When asked how demand would be demonstrated for broadband infrastructure he replied: 'That is what companies are for, in order to assess demand. This is what makes the world go round. When demand begins to come through it goes up, and I just do not see that government should have a role and go out and do all sorts of things in the hope that demand will follow.'[174] As the media policy scholar Kenneth Dyson had observed in 1986, the UK did not so much have broadcasting and telecommunications policy under the Conservatives so much as a singular over-arching neoliberal project intent on 'rolling back the state', of which

[172] Large, 'Indifference blocking the UK's optical highways'.
[173] Trade and Industry Committee, *Information Technology: Minutes of Evidence* (London: HMSO, 26 April 1989), p. 233.
[174] Trade and Industry Committee, *Information Technology: Minutes of Evidence*, p. 233.

broadcasting and telecommunications policy were merely 'functional appendages'.[175]

Despite the accumulated protestations about the government's indifference to the failure of the 'cable revolution', reform would not come until the telecommunications market was up for review in late 1990. Until then, the only fibre optic cabling laid to residences would be a pilot scheme launched by BT in Bishop's Stortford in Hertfordshire, serving just 500 homes under a special temporary licence permitting the company to transmit cable television.[176] Until then, new cables would reach only a small fraction of homes, delaying indefinitely the arrival of online services at 'marginal price levels' the government had envisaged in 1983. This second hope for mass market online services delivered via the television floundered like the first, its fortunes tied to those of cable television services the British public proved overwhelmingly disinterested in.

Home computers

> Some people even think that a micro without a telecoms link is little more than an interesting toy – and that includes me.
>
> – Ian McNaught-Davis on *Making the Most of the Micro*, 1984.[177]

In an article for the *Daily Mail* in late November 1984, at the height of the home micro boom, Ray Hammond, a leading author of popular introductions to micro-computing and frequent writer for the 'Computer Mail' section of the paper, addressed an audience of home microcomputer users:

> You've had enough of computer games. You find it easier to keep track of the household bills on the back of an envelope and you'd like a break from programming. When it's all said and done: what can you REALLY do with a personal computer?[178]

The answer, according to Hammond, was to 'explore the world from home' by going online. With a micro, the right software, and a modem, you could 'meet the world'

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[175] Kenneth Dyson, 'West European States and the Communications Revolution', *West European Politics*, 9 (1986), 10-55 (18).
[176] Matthew May, 'Fibre optics play politics', *The Times*, 4 May 1989, p. 32.
[177] 'Live Special', *Making the Most of the Micro*, BBC One, 24 June 1984.
[178] Ray Hammond, 'Explore the world – from home', *Daily Mail*, 6 November 1984, pp. 20-21.

from the comfort of your own home: chat to interesting strangers on a bulletin board, download software, access vast troves of information from online databases, and even go shopping.

By the end of the 1980s, earlier hopes for mass market online services arriving through people's televisions across the country were distinctly on hold. Prestel had failed to take off as a mass medium, while the 'cable revolution' was off to a dismal start. At the same time, though, what had unexpectedly entered British homes in their hundreds of thousands were microcomputers. Consequently, millions of people had become familiar with a technology considered obscure just a few years earlier as cheap models costing as little as £100 became available from 1980 amid a wave of interest in new information technologies.[179] As Hammond suggested, as people explored the limits of their new computers' capabilities, many people became interested in exploring the possibilities of computer communications, though the often daunting technical complexity of doing so meant it was frequently only those particularly enthusiastic about computer technology that were willing or capable of doing so. Outside of small numbers of business users, enthusiasts represented the only constituency with any significant interest in accessing online services from the home. One of the great ironies of this period would be that it was these enthusiasts, many of whom chided Prestel for its clunkiness and limitations, who would save the service from complete failure in the residential market in the mid-1980s.

In this section, I explore how these enthusiasts, in collaboration with an adventurous magazine publisher, effectively turned Prestel into an online platform for their own ends, creating a small but thriving hub in early cyberspace called Micronet. Stalling in user numbers and looked upon unfavourably by BT, however, it was eventually shut down in 1991 and effectively replaced by CompuServe, the massive US online service, signalling a new phase of American dominance of consumer online services in the UK. At the same time, a growing number of smaller bulletin board systems were also coming online, providing a way for computer enthusiasts to communicate and share files. While Micronet's fortunes were ultimately pegged to those of Prestel as a whole, the bulletin board scene continued to grow, with one particularly successful commercial board, the Compulink Information eXchange (CIX), obtaining a comparable number of users. Compared to the US bulletin board scene, however, Britain was tiny, and this

[179] Lean, *Electronic Dreams*, ch. 3.

difference, I argue, can be attributed primarily to a difference in telephone call costs which were both higher in the UK and, crucially, metered, making going online a frequently expensive endeavour. The comparative privilege US online services and bulletin boards enjoyed was the widespread availability of free local phone calls, which encouraged more extensive use of computer communications. This spurred the rapid growth of online services like CompuServe while British equivalents struggled for users under the pressure of high telephone call costs, ultimately allowing CompuServe to embark on a path of global expansion which would see it quickly become the leading online service not only in the US, but the UK as well.

Micronet 800

'Everyone agrees', wrote Colin McIntyre, deputy chairman of the Videotex Industry Association while reviewing the state of Prestel a few years after its launch, 'that until videotex penetrates genuine consumer markets it will never be wholly viable.'[180] While as described above, most new services intended to convince people to sign up to Prestel would stumble, with Micronet 800, Prestel finally found a service that could convince enough people to go online to just about sustain the service in the residential market – at least for a while.[181] In large part, this success came down to offering the opportunities for communication and Interpersonal interaction, rather than just interacting with information, that had been the driver of Minitel's explosive growth.

Micronet itself was a special section of Prestel designed specifically for micro-computing enthusiasts launched in March 1983, and marketed essentially as a computer magazine delivered via Prestel, with a variety of other services such as email, event postings, and software downloads that made it more appealing than a print publication. Its pricing, too, compared favourably with print magazines: Micronet subscriptions cost just £1 per week, and besides phone charges, the service was free to access in off-peak hours, while the recommended modem sold with subscriptions was just £49.[182] One thing Micronet's operators were adamant about, however, was clearly distancing the service from the Prestel brand, being careful not to mention the struggling service in advertising

[180] McIntyre, 'Prestel resurgens?'.
[181] Matthew May, 'Prestel moves into the black', *The Times*, 14 January 1986, p. 28.
[182] Ian Hamilton Fazey, 'A high-risk gamble on new technology', *Financial Times*, 21 February 1983, p. 12.

because, as Micronet founding editor David Babsky stated, it was widely viewed as a failure by the time Micronet launched.[183]

The success of Micronet had by no means been guaranteed from the start. In February 1983, Richard Winfrey of the East Midlands Allied Press (EMAP), a specialist magazine publisher and the proprietor of Micronet, said the service was a high-risk gamble that would be terminated 'mercilessly' if it didn't show progress within a year.[184] Micronet managed to successfully pitch itself as the next step for home microcomputer users who had begun butting up against their machines' limitations and wanted to do something more with them. As a television advert for the service from 1984 put it, 'Micronet 800 takes you and your micro far beyond the limits of your imagination.'[185] Initial uptake was strong, surpassing 10,000 users within its first year, and proving to be the single most significant driver in Prestel's take-up in the British residential market.[186] In July 1983, users viewed Micronet pages one million times, a first for any Prestel information provider, and in 1987 were sending 150,000 messages to each other per month.[187] By January 1986, Micronet's estimated 20,000 subscribers made up nearly one third of Prestel's entire user base, and the service was credited with pulling Prestel into profitability for the first time since launch in October 1985.[188] As Matthew May put it in the *Times*, Micronet had 'successfully gambled that it would be home-computer owners who would take the most easily to electronic communications in the home.'[189] Prestel itself, meanwhile, had been designed from the ground up with the goal of reaching the mass market as a television-based service, having been designed and launched before the home microcomputer boom of the early 1980s. Micronet thus represented a reconfiguration of Prestel for a user base that had barely existed when it was first launched.

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[183] Lean, *Electronic Dreams*, ch. 6.
[184] Fazey, 'A high-risk gamble on new technology'.
[185] VHS Video Vault, 'Micronet 800 adverts', *YouTube* (26 February 2016) <https://www.youtube.com/watch?v=Svs_CWxBuNI> [accessed 30 July 2019].
[186] Bennison, 'Domestic viewdata services in Britain', p. 156.
[187] Rutter, 'From Diversity to Convergence', pp. 126, 145.
[188] May, 'Prestel moves into the black'.
[189] May, 'Prestel moves into the black'.

Figure 4. Prestel's microcomputing section featuring Micronet 800, as seen on *Micro Live* in 1986.

A small but enthusiastic community of microcomputer-lovers quickly formed around Micronet, with users even developing and playing some of the first online games such as MUD (Multi-User Dungeon), Shades and StarNet.[190] The generally high level of computer literacy of these users and their desire to explore the outer limits of what microcomputers could do also saw Micronet develop into something of a meeting space for an emergent British hacker scene as well. This social dimension of Micronet was one of its key selling points, keeping users committed through a collective sense of community that was completely new to Prestel's otherwise information (rather than communication) focused services. An innovative real-time chat function, Chatline, launched in 1984, saw Micronet users staying online for hours talking to other members spread across the country.[191]

By 1987, Micronet broke even, but user numbers had stalled at around 20,000 – substantially short of the 100,000 users Micronet had launched in the hopes of attracting, and which were considered necessary for long term sustainability.[192] In July 1988, BT

[190] Lean, *Electronic Dreams*, ch. 6.
[191] Mike Brown, 'Reaching the end of the line', *Guardian*, 31 October 1991, p. 33.
[192] Rutter, 'From Diversity to Convergence', pp. 126-27.

made the decision to introduce off-peak Prestel time charges, in opposition to the recommendations of Micronet management, justified on the grounds that it was only fair Micronet users paid their share for time spent using the Prestel network. Micronet lost a quarter of its subscribers nearly overnight, and levels of use among the remaining users plummeted.[193] Finally, in October 1991, BT pulled the plug on Micronet's dwindling 12,000 users, effectively shutting down Prestel's presence in the residential market entirely.[194] Partly, BT explained, this was because of concerns about illicit content on the conferencing service, but more significantly, the reduction in use resulting from the introduction of off-peak charges had simply made it too costly to keep going.[195] BT recommended users move over to CompuServe, a large US online service with over 800,000 subscribers in the US which had recently launched in the UK.[196] As Mike Brown, technical director of Micronet explained on the advent of the service's closure, BT had never been particularly fond of Micronet, considering its relatively niche audience a source of embarrassment, and this was the ultimate cause of its neglect and eventual decline. It was subsequently canned when BT chose to refocus on core services and failed to find a buyer for the struggling Micronet.[197] Brown thought that the news likely came 'to the surprise of a great many people', as it was 'generally thought that the service had expired long ago'.[198]

Bulletin boards

Micronet was not the only horse in town by the time it closed: there was also a small but active bulletin board scene, with individual computer users hooking up computers to the telephone network and hosting many of the same features (live chat, forums, file transfer) Micronet provided. Bulletin boards became feasible in about 1980,

[193] Brown, 'Reaching the end of the line'.
[194] Lean, *Electronic Dreams*, ch. 6.
[195] Rutter, 'From Diversity to Convergence', p. 145.
[196] Michael Becket, 'Plug pulled on Micronet', *Daily Telegraph*, 30 September 1991, p. 25.
[197] Brown, 'Reaching the end of the line'. It was also the opinion Michael Holland, the new head of Prestel in 1994, that BT had effectively 'strategically abandoned' Prestel by 1990. Andrew Bibby, 'Prestel rings the changes as BT hangs up', *Independent*, 3 April 1994 See also Alan Cane, 'BT to close computer network', *Financial Times*, 26 September 1991, p. 11, 'BT said this week it was anxious to concentrate its efforts on core Prestel activities such as CityService, which delivers on-line financial information.'
[198] Brown, 'Reaching the end of the line'.

and came on in 'leaps and bounds' from there on.[199] *Guardian* contributor Alan Solomon, best known as an anti-virus software developer, described the appeal of the bulletin board system he ran from his home in 1988:

> At any time of the day or night you can ring 023403 4946 and log on to a Walters AT that sits in the corner of my computer room. On it there is about 60 megabytes of free software, and several major discussions on subjects of interest to PC programmers. It doesn't cost anything to call in – or, at least, it only costs your phone bill, and it would be very naughty if you bent the telephone system to avoid that.[200]

The winking suggestion of using telephone phreaking techniques to access the bulletin board for free, as well as the board's emphasis on discussions about computer programming, clearly indicated the target audience for such a service as computer enthusiasts. Solomon's own friends, he confessed, were the kinds of people to keep a minicomputer in their shed, and code multiplayer role-playing games in their spare time. On top of the technical complexity of setting up a BBS, the fact that a dedicated computer was needed to run the system meant either buying a secondary computer or repurposing an unused one. If you wanted your bulletin board to be online 24/7 and to still be able to user your telephone as a telephone, you would also need to invest in a secondary phone line.[201] Partly, bulletin boards were popular because they were substantially cheaper to access than other online services, costing only the price of the connecting telephone call. Prestel and Micronet, by contrast, had additional fixed and metered charges on top of telephone call costs which could make them quite expensive. In 1991, Anthony Ginn told readers in the *Guardian* that if they 'felt ill' at how much using commercial online services could cost, to dial into a local bulletin board instead: 'it's free.'[202]

Compared to commercial online services, however, finding out how to access them could be much trickier. As bulletin boards were privately operated, finding out about individual systems required tracking down their phone number, which was typically available only where computer enthusiasts would look. Lists of boards could often be found in computing magazines or on Micronet, and from there, many boards

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[199] Hugo Cornwall, *The Hacker's Handbook* (London: Century Communications, 1985), p. 43.
[200] Alan Solomon, 'The power under the stairs', *Guardian*, 25 February 1988, p. 23.
[201] Clive Akass, 'Living for CIX', *Personal Computer World*, August 2007.
[202] Anthony Ginn, 'Fido goes walkies a million times', *Guardian*, 15 August 1991, p. 29.

themselves had directories of the numbers for other boards.[203] It was thus a kind of network, getting into which could be relatively difficult, but once a user was on one board it became significantly easier to find others. As John Coll explained on *Micro Live* in 1984, finding a bulletin board in the first instance would normally require finding a list of numbers in a specialist magazine such as *Personal Computer World*, but 'once you get onto one board you'll find indexes of other boards.'[204] On the more public-facing side, some computer TV programmes hosted their own bulletin boards for viewers to chat on.[205] For those willing to foot the cost of a significantly larger telephone bill, calls could even be made to connect to North American boards.[206]

And indeed, there were a great many boards to connect to from North America. As Kevin Driscoll has shown, the US was simultaneously developing a booming bulletin board scene in the 1980s, with boards numbering into the tens of thousands by the end of the decade.[207] The scale of the UK bulletin board scene was, by comparison, incredibly modest. When asked how many bulletin boards there were ion Micro Live in 1984 by Ian McNaught-Davis, John Coll responded that there were about 'a hundred or so in the UK, but thousands and thousands in the States, quite incredible.' McNaught-Davis even said he didn't actually know what a bulletin board was.[208] By 1993, the *Sunday Times* estimated that this had grown to some 1,500 boards.[209] At the same time, Howard Rheingold, citing estimates from *Boardwatch* magazine, claimed there were as many as 60,000 bulletin boards in operation in the US – forty times as many as in the UK.[210]

The most crucial factor in this disparity was the cost of telecommunications. Quite unusually by international standards, at the turn of the 1980s, some 90% of US residential telephone subscribers paid a monthly flat rate for unlimited local telephone calls.[211] This

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[203] 'Live Special', *Making the Most of the Micro*, BBC One, 24 June 1984.
[204] 'Live Special', *Making the Most of the Micro*, BBC One, 24 June 1984.
[205] *Micro Live* operated its own bulletin board, which proved popular enough that they were compelled to upgrade its storage in January 1985. *Micro Live*, BBC Two, 11 January 1985.
[206] Benjamin Woolley wrote in *The Listener* in 1988 that 'many UK [bulletin board] users regularly connect to US boards - the only costs are a few pounds' worth of international phone charges.' Benjamin Woolley, 'Information Disease', *The Listener*, 12 May 1988, pp. 20-21.
[207] Driscoll, 'Hobbyist inter-networking', p. 20.
[208] 'Live Special', *Making the Most of the Micro*, BBC One, 24 June 1984.
[209] Michael Prescott and Howard Foster, 'Police get new powers to fight computer porn', *Sunday Times*, 14 November 1993, p. 9.
[210] Rheingold, *Virtual Community*, p. 9.
[211] Bridge B Mitchell, 'Optimal Pricing of Local Telephone Service', *American Economics Review*, 68 (1978), 517-37, p. 517.

meant that connecting to a local bulletin board was functionally free, regardless of how long one spent online, while long distance calls typically incurred additional costs. As Kevin Driscoll explains, this profoundly shaped the scale and geography of the US bulletin board scene, encouraging a proliferation of local bulletin boards.[212] As unusually heavy users of the telephone network, bulletin board users benefited greatly from this flat rate access model whereby their costs were effectively subsidised by lighter users, and by the higher charges for long-distance calls.[213] In theory, these lighter users should have flocked to metered telephone tariffs, but consumers have and continue to show a well-documented bias towards flat rate costs.[214]

In the UK, by contrast, though telephone call costs varied by distance, they were all metered. The origins of this difference lay in differing interpretations of the principle that the telephone network should provide a 'universal service' in either country, with the idea incorporating both rights to both access and 'usage at reasonable cost' in the US, with the latter resulting in the widespread availability of flat rate local calls.[215] In the UK, by contrast, sustaining levels of access was prioritised over ensuring low costs for usage. As such, higher local call charges were used to subsidise lower line rentals, benefitting light residential users at the expense of heavier users, such as people using computer communications, in order to retain high levels of telephone penetration over use.[216] On top of this difference in the structure of charges, call charges also rose in the UK after BT's privatisation in 1984. Previously local call charges had been subsidised by more lucrative trunk and international calls, most often used by businesses rather than residential users. After privatisation, however, BT was allowed to 'rebalance' these charges, lowering long-

[212] Driscoll, 'Hobbyist inter-networking', pp. 174-75.
[213] Howard Rheingold, for example, reported accessing The WELL (which he lived in the same area as) for upwards of two hours every night. Rheingold, *Virtual Community*, p. 1
[214] As Train notes, this bias went against standard theories of consumer behaviour, suggesting consumers are willing to pay a premium for determinacy over indeterminacy with regard to costs. Kenneth E Train, *Optimal Regulation: The Economic Theory of Natural Monopoly* (Cambridge, MA: MIT Press, 1991), p. 211. See Anja Lambrecht and Bernd Skiera, 'Paying Too Much and Being Happy About It: Existence, Causes, and Consequences of Tariff-Choice Biases', *Journal of Marketing Research*, 43 (2006), 212-23 and Fabian Herweg and Konrad Mierendorf, 'Uncertain demand, consumer loss aversion, and flat-rate tariffs', *Journal of the European Economic Association*, 11 (2013), 399-432 for more detailed discussions of this phenomenon.
[215] Jill Hills, 'Universal service: Liberalization and privatization of telecommunications', *Telecommunications Policy*, 13 (1989), 129-44 (132).
[216] Hills, 'Universal service', p. 139.

distance charges and raising local charges.[217] In theory, the creation of Mercury Communications as a competitor telecoms operator should have resulted in lower charges but, freed from the same universal service obligations as BT, Mercury chose 'follow the margin', competing in core and backbone networks for more lucrative business custom rather than compete for the comparatively small and unreliable margins in residential traffic.[218] As a result, BT focused its efforts on the business market at the expense of the UK residential market, with a particular emphasis on overseas expansion.[219]

References to 'going online' in the press in the late 1980s therefore frequently included some mention of the terrible things it could do to peoples' phone bills. 'As any on-line addict knows,' wrote Tony Dennis in the *Guardian* in 1986, 'the most galling part of telecommunications is the large telephone bill each quarter', while a 'teenage hacker' warned *Independent* readers in 1988 that going online could easily lead to a trebling of one's phone bill.[220] At the more extreme ends of use, phone bills could run up to petrifying amounts. The mother of one computer hacker reported that, at the height of her son's hacking obsession in 1988, her quarterly phone bills ran to £700, even when her son routed many of his calls through 0800 freephone numbers.[221]

The fact of these metered costs could be quite shocking to American observers, used to paying a flat rate for unlimited local calls. When discussing the London-based bulletin board CIX (discussed in greater detail in the next chapter), Rheingold added an aside for his American readers noting that even local calls in the UK were metered, making going online generally far more expensive. As a result, he added, off-line readers (OLRs), programmes which logged onto services, quickly downloaded and uploaded any relevant content, and then logged off again, were popular among bulletin board users in the UK.[222] As a profile of one user, Davey Winder, in 1992, had noted, some CIX users had

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[217] Hills, 'Universal service', p. 141.
[218] Ofcom, *Strategic Review Telecommunications Phase 2 consultation document* (London: Ofcom, 19 November 2004), p. 5. Mercury had to be pressured even to extend its long-distance network to major cities in Scotland and the North of England. Hills, 'Universal service', p. 137.
[219] Webster, *Theories of the Information Society*, pp. 138-39. Ward contends that pressure from financial institutions in the City of London for reduced telecommunications costs was critical to bringing about BT's privatisation. Ward, 'Financing the Information Age'.
[220] Tony Dennis, 'Packet that promises free speech', *Guardian*, 3 July 1986, p. 15; Stephen Cogan, 'Confessions of a teenage computer hacker', *Independent*, 10 October 1988, p. 17.
[221] Hugh Mulr, 'The outsider', *Daily Telegraph*, 18 March 1993, p. 3.
[222] Rheingold, *Virtual Community*, p. 238.

been known to rack up phone bills equivalent to more than £100 a month. Winder, a particularly heavy user of the system, used an OLR to reduce the costs such that, in December 1991, he was 'only' directly connected to the system for 12 hours and 40 minutes. Luckily for him, as well, CIX was based in nearby Surbiton, making the necessary phone calls local to him. Winder, in fact, dedicated his mobility allowance to paying for the costs of using the system.[223] Jack Schofield was also a fan of using an OLR, claiming in 1992 that using one had cut his quarterly phone bill by £60, and noting they proved a popular way to access CompuServe as well.[224]

OLR software capable of reducing the costs associated with going online had, however, only really started to emerge in the early 1990s.[225] In the late 1980s, by contrast, most online conferencing had been conducted live and at comparatively glacial speeds, which meant spending 30 minutes or an hour online, which 'had a horrifying effect on people's phone bill' as Schofield put it.[226] To this end, increases in modem speeds benefitted British OLR users greatly as well, allowing them to spend even less time actually online. Schofield found that downloading his daily emails and conference posts from the comparatively speedy CIX at 3,200 characters per second using an OLR took just three minutes, compared to the staggering forty it had taken on an older service.[227]

Conclusion

The idea that to reach the mass market, online services would have to be delivered through television sets, proved particularly influential in the 1980s and, as I show in the following chapter, beyond. This idea was not only key to the design of Prestel; it also influenced how the Conservative government and its advisors approached the question of how to build higher-bandwidth information infrastructure. Potential profits from subscription television services were envisaged as the key incentive for investment in new cable infrastructure, which might then be exploited by the cable television

[223] Andrew Brown, 'In Cyberspace, everyone is equal', *Independent*, 5 January 1992, p. 18.
[224] Jack Schofield, 'As easy as blinking', *Guardian*, 23 January 1992, p. 29; Steve Gold, 'Electronic nirvana down the line', *Guardian*, 30 July 1992, p. 31.
[225] Steve Gold noted in 1992 that 'OLR software is still in its infancy'. Gold, 'Electronic nirvana down the line'.
[226] Schofield, 'As easy as blinking'.
[227] Jack Schofield, 'The case for moving to a new gold standard', *Guardian*, 30 June 1994, OnLine, p. 7.

companies to offer online services at comparatively low cost. This approach summarily failed, as consumer interest in cable television services proved to have been substantially overestimated. The government's response was distinctly laissez faire, viewing any direct intervention to save the ailing cable industry as legitimate, despite arguments that constructing such an infrastructure was a near future necessity. Despite the Conservatives' rhetorical commitments to ensuring the railroads of the new information economy were built, these were overridden by their ideological block on direct state investment. Beyond a few trials, these much-vaunted online services never arrived.

While Prestel and the 'cable revolution' floundered in the UK, the Minitel network was booming in France, reaching six million installed terminals by the end of the decade.[228] As Mailland and Driscoll argue, Minitel confounded the notion that state intervention and private enterprise were antithetical, an idea which proved deeply entrenched in government thinking in the UK. State investment did not crowd out private enterprise but instead helped build a large, open platform which supported a huge variety of commercial enterprises.[229] When confronted with the fact that Minitel had led to the creation of thousands of small companies, the exact kind of entrepreneurialism the Conservatives claimed to be championing, they argued that this was a moot point as the whole enterprise was fundamentally compromised by the direct involvement of the state. All that mattered, for Lord Young, was that Minitel was built on the basis of a 'huge public investment', and therefore illegitimate – a distortion of the proper functioning of the market mechanism. 'A competitive environment', he concluded, 'is the one thing that will get the economy going and will ensure that the right products come through to the top.'[230] As Ian Miles noted in 1988, tongue firmly in cheek, the success of Minitel was dismissed Conservatives as 'political manipulation – the perfidious French gave away terminals and made the service easy to use!'[231]

The success of Minitel also showed that Prestel was by no means doomed by its technology, but lacking the degree of state support Minitel enjoyed, it sank as the wave of early adopters needed to bring down the cost of terminal equipment never

[228] Mailland and Driscoll, *Minitel*, ch. 1.
[229] Mailland and Driscoll, *Minitel*, ch. 5.
[230] Trade and Industry Committee, *Information Technology: Minutes of Evidence*, pp. 225-26.
[231] Ian Miles, 'The Electronic Cottage: Myth or Near-Myth? A response to Tom Forester', *Futures*, 20 (1988), 355-66 (357).

materialised.[232] Like other videotex systems Prestel also failed to capitalise on the potential popularity of communications in the same way as the better-supported and more adaptable Minitel system had, while teletext provided a significantly cheaper means of accessing information. The limited success of Micronet and of larger bulletin boards like CIX showed that there was a not insignificant audience for online services built for computer users, and especially those which facilitated communications, but the growth of these services was held back by high metered local telephone call costs. After BT's privatisation, rebalancing led to price increases which increased the bill of the average residential customer, and the failure of local loop competition to materialise put no pressure on BT to cease lowering prices in areas where there was competition (e.g. long distance calls), and to continue to raise prices where they corporation maintained de facto monopoly control.[233] As Frank Webster observes, BT expressed no embarrassment in its post-privatisation prioritisation of the business market, arguing that success in this area was 'the source of improvements in services and techniques which will subsequently feed down to the residential market'.[234]

The closing down of Micronet and the selling of Prestel signalled the retreat of BT from the consumer online services market at the same moment CompuServe was beginning its overseas expansion. Favourable conditions in the US, not least among them the widespread availability of free local telephone calls, had seen a number of consumer online services there enjoying tremendous growth through the 1980s. In CompuServe's case, this growth was significant enough that it could consider expanding globally by the end of the decade. When it launched in the UK, the service hoovered up the remains of British consumer online services, hiring on the 'core' of Micronet to run its UK forums.[235] Where Micronet had been an appropriation of a system designed without microcomputer users in mind, CompuServe took the needs of computer users seriously, developing a graphical front end that made navigating the system much easier for PC and Mac users.[236] BT's actions, meanwhile, suggested that it did not consider computer-based online services likely to reach sufficient scale to be profitable, and focused their attention on

[232] Schneider, 'The Dynamics of Videotex Development', p. 194.
[233] OECD, *Universal Service and Rate Structuring in Telecommunications, No. 23* (Paris: OECD Publishing, 1991), p. 136.
[234] British Telecom, quoted in Webster, *Theories of the Information Society*, p. 141.
[235] Wendy Grossman, 'Differences of approach', *Guardian*, 27 October 1994, OnLine, p. 4.
[236] Gold, 'Electronic nirvana down the line'.

developing the next generation of interactive television services, something I discuss in greater detail in the next chapter.

As Britain entered the 1990s, then, the persistent problem of telephone call costs kept the number of people online low. This was not for a shortage of computers in peoples' homes: by 1992, it was estimated that there were computers in between 19% and 30% of homes in the UK, and modems were by no means expensive add-ons – one 'teenage hacker' claimed they were able to find a modem for as little as £10 in 1988, while the modem shipped with Micronet subscriptions had cost just £49.[237] As business computer journalist Tim Wright put it in the *Sunday Times* in 1992, however, fears of 'big phone bills' had so far confined the use of online services to a 'narrow band of professionals with specific information needs'.[238] And similarly confined, he might have added, a small core of computer enthusiasts willing to foot the potentially large telephone bills involved in going online, and tech-savvy enough to know how to limit them. The most significant change was that people moved, by and large, to CompuServe, an American success story able to capitalise on the gap left in the British market as after BT pulled the plug in Micronet.[239] Unlike BT, CompuServe believed that computer-based online services could be genuinely popular. 'We're in the business of building a mass market', said UK managing director Andrew Gray in 1992.[240] This was, perhaps, an easier idea to believe in the US than the UK.

[237] Mackay, 'Patterns of Ownership of IT Devices in the Home', pp. 330-31; Cogan, 'Confessions of a teenage computer hacker'; Fazey, 'A high-risk gamble on new technology'.
[238] Tim Wright, 'Talking a la modem', *Sunday Times*, 29 November 1992, p. 14.
[239] By 1994 CompuServe had some 60,000 UK subscribers. Grossman, 'Differences of approach'.
[240] Wright, 'Talking a la modem'.

Chapter 2 – The revolution will not be televised (1990-1998)

This chapter covers the development of consumer online services and the infrastructure intended to deliver them in the UK from 1990-1998, centring on the question of why home Internet penetration in the UK lagged behind almost every other rich Anglophone country. This stemmed, I argue, from the same issues that had held back the development of consumer online services in the preceding decade described in chapter one: primarily high local telephone call costs, which made 'going online' an expensive activity compared to countries where unmetered consumer Internet access was a possibility. The Major government's insistence on maintaining a system of telecommunications regulation which prioritised infrastructural competition meant that, just as in the 1980s, the possibility of changes to the standard metered local call charge were dependent on the laying of new cables to peoples' homes. The persistent broad indifference of the British public to cable television, however, meant BT retained a virtual monopoly on the local loop.

I begin this chapter by discussing the popularisation of the idea of 'information superhighways', after the concept was brought to the fore of American politics by the Clinton Administration in 1993, and the idea that broadband infrastructure could soon be built by cable and telecoms companies to deliver interactive television services across the country in a rehashing of the 1980s 'cable revolution'. This promise was the main focus of attention in 1993/4, as cable companies promised that these new interactive TV services would be sufficiently lucrative to bankroll the construction of optical fibre cables to peoples' doorsteps. As with Prestel, it was online services delivered via information superhighways to peoples' televisions that were expected to be the real mass market product, not computer-based Internet access. Nonetheless, an interest in the Internet began to develop in British newspaper and television news media alongside information superhighway hype in no small part because, unlike prospective interactive TV services, the Internet was available there and then, requiring only a PC, modem, and telephone line to connect, and the Web could be presented as a working prototype of the exciting new interactive multimedia TV services that would be delivered via information superhighways.

The vision of interactive television delivered through an optical fibre network quickly faltered, however, as technical trials struggled along and the basic economic viability of these new services, and basic cable television services continued to struggle. BT lobbied heavily for the lifting of restrictions which barred it from using its network to convey broadcast television, arguing that this would allow it to justify investing billions of pounds in a national optical fibre network. The Conservative government refused on the grounds this would undermine the development of cable networks, therefore retaining infrastructural competition as the core principle of their approach to telecoms regulation. Labour, meanwhile, sought to champion the construction of information superhighways. Its rightwards ideological drift since the late 1980s when it had countenanced a French-style dirigiste approach to the development of communications infrastructure gave way to an acceptance that telecoms should be a private market. Seeking a way to push through the development of broadband infrastructure, Labour's ear proved open to BT's arguments, resulting in the announcement of a 'deal' to relax restrictions in exchange for BT connecting up public institutions when the party formed the next government. Labour were quickly browbeaten by the Conservatives for threatening to undermine the principle of infrastructure competition, and Labour retreated.

As interactive television services delivered via information superhighways failed to materialise, Interest in the idea quickly waned, though some held out belief that these services would eventually bring online services to the masses. In turn, Media attention shifted towards the rapidly developing Web and Internet, the development of consumer access to which I discuss in the second part of this chapter. I begin with the troubled history of the UK edition of *Wired*, in which the expectations of the British newspaper press that what was happening in the US would soon be followed in the UK ran into a more complicated reality. The failure of this UK edition of a magazine framed as being at the heart of the digital revolution in the United States raised questions for contemporaries about the comparative state of that revolution in either country.

I subsequently examine the explanations put forward as to why *Wired UK* failed. Cultural explanations, I argue, offer a less convincing explanation for this failure than the substantially smaller proportion of people that were online in the UK compared to the US. The failure of interactive television delivered via optical fibre networks was common to both the US and the UK, but the success of home Internet access in the US was not

replicated to anywhere near the same degree in the UK. I then explore the causes for this difference, arguing that metered telephone call costs were the primary deterrent to greater levels of home Internet access in the same way they had been for earlier forms of going online.

Superhighways to homes

> Could I turn to the question of bandwidth? I was a member of this Committee in 1994, and before that, when we looked at this. It was a brave new world out there and the cable companies were going to role out fibre optic cables all over the country and every household was going to be connected up to high bandwidth capability. It just has not happened, has it? Why do you think that is?
>
> – John Butterfill MP to Peter Walker, Oftel director of technology, 1999[241]

In late 1992, as the US presidential election campaign was in full swing, British newspapers began to report sporadically on an idea Bill Clinton's running mate, Al Gore, had begun talking about on the campaign trail: something called the 'information superhighway'.[242] Gore had, as Patrice Flichy writes, a quite precise project in mind when he talked about this idea. Inspired by the creation of the interstate highway system post-war, which his father had played a key role in developing the legislation for, Gore imagined a similar infrastructural upgrade for the information age. Just as the massive growth in road vehicle traffic after World War II had necessitated the development of higher capacity roads to accommodate them, Gore argued that the recent massive increases in computer data traffic necessitated a similar infrastructural upgrade.[243] The term 'information superhighway' thus referred, in its original conception, to high-speed broadband data communications infrastructure, in contrast to existing low-speed narrowband infrastructure. The new technology of choice was fibre optic cable, which had thousands of times the data capacity of the copper twisted pair lines that still made

[241] Government of the United Kingdom, *Trade and Industry Committee Seventh Report "Building Confidence in Electronic Commerce": The Government's Proposals* (London: HMSO, 12 May 1999), p. 149.
[242] See for example Louise Kehoe, 'Driving down a 'superhighway'', *Financial Times*, 19 November 1992, p. 20.
[243] Flichy, *The Internet Imaginaire*, pp. 21-22.

up substantial portions of the existing telecommunications infrastructure (in particular, local loop connections) and significantly more bandwidth even compared to the far more recently built cable television infrastructure in the US.

Table 2 : Bandwidth of different sorts of cable

Type of Cable	Over 1km: Mbit/second	Over 3km: Mbit/second	Over 10km: Mbit/second
Twisted pair (copper)	6	2 .	0.5
Cable TV coaxial	1000	150	25
Optical fibre	>10,000	>10,000	>10,000

Note: All figures are approximate.
Source: the Committee's specialist advisers.

Figure 5. Comparison of the bandwidths of different cable technologies. Trade and Industry Committee, 1994.

Framed in a wider historical context, the language and rhetoric Gore used was nothing new: the analogy that broadband infrastructure was to the post-industrial information economy as roads or railroads were to the preceding industrial economy was a common element of information revolution rhetoric.[244] Such talk would certainly have been familiar to anyone who had followed the UK government's plans for a 'cable revolution' in the 1980s. Gore's innovation may therefore, on the surface, appear to have merely been the coining of a catchy new term for such plans, but more significant was the fact that Gore was talking about mobilising state funding to build this infrastructure, much as it had been mobilised to build the interstate highway system. His original plans were thus described as distinctly Keynesian in nature by the *Guardian*, echoing Franklin D. Roosevelt's use of public funds to stimulate economic activity in the 1930s.[245] Public

[244] See e.g. Kenneth Baker's claim that 'the recabling of the country will be as important for Britain as was the laying down of the railway network in Victorian England.' House of Commons Debate, 'Satellite and Cable Broadcasting', 20 April 1982, col. 238; and Paddy Ashdown's nearly identical claim that 'a fibre optic network will be as essential for our future industry, based on high technology, as were the railways, canals and roads in the past.' House of Commons Debate, 'Investment in The Future', 19 April 1989, col. 350.

[245] Martin Walker, 'Clinton rides the gentle revolution', *Guardian*, 24 October 1992, p. 23.

investment was being promoted, in contrast to the preceding Bush and Reagan presidencies, as a path to economic recovery.

In Britain, as shown in the previous chapter, the development of 'information superhighways' had been on the political radar since at least the Annan Report, and had become a major government policy in the early 1980s. When the Conservatives' approach based on private cable franchises building competing infrastructure stumbled, however, they had refused to intervene. It was not until 1990, when the telecommunications duopoly came up for review, that they went back to the drawing board. After presenting a consultative document to Parliament and reviewing responses, the government published its white paper in March 1991.[246] As the title suggests, the watchwords for these revisions to telecoms regulations were 'competition' and 'choice'. The changes implemented thus included provisions for the licensing of new public telecoms operators (PTOs) to compete with BT and Mercury, permission for cable television companies to begin offering telecoms services in their own right (rather than as agents of BT or Mercury), and the continued barring of BT and Mercury from offering entertainment services over their national networks to spur investment in cable networks.

This latter policy had been hotly contested during the review process. BT had argued that maintaining such restrictions would 'delay the introduction of new technology and innovative services', while the cable companies insisted that lifting them would threaten their ability to compete effectively and hurt their ability to finance their planned investments.[247] The Conservatives, eager to see effective competition in 'facilities' (that is to say, physical infrastructure), and seeing cable television companies as the main way to deliver this, erred on the side of caution, and agreed to maintain the restrictions until 2001. If BT or Mercury wanted to, however, they could go through the standard bidding process for local cable television licenses.[248]

As the government stated in *Competition and Choice*, their explicit goal was to accelerate the development of competing, privately built communications infrastructures.[249] As Clinton and Gore began to talk about their plans for information

[246] Department of Trade and Industry, *Competition and Choice: Telecommunications Policy for the 1990s* (London: HMSO, March 1991).
[247] Department of Trade and Industry, *Competition and Choice*, pp. 25-26.
[248] Department of Trade and Industry, *Competition and Choice*, p. 26.
[249] Department of Trade and Industry, *Competition and Choice*, p. 28.

superhighways, however, the danger looked as though the US would begin using direct state investment (a means the Conservatives considered illegitimate) to upgrade their communications infrastructure, echoing France's interventions to promote viewdata technology in the early 1980s, and potentially outpace developments in the UK.

Luckily for the Conservatives, however, and unfortunately for Gore, the prevailing political tide in the US was against this kind of state intervention. Gore's proposals had ruffled many feathers, particularly in the cable and telecoms industries, and Clinton was in turn anxious to clarify upon his election victory that this was not a return to government picking 'winners and losers', stressing that the primary responsibility for industrial competitiveness lay with the private sector.[250] While Clinton and Gore insisted that information superhighways were a necessity, by 1993, the question of who would be building these superhighways and how they would be funded had begun to be fiercely debated.[251] By April, the new Clinton Administration had largely capitulated to industry demands, agreeing to put forward $2 billion over five years for research into high-speed networks and associated pilot projects, but leaving the project of building the new national information infrastructure firmly in the hands of the private sector. The government was to act as a 'catalyst' for the construction of information superhighways, but made clear it would not construct them itself.[252]

In 1993, other governments and organisations had also begun to pay closer attention to developments in the US. The European Union commissioned a report from Martin Bangemann, former leader of the liberal FDP in Germany, on 'Europe and the Global Information Society', which was subsequently published in May 1994.[253] In early July, at a summit in Naples, the G7 had also agreed to 'encourage and promote innovation and the spread of new technologies including, in particular, the development of an open, competitive and integrated worldwide information infrastructure; we agreed to convene in Brussels a meeting of our relevant Ministers to follow up these issues.'[254] They also agreed to another follow-up conference dedicated to the 'information society' to be held

[250] Kehoe, 'Driving down a 'superhighway''.
[251] Here Gore continued to push for a more interventionist approach, whereas large telecommunications operators such as AT&T opposed this. See John Markoff, 'Building the Electronic Superhighway', *New York Times*, 24 January 1993, 3, p. 1.
[252] Mark Tran, 'Clinton aims to act as catalyst for info-superhighway', *Guardian*, 13 April 1993, p. 9.
[253] Bangemann Group, *Europe and the Global Information Society* (Brussels: European Council, 1994).
[254] G7, *Naples Summit Communiqué* 9 July 1994).

in February 1995.[255] Like the US and UK, the EU took a firmly market-led approach to the construction of information superhighways, with the Bangemann Report concluding, in no uncertain terms, that 'the creation of the information society should be entrusted to the private sector and to market forces.'[256]

The cable revolution, act two

The announcement by the Clinton Administration that the private sector would lead the construction of information superhighways was followed by a flurry of high profile mergers and deals among the various industries that were held to be converging at the behest of digitisation and the development of broadband infrastructure. Cable, telecoms, and media companies all began to eye each other up for strategic partnerships which would allow them to better compete in this new communications environment. As the *Economist* put it, what these companies were all talking about was 'the theory that new technologies, like digitisation and optical fibre, are about to turn the humble television into a medium for home-shopping, databases, tele-conferencing, movies-on-demand and computer games. The change will mean not only new alliances in television, but also a "convergence" of the media, computer and telecoms businesses.'[257] It was the supposedly lucrative profits that could be reaped from these new services that would provide the impetus for the laying of new broadband infrastructure. As with the ITAP's plans in the UK a decade earlier, the broader social and economic good of broadband infrastructure was assumed to flow from cable companies' pursuit of immense profits from providing new consumer services. The 'megamerger' activity that followed had, by the end of the year, produced a number of huge multi-billion-dollar deals.[258] The value of these deals paled in comparison, however, to the predicted value of the 'interactive multimedia market', estimated to be worth some $3.5 trillion by the year 2002, according

[255] The official website of the conference can be found here European Commission, 'G7 Information Society Conference, Brussels, 25 - 26 February 1995', *European Commission Information Society Website* (1995) <https://web.archive.org/web/20010126030300/http://europa.eu.int/ISPO/intcoop/g8/i_g8conference.html> [accessed 27 September 2021].

[256] Bangemann Group, *Europe and the Global Information Society*.

[257] 'Incest is best', *Economist*, 17 April 1993, p. 82.

[258] Andrew C Barrett, 'Shifting Foundations: The Regulation of Telecommunications in an Era of Change', *Federal Communications Law Journal*, 46 (1993), 39-62 (42-43).

to Apple chief executive John Sculley.[259]

In 1994, the debate about how Britain's broadband infrastructure should be built was reignited once more, but this time under the moniker of information superhighways. Since Gore and Clinton had announced their plans to promote the construction of information superhighways, questions had begun to be raised about the relative state of Britain's own infrastructure. As the *Daily Telegraph* put it, the concern in the air was whether 'Britain [can] race the U.S. on to the electronic highway'.[260] As mentioned above, however, this race was to be conducted within mutually agreed upon restrictions on the role of the state in this 'race'. The question, therefore, was framed as one of tuning market regulations to produce the desired outcomes.

The government, having recently adjusted telecommunications regulations in 1991, showed little interest in altering them again, predicated on the belief the current regulatory regime was sufficient and with no signs that state intervention to build such infrastructure was not forthcoming in either the US or EU, there was little external pressure for change. In fact, in both cases, the direction of travel appeared to be towards the UK's approach to telecommunications. The Trade and Industry Committee, meanwhile, anxious about the UK's information infrastructure lagging behind, decided to hold hearings between March and May 1994 on the topic of optical fibre networks before publishing its findings in July.[261] Much as in 1988, the Committee's investigation had been prompted by 'concern that government policies could be hindering or not sufficiently encouraging the development of the most advanced infrastructures and services, and that this could result in the UK falling behind other countries, with damaging consequences.'[262]

The promise that cable companies would be able to deliver information superhighways seemed much more uncertain in Britain than in the US, the Committee considered, as the uptake of cable television had been so much slower. Since the 1991 White Paper, the cable networks had developed substantially, from virtually nothing to 650,000 homes connected (and over 3 million passed) by April 1994, however this

[259] David Bowen, 'Calling up the future', *Independent*, 8 August 1993, p. 14.
[260] Monica Horten, 'Can Britain race the U.S. on to the electronic highway?', *Daily Telegraph*, 22 February 1994, p. 29.
[261] Trade and Industry Committee, *Optical Fibre Networks*.
[262] Trade and Industry Committee, *Optical Fibre Networks*, p. 9

represented just a little over a 20% take-up rate in areas where cable TV was available, and this rate had shown little sign of growing since 1992.[263] A focal point of the report was thus the question of who would actually be capable of building a national broadband information infrastructure in the near future, and how they could be incentivised to do so. The Trade and Industry Committee's recommendations were more tentative in 1994 than in 1988, focusing on reviewing PTO restrictions on a franchise-by-franchise basis, making clear that the ultimate intention was to 'enable any company to provide any service to any customer', and providing a firm timetable for when PTO restrictions would be lifted.[264] No direct state funding, in spite of how urgent they framed the need for the construction of information superhighways, was advised to be used. BT was thus sorely disappointed by the report's conclusions, especially considering it was reported that their 100-strong lobbying team had put intense pressure on the Committee to urge the removal of restrictions. Richard Woollam, head of the Cable Television Association, thought that the report had 'underwritten the entire basis of the UK cable industry and it is the worst possible outcome for BT.'[265]

The government released an official response in November, in which it broadly agreed with many of the conclusions of the report, but maintained its hesitance about lifting restrictions on PTOs.[266] This drew condemnation from Labour, which, under Margaret Beckett's brief leadership, had previously voiced support for lifting restrictions on BT.[267] Richard Caborn, the Labour chairman of the Committee voiced his 'deep disappointment' with the government's response, stating that 'by defending the status quo, the Government is effectively denying thousands of British firms and millions of families access to the Information Age. The market is rigged against British companies such as BT,' he concluded, nodding to the large proportion of the domestic cable industry that was funded by North American capital which had moved in after the initial failure of the domestic cable industry in the late 1980s.[268] As shown in chapter one, a similar process had begun to occur, too, with online services, as the US giant CompuServe moved

[263] Trade and Industry Committee, *Optical Fibre Networks*, p. 18.
[264] Trade and Industry Committee, *Optical Fibre Networks*, p. 48.
[265] Emily Bell, 'BT stalls on superhighway', *Observer*, 31 July 199, p. 5.
[266] Department of Industry, *Creating the Superhighways of the Future: Developing Broadband Communications in the UK* (London: HMSO, November 1994).
[267] House of Commons Debate, 'European Council (Corfu)', Hansard, vol. 245 (27 June 1994), cols. 553-67.
[268] Roger Highfield, 'Britain left behind on the superhighway', *Daily Telegraph*, 24 November 1994, p. 8.

into the vacuum left by the closure of Micronet. This pattern would be repeated in consumer Internet services in this period as well, with American OnLine (AOL) quickly coming to dominate the UK market after launching in 1996.

The British press, seemingly uncritically accepting of BT's claims that it had £15 billion in investment ready to go if restrictions on PTOs were lifted, was largely critical of the government. The *Independent* accused them of 'causing a hold-up on the superhighway', and described the decision as Trade Secretary Michael Heseltine's 'computer age blow to Britain'.[269] The *Times* similarly repeated BT's line that the decision had compelled it to drop £15 billion in planned investment, quoting a spokesperson as saying 'we cannot commit to cabling the whole country – which is what we had wanted.'[270] The *Financial Times* was unusual insofar as it mentioned that BT was not, in fact (despite the impression they intended to give), barred from offering cable television services. It could bid for franchises just like any other cable television company, but had refrained from doing so.[271] As Alan Cane pointed out in the paper the following day, this freedom had always been available to BT, 'although it has rarely sought to advertise the fact'.[272]

Despite protestations from the media, the clear conclusion was that, barring a change in government, regulations would stay the same as they had been set in 1991. After failing to convince the Major administration, BT turned its efforts towards convincing the Labour Party to back deregulation instead.[273] Labour's sympathies towards BT resulted in the announcement in October 1995 by Tony Blair that the Party had struck a deal with the company to lift restrictions on PTOs offering cable television services over their networks from 2002 in exchange for their agreeing to connect up public institutions to information superhighways for free, and so unleash the £15 billion in investment BT had claimed was waiting in the wings.[274] In *Wired UK*, editor John

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[269] 'Causing a hold-up on the superhighway', *Independent*, 23 November 1994, p. 17; Susan Watts, 'Heseltine's 'computer age blow to Britain'', *Independent*, 23 November 1994, p. 2.
[270] Ross Tieman, 'BT drops £15bn superhighway as TV ban stays', *The Times*, 23 November 1994, p. 25.
[271] Alan Cane and Raymond Snoddy, 'Government offers telecoms groups wider superhighway role', *Financial Times*, 23 November 1994, p. 28.
[272] Alan Cane, 'Ministers fail to speed up the superhighway', *Financial Times*, 24 November 1994, p. 10.
[273] Roland Gribben, 'BT caught in the political crossfire', *Daily Telegraph*, 6 October 1995, p. 11.
[274] Tony Blair, 'Leader's speech, Brighton 1995', *British Political Speech* <http://www.britishpoliticalspeech.org/speech-archive.htm?speech=201> [accessed 28 September 2021].

Browning (formerly of the *Economist*) wrote that 'when the history of Britain's lane of the information motorway is written, the October 1995 conference will hopefully go down as its most surreal moment.'[275] The deal was stunning, not least because of how blatantly it relied on the assumption that Labour would win the next election (Blair might equally have said 'virtual reality Labour', quipped Robert Hardman in the *Telegraph*, 'virtually in Number 10'[276]), but because it secured the backing of former Tory minister Norman Tebbit.[277] It was, however, just as quickly mired in controversy. Ian Lang, President of the Board of Trade, argued the deal threatened to reinstate BT in a monopoly position, while the need to consult Oftel, the industry regulator, had been completely overlooked. BT, sensing this growing heat, backed down from saying it was a 'deal', with a spokesperson saying 'a proposal has been put forward, that is all.'[278] The cable firms were, naturally, furious at the announcement, while others pointed out that it seemed Labour, and particularly Blair, had been duped by BT's lobbyists.[279] As Emily Bell, the *Observer*'s media business editor pointed out, BT's interest in a full fibre optic network seemed to stem from its desire to crush its cable competitors more than anything.[280] Oftel chief Don Cruickshank further criticised the plan for the apparent lack of choice it suggested for public institutions.[281]

Labour immediately back-pedalled on the details of the deal. By 1 November, the party had confirmed that cable franchises would be able to bid for contracts to connect public institutions, directly contradicting what Blair had said at Party Conference.[282] As Browning pointed out, the original framing of connecting up public institutions as a burden to BT was completely backwards, as their heavy use of telecoms meant they were lucrative for BT to service. 'In other countries,' he wrote, 'companies bribe their way into fast-growing markets. Labour wants to bribe BT to enter them.'[283] When Peter Bonfield took over as the new CEO of BT, he dampened the company's earlier commitments

[275] John Browning, 'Labour Sells Out to BT', *Wired UK*, December 1995.
[276] Robert Hardman, 'Virtual reality in Blair's dreams', *Daily Telegraph*, 4 October 1995, p. 6.
[277] Rebecca Smithers and others, 'BT highway deal gets backing from Tebbit', *Guardian*, 6 October 1995, p. 6.
[278] David Hughes, 'Blair's £15bn BT deal 'a deception'', *Daily Mail*, 5 October 1995, p. 1, 3.
[279] Robert Uhlig, 'Cable firms 'are a class act already'', *Daily Telegraph*, 6 October 1995, p. 11.
[280] Emily Bell, 'Is BT the best fibre provider?', *Observer*, 8 October 1995, p. 18.
[281] Nicholas Bannister, 'Oftel chief attacks 'lack of choice' in Labour BT superhighway plan', *Guardian*, 2 November 1995.
[282] Browning, 'Labour Sells Out to BT'.
[283] Browning, 'Labour Sells Out to BT'.

significantly, saying there would be a variety of networks in Britain, not a singular national one operated by BT.[284] By Labour Party Conference the following year, Blair had effectively abandoned the BT deal, and was careful to include the cable companies in his updated plans to connect public institutions to broadband networks.[285] As media scholar Peter Goodwin observed in late 1995, the absolute block on public provision that Labour now subscribed to meant that the most obvious way of squaring the circle between BT and the cable companies, a single public monopoly building this new infrastructure and leasing it for the provision of services, was ruled out. 'So policy debate inevitably revolves around the insoluble dilemma of infrastructure competition versus effective infrastructure provision, but at the cost of private monopoly.'[286] As Labour backed down from its 'deal' with BT, it became clear that the former would remain the chosen path.

Video not in demand

If a new broadband information infrastructure was to be built in the UK, then, in the early 1990s, the regulatory regime put in place by the Conservatives assumed that it would be the cable television companies that would deliver it. To consider such a costly infrastructure spending spree, however, lucrative new services had to be created which both utilised the massively increased bandwidth of fibre optic cable, and which sufficiently large numbers of people would be willing to pay sufficiently large amounts of money to access. As Paul Reynolds, director of BT's Information, Communications and Entertainment programme, told the *Independent* in 1993, 'the capacity fibre optics gives you is enormous. It would be mad to do it under the present system: it would be like building a 20-lane motorway if you can only use two lanes.'[287]

In the US, however, experiments had been underway by cable companies since the start of the decade to figure out how to make money from those 18 other lanes. There, Time Warner had begun the first public experiment in using high-capacity optical fibre

[284] Nicholas Bannister, 'BT chief dashes Blairite hopes', *Guardian*, 9 February 1996, p. 17.
[285] Tony Blair, 'Leader's speech, Blackpool 1996', *British Political Speech* <http://www.britishpoliticalspeech.org/speech-archive.htm?speech=202> [accessed 28 September 2021].
[286] Peter Goodwin, 'British Media Policy Takes to the Superhighway', *Media, Culture & Society*, 17 (1995), 677-89 (p. 682).
[287] Bowen, 'Calling up the future'.

lines in combination with digital compression technology to deliver vastly expanded entertainment services in 1991.[288] Quantum's 150 channels was, the *New York Times* reported, just the beginning, with further advances in cable and compression technology promised to provide several hundred channels in the future. This number had a tendency to exaggerate, as well, with each subsequent mention: by July 1992 the *New York Times* would be suggesting that further technological advances could eventually deliver 'thousands' of channels.[289]

The bidirectionality of optical fibre cable communications, allowing users to send as well as receive data, also introduced the potential for experimentation with new interactive services. On top of the *n* hundred channels and pay-per-view movies, services like home shopping, banking, bill payment or responding to polls could also be introduced in the future.[290] To anybody in Britain that remembered the early promises of Prestel, these 'new' ideas would have sounded very familiar, though the high bandwidth of optical fibre cables meant these services promised to be far more dazzling than the slow-loading blocky graphics of earlier viewdata-based systems.

Among these prospective services the standout was video-on-demand (VOD), which was believed to be the equivalent of a license to print money by cable companies like Time Warner: most of the additional 75 channels Quantum provided to subscribers in Queens were dedicated to pay-per-view movies.[291] VOD was the 'holy grail of cable operators on both sides of the Atlantic', with a fully functioning service theoretically allowing cable operators to totally replace the video rental store business which, at the time, annually grossed some $14 billion in the US.[292] If cable companies could take in these revenues instead, it was imagined they could then recoup the cost of building expensive information superhighways.

By October 1994, however, the basic commercial viability of such services was already being called into question. A survey by the consultancy Inteco, based on interviews with 11,500 people in the UK, France, and Germany concluded that sufficient

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[288] James Barron, '150 Remedies to the Wail, 'There's Nothing on TV'', *New York Times*, 19 December 1991, B, p. 3.
[289] Peter B Nichols, 'Home Video', *New York Times*, 2 July 1992, C, p. 16.
[290] Mark Tran, 'Nirvana for the couch potato', *Guardian*, 28 March 1992, p. 35.
[291] Hugh Davies, 'Big Apple laid to rest in couch potato heaven', *Daily Telegraph*, 26 April 1992, p. 15.
[292] Steve Homer, 'A dodo in every home', *Independent*, 18 May 1992, p. 13; Davies, 'Big Apple laid to rest in couch potato heaven'.

demand for new services like VOD that could justify network upgrades simply didn't exist in Europe, especially when compared to the US.[293] Europeans rented less videos in general, whereas the relatively high use of VCRs in the UK to record television programmes suggested that the existing range of broadcast content available in the UK was quite well received among the public. The cable penetration rate in the UK compared to the US was also minuscule: less than 5% of British households, by Inteco's estimation, had subscribed to even basic cable television services at all compared to over 60% in the US. Furthermore, barely anyone interviewed showed any particular interest in home shopping or any of the other online services imagined for the new networks.

Even in North America, where boundless enthusiasm about the possibilities of interactive multimedia television services had proliferated, a degree of pessimism was starting to creep in. In late 1994, one senior executive from TCI went so far as to describe interactive multimedia as 'the fastest growing zero-billion-dollar business in the world'.[294] *Wired* had offered a particularly scathing overview of interactive television experiments around the same time titled 'people are supposed to pay for this stuff?' Their reporter concluded that,

> by the time I return to my own living room, I am sure that I don't want anything to do with this. I do not want to shop for socks. I don't want a smart set-top box. I do not want a 9-pound ham. I'll just stay the spud I am. I just want to plop down on the sofa, turn on the entertainment, tune out my higher brain functions, and exercise my constitutional right to stare vacantly at the tube, resting assured that interactive television is still little more than an oxymoron.[295]

By the end of 1995, the *Economist* would be declaring the dream of interactive television services to be dead in the water, and with it the hopes for optical fibre reaching into every home.[296]

Beyond the issue of consumer apathy, the quickly emerging reality was that the economics of VOD, the service expected to primarily bankroll the construction of new

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[293] Nicholas Bannister, 'Go-slow on the European multimedia superhighway', *Guardian*, 26 October 1994, p. 18.
[294] Raymond Snoddy, 'Will anyone make money out of multimedia?', *Financial Times*, 2 January 1995, p. 13.
[295] Evan I Schwartz, 'People Are Supposed to Pay for This stuff?', *Wired*, 1 July 1995.
[296] 'Tuned out and dropping off'.

broadband infrastructure, just didn't add up. As the *Economist* reported, one trial of VOD in the US found customers watched, on average, 2.5 movies every month. At $3-4 per film, that amounted to about $90-120 per subscriber per year. The initial cost of providing the service, however, was estimated at $500-1000. On top of this, the costs of obtaining the rights to video content had to be factored in as well, as did the fact that video rental shops made up a substantial amount of their revenues from late fees. At a low estimate, such services would thus take five years to break even and, besides, trials by TCI and AT&T had shown that customers were just as happy with near-VOD services (using staggered screening times across multiple pay-per-view channels for popular titles) as full VOD, and such a service could be delivered with existing coaxial cable and satellite infrastructure – no expensive information superhighways needed. The magazine concluded that 'for now, interactive TV seems likely to happen only where a company has other reasons to build a fibre optic network.'[297]

These concerns were repeated by people within the cable industry. Andrew Curry, head of interactive television at Videotron UK, told the *Independent* in 1996 that 'the cost of VOD is enormous and even with the falling cost of computer technology, I can't see it becoming viable.' Malcolm Bird, chief executive of Online Media similarly thought that 'there has been a lot of hype about interactive TV and as a result, it has not lived up to expectations. I'm not surprised because some of these were false.'[298] Later, Curry would describe the whole cable industry at the time as 'myopic' in its obsessions with the idea that 'if you build it, they will come; that customers and revenues will follow.' 'One of the strangest aspects of being an observer of the many VOD and video dial tone trials', he added, 'was watching the construction of test systems that, even if deployed widely, would have had to attract unfeasibly large revenues from each household connected to be sustainable.'[299] It was, effectively, propelled by a 'blizzard of hyperbole' as the *Economist* put it.[300]

As the VOD bubble burst, though, even the basic services offered by the cable industry were struggling to catch on in the UK by early 1995, let alone the more

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[297] 'Tuned out and dropping off'.
[298] George Cole, 'Tune in, look sharp and switch on to iTV', *Independent*, 29 April 1996, Section Two, pp. 12-13.
[299] Andrew Curry, 'Learning the Lessons of Videoway: The Corporate Economy of New Media Trials', *The Information Society*, 16 (2000), 311-18 (p. 315).
[300] 'Behold the mundimedia age', *Economist*, 1 April 1995, p. 85.

hyperbolic future services that it had been projected to deliver via optical fibre. By April 1995, there were about one million cable subscribers in Britain – up 50% on the previous year, but equivalent only to about 4% of Britain's TV homes. In the US about 2/3 homes of homes passed by cable subscribed, while in the UK this was just 1/5, and some companies were losing as many as 1/2 of their subscribers each year. These factors were severely harming the basic profitability of cable in the UK, and leaving network operators swimming in debt.[301] In terms of those households passed that would be willing to pay for more TV choice, satellite was also providing stiff competition by the early 1990s, while, as discussed in the previous chapter, the prevalence of VCRs in British homes undermined the appeal of a wider selection of television channels. The industry was still struggling, even with the added boon of being able to offer telephone services from 1991, with the same basic problems it had suffered in the late 1980s.

Financial Times journalist Andrew Emmerson was soon proven right when he speculated in October 1994 that the most valuable results of an upcoming trial of interactive television services was likely to be 'that the home TV is not the most appropriate platform for multimedia.'[302] As interactive television faltered, all eyes would shift to a technology that had been frequently discussed in tandem with the information superhighway, variously presented as a precursor, prototype, or alternative: the Internet.

The Internet

The Internet and the information superhighway were introduced to the British public at the same time, with both often being covered in the same programme or article. Much as in the 1980s, it was assumed in the UK that mass market online services would be delivered through the television. The promise in the early 1990s was that interactive television services, delivered over new optical fibre networks, would be how this phenomenon of large numbers of people going online from their homes, predicted to be imminent since the start of the 1980s, would finally be delivered. Early experiments in the US followed by waves of multi-billion-dollar deals and mergers seemed to pundits to suggest that the information revolution was about to burst into every home in the

[301] 'Tangled up', *Economist*, 1 April 1995, pp. 85-86.
[302] Andrew Emmerson, 'Many bridges to be crossed', *Financial Times*, 17 October 1994, p. 10.

country. Still in their early experimental stages, however, these information superhighway services existed mostly as prototypes, and indeed would rarely go much further. The Internet, however, was very real, readily available, and growing quickly. For those wishing to talk about the information superhighway, this made the Internet a useful reference point – either as an example of a prototype or as an alternative; a competing vision of what 'going online' might look like.

Therefore, one of, if not the first, mention of the Internet on British television was during a one-off programme for the BBC in September 1993, *MeTV*, on the development of interactive television services. *MeTV* also wondered in passing what lay beyond the commercial vision of information superhighways as super-charged cable TV and considered the Internet as another technology that was developing in parallel, and in a very different way. Mitch Kapor of the Electronic Frontier Foundation (EFF) argued that the Internet was an alternative to the information superhighway, a highly decentralised network opposed to highly centralised interactive television services: 'the world's largest functioning anarchy'.[303]

A *Tomorrow's World* segment a few months later in April 1994, prompted by the Trade and Industry Committee's investigation into optical fibre networks, would similarly present the Internet as part of a broader examination of the information superhighway. Here, however, the Internet was framed not as an alternative to, but a taster of, what would come 'rolling down' new optical fibre networks. Limited by the technology of the Web and the low bandwidth of the public telephone network, it was presented as a slower, less user-friendly prototype. Far more exciting (and the main focus of the segment) was the possibility of high-definition interactive television provided by an information superhighway to the home.[304] This was the Internet as a 'mundimedia' alternative to the information superhighway, a term coined by the *Economist*: 'it is mundane, but you can at least get it on Monday'.[305]

The cumulative effect of these conflicting framings was broadly confusion, particularly where journalists with only loose technical understandings of the technologies were tasked with explaining them. An excited article by Jonathan Freedland for the *Guardian* in January 1994, for example, described how the destination of the

[303] *MeTV: The Future of Television*, BBC Two, 25 September 1993.
[304] *Tomorrow's World*, BBC One, 29 April 1994.
[305] 'Behold the mundimedia age', *Economist*.

information superhighway was 'your living room', where the television would be replaced by a 'smart box', synthesising television, computer, and telephone.[306] According to Freedland, 'today's information superhighway', however, consisted of 'computers talking to each other via telephone modems' through systems like CompuServe, Prodigy, AOL, and the Internet. Confusingly, in the accompanying illustration to the article, the object labelled 'the smart box' is clearly a desktop personal computer, despite Freedland stating that information superhighways would be connecting to people's TVs, not computers. A Channel 4 news segment from July 1994 would similarly talk about the Internet in the same breath as the information superhighway, and with the same confusing shift between framing it as a prototype and a synonym.[307] At one point, the presenter bafflingly explains that fibre optics 'are the superhighways which some say will give everyone in Britain potential access to the riches of the Internet', ignoring the fact that dial-up Internet access was already available to anyone with a PC, a modem, and a telephone line.

[306] Freedland, 'Get set to fast-forward into the future'.
[307] *Channel 4 News*, Channel 4, 27 July 1994.

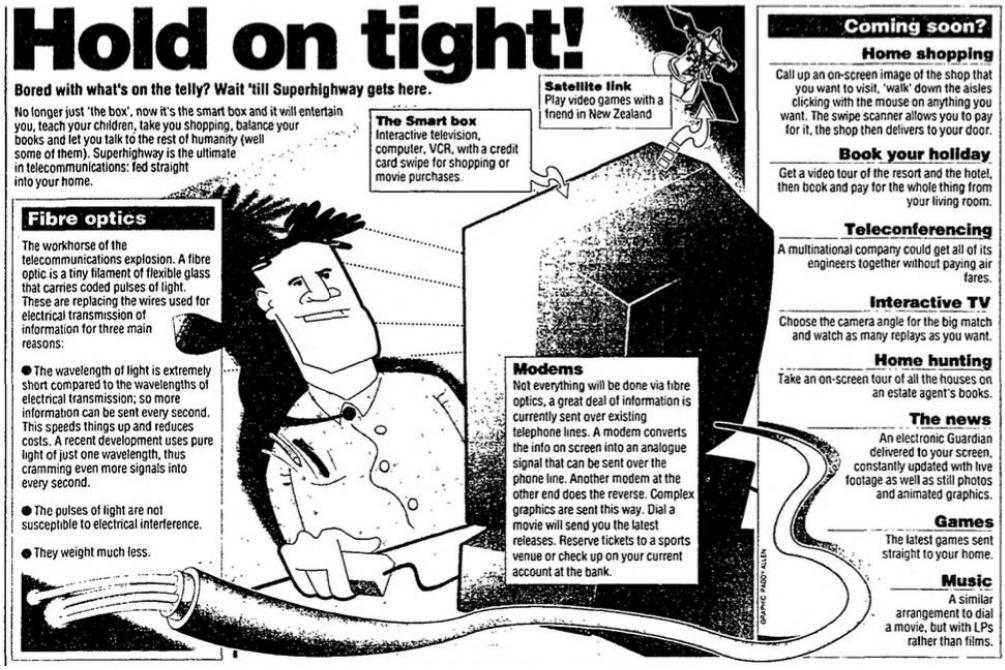

Figure 6. This illustration from Jonathan Freedland's feature on the 'information superhighway' in the *Guardian* in January 1994 exemplifies the confusing way in which the technology was reported on in the non-specialist press: while Freedland talks about the information superhighway arriving in homes via a computer (a 'smart box') attached to the television, this illustration shows this 'smart box' as a typical desktop PC being used by a white-collar worker.

It is no wonder, then, that in the first episode of BBC Two's computing programme *The Net* in April 1994, presenter Susan Rae would say to Davey Winder, a prominent CIX user and promoter of computer communications, that 'the word "Internet" is linked with words and expressions like "information superhighway", "cyberspace", and "I'm confused".' Winder, compounding this confusion, would respond that the 'information superhighway' was what Americans called the Internet: 'it's a lovely term but it's complete crap, it means nothing to anybody.'[308] The definition of information superhighways set out by Gore when he originally coined the term had clearly become muddled by 1994 – especially in British media coverage, to the extent that Winder could dismiss it as a useless term after himself giving a definition contradictory to Gore's. Gore was, however, partly responsible for this confusion, having promoted the Internet as a prototype for the information superhighway, and encouraging the White House to get on

[308] *The Net*, BBC Two, 13 April 1994

the Internet in order to lead by example.[309] This immediately created ambiguities about the relationship between the Internet and the information superhighway, blurring the distinction between the two.

What was quite consistent, though, in UK coverage of the information superhighway was the belief that the digital revolution arriving through televisions seemed, in 1994, far more likely to many than through networked personal computers in the home. The television was ubiquitous in British homes in a way PCs simply were not. As the *Daily Telegraph* noted in an article on an interactive television pilot project, the television seemed like the obvious route into people's homes for the information superhighway in a country where more than 90% of homes had a TV, compared to just 4% with a PC capable of connecting to the Internet.[310] Televisions were also simpler to operate, whereas PCs were, for a great many people, most certainly not. Interactive television was thus imagined as a more populist model for the development of the information superhighway than the Internet as accessed through a PC. Even Jack Schofield, the *Guardian*'s veteran computer journalist, agreed in January 1994 that the information superhighway 'will probably be much like the Internet, except that it will be multimedia and consumer-oriented, linking millions of homes to the telephone and data networks via cable TV connections. The one thing we do know', he concluded, 'is that neither the US nor the UK government will pay for it.'[311]

In the end, it was Winder's understanding of the meaning of information superhighways that won out, however. As the interactive television services associated with the information superhighway failed to arrive, the conceptual confusion between information superhighways and the Internet that existed in 1994 culminated in the term 'information superhighway' being essentially treated as a synonym for the Internet by early 1995. The announcement of a project to connect Welsh primary schools to the Internet in April 1995, for example, was described by the *Times* as 'Welsh schoolchildren take first steps on superhighway', while an *Express* article on Internet pornography would define the 'information superhighway' as 'the new worldwide computer network',

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[309] 'Wired: Businesses Create Cyberspace Land Rush on the Internet', *Los Angeles Times*, 22 August 1993; George McMurdo and Evelyn Simpson, 'The White House Files', *Journal of Information Science*, 20 (1994), 305-13.

[310] John Shaw, 'The face of 21st century family viewing', *Daily Telegraph*, 28 November 1995, p. 39.

[311] Jack Schofield, 'Data takes to the fast lane', *Guardian*, 27 January 1994, p. 23.

clearly referring to the Internet.[312] The Internet was very real, readily available, and, as I discuss in greater detail in chapter three, quickly being elevated in importance in British politics by 1995 – as the *Times* story shows, commitments were already being made to grant schools Internet connections. Interactive television trials, meanwhile, were only just getting off the ground.[313] As Flichy puts it, while interactive television was perpetually delayed and doubts mounted that it would ever actually be delivered, the Internet filled the void it left to become the 'latest avatar of information highways'.[314]

Britain gets Wired

Much as Prestel's failure was not unusual among videotex projects, the failure of interactive television services was by no means peculiar to the UK. Such services had similarly struggled to get off the ground in the US and North America more generally, and it was often many of the same companies that were conducting trials in both North America and the UK (the Canadian cable company Videotron, for example). As Flichy shows, as interest in the information superhighway qua interactive television had flagged in the US beginning in 1994, this saw the Internet supplanting it as the new locus of media attention.[315] This shift was reflected in industry manoeuvres, as well, perhaps best encapsulated in Microsoft's dramatic pivot away from interactive television towards PC-based Internet connectivity in May 1995.[316] Intrigued Americans soon flocked online in their millions. AOL, the largest Internet access and online service provider in the US, tripled its subscriber base in 1995, reaching 4.5 million users by the end of the year, and in August, Web browser maker Netscape had a barnstorming initial public offering (IPO) of its shares, valuing the 16-month-old company at $2.7 billion and kickstarting the dotcom bubble.[317]

The magazine that was widely considered to encapsulate this particular moment

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[312] 'Welsh schoolchildren take first steps on superhighway', *The Times*, 3 April 1995, p. 1.
[313] Paul Taylor, 'Let the battle begin', *Financial Times*, 13 April 1995, p. 16.
[314] Flichy, *The Internet Imaginaire*, p. 31.
[315] Flichy, *The Internet Imaginaire*, pp. 31-34.
[316] A reproduction of Bill Gates' internal memo, 'The Internet Tidal Wave', can be found here <https://lettersofnote.com/2011/07/22/the-internet-tidal-wave/> [accessed 10 September 2021].
[317] Christopher Parkes, 'America Online claims 4.5m users', *Financial Times*, 29 December 1995, p. 17; Joseph W Campbell, *1995: The Year the Future Began* (Berkeley: University of California Press, 1995), p. 37.

of huge public interest in the Internet and the explosive growth in Internet and online service use was *Wired*, variously regarded as the 'bible' of the Internet, the Information Age, and the 'virtual class': 'the alpha and omega of all things computer, cyber-cool, digital and techno.'[318] It is not without reason that Thomas Streeter describes this taking-off point of the Internet in America in 1993/4 as the 'moment of *Wired*'.[319]

If the whirlwind success of *Wired* in the US and its expansive influence encapsulated a particular moment of rapidly expanding use of the Internet by ordinary Americans, I argue in this section that the ill-fated attempt to launch a UK edition of the magazine in 1995 reflected the relative under-development of home Internet access and online service use in the UK. Trying to understand the failure of *Wired UK*, and exploring the varied attempts to make sense of this failure by contemporary observers, provides a valuable starting point for understanding the state of consumer Internet use in the UK in the mid-1990s, especially its position relative to the United States. This failure came as a surprise, as many observers had assumed that the UK would closely follow the US. As John Browning, one of the editors of *Wired UK* put it, 'we expected that what was happening in San Francisco would start happening immediately in the UK. The digital revolutionaries would come out of the woods and they would understand entrepreneurship.'[320] In this section, I address the crucial question of why this didn't happen.

Importing the digital revolution

The British media had taken a keen interest in ideas about information superhighways that had begun to gain significant traction in the United States, not least because it hailed the transformation of their own industry. Much of this discourse was focused on the arrival of new forms of media and convergence between old media, predicting tectonic shifts in a whole swathe of industries as a result. Paying close

[318] John Gray, 'The sad side of cyberspace', *Guardian*, 10 April 1995, p. 18; Emily Bell, 'Sofas in cyberspace?', *Observer*, 19 March 1995, p. 7; Richard Barbrook and Andy Cameron, 'The Californian Ideology', *Mute*, 1 September 1995.
[319] Thomas Streeter, *The Net Effect: Romanticism, Capitalism, and the Internet* (New York: New York University Press, 2011), pp. 119-37.
[320] Rory Cellan-Jones, *Dot.Bomb: The Strange Death of Dot.Com Britain* (London: Aurum Press, 2003), p. 17.

attention to these arguments, many British media organisations began to experiment with 'new media' to secure their long-term viability in the face of these oncoming changes. News Corporation, owners of *The Times* and *The Sun,* among others, had begun manoeuvring to anticipate the rush to publish online at the behest of Rupert Murdoch, who had been heavily involved in the introduction of new technologies to media production and distribution in the UK in the 1980s.[321] Murdoch had announced he would be purchasing the American online service Delphi in September 1993 in order to set up an 'electronic newspaper', and on 18 July 1994 Delphi was launched in the UK, including access to *Times* headlines and an 'Enter Password' section managed by the computer journalist John Diamond.[322] The BBC had also showed a clear interest in new media from 1994, launching the television magazine programme *The Net* (though 'Net' related stories made up only a fraction of the programme's content) and radio show *Big Byte* on 5 Live, and even an ISP, the BBC Networking Club, in July.[323] The *Daily Telegraph* followed suit with the launch of a digital edition of the paper, *The Electronic Telegraph*, on 15 November, providing a 'flavour' of each day's news, though not a full reproduction of the paper.[324]

At the *Guardian*, former editor-in-chief Alan Rusbridger recalled that initial interest in the Internet at the paper had come from the small Product Development Unit headed by Tony Ageh. They had been early fans of *Wired* in 1993, and even gotten in contact with the founders, Louis Rossetto and Jane Metcalfe, leading to a meeting in London with Rusbridger and a subsequent whistle-stop tour alongside Ageh of newspapers in the US which were developing online offerings.[325] Clearly, this tour had a significant impact at the paper. In May 1994, the *Guardian* relaunched its computer section as 'OnLine', describing itself as 'the first section in a national newspaper exclusively devoted to the startling developments in computing, science and technology',

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[321] Murdoch was particularly influential in the development of satellite television in the UK. See King, 'Thatcherism and the emergence of Sky Television'.

[322] John Lippman, 'Murdoch Set to Buy Delphi Data Services', *Los Angeles Times*, 2 September 1993; Matthew May, 'Delphi opens British network', *The Times*, 15 July 1994, p. 30.

[323] Jim McClellan, 'Cyberspace: Jim McClellan ploughs through the mushrooming range of Net manuals', *Observer*, 17 Jul 1994, p. 61. It is noteworthy that the producer of *The Net*, John Wyver, had produced the BBC documentary *MeTV* a year earlier.

[324] Christine McGourty, 'Daily Telegraph steps on to the computer 'superhighway'', *Daily Telegraph*, 16 November 1994, p. 2.

[325] Alan Rusbridger, *Breaking News: The Remaking of Journalism and Why it Matters Now*, eBook (Edinburgh: Canongate Books, 2018), ch. 3.

and quoting Alvin Toffler in saying that the 'present computer age' was 'a revolution even deeper and faster than the industrial revolution: an entire culture in upheaval'.[326] A month earlier, as well, Jim McClellan had been given a regular column on 'cyberspace' in the *Observer*.[327] The *Guardian* had also undertaken its first experiments with putting content online in August, when they agreed to allow Bill Thompson of the ISP Pipex, who was running a pop-up cyber cafe for comedian and writer Danny O'Brien's 'Caught in the Net' stand-up show at the Edinburgh Fringe, to upload the *Guardian*'s entire Fringe coverage to a dedicated Website.[328]

The British newspaper industry's first steps onto the Internet in 1994 were, despite the grandiose claims being made about revolutionary changes in media in the near future, generally very tentative. They were generally poorly funded (if at all), and were the passion projects of a select few within an organisation that were highly enthusiastic about the Internet and the Web. The *Electronic Telegraph*, for example, was started through the efforts of foreign reporter Ben Rooney, who had been 'reading all these things about the Internet in wire copy coming out of America, and thought it sounded interesting.'[329] The project was given no budget, and was essentially a bodge job, cobbled together from begged or borrowed parts and pieces (a Sparc server blagged from Sun Microsystems, a 64 Kbit line talked out of Demon Internet, and some Macs borrowed from the *Telegraph* art department), held together with a significant amount of jury-rigging. The small scale of these projects is hardly surprising when one considers the vanishingly small number of people who at the time would have been able to actually access them, meaning any major investment in an online offering would have been almost entirely speculative.

Ironically, the boldest attempt to stake an early claim to leadership in the emerging world of the Internet and new media in the UK didn't involve new media at all. On 18 October 1993, the *Guardian*'s parent company, Guardian Media Group (GMG),

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[326] 'OnLine', *Guardian*, 19 May 1994, OnLine, p. 1.

[327] Jim McClellan, 'Cyberspace: Jim McClellan talks to the American SF author Bruce Sterling and links up with the cyberpunk datascape', *Observer*, 10 April 1994, p. 67.

[328] The full Fringe programme was also made available online. Ellie Carr, 'Nerd up', *The List*, 19 August 1994, p. 16; Bill Thompson, 'Fringeweb – where it began', *A Stick a Dog and a Box With Something In It* (7 September 2014) <http://www.astickadogandaboxwithsomethinginit.com/fringeweb-where-it-began/> [accessed 28 September 2021].

[329] 'How online journalism got its UK start', *Press Gazette*, 1 June 2006.

announced that a UK edition of *Wired* would be launching in the following spring as a joint venture with the magazine's San Francisco based publishers, in what would be the first non-US iteration of the magazine. At the time, *Wired* was selling 150,000 issues a month, of which about 10,000 were sold in the UK.[330] *Wired UK* launched on 24 March 1995 with billboards and posters and a series of two-second 'blipverts' on UK TV.[331] The advertising was, much like *Wired*'s striking and distinctive Day-Glo graphics, designed to be attention-grabbing, signalling a disruptive newness. To accompany the launch, US edition editors Louis Rossetto and Jane Metcalfe also did the rounds in the British media to promote the magazine.[332]

The original US edition of *Wired* has been the subject of substantial historical attention, primarily because it has been identified as a crucial promoter of what Barbrook and Cameron dubbed the 'Californian Ideology', a particular synthesis of free market economics and countercultural libertarianism which gained significant traction in the 1990s.[333] *Wired* was a project with a clear inclination, and a particular project in mind. *Wired UK*, however, was far less sure of itself. In the first instance, *Wired UK* was only partially composed of original British-produced content, while Rossetto had been granted the right to vet these UK stories to make sure they were sufficiently in keeping with the magazine's style and tone.[334] The San Francisco office had also vetoed some of the more audacious hires suggested by the British side of the magazine, including Douglas Adams as editor and Neville Brody as creative director.[335]

Filling up even the modest amount of space dedicated to UK-specific content proved difficult for the magazine. Danny O'Brien, one of the earliest members of *Wired UK*, described how the lack of any real cyberculture 'scene' in the UK meant an eclectic range of personalities and ideas were dragged into the mix: some were interested in

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[330] Andrew Culf, 'Digital revolution journal for UK', *Guardian*, 19 October 1994, p. 5; Emily Bell, 'Media magazine gets wired for pounds', *Observer*, 30 October 1994, p. 6.

[331] This date is according to George McMurdo, 'Electric Writing: Getting Wired for McLuhan's cyberculture', *Journal of Information Science*, 21 (1995), 371-81. Bell, 'Sofas in cyberspace?'.

[332] Christopher Reed, 'Inter next world', *Guardian*, 20 March 1995, pp. 14-15.

[333] Barbrook and Cameron, 'The Californian Ideology'. See also Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago Press, 2006), pp. 207-36; and Streeter, *The Net Effect: Romanticism, Capitalism, and the Internet*, pp. 119-37.

[334] Originally planned to be around 30%. Bell, 'Media magazine gets wired for pounds'.

[335] Bobbie Johnson, 'The UK gets reWired', *Guardian*, 23 March 2009.

media, others economics, and yet others were just interested in consumer products.[336] O'Brien himself admitted that he was hardly a visionary in the style of Rossetto or frequent US-edition contributor Nicholas Negroponte. In an interview with Jim McClellan on 19 March, contributing editor Robin Hunt said that the UK version of *Wired* wouldn't just be 'unthinkingly importing the anti-government digital libertarianism that flows through many of the pieces of its American counterpart.' Executive editor John Browning added in the same interview that it would be more about evolving new approaches, for example, spotting the European equivalent of US cyber-populist Newt Gingrich.[337] He described the politics of *Wired UK* as 'classical liberal': unsurprising considering Browning had been a long-time contributor to the *Economist*, the self-described lodestar of Anglo-American liberalism.[338] Such claims, however, could not override the prevailing incoherence of the magazine's content.

Other attempts to cover *Wired*-style content in the UK had also ended up being similarly eclectic in their coverage. In spite of their names, both *The Net* and the *Guardian*'s 'OnLine' section covered a wide range of computer, and, in the latter case, science related stories. Though presenter Susan Rae would tell viewers during the first episode of *The Net* in April 1994 that the show was so-called 'because the real future of computers lies in telecommunications', computer communications would represent only a minority of the show's overall coverage.[339]

The response to *Wired UK*'s launch was tepid at best. Jonathan Miller, writing in the *Sunday Times*, described the launch event in a Holborn night club as half-hearted, and complained that the magazine looked 'more tired than wired',

> full of Beavis and Butt-head inanities, devoid of a single really challenging article, and copied every element of its fluorescent layout from an American magazine that looked exciting three years ago, when it was new, but now just looked hard to read.
>
> What the magazine failed to explain, he thought, was why 'if it is so terribly in tune

[336] Danny O'Brien, 'Wired UK: What nearly happened', *Spesh* (7 February 1997) <http://www.spesh.com/danny/wireduk/index.html> [accessed 28 September 2021].
[337] Jim McClellan, 'Cyberspace: It's a Wired world', *Observer*, 19 March 1995, p. 71.
[338] Alexander Zevin, *Liberalism at Large: The World According to the Economist*, eBook (London: Verso, 2019), Introduction.
[339] *The Net*, BBC Two, 13 April 1994.

with the cybernetic future' it was being published on paper when, by its own doctrine, it ought to be read on a screen.[340] He concluded: 'I am all in favour of accelerating down the information highway […] but on the evidence of the first issue, Wired UK looks like being roadkill.' While the first issue sold an impressive 60,000 copies, comparing well to the US edition, this quickly dropped off to 25,000 by June.[341] By then, the magazine was beset by internal disputes and production issues, which Jane Metcalfe flew out to London to try to resolve. By July, relations between the two offices had deteriorated to the point that the American parent company of *Wired* lodged a writ in the UK seeking an injunction to stop the production of *Wired UK*, and to seek damages from Guardian Newspapers for breach of contract.[342] On 22 July, Wired Ventures Ltd acquired the Guardian Media Group's 50% interest in *Wired UK* for an 'insignificant amount'. In August, the existing *Wired UK* staff were fired.[343] A new team was put together to run a reincarnation of the magazine in late 1995, with staff poached from around British media, including Matthew Doull, the 25-year-old nephew of *Daily Telegraph* owner Conrad Black.[344] This new version of the magazine carried on for a little over a year, managing to crawl back up to a circulation of about 40,000, though this was still below the typical 50,000 circulation threshold required for sustainability in the UK magazine market.[345] On 4 February 1997, it was announced the plug would finally be pulled on *Wired UK* for good after the publication of the March 1997 issue, and its 32 staff made redundant. The US edition was put back on sale to replace it.[346] The response of *The Economist*, still apparently bitter about the staff *Wired UK* had poached in late 1995, amounted to 'don't let the door hit you on the way out'.[347]

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[340] Jonathan Miller, 'Sorry milkman, no milk today, or ever again', *Sunday Times*, 26 March 1995, p. 3. Multiple other commentators made this same observation. See Caris Davis, 'Short circuit on the superhighway', *Sunday Times*, 6 August 1995, p. 10 and 'Good catch for the Internet', *Daily Telegraph*, 19 September 1995, p. 27.

[341] Davis, 'Short circuit on the superhighway'.

[342] Davis, 'Short circuit on the superhighway'.

[343] 'Observer: The wired wide world', *Financial Times*, 17 August 1995, p. 13.

[344] 'Observer: The wired wide world'; 'City Diary', *Independent*, 17 August 1995, p. 22.

[345] Jim McClellan, 'Logged off', *Guardian*, 10 February 1997, pp. 10-11; Arthur, 'Magazine of the US digerati fails to hack it here'.

[346] 'Technology magazine to fold', *Independent*, 6 February 1997, p. 2; 'Media Watch: Internet magazines', *Marketing*, 6 February 1997, p. 7.

[347] 'Crosswired', *Economist*, 8 February 1997, p. 96.

‘A risky pitch over here’

In retrospect, Danny O’Brien thought that the lack of a distinct identity was what doomed *Wired UK* from the beginning.[348] As much of *Wired UK*’s content was directly imported from the US original, some suggested that the poor response to the magazine lay in a deeper British or European cultural antipathy or at least scepticism towards the kind of ideas the US edition of *Wired* presented. Caris Davis, writing in the *Sunday Times*, posited that Europeans in general were less enamoured with the romance of entrepreneurialism than Americans: ‘where *Wired US* pictures the American cable tycoon John Malone on its cover as a Mad Max type, we see a dreary businessman recently investigated by a government 5,000 miles away for predatory over-pricing. The so-what factor looms large. Here, technology doesn’t exist in a vacuum.’[349] Shortly before its launch, Jim McClellan had similarly wondered whether *Wired*’s philosophy wasn’t a ‘risky pitch over here’. A key difference between US and European ‘techno-culture’, he warned, was that people here were ‘more sceptical and critical, less inclined to buy revolutionary American techno-hype’ in the latter.[350]

Douglas Rushkoff, a critic of the original *Wired*’s politics, wrote in the *Guardian* that he viewed the failure of *Wired UK* as a positive sign. This was ‘yet another defeat’, he said, in *Wired*’s ‘campaign to equate the digital revolution with American-style right-wing libertarianism, and to dominate discussions about futurism and cultural ideology with members of its own, highly regarded posse.’[351] This was a story, as he saw it, of British ‘digital enthusiasts’, ‘already primed to resist what they see as rampant cultural imperialism from American media conglomerates’, rejecting a combination of ‘hype and intimidation’ from *Wired*. He saw the key rift that felled the first iteration of *Wired UK* as being that between the relatively more critical and left-leaning politics of the *Guardian* and the right libertarianism of *Wired*. The British computer users Rushkoff had spoken to had been more practical in their approach to the Internet, and more pessimistic about *Wired*’s digital utopianism. One Londoner told him they just wanted to know how things worked, what was important, and what to look out for: ‘*Wired* used buzzwords and

[348] O’Brien, ‘Wired UK: What nearly happened’, *Spesh*.
[349] Davis, ‘Short circuit on the superhighway’.
[350] McClellan, ‘Cyberspace: It’s a Wired world’.
[351] Douglas Rushkoff, ‘Beware faulty wiring’, *Guardian*, 12 February 1997, p. 17.

catchphrases that only insiders would understand. The magazine made it clear that there are insiders and outsiders.' Or, as one young British hacker emailed Rushkoff to say on hearing the news of *Wired UK*'s closure: 'They tried to tell us how to think, so we told them to fuck off.' BBC Business Correspondent Rory Cellan-Jones had a similar assessment that the magazine had been resented for promoting the commercialisation of the Internet in the UK: 'the critics loved Wired's Day-Glo graphics but hated the content. The UK Internet community was more interested in the Net as a cultural phenomenon than as an opportunity to create new businesses.'[352]

Based on the troubles *Wired UK* had run into in trying to source enough British stories to fill its pages, it seems more likely, however, that it was the relatively small scale of the British Internet scene more so than its attitudes that had limited the magazine's success. In the US, the Internet had, in the early 1990s, a range of very visible and active promoters as well as publications, organisations, and hubs of activity. There was something that could be called a 'cyberculture'. As Jim McClellan observed in May 1996, when people talked about an American cyberculture, they could 'point to a number of locations, real and virtual, where things seem to be happening – Silicon Valley, the MIT Media Lab, the Cypherpunks mailing list, San Francisco online community the WELL.'[353] One could add to this, as well, publications like *Wired*, organisations like the Electronic Frontier Foundation (EFF), and even individual personalities like Howard Rheingold, Louis Rossetto, John Perry Barlow, and Nicholas Negroponte. These organisations and people provided a ready-made selection of self-styled experts on the Internet that could be called upon by the media when they wanted to talk about all things 'cyber'.

When Danny O'Brien was asked in a November 1994 meeting with the editors of *Wired* about the development of a UK publication what the UK 'scene' was like, his best answer was that, essentially, there wasn't one. There was, he would recall a few years later, a 'vacuum of British happenings' – so little that filling even half of a UK edition of *Wired* proved difficult to manage.[354] In O'Brien's view, the root problem for *Wired UK*, then, lay in the comparative underdevelopment of the virtual communities which were so critical in not only the creation of *Wired*, but in supplying it with a steady supply of

[352] Cellan-Jones, *Dot.Bomb*, pp. 16-17.
[353] Jim McClellan, 'This is the future', *Observer*, 26 May 1996, p. 46.
[354] O'Brien, 'Wired UK: What nearly happened', *Spesh*.

writers and stories, and a ready-made audience of readers.[355] This problem extended, as well, to other media covering the development of all things 'online' in the UK, like 'OnLine' and *The Net*, which struggled for sufficient content related to the emerging online world that was supposedly their focus.

In the following section, I examine the extent of this 'vacuum of British happenings' identified by O'Brien by looking at the most prominent virtual community in the UK in the early 1990s, CIX, in the wider context of the UK bulletin board scene and its development. Here I argue the same problem of high cost that had stunted growth in user numbers in the 1980s persisted into the 1990s, undermining the growth of the kinds of virtual communities which had been crucial to the success of the original *Wired*.

Just for CIX

If there was a small group of academics and intellectuals interested more so in the idea of the Internet than actually using it, the numbers of people actually online in the UK was not that much greater. This online scene was centred around a small but active bulletin board community, with an estimated 1,000 active systems in the UK in 1993 (and about 10,000 total in Europe), compared to as many as 60,000 in the US in 1993.[356] As discussed in the previous chapter, this represented a huge difference in scale: the US population was only 4.5 times larger than the UK's at the time, but it had 60 times as many active bulletin boards. The UK scene was also strongly centred around one relatively large board, CIX, originally launched in 1987. A relatively professional, commercial operation based in Surbiton, Surrey, CIX had a sizeable and active user base, which had grown from about 6,000 in 1991 to a peak of 16,000 by 1994, and laid the best claim to being the successor of the by then defunct Micronet.[357] As a bulletin board system its users were, as was typical, mostly those that were deeply interested in computers in and of themselves: Jack Schofield described it as 'the main conferencing system for UK computer

[355] See Turner, 'From Counterculture to Cyberculture', Ch. 5.
[356] Sue Schofield, *PC Plus Modem and Communications Guidebook* (Bath: Future Business Books, p. 42; Jim McClellan, 'Netsurfers paradise', *Observer*, 13 February 1994, Life, pp. 8-10. The figure of 60,000 is also cited by Rheingold, *Virtual Community*, p. 9. He claims the estimate came from *Boardwatch* magazine, though does not provide a reference.
[357] Andrew Brown, 'Saved from death by electronics', *Independent*, 25 March 1991, p. 16; Akass, 'Living for CIX'.

enthusiasts'. CIX was also particularly popular with British computer journalists.[358] Sue Schofield (no relation to Jack) similarly described it as 'the UK's most popular recreational [bulletin board] service.'[359] CIX was not popular with every computer enthusiast, however. Danny O'Brien had a particularly scathing opinion of the system's users, and in particular their geekiness, calling them as 'brain-damaged jabbering fools who think it's the height of sophistication to express their crippled emotional needs in terms of Blackadder quotes'.[360]

As Jim McClellan noted in February 1994, despite boasting more subscribers than the comparatively high profile WELL in California, CIX had failed to achieve a similar status in the UK.[361] It was, and remained, for the most part, an online community for computer enthusiasts and journalists that was largely invisible to the outside world. CIX did, however, play a relatively significant role in the development and promotion of the public Internet in the UK. Significantly, it was one of the first UK bulletin boards to offer an Internet connection.[362] As such, it was one of the first services where members of the public could actually begin using the Internet in the UK. CIX, as the go-to online forum for computer journalists, professionals, and enthusiasts, also functioned something like the WELL in that it acted as a kind of melting pot, where information, ideas and stories could be swapped and discussed, and even new computer journalists recruited. Micronet in the late 1980s had pioneered this kind of revolving door between users, admins, and writers until its closure, and the similarly open and user-managed nature of CIX as a platform saw much the same thing occurring.

CIX had two particularly significant spinoffs in the early 1990s. The first was Demon Internet, the UK's first consumer ISP, started by CIX users in 1992 and signing up, initially at least, almost exclusively CIX users.[363] The second was the UK's first and, perhaps only, early 1990s cyber-celebrity, Davey Winder, who became a frequent commentator on all things Internet-related, writing books as well as articles in

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[358] Schofield would later state that 'most comms-aware computer journalists have moved to CIX'. Schofield, 'The case for moving to a new gold standard'. Computer journalist John Diamond was, for example, an avid CIX user. John Diamond, 'Enter Password', *The Times Magazine*, 13 March 1993, p. 80.
[359] Jack Schofield, 'Microfile: Email moves', *Guardian*, 17 January 1991, p. 31; Schofield, *PC Plus Modem and Communications Guidebook*, p. 177.
[360] O'Brien, 'Wired UK: What nearly happened', *Spesh*.
[361] The WELL had around 8,000 subscribers at the time. McClellan, 'Netsurfers paradise'.
[362] Schofield, *PC Plus Modem and Communications Guidebook*, p. 177.
[363] Rutter, 'From Diversity to Convergence', pp. 220-222.

newspapers and computer magazines on the Internet, and being regularly called on to comment on Internet-related topics by TV and radio programmes. Having been left largely housebound after losing the use of his legs following the contraction of encephalitis, Winder had become an extremely active CIX user, and gained celebrity status on the board. Winder was the perfect example of the positive, liberatory potentials of computer communications: a person who was able to rebuild their social life in cyberspace.

Winder's story had first been written up by Andrew Brown, himself a CIX user, in the *Independent* in 1992.[364] Perhaps most importantly, Winder had a good story about the positive potentials of 'virtual community', which caught the eye of a friend of Howard Rheingold, the American WELL user, journalist, and biggest proponent of the concept, who sent Rheingold a clipping of an article about Winder.[365] Rheingold then got in touch with Winder through CIX, and even visited Winder and his group of friends from the board in England, subsequently writing up the experience in his book *The Virtual Community* (1993).[366] Despite Rheingold's aims in promoting the idea of virtual communities to a broader public, in Winder's group of friends from CIX, he could not deny that they were all 'either professionally or avocationally wrapped up in computers'.[367] Following this, Winder had a number of relatively high profile appearances, perhaps most notably on the cover of the *Observer*'s 'Life' magazine in February 1994.[368] He was also chosen as the go-to guide to the Internet for the first episode of BBC Two's *The Net* two months later, and was filmed later that year for the upcoming Channel 4 documentary *Visions of Heaven and Hell*.[369]

Despite Winder's work to promote the Internet and the virtues of going online to the British public, the most clear-cut difference between the US and UK remained that a much smaller proportion of people were online in the latter, and this number was growing at a substantially slower rate. This was, David Rowan, editor of the relaunched

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[364] Brown, 'In Cyberspace, everyone is equal'.
[365] Rheingold, *Virtual Community*, p. 235.
[366] Rheingold, *Virtual Community*, pp. 235-40.
[367] Rheingold, *Virtual Community*, p. 236.
[368] McClellan, 'Netsurfers paradise'.
[369] *Visions of Heaven and Hell*, Channel 4, 31 January 1995. The show was aired in January 1995, but the footage of Winder and his friends places the filming for this segment at some point in the summer of 1994.

Wired UK told the *Guardian* in 2009, the critical reason that the first iteration of *Wired UK* had failed: 'the Internet hadn't percolated mainstream British life' to a sufficient extent.[370] In other words: there simply weren't enough people online in Britain for a magazine like *Wired* to find an audience. Certainly, *Wired* was not alone in its struggle as a net-centric British magazine at the time. Both *.net* and *Internet* had comparable circulations to *Wired* of roughly 40,000.[371] Unlike *Wired*, however, they were backed by larger publishers (Future and EMAP respectively), which could support them despite their modest circulations. Roger Green, who launched the business-focused *Internet* magazine, estimated the UK Internet magazine market was worth about £2m in ad revenue, of which his magazine took about half. The consumer side of the market, represented by *.net* and in part *Wired* was, he argued, still in its infancy.[372] Taking *.net*, *Internet*, and *Wired UK* together, the total readership for Internet-focused magazines was, at most, 120,000 in 1997. In the US, *Wired* alone had reached a circulation of 340,000 by this point.[373]

The small scale of this market can be seen as a reflection of the small number of people online in the UK in the mid-1990s. In November 1996, *Internet* magazine compiled subscriber numbers for the UK's top twelve Internet service providers. Based on these figures, they estimated that the total number of consumer Internet service subscribers was between 300,000 and 500,000.[374] CompuServe was by far the largest online service provider in the UK. In February 1996, it had claimed 250,000 subscribers, and that it was adding 10,000 subscribers each month.[375] In November 1996, then, CompuServe subscribers would have most likely made up at least half of all Internet service subscribers in the UK. In the context of the history of home computer networking in Britain, these figures were certainly impressive: never before had this many people been using computers to go online in any capacity, and CompuServe was by far the most successful online service to have ever launched in the UK, but these numbers paled in comparison to the US.

By the end of 1995, CompuServe had about 200,000 subscribers in the UK. That same year in the US, America OnLine (AOL) alone had signed up as many subscribers

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[370] Johnson, 'The UK gets reWired'.
[371] These figures are for early 1996. 'Media Watch: Internet magazines'.
[372] 'Media Watch: Internet magazines'.
[373] Arthur, 'Magazine of the US digerati fails to hack it here'.
[374] Paul Taylor, 'Top tier dominates Net access', *Financial Times*, 9 December 1996, p. 10.
[375] Jack Schofield, 'Online services reinvent themselves', *Guardian*, 15 February 1996, OnLine, p. 9.

every month, reaching 4.5 million by the end of the year.[376] This trend of exponentially higher growth in the US continued for several years. The upper estimate for this number in the UK by the end of 1996 was about 500K.[377] In the US, AOL added as many subscribers in January 1996 alone, and an estimated 6 million total subscribers by September that year.[378] This suggests there were at least 12 AOL subscribers for every Internet service subscriber in the UK in late 1996, at a time when the US population was roughly 4.6 times larger than the UK's. And this was just one service: a year later, it was estimated that AOL only represented half of the home Internet and online service market in the US.[379] Jack Schofield, surveying new entrants to the UK ISP market in mid-1996 observed how 'all these companies are waiting for the Internet to take off in the UK in the way it has in America.'[380]

Even the apparent success CompuServe represented for consumer Internet services in the UK requires some qualification. As Jennifer Perry, the sales and marketing director of the online service UK Online explained in late 1995, they considered their newly launched family-oriented service to be in contrast to the more professional CompuServe. 'CompuServe is too business oriented and should have relaunched its product for the consumer market', she explained to the *Sunday Times*, 'That has given us an opportunity to exploit the family end of Internet services.'[381] This perception of the UK Internet service market as mostly catering for professional users was backed up by a survey of PC users by PCMC Marketing Services in mid-1996, which concluded that 'far from being a mass market phenomenon the Internet is still perceived as being of limited use to those outside the IT and business world.'[382] Matt Townend, marketing director of Pipex's consumer Internet service, Pipex Dial, agreed that same year that no ISP in the UK had so far reached the mass market. At Dial, besides enthusiasts, most customers were small businesses, teleworkers, or people with home offices. 'The consumer market is

[376] Jack Schofield, 'AOL comes out to play', *Guardian*, 4 January 1996, OnLine, p. 14.
[377] Taylor, 'Top tier dominates Net access'.
[378] 'Internet? The only two numbers you need to know.', *Guardian*, 29 May 1997, online, p. 3; 'AOL signs on to NYSE', *CNN Money* (16 September 1996) <https://money.cnn.com/1996/09/16/technology/case_intv/> [accessed 28 September 2021].
[379] 'AOL signs on to NYSE', *CNN Money*.
[380] Jack Schofield, 'Looking for Net returns', *Observer*, 5 May 1996, p. 15.
[381] Christopher Lloyd, 'On-line fun for all the family via television', *Sunday Times*, 27 August 27, p. 7.
[382] 'No big deal, really', *Guardian*, 16 May 1996, OnLine, p. 7.

going to happen,' he told the *Guardian*, 'but it's not happening yet.'[383]

While the US was certainly in a particularly advanced position in terms of the growth of home Internet access in the early 1990s, it was not just the US that the UK consumer Internet lagged behind, however. According to data for December 1998 cited by the UK government Cabinet Office's Performance and Innovation Unit, some 18% of the UK population were 'regular' Internet users.[384] This was less than half the rate of the US (37%), but this also meant that, while the UK was just barely ahead of the comparatively tiny market of New Zealand, it was trailing well behind Australia, Canada, Finland, Norway, and Sweden. Significantly, as well, more than half of those online in the UK in December 1998 had only gone online that year.[385] A European Commission report citing data for the first quarter of 1998 similarly found the UK to be a laggard in terms of Internet penetration.[386] Therefore, while the UK was still trailing behind in late 1998, as recently as the beginning of that year, it had compared even less favourably with these other countries.

The UK's Internet penetration was, among OECD countries in general, middling – a surprisingly low position considering English was, as Ian Stewart, one of the founders of *Wired*, noted, the lingua franca of the Internet.[387] As a European Commission report highlighted in 1998, language was an important determinant of the utility of Internet access: the majority of the Web's content was in English, and English-speakers made up easily the largest language bloc of users.[388] Simply put, the value of Internet connectivity was far greater for English speakers, as they could use the Internet to communicate with far more people, and access far more information, than any other language group. In light of this, the UK's slow Internet uptake appears baffling. It had the lowest Internet penetration of any Anglophone OECD country (bar Ireland) by a substantial margin in early 1998, more than half a decade since consumer Internet access had become available, and despite having the second largest Anglophone population in the OECD after the US. Even more surprisingly, it was lagging far behind the Nordic countries as well,

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[383] Jack Schofield, 'It's good to surf', *Guardian*, 18 April 1996, OnLine, p. 4.
[384] Performance and Innovation Unit, *e-commerce@its.best.uk* (London: Cabinet Office, September 1999), p. 19.
[385] Performance and Innovation Unit, *e-commerce@its.best.uk*, p. 20.
[386] European Commission, *Building the Network Economy in Europe*, p. 12.
[387] Arthur, 'Magazine of the US digerati fails to hack it here'.
[388] European Commission, *Building the Network Economy in Europe*, p. 12.

where English was widely spoken but only as a second language. This data clearly lends credence to Rowan's claim that the Internet 'hadn't percolated mainstream British life' during the initial run of *Wired UK*, but also, additionally, shows that the UK was highly unusual among anglophone OECD countries in quite how small its base of home Internet users was.

Rowan's explanation for *Wired UK*'s failure therefore seems to be backed up by concrete evidence, in contrast to more culturalist explanations offered by contemporary observers. The UK 'cyberculture' scene was defined by its relatively small scale compared to the US, reflecting a small online population in general. As Danny O'Brien explained when asked about the British online scene in 1994, the only response he could give was that there wasn't really much of one, barring CIX, and this would subsequently lead to problems with finding enough content to actually fill the UK side of the magazine.[389] Other Net-centric magazines also ran into this problem of a small UK audience for such publications.

'It's too expensive!'

If the reason for *Wired UK*'s failure was the small degree to which the Internet had 'percolated mainstream British life' to a sufficient extent for the magazine to have either a large enough audience or a large enough online 'scene' to draw on for content, why was this so? The *Guardian* and Rupert Murdoch had both looked at the success of online services and the explosive growth in Internet access in the US and expected that this would soon be replicated in the UK, but soon found that it would not. As I explore in chapter four, from late 1998 the UK experienced a rapid acceleration in the uptake of home Internet access and the country began to catch up with those countries it had so far trailed behind. How, then, are we to account for this period between the launch of the first consumer ISP in 1992 and late 1998 where growth was so slow?

One of the most obvious explanations for low home Internet penetration in the UK that buying a PC to get on the Internet was considered too expensive by most people. Paul Taylor and Christopher Price, for example, identified high prices as a key issue of the UK

[389] O'Brien, 'Wired UK: What nearly happened', *Spesh*.

PC market in a November 1998 article for the *Financial Times*.[390] Earlier that month, Craig Barrett, Intel's chief executive, had said at COMDEX in Las Vegas that he thought Dixons (the UK's largest high street computer retailer) charged 'ridiculous' margins.[391] This claim was supported by the Consumers' Association, whose senior policy researcher Phil Evans said that there was further evidence to support the organisation's concern that UK consumers were getting a 'raw deal' on PC prices.[392] 'Dixons controls over half of the high street distribution of PCs', added Evans, 'and they seem to be using this enormous market power to keep prices to consumers high.' He even went so far as to urge that competition authorities investigate Dixons' 'monopoly position' in the high street. After Peter Mandelson, then Secretary of State for Trade and Industry, lent his support to a pricing investigation in late November, an investigation was subsequently carried out by the Office of Fair Trading (OFT).[393] However, counter to Barrett's original claims, the OFT concluded in October 1999 that prices were in fact generally in line with the rest of Europe, and no 'supra-normal' profits were being made. John Clare, chief executive of Dixons, welcomed the result, and commented that PC prices had halved in the past two years, and that Dixons was selling Internet-ready PCs for as little as £399.[394]

Even if high PC costs are accepted as having inhibited the growth in the home PC market in the UK, there is no evidence that this was the primary impediment to wider Internet use, as even among home PC owners, rates of Internet use were very low. David Clarke, managing director of ISP Netcom Internet, told the *Observer* in May 1996 that their market research had estimated that there were about three million PCs in British homes at the time, but only 10% of these were connected to the Internet.[395] This mapped closely with the results of GfK's Home Audit survey a few months earlier, which had found that the consumer Internet market in the UK was still 'vastly untapped', estimating that there were still 3.4 million homes in the UK with PCs but no Internet access.[396] An October 1995

[390] Paul Taylor and Christopher Price, 'A byte of the market', *Financial Times*, 21 November 1998, p. 11.
[391] 'Dixons blamed for high computer prices', *BBC News* (19 November 1998) <http://news.bbc.co.uk/1/hi/business/217611.stm> [accessed 28 September 2021].
[392] 'Dixons accused of PC profiteering on computers', *Independent*, 20 November 1998.
[393] Jane Wakefield, 'Dixons invites pricing investigation', *ZDNet* (24 November 1998) [accessed 28 September 2021]; David Teather, 'PC prices cleared in 'rip-off Britain' case', *Guardian*, 29 October 1999.
[394] Teather, 'PC prices cleared in 'rip-off Britain' case'.
[395] Schofield, 'Looking for Net returns'.
[396] Jack Schofield, 'Net a waste of time?', *Guardian*, 19 November 1995, OnLine, p. 2.

report by Inteco had similarly found that just 14% of PC owners had modems.[397] These findings clearly show that Internet penetration was not only low in general in the UK, but low even among home computer users for much of the decade. A potential market of millions of homes had only reached into the hundreds of thousands of years after the Internet had first been brought to popular attention, and as usage rates had soared in the US and other countries. If PC costs were high in the UK, that hadn't stopped millions of homes from buying one by the mid-1990s, and millions more by the end of the decade: by 1999, a Datamonitor survey estimated that nearly 40% of the UK's adult population (around 18.5 million people) had a home computer.[398] Even BT admitted that PC penetration was not an impediment to Internet uptake, estimating in late 1997 that, of 6 million households with PCs, only 1 million were connected to the Internet.[399] Clearly something was holding those home PC users back from going online.

That something, it seems, was the cost of going online. If millions of households in Britain had still purchased home PCs despite apparently high prices, it is telling of how expensive Internet access costs were perceived to be that such a small fraction of those home PC users had chosen to go online. Indeed, as one commenter put it, going online with a home PC in the UK was like buying a car knowing you would spend its purchase price on petrol within the first few months.[400] As a European Commission report acknowledged, across OECD countries, there was a clear correlation between Internet access costs and Internet penetration.[401] If we take just Anglophone countries where, as the report also notes, Internet connectivity had the most obvious utility, this trend is even more pronounced, and offers a clear explanation for the UK's dismal ranking: the UK had the second highest access costs of Anglophone OECD countries, and also the second lowest home Internet penetration.

Crucially, consumer dial-up Internet access costs had two components. First, there were the charges paid to the dial-up Internet service provider. For simple, no frills service

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[397] Paul Taylor, 'Home computer boom 'is illusory'', *Financial Times*, 1 November 1995, p. 11.
[398] Chris Nuttall, 'Free ISPs give UK the lead ', *BBC News* (7 May 1999) <http://news.bbc.co.uk/1/hi/sci/tech/338161.stm> [accessed 28 September 2021]; Teather, 'PC prices cleared in 'rip-off Britain' case'.
[399] Barrie, 'BT heralds new high-speed Internet surfing at drop in the ocean cost'.
[400] CUT, 'It's the cost of PCs that prevents people getting online', *Campaign for Unmetered Telecommunications* (1999) <http://www.unmetered.org.uk/mythbusters/mythbusters9.htm> [accessed 28 September 2021].
[401] European Commission, *Building the Network Economy in Europe*, p. 12.

providers like Demon Internet, this was normally a flat monthly fee – in Demon's case, £10 per month. For online services like CompuServe and AOL (the latter launched in the UK in early 1996[402]), which offered large amounts of content alongside Internet connectivity, there were also charges for the amount of time spent online. The other component of dial-up Internet access was the cost of making a phone call to the Internet service provider. Most online services maintained a distributed national network of points of presence (PoPs), which allowed users to dial a local access node, which would then route them to a host computer and thus to the service itself.[403] For dial-up services, these allowed the vast majority of subscribers to access the service provider's network for the cost of a local telephone call, rather than having to make a more expensive long-distance call directly to a host computer.

As an OECD report explained in 1999, the development of competition in the provision of Internet services had produced a general downward trend in ISP subscription charges since the start of the decade. By 1998, on average across OECD countries, telephone network access costs had become the largest component of Internet access costs overall, comprising 65.1% of the total access cost at peak times and 56.5% off-peak.[404] Certainly, in the UK, ISP charges were not unusually high, and therefore could not explain the country's high Internet access costs. According to Oftel in 1999, UK subscribers typically paid £8-15 a month to an ISP for unlimited Internet access, while in the US, unlimited Internet access via the most popular ISP, AOL, cost a comparable $20 per month.[405]

If Internet access costs in the UK were unusually high, then, this was down to the particularities of its telephone network and its charging structure, the same problems which had inhibited the growth of the UK's bulletin board scene from the mid-1980s. First, there was the nature of the calls involved in dial-up Internet access. As the aforementioned OECD report explained, in the world of 'plain old telephony' local calls were typically only a few minutes in length. The local calls associated with Internet access

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[402] See Schofield, 'AOL comes out to play'.

[403] See Rutter, 'From Diversity to Convergence', p. 216, figure 6.3, for a diagram of one such network of PoPs in the UK (CompuServe c.1994).

[404] OECD, *OECD Communications Outlook 1999* (Paris: OECD, 1999), p. 175.

[405] Government of the United Kingdom, *"Building Confidence in Electronic Commerce": The Government's Proposals*, p. 138.

were, by contrast, often significantly longer.[406] Thus while the OECD considered 20 hours of local telephone calls per month to be a typical amount for Internet use, it would constitute an extremely high level of use of voice telephony. In fact, a criticism levelled at the OECD's methodology by one British campaign group was that even 20 hours could be considered a very low estimation of the amount of time Internet users typically spent online each month and argued that 60-80 hours per month would be more accurate.[407] As discussed in the previous chapter, OLRs had become popular among British bulletin board users at the beginning of the decade to cut down the amount of time spent online. Indeed, much of CompuServe's popularity in the UK can likely be attributed to the ready availability of compatible OLR software.[408]

At discounted peak rates, connecting to the Internet for 20 hours a month in the UK cost the equivalent of $70 in mid-1998, including the monthly ISP charge. This was $10 over the OECD average, and between 150% and 200% the cost of 20 hours of Internet access in those Anglophone OECD countries with higher levels of Internet penetration.[409] Ireland was the only English-speaking OECD country with higher total costs at $80, and the only such country with lower Internet penetration. Off-peak access costs were a similar story, though the unusually high contribution of telephone charges to the cost of Internet access in the UK meant off-peak access led to a comparatively dramatic reduction in the overall cost of access, though only to the point that the total access cost was equivalent to the OECD average (about $46). Total access costs remained lower, even at off-peak, in Canada, Australia, and the US, while New Zealand's total access cost was the same, and Ireland's several dollars higher.[410]

The crucial difference between the UK and those Anglophone OECD countries with higher levels of Internet penetration was the charging structure for the kind of local telephone calls dial-up Internet access involved. In the UK, local telephone calls were metered: charged by the minute at rates which varied depending on the time and day of the week. In those Anglophone OECD countries with higher levels of consumer use of the Internet, flat rates were common: in Australia, users paid a flat rate for local calls

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[406] OECD, *OECD Communications Outlook 1999*, p. 175.
[407] Government of the United Kingdom, *"Building Confidence in Electronic Commerce": The Government's Proposals*, p. 313.
[408] Gold, 'Electronic nirvana down the line'.
[409] Their equivalent costs were: Canada $31, Australia $36, USA 40$, New Zealand $46.
[410] OECD, *OECD Communications Outlook 1999*, pp. 184-86.

irrespective of length, as did most residential users in the US. In Canada and New Zealand, local calls were unmetered.[411] In the UK (and most other European countries), by contrast, more time spent online meant higher costs. In those countries where unmetered local calls were common, no such association existed.

The impact this had on the costs associated with anything more than very light Internet use were dramatic. One comparison in the *Financial Times* in late 1998 estimated that while 20 hours of Internet access a month cost about $30 on average in the US, in the UK the cost was $55, and unlike the US, higher levels of use would increase costs even further.[412] Even accessing the Internet for just 30 hours a month at the lowest possible off-peak rate, the BBC calculated in 1999, would cost £18 in telephone charges alone, exceeding typical ISP subscription fees.[413] A call for comment on the BBC News website on UK Internet access costs prompted a number of stunned responses from Internet users in countries where unmetered access was common, echoing Rheingold's surprised remarks in *The Virtual Community* about the cost of accessing bulletin boards in the UK. 'I have never had to pay for a local call in my life', wrote one commenter from New Zealand, 'and I pay around £7 a month for my unlimited internet access. […] You guys are being completely ripped off.' Another commenter from the US said 'I've been paying a monthly, $20 flat rate with unlimited surfing for about five years. Sounds like you guys are being robbed.' Another from Australia warned that 'Britons will remain second-class citizens in the Internet world as long as they have metered calls, while countries with unmetered calls, like Australia, will forge ahead. No doubt about it.'[414] This disparity in access costs was not lost on journalists, either. Even though network upgrades were coming, wrote Jack Schofield in 1999, 'if it's going to keep the per-call and per-minute charging system, then eventually there won't be any problem identifying the information poor in the UK: it will be all of us.'[415]

Metered telephone charges naturally meant that British telephone users were

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411 OECD, *OECD Communications Outlook 1999*, p. 173.
412 Patrick Barwise and John Deighton, 'Digital media: cutting through the hype', *Financial Times*, 9 November 1998, Mastering Marketing, pp. 2-4.
413 'Q&A: Unmetered internet access', *BBC News* (7 December 1999) <http://news.bbc.co.uk/1/hi/business/554518.stm> [accessed 28 September 2021].
414 'Unmetered internet access - Can it work?', *BBC News* (4 September 2000) <http://news.bbc.co.uk/1/hi/talking_point/891259.stm> [accessed 28 September 2021].
415 Jack Schofield, 'Digital divide', *Guardian*, online, p. 2.

generally very conscious of cost when making calls. BT had, in the mid-1990s, felt compelled to launch a high-profile advertising campaign which insisted to viewers that it was 'good to talk', arguing for the value of telephone communications despite their cost. The campaign targeted male bill-paying gatekeepers, who were averse to what they considered expensive, excessive use of the telephone, generally by women.[416] As one advert suggested, this aversion extended even to local telephone calls (the kind generally used to connect to a dial-up ISP).[417] A general desire for cheaper telephone calls had also been a significant driver behind the growth in cable subscribers. Since 1991, cable companies had been allowed to offer telephone services as well, and were able to provide savings of around 15-20% compared to BT, leading 70% of cable subscribers to take up telephone as well as television services.[418] The cable companies, however, highly indebted, with low take-up rates, and passing on significant proportions of their revenues to satellite networks which provided their television programming and telcos which provided their long-distance telephone lines, were highly reliant on the income from these telephone calls, and therefore reluctant to reduce prices significantly or introduced unmetered calls.[419]

If BT believed it had to convince bill-payers of the value of local phone calls to close friends and family, then justifying the far longer calls associated with more frivolous online activities like Web browsing would be even harder. In fact, one of the first times the Internet would be brought up in a British entertainment television programme, in the Christmas 1994 episode of the popular BBC One family sitcom *2point4 Children*, it would be as part of a family row over nothing other than a telephone bill. At the start of the episode, the mother, Bill, gathers the family around the kitchen table to confront them about an unusually high quarterly phone bill. Bill dramatically reveals a series of printed out emails from the US addressed to a 'Ripper' that she had found. While reading them out, the son, David, admits that he is in fact responsible for the high phone bill. 'All right, all right – I admit it', says David, 'I've been using the phone line at night. Ripper's my Net

[416] Robert Bean, '"It's Good to Talk" – the story behind the campaign', *Campaign* <https://www.campaignlive.co.uk/article/its-good-talk-story-behind-campaign/938629> [accessed 28 September 2021].
[417] 'It's Good To Talk - BT - Bob Hoskins (1995)', *YouTube* (10 May 2014) <https://www.youtube.com/watch?v=vnHQp2ukDD4> [accessed 28 September 2021].
[418] Trade and Industry Committee, *Optical Fibre Networks*, pp. 18-19.
[419] 'Tangled up'.

handle.' The father, Ben, shows confusion about what this actually means, prompting an exasperated David to ask whether Ben has any idea what the Internet actually is. 'I don't care what it is!', replies Ben, 'You're not to connect to any nets, even if they have got a handle! It's too expensive!'.[420] Geoff Hoon MP, the Labour Shadow Spokesman on the Information Superhighway, made a similar assessment when asked on *The Midnight Hour* in 1996 if he would let his children use the Internet. 'I cannot imagine a situation in which I would give my children a line that would allow them to spend large amounts of time online surfing the Internet,' he replied, 'It's expensive, and it's not something I think would be appropriate.'[421]

While email and (through the use of an OLR) conferencing systems could be used while only spending a small amount of time actually online, this was not true of using the 'killer app' of the Internet: the Web.[422] Browsing the Web over dial-up was a slow process, especially where pages were more graphically intensive: the Web pages *Tomorrow's World* had shown off in April 1994, they admitted, had had to be downloaded in advance of the broadcast.[423] Simon Ritchie, writing in the *Guardian* in 1999, said he only began going online when he was able to get in on NTL's cable modem service trial (then only available in Guildford), which offered faster speeds and charged a monthly flat rate. Before that, he explained, he'd 'always put off browsing the web at home because the modem connection is slow and you pay for calls by the minute.'[424] John Naughton, writing that same year, was even more exuberant about the wonders of unmetered access. 'Until you've experienced a permanent Net connection you haven't lived', he wrote. 'It's a bit like the difference between having a mobile phone and having to walk half-a-mile to the village call-box.'[425]

In 2000, market analysts Durlacher found many British Internet users took a similar view to Ritchie and Naughton. Their survey of 4,000 UK homes found that unmetered calls would increase the frequency with which Internet users connected to the Internet by 46%, and the duration of online sessions by 100%. The lack of widely

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[420] 'Relax-ay-voo', *2Point4 Children*, BBC One, 26 December 1994.
[421] *The Midnight Hour*, BBC Two, 22 May 1996.
[422] Naughton, *A Brief History of the Internet*, p. 241.
[423] *Tomorrow's World*, BBC One, 29 April 1994.
[424] Simon Ritchie, 'Starting life in the fast lane', *Guardian*, 3 June 1999, online, p. 5.
[425] John Naughton, 'Free Internet provision is wonderful. Apart from what it costs you, of course', *Observer*, 28 February 1999, p. 9.

available unmetered access in the UK, the report concluded, was 'dramatically slowing the growth of the UK internet economy.'[426] An example of the dramatic effect a switch to unmetered access could already be found in AOL, which had introduced unlimited access to US customers for $19.95 per month in late 1996. The service quickly exploded in popularity, attracting a record 1.2 million new users in the fourth quarter of 1996, and the average time users spent online per day doubled as more than 80% of subscribers opted to switch to the new flat rate charge.[427] An identical pattern could be seen as well when New Zealand's Telecom XTRA ISP introduced flat rate plans in May 1999: within two years, the average number of minutes spent online per day by customers had doubled.[428] As Andrew Odlyzko points out, that this pattern repeated in countries as dissimilar as the US and New Zealand suggests that differences in levels of Internet use were primarily the product of pricing, not culture – an argument that is further reinforced by the observation that time spent online by Telecom XTRA subscribers prior to the introduction of flat rates was very similar to that of AOL subscribers pre-flat rates, and of subscribers to French ISPs (which were all metered services) both before and after May 1999.[429]

The difference a change in telephone charging structure could make can be seen in those limited cases that were the exception. A small number of people in the UK had already been lucky enough to have access to telephone tariffs that included unmetered local calls, and these had proven exceptionally popular with Internet users. Perhaps the most significant instance of this was in the franchise area of Videotron, a Canadian-owned cable company which had pioneered early experiments with interactive television. Videotron's franchise area covered one million households (though only about 100,000 subscribers), mostly in London, and had offered the 'Videotron tariff', which included unmetered off-peak local calls to other Videotron customers.[430] From 1995, Videotron

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[426] 'The revolution will not be metered', *BBC News* (22 August 2000) <http://news.bbc.co.uk/1/hi/uk/668034.stm> [accessed 28 September 2021].

[427] Bill Thompson, 'Users angry as AOL goes AWOL', *Guardian*, 30 January 1997, online, p. 4; 'Internet? The only two numbers you need to know.'.

[428] Andrew Odlyzko, 'Internet pricing and the history of communications', *Computer Networks*, 36 (2001), 493-517, p.494.

[429] Odlyzko, 'Internet pricing and the history of communications', pp.494-495.

[430] 'Which? feature published', *Cable & Wireless Watch* (5 March 1998) <http://vantagesoft.co.uk/watch/nw050398.htm> [accessed 28 September 2021]; CUT, 'The CWC and Videotron saga continues', *Campaign for Unmetered Telecommunications* (9 August 1999) <http://www.unmetered.org.uk/news/news090899.htm> [accessed 28 September 2021].

began marketing this service in conjunction with ISPs, effectively allowing unmetered off-peak Internet access. Many Internet users subscribed to this plan clearly felt very strongly about it as, when the tariff was threatened after Videotron became part of the newly formed Cable & Wireless Communications (CWC) in late 1996, they formed a campaign group, CWC Watch, to fight to protect the tariff.[431] In March 1998, CWC Watch relaunched as the more broadly-targeted Campaign for Unmetered Communications (CUT) with a demonstration outside the headquarters of CWC in London.[432] Just as the emphatic campaigning of the members of the CUT showed how strongly many Internet users felt about unmetered telephone calls, the continued insistence of CWC on stripping away the Videotron tariff from the small number of their subscribers that still had it, showed how intransigent UK communications companies were on the issue.[433]

Another rare exception was the East Yorkshire city of Hull, which, due to a historical peculiarity, had its own local telecommunications provider, Kingston Communications. There, unmetered local calls cost just 5.5p, regardless of their length or the time of day. In early 1999, Kingston introduced a new Internet account, 'Karoo Xtra', costing just £12.77 per month and with all calls charged at the local rate. Within a few months it had signed up 4,000 subscribers, and the average time spent online by users went up from 18 minutes a day to 70.[434] The CUT described Karoo Xtra as a 'light in a dark continent', and 'every UK Internet user's dream', adding that they had received substantial amounts of feedback on the service, all of it positive.[435]

The problem of metered call charges lay, at its root, with BT. Despite the government's attempts to stimulate competition, BT remained the largest fixed line telecommunications provider in the UK, and the provider of the vast majority of local loop connections – still some 85% by 1999.[436] As the *Independent* explained, therefore 'almost

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[431] 'What when?', *Cable & Wireless Watch* <http://vantagesoft.co.uk/watch/what_when.htm> [accessed 28 September 2021].
[432] 'It's good to talk for free', *BBC News* (31 March 1998) <http://news.bbc.co.uk/1/hi/sci/tech/72186.stm> [accessed 28 September 2021]; CUT, 'Festival of 'Free' Calls', *Campaign for Unmetered Telecommunications* <http://www.unmetered.org.uk/features/festival.htm> [accessed 28 September 2021].
[433] CUT, 'The CWC and Videotron saga continues', *Campaign for Unmetered Telecommunications*.
[434] Alan Copps, 'Karoo causes Hullabaloo', *The Times*, 18 October 1999, Interface, p. 5.
[435] CUT, 'There is light in a dark continent', *Campaign for Unmetered Telecommunications* (17 March 1999) <http://www.unmetered.org.uk/news/news170399.htm> [accessed 28 September 2021].
[436] Michael Brooks, 'Bundle of trouble', *Guardian*, 18 February 1999, online, p. 4.

all private UK Internet subscribers pay money to BT'.[437] As such, as long as BT refused to offer unmetered services to ISPs, ISPs would in turn be unable to make money from offering flat rate services to customers.[438] Unmetered calls were offered by Videotron, notably, only to other users on their cable network. BT, meanwhile, stubbornly refused to admit that there was a problem. When Peter Bonfield, BT's CEO, was asked in February 1999 by the Trade and Industry Committee whether he accepted that 'the cost of accessing the internet in the United Kingdom is a barrier to the development of electronic commerce, especially compared to the United States' he said he did not 'go along with that belief at all'.[439] Danny O'Brien described BT's attitude towards the Internet as 'suicidal indifference', a view backed up by the fact it had taken BT until early 1996 to launch an Internet service.[440] An unnamed telecoms analyst quoted by the *Guardian* in 1999 agreed, describing BT as having been 'spectacularly unsuccessful at the Internet'.[441]

With BT in a near monopoly position in the local loop, the company's sheer scale reshaped the consumer market around itself. Consumers were left, despite the purported aims of the Tory government's 1991 white paper to promote 'competition and choice', with little of either in choosing a telephone provider. Mercury had begun in the 1990s to finally push into delivering consumer services, but it was still largely dependent on BT's network. The big hope for the Major government had been the cable industry, much as it had been for the preceding Conservative governments in the mid-1980s, and that had so confidently claimed to be imminently building the 'information superhighway' in Britain. By 1998, nearly all of the UK had been franchised, and the majority of homes passed, but still only 2.5 million cable television subscribers had signed up, and the churn rate (the number of subscribers that later unsubscribed) was more than 1 in 3. Cable telephony was more popular, as it was generally cheaper than BT's service, with about 3 million subscribers, and a penetration rate of close to 30% of homes passed.[442] As discussed in greater detail in chapter four, the fact that the telecom network interconnection charge

[437] Stephen Pritchard, 'There are over 200 Internet providers in the UK. But how many can survive?', *Independent*, 25 November 1997, Network, pp. 2-3.
[438] 'The revolution will not be metered', *BBC News*.
[439] Government of the United Kingdom, *"Building Confidence in Electronic Commerce": The Government's Proposals*, p. 58.
[440] Danny O'Brien, 'Buck up, Blair!', *Sunday Times*, 10 October 1999, p. 63; Schofield, 'It's good to surf'.
[441] Roger Cowe, 'Dixons nets a million users', *Guardian*, 14 January 1999, p. 21.
[442] Paul Farrelly, 'Cable sees light at end of the pipeline', *Observer*, 21 June 1998, p. 7.

set by Oftel remained metered, however, meant offering unmetered telephone calls was largely infeasible.

Clearly the telecoms market alone was not offering the kinds of services that existing Internet users wanted, or that were sufficiently attractive to draw British people online in the same numbers as the comparatively attractive tariffs available in countries like the US, Canada, Australia, and New Zealand. If the market were to be changed, pressure from change would have to come through the government, and/or through Oftel, the industry regulator. Unlike in the US, the Major government lacked neither the desire nor the political will to pursue a coherent or substantial policy of ICT promotion. As media policy scholar Peter Goodwin observed in 1995, the various reasons for Tory caution could be debated, but 'simple political exhaustion' seemed an undeniable component.[443] Oftel's positioning under the Tory-appointed director general Don Cruickshank (1993-1998) was in turn reflective of the general apathy towards the Internet expressed by the Conservative government. Into that policy vacuum stepped Labour. However, as I describe in the following chapter, while the Party's policies regarding the 'information superhighway' and the Internet while in Opposition were overwhelmingly focused on one area – education – it was only after coming to power in 1997 and subsequently appointing a new director general of Oftel, David Edmonds, in 1998 that New Labour began to take seriously the issue of metered Internet access, a process I examine in further detail in chapter four. Indeed, in the estimation of the CUT, which had closely observed the regulator since forming, it was only in December 1998 that Oftel began looking at the cost of Internet access to home and SME users with any seriousness, despite the mounting frustration with metered Internet access for several years by that point.[444]

The difficulty of overturning the established system of metered Internet access was nowhere better exemplified than in the fact that the most significant innovation in consumer Internet pricing in the UK in the 1990s was based not on providing highly sought-after unmetered tariffs, but in doing away with ISP subscription fees: fees that were, as the CUT noted, nowhere considered a major deterrent to Internet use. Nonetheless, this was still the most significant cut to the otherwise high costs of Internet

[443] Goodwin, 'British Media Policy Takes to the Superhighway', p.684.
[444] Government of the United Kingdom, *"Building Confidence in Electronic Commerce": The Government's Proposals*, p. 309.

access in the UK, and the seismic effect it had on the UK ISP market proved those that had claimed high access costs had been strongly deterring dial-up Internet use in the UK right. I describe the origins of this service, its effects on Internet usage levels in the UK, and its knock-on effects in more detail in chapter four.

Conclusion

In this chapter, I have shown how the development of online services in the UK between 1990 and 1998 was in many ways defined by the way the 'cable revolution' and the marketisation of telecommunications more broadly had been approached by the Thatcher government in the 1980s. The subsequent Major government reiterated the Conservatives' commitment to infrastructure competition as the vehicle for improvements in communications, whether that be lower prices or new and improved technologies and services, in its 1991 telecommunications white paper, and refused to renege on the commitments it had made therein.[445] This policy document would set the stage for the development of online services and the consumer Internet in the UK for the best part of the decade.

As I showed in chapter one, this approach had been challenged from the left in the late 1980s with proposals for varying degrees of state intervention to promote the construction of new broadband infrastructure, but these had been denied by a government which saw market forces as the only legitimate vehicle for this project. The promotion of plans for building information superhighways in the US by Gore and Clinton, and widespread speculation in the media industries about the potentials for a new wave of lucrative interactive television services that could be delivered over them, revived this debate in the UK in 1994. The debate over who would build the information superhighways in the US in 1992-3 was essentially the same debate as had been rehearsed in the UK in the late 1980s, and its outcomes were the same – a victory for the market-led model of development. Thus, when discussion over how to reignite the cable revolution, now under the moniker of 'information superhighways', erupted in the UK, the conclusions of the public versus private investment debate occurring in the US were already taken for granted.

[445] Department of Trade and Industry, *Competition and Choice*.

This second act was thus conducted on the more claustrophobic political terrain resulting from Labour's acceptance, especially after the election of Tony Blair as leader, of the Conservatives' arguments that investment in communications infrastructure should come from the private sector, not the state. This desire to push through the construction of information superhighways of what Goodwin describes as an 'absolute block on public provision' resulted in Labour ending up in the bizarre position of effectively endorsing BT as a private monopoly, as the company persistently sold a narrative that if only restrictions were lifted on the content it could convey over its network, it would be able to unleash £15 billion in investment and revolutionise Britain's communications infrastructure.[446] Just a few years later, BT would admit that this would not be a wise investment for the company.[447] The extension of information superhighways to homes would thus depend upon the success of the cable industry, and its ability to wring sufficient profits from advanced interactive television services. As it unfolded, VOD was not the golden goose it was imagined to be, and the industry convinced only a small fraction of the public to sign up for even basic cable television services.

The project of building information superhighways was framed in terms of building the essential infrastructure of the new information economy, again, in the same way the cable revolution had been framed by the Conservatives in the 1980s. In his inaugural Labour Party conference speech in October 1994, Tony Blair described the 'new electronic highways' as the 'nerve centre of a new information economy, doing for the next century what roads and railways have done for this one.'[448] Promoting the construction of information superhighways was thus framed as an essential element of 'Information Age' industrial policy. There was no obvious importance, by contrast, in promoting public access to the Internet – except, as I show in the next chapter, in education, the improvement of which was similarly framed as essential to industrial policy for an information economy. Encouraging higher levels of home Internet access, meanwhile, would only become of concern for government when it was framed as

[446] Goodwin, 'British Media Policy Takes to the Superhighway', p.687.
[447] Chris Godsmark and Cathy Newman, 'BT rules out spending £15bn on cable network', *Independent*, 10 May 1997, p. 21.
[448] Tony Blair, 'Leader's speech, Blackpool 1994', *British Political Speech* <http://www.britishpoliticalspeech.org/speech-archive.htm?speech=200> [accessed 28 September 2021].

essential to promoting the development of electronic commerce domestically – that is to say, when it, too, was framed as part of industrial policy for an information economy.

The continued struggles of the cable industry left BT in a virtual monopoly in the local loop, and with minimal infrastructural competition, there was no pressure on the company to change its local call charges which made going online prohibitively expensive for most, especially in comparison to those countries like the US where unmetered Internet access was widely available. In the 1980s and most of the 1990s, going online would be a relatively obscure activity in the UK compared with the US. This, I have argued, provides a more concrete explanation for the failure of *Wired UK* than more abstract notions of cultural differences. The market for Internet-centric magazines in general was limited by this fact of the small number of people online, in spite of high levels of home computer penetration. This is further supported, as I show in chapter four, by the fact that the UK experienced its own dotcom boom just a few years later after *Wired UK*'s launch, and the entrepreneurial 'digital revolutionaries' John Browning had said were the target audience of *Wired* did come out of the woods a few years later than had been anticipated.[449] Crucially, the innovation that triggered the UK's dotcom boom was in the pricing of Internet access and the IPO of the immensely successful company that offered it. How limited the growth of the Internet had been by high prices in the UK is nowhere better demonstrated than by the fact that the country's first big dotcom stock was, essentially, just a cheap ISP.

[449] Quoted in Cellan-Jones, *Dot.Bomb*, p. 17.

Chapter 3 – Think of the children! (1990-1998)

In November 1995, a poll conducted by Mori on behalf of ICL found that some 65% of British adults had heard of the Internet, while 26% thought it should be banned, citing the ease with which it allowed children to access pornography.[450] This poll suggests several significant things about the status of the Internet in Britain in the mid-1990s. Firstly, that the relatively slow growth in home Internet access was substantially outpaced by public awareness: a very small fraction of people were actually online, but within two years of the Internet's first mentions in British media, a majority of British adults were aware of the network. Second, that this rapid growth in awareness of the Internet had been accompanied by a widespread perception that pornography was easily available through it. And third, that children were closely associated with the use of the Internet, in turn raising concerns that they might be able to access pornography through the network.

In chapter two, I showed how the two main approaches to making 'going online' into a mass market activity – interactive television services delivered via information superhighways and home Internet access using the telephone network – struggled to take off in the UK between 1990 and 1998, the former because the high-bandwidth services needed to justify optical fibre networks were uneconomical, the latter because using the phone for extended periods of time was perceived as prohibitively expensive. In this chapter I explore how, despite failing to materialise in the ways they were anticipated to, both information superhighways and the Internet remained in the public spotlight in this period, primarily because of how they were related to education and, in turn, children.

In the first half of this chapter, I show how New Labour played a significant role in promoting the Internet as an educational resource for children through essentially extending earlier Thatcherite initiatives to promote IT in schools into the realm of computer communications, resulting in a concentration on the idea of 'superhighways for education'. As with the concept of information superhighways more generally, the semantics of this initiative drifted away from signifying broadband information infrastructure to simply meaning Internet connectivity more generally as the notion of a

[450] 'Labour voters are more likely to use computers', *The Times*, 15 November 1995, Interface, p. 7.

nationwide fibre optic network drifted out of feasibility. As shown in the previous chapter, Labour's interest in promoting new information infrastructure was constrained by its acceptance of the privatisation and marketisation of telecommunications pioneered by the Conservatives, leaving the party with the option of either backing infrastructural competition through the cable franchising system or backing BT as a private monopoly. It chose the latter, briefly, but was quickly shouted down by the government, who decried Labour's 'deal' with BT as anti-competitive. One area Labour could still promise to actively promote new communications technologies when it formed the next government was in education, capitalising on the common-sense belief established in the 1980s that more and better IT in schools improved children's education. New Labour's acceptance of Thatcherite economic principles also meant, however, that its proposals were fundamentally amenable to the Major government, and the latter soon moved to adopt many of Labour's ideas. Crucially, therefore, there had emerged by early 1995 a bipartisan endorsement of the Internet as an essential educational resource that children both should have access to and, through ongoing and prospective schemes to wire up British schools to the network, soon would.

In the second half of this chapter, I show how these political endorsements of the Internet as an educational resource for children met with an emergent public awareness of online pornography and obscene and illegal content on computer networks more broadly, which had its origins in concerns about obscene and illegal content available on bulletin boards in the late 1980s. While there were continuities between anxieties about obscene and illegal content on bulletin boards and the Internet, there were, I argue, two critical differences. First, unlike bulletin boards, the Internet had received very public political endorsements as an educational resource children should be given access to and which, regardless of individual parents' concerns, all children in education soon would have access to through their schools. Secondly, the Web significantly reduced the technical complexity of accessing online content, therefore making it feasible that any child could access online pornography rather than just those that were particularly skilled computer users. The government was compelled to find a resolution to the problems of obscene and illegal online content due to its endorsement of connecting schools to the Internet, which was untenable if, as the above-mentioned Mori poll indicates, a significant portion of the public thought the network was so dangerous to children that it should be banned outright. The Conservatives here opted to avoid more

heavy-handed approaches like those taken in the US and Germany, instead endorsing a system of industry self-regulation resulting in the creation of the Internet Watch Foundation in December 1996, and a push for more robust content filtering systems.

The framing of the Internet as an educational resource and plans to connect schools to the Internet therefore played a crucial role in normalising the Internet in the UK in the 1990s, helping promote it as a mass market technology and encouraging increased home use, albeit at a relatively slow pace compared to a number of other countries as discussed in the previous chapter. As with the microcomputer boom of the early 1980s, then, the popularisation of the Internet in the mid-1990s had a particularly pronounced 'educational character' in the UK, which built on widely held beliefs in both the importance of ensuring children's familiarity with new IT, and that IT could improve children's education more generally.

Superhighways for education

In their vision for the information superhighway outlined in February 1993, Clinton and Gore described, alongside a host of new and exciting entertainment services, some of the more virtuous areas where this transformative technology could be applied. One such area was education, where the impact, they suggested, could be nothing short of profound. 'A school child in a small town', for example, 'could come home and through a personal computer, reach into an electronic Library of Congress – thousands of books, records, videos and photographs, all stored electronically.'[451] Educational applications had also been an important component of various corporate visions of what they could deliver via information superhighways, pitching their systems as delivering not just unlimited entertainment and consumer convenience, but also important social value. The AT&T 'you will' advertising campaign describing the future services it would deliver showed children connecting to interactive video lectures, while promotional video for the Main Street interactive TV pilot in Boston showed students accessing multimedia educational resources via the family television.[452] After agreeing to merge, TCI and Bell

[451] William Clinton and Albert Gore, *Technology for America's Growth, A New Direction to Build Economic Strength* (Washington, DC: Executive Office of the President, 22 February 1993), p. 28.
[452] 'AT&T "You Will" Commercials (high quality)', *YouTube* (22 April 2016) <https://www.youtube.com/watch?v=a2EgfkhC1eo> [accessed 28 September 2021]; shown in *MeTV:*

Atlantic had also made a promise to connect 26,000 US schools to the information superhighway.[453]

As discussed in the previous chapter, these claims about the potentials of information superhighways were essentially just a rehashing of earlier claims about the potentials of the cable revolution and videotex services: remote access to an 'electronic Library of Congress' was just a newer iteration of Anthony Smith's claim that 'the interactive electronic mode of knowledge can be likened to [a Library of] Alexandria without walls' over a decade earlier.[454] Gore's initial vision of state-led investment could have delivered this vision into reality, much in the same way France's state-led development of the Minitel network had delivered on the promises of viewdata technology, but the cable and telecoms companies were adamant that, having discovered the theoretical goldmine of VOD (among other interactive television services), they were capable of rapidly building such a network.

In the US, as the title of Clinton and Gore's vision document, *Technology for America's Growth: A New Direction to Build Economic Strength*, clearly showed, the White House's vision for information superhighways was more comprehensive – it was an infrastructure that would boost economic growth, create jobs, improve international competitiveness, and much more. Potential educational innovations were a small part of a much larger project pitched as a program for economic renewal. In this section, I examine how and why in the UK from 1994-1998 the area of information superhighway policy was strongly focused on their educational dimension, with plans to connect schools to 'information superhighways' becoming a flagship policy of the Labour Party in this period in particular, and the consequences this had for the development of the Internet in this period.

I begin by examining how and why the UK was culturally disposed towards the framing of information superhighways as an educational technology, and thus why it was assumed that significant political capital could be accrued through the promotion of information superhighways as an educational technology. I then explore how and why the Labour Party in particular became the standard bearer for this educational framing

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The Future of Television, BBC Two, 25 September 1993.

[453] Roberta Salvador, 'TCI, Bell Atlantic to connect schools to the Internet', *Electronic Learning*, 13 (March 1994), 6.

[454] Hamlyn, 'Fireside access to sum of human knowledge'.

of information superhighways from 1994, how it fit in with the party's broader political vision at the time, and the government's response. I then conclude by describing briefly how Labour began implementing its vision when it came to power in May 1997. A critical element in this process was the rapid slippage of the term 'information superhighway' into simply meaning an Internet connection in general, regardless of its bandwidth. This meant that, by early 1995, both major parties had endorsed the Internet as an educational technology, and committed to policies for the mass connection of schools to the Internet in the UK. As I show in the next section, this had significant consequences for how online pornography became construed as an urgent problem requiring political intervention.

Computers for schools

Britain was particularly well primed to embrace the educational dimension of information superhighways in the early 1990s. Computers had been closely associated with education in the early 1980s through a variety of government projects such as the Micros in Schools initiative.[455] Towards the end of the decade, this position of significance for computers in education had been cemented in the National Curriculum, in which IT skills had been codified as key abilities for children at all stages of education to develop, and in which strong encouragement was given to applying IT to improve all areas of education.[456] Micro, and later personal computers, had, in turn, become common features of British schools; home microcomputers had been bought in large part as a means for children to learn about computers.

The National Curriculum highlighted the dual purpose computers in schools were seen to have. Firstly, computers were considered important for teaching children about computers themselves: as various sectors of the economy rapidly computerised through the 1980s, computer literacy was promoted as an essential skill for future workers. If the workplace of the future was computerised, then children would have to be trained how to use and understand computers in order to be prepared for that future.[457] This belief in

[455] Lean, 'Mediating the microcomputer'.

[456] Selwyn, 'Learning to Love the Micro: The Discursive Construction of 'Educational' Computing in the UK, 1979-89', p.433, sees the codification that IT should be applied to all areas of education in the National Curriculum in 1988 as the culmination of the political construction of IT for education purposes in the preceding years.

[457] On this instrumentalist view of IT in education in the UK, see Kevin Robins and Frank Webster, *The*

the inevitability of computerisation's onward march through the economy was grounded in a widespread belief that Britain was transitioning into an 'information society' or 'information economy', in which the majority of work was increasingly knowledge-based.[458] Computers, as general information handling and processing machines, would therefore in turn become increasingly prominent throughout society as a whole. Secondly, computers were seen as tools that could be used to improve the efficacy and efficiency of education more generally.

In these ways, computers were seen as highly beneficial to children's education in Britain by the early 1990s. Improvements in computer technology were subsequently seen as improving their effectiveness as tools for education: if computers in themselves improved education in Britain, then better computers would, by extension, improve education still further. That part of the purpose of computers in schools was to improve computer literacy meant the provision of new computer technology to schools was also considered time sensitive. Equipping schools with the latest computer technology was not only beneficial because it was believed to improve education provision more generally, it was also an urgent necessity insofar as the computers children were to learn how to use in school had to resemble the computers they would likely be using in future work if the computer literacy they gained in school was to remain relevant. As the *Sunday Telegraph* observed in 1995, unless an adult worked from home, there wasn't much obvious point in having a computer around the house. Why were there millions of homes in the UK with PCs? 'For many the prime motivation is to help children "get on". The future world will become more reliant on computer technology so – in theory at least – the more exposure they get to it, the better.'[459]

The extent to which new IT equipment for schools was considered essential in the early 1990s was exemplified in the creation of the Computers for Schools scheme by the national supermarket chain, Tesco, in 1992. Launched with a high-profile television and newspaper advertising campaign, the scheme consisted of offering Tesco customers a voucher for every £25 spent. These vouchers were then, in turn, collected by schools, who redeemed them with Tesco for new computer equipment and software.[460] The quantities

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Technical Fix: Education, Computers and Industry (New York: Macmillan Education, 1989).

[458] Webster, *Theories of the Information Society*, pp. 2-3.

[459] Robert Matthews, 'Counting the cost of child's play', *Daily Telegraph*, 29 January 1995, p. 14.

[460] Alexander Garrett, 'Tesco checks out corporate care', *Observer*, 26 April 1992, p. 33.

of shopping needed to be bought to acquire a computer were tremendous: for the cheapest computer it cost 2,500 vouchers, equivalent to £62,500 worth of spending at Tesco.[461] Despite the quite phenomenal feats of organisation needed to acquire the huge numbers of vouchers necessary for new equipment, the scheme was exceptionally successful. In the first year, £3 million worth of equipment was awarded to schools, and it was brought back in 1993 due to popular demand and its deadline extended by three weeks due to an even more enthusiastic response its second time around – it would subsequently run for more than a decade afterwards.[462] By 1996, most of the UK's largest retailers had launched similar schemes.[463] In its second run, some 11,000 schools acquired equipment through the scheme, roughly equivalent to 1/4 of all schools in the country.[464] Across its first three years of running, enough vouchers were collected to acquire 21,000 computers, valued at about £22.4m.[465]

The huge volume of vouchers needed to capitalise on the scheme means the success of the Computers for Schools scheme represents a major mobilisation of the public to aid schools in acquiring new computer equipment. The scheme therefore showed both how widely held a belief in the value of new IT for schools was as well as the strength of this feeling. More generally, it also highlighted how the close association between computers, education, and children identified by histories of micro-computing in Britain in the 1980s extended into the 1990s.[466] This had very material consequences, as well: between 1984 and 1994, the number of microcomputers in the average British school had more than quadrupled to ten in primary schools and more than eighty in secondary schools.[467] As Clinton and Gore began to sound off in early 1993 about the educational possibilities for information superhighways in the US, there was good reason to believe such an idea would prove very popular in the UK.

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[461] John Authers, 'Computers off the trolley', *Financial Times*, 20 June 1994, p. 11.
[462] Margaret Bennett, 'A motive for moving the goods', *The Times*, 10 May 1993, p. 31.
[463] Many of these later schemes also expanded the range of equipment available beyond computers. John Authers, 'The loyal route to gaining a computer', *Financial Times*, 29 February 1996, p. 9.
[464] Authers, 'Computers off the trolley'.
[465] Authers, 'The loyal route to gaining a computer'.
[466] See Selwyn, 'Learning to Love the Micro: The Discursive Construction of 'Educational' Computing in the UK, 1979-89'; Lean, 'Mediating the microcomputer'.
[467] Martin Bright, 'Political talk costs money', *Guardian*, 5 December 1995, Education, p. 8.

‘A whole new world of knowledge for our children’

The Major Government, however, was slow to capitalise on this potential educational dimension of information superhighways, most likely because, as shown in chapters one and two, the line stuck to by the Conservatives for the best part of a decade regarding new information infrastructure was that it would be built by private industry and without direct state intervention. As presenter Kate Bellingham had told *Tomorrow’s World* viewers in April 1994, ‘I can’t electronically mail our Prime Minister, John Major, because he hasn’t got a modem. And I can’t find out what his Government’s policy on information superhighways is because it hasn’t got one – at least nothing beyond the usual thing of “leaving it to market forces”.’[468] When Major returned from the European Council meeting in Corfu in June, where discussions had taken place regarding how new information infrastructure was to be built in Europe, he was asked by the interim Labour Leader Margaret Beckett in the Commons if he would lift restrictions on BT providing broadcast services, and if he did ‘not realise that the quickest way to build an information super-highway in Britain is to allow BT to compete with cable, which the Government refuse to do? ‘Major simply responded that ‘on information technology, I welcome [the Leader of the Opposition’s] support for competition—a little late perhaps, but none the less welcome.’[469] Despite public criticism from the Trade and Industry Committee in July, the government promised to maintain the current regulatory system, based on the principles of ‘competition and choice’ it had outlined in its 1991 telecommunications white paper.[470] In this way, the Conservatives were in clear alignment with the guidelines supported by the EU in the form of the Bangemann Report, which had urged that ‘faith’ be put in ‘market mechanisms as the motor power to carry us into the Information Age’.[471] The DTI in fact expressed a clear familiarity with the Report, citing its findings and recommendations frequently, and expressing an open desire to implement them.[472]

At roughly the same time as the Trade and Industry Committee’s report on optical fibre networks was released, the Labour Party published its latest education policy

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[468] *Tomorrow’s World*, BBC One, 29 April 1994.
[469] House of Commons Debate, ‘European Council (Corfu)’, 27 June 1994.
[470] Department of Trade and Industry, *Competition and Choice*.
[471] Bangemann Group, *Europe and the Global Information Society*.
[472] Department of Industry, *Creating the Superhighways of the Future: Developing Broadband Communications in the UK*, p. 16.

document, *Opening doors to a learning society*. Commissioned under John Smith's Leadership and largely the work of Shadow Education Secretary Ann Taylor, the document was an attempt to 'marry Old Labour beliefs in a comprehensive education with new ideas'.[473] The newly elected Labour Leader, Tony Blair, intent on breaking with Labour's past, largely disliked the document and its 'Old Labour' attitudes, and subsequently replaced Taylor with David Blunkett in October. Blair did not throw everything out, however. Taking inspiration from an initiative by the Clinton Administration to connect 'every classroom in every school' to information superhighways by the year 2000, *Opening doors* recommended that a Labour government pursue a similar policy in the UK and embrace the potential of new information technology to improve education more generally.[474] Michael Barber, professor of Education at Keele University, identified this proposal as the 'most exciting new idea' presented in the policy document, and Blair seemed to agree.[475]

In his maiden speech as Leader at Labour Party Conference in October 1994, Blair subsequently attacked the 'massive Tory failure' in information technology policy. 'We should be investing in the new electronic highways,' he said, 'satellite and telecommunications technology that will be the nerve centre of a new information economy, doing for the next century what railways and roads have done for this one.'[476] The government had, 'as ever', failed to see this revolution coming, and had shackled this new market to outmoded regulations. 'We will act', he said. 'We will set the framework which encourages the new investment'. Partly, this was to be spurred by the creation of a 'University for Industry', the '1990s equivalent of the Open University', using satellite, cable and 'new information highways' to achieve 'permanent education and opportunity for all'. 'Switching on your computer to link up with work and education opportunities', promised Blair, 'will one day be as natural as switching on your TV to watch a football match.'

The problem for the Labour Party in late 1994, however, was that it had not as yet developed this framework which would encourage new investment. Dennis Stevenson,

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[473] Sally Tomlinson, 'Education Policy, 1997-2000: The effects on top, bottom and middle England', *International Studies in Sociology of Education*, 11 (2001), 261-78 (p. 263).
[474] Labour Party, *Opening doors to a learning society: A policy statement on education* (London: Labour Party, 1994).
[475] Michael Barber, 'Cleaning the blackboard', *Guardian*, 27 July 1994, p. 20.
[476] Blair, 'Leader's speech, Blackpool 1994', *British Political Speech*.

who would later work with Labour in developing their information superhighways policy, later recalled that, at the time, Blair thought this was a 'hugely important area' but had no comprehensive policy, 'just a broad feeling'.[477] As Major's quip to Beckett had suggested, Labour also now subscribed to the Conservatives' view that construction of new public information infrastructure was the responsibility of private industry and not the state, though Labour erred on the side of BT over the cable industry. At the same time, this meant that once Labour had put forward the idea of connecting information superhighways and education policy, the Conservatives could easily follow, and the government's response to the Trade and Industry Committee's report on optical fibre networks showed they were aware of these educational potentials of information superhighways and were principally in favour of them.[478] The Conservatives had, after all, been the party to bring IT to the fore of education policymaking in the 1980s.

Shortly after his speech, Blair moved Chris Smith from Environment to National Heritage, where he was told to focus on developing Labour information superhighway policy.[479] Blair subsequently appointed a commission headed by Smith to draw up plans for an information superhighway in Britain that would enter every home, school, hospital, and library.[480] In early 1995, the government began to respond to Labour's manoeuvring. At the British Education Training Technology Exhibition in Olympia in January, they issued an invitation to various communications industries to collaborate with the education sector to develop, through a programme of industry-funded pilot projects, 'commonly accessible national, and ultimately international, education superhighways'.[481] This call resulted in the consultation paper, *Superhighways for Education*, published by the Department for Education in April, which laid out the criteria by which the government would evaluate pilot projects. In late March, Trade and Industry Minister Tim Eggar unveiled the 'Schools Online' scheme, which pledged £1 million to get British schools connected to the Internet, though this project was still reliant on

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[477] Neil Selwyn and John Fitz, 'The national grid for learning: a case study of New Labour education policy-making', *Journal of Education Policy*, 16 (2001), 127-47 (p.133).
[478] See Department of Industry, *Creating the Superhighways of the Future: Developing Broadband Communications in the UK*, p. 8.
[479] Patrick Wintour, 'Cook to lead fight on EU', *Guardian*, 21 October 1994, p. 26.
[480] Emily Bell, 'Whitehall 'set for superhighway'', *Observer*, 27 November 1994, p. 32; Patrick Wintour, 'Blair plans national information grid', *Guardian*, 28 November 1994, p. 5.
[481] Department for Education, *Superhighways for education: Consultation paper on broadband communications* (London: HMSO, April 1995), p. 3.

cooperation and additional investment from private industry.[482] In early April the Welsh Minister John Redwood followed by making a similar pledge to get Welsh schools connected.[483] These later actions made clear that, while the potentials of 'superhighways' were still being explored, ensuring schools had connectivity to the already existing information highway of the Internet was the more urgent concern in the present.[484] As Eggar explained when announcing the Schools Online project, the pilot was just the start: 'I believe this scheme will snowball very quickly. No school will want to be left out. No school can afford to be left behind.'[485]

Essential to this framing of the Internet as an essential educational resource was an understanding of the network as a kind of incalculably large and ever-expanding library, an unsurpassed store of human knowledge an information incomprehensible in both scale and diversity. As the National Council for Educational Technology's *Highways for Learning* handbook excitedly put it, the Internet was

> The 21st century version of an 18th century French project born of the optimism of the Age of Enlightenment: to create a single encyclopaedia of everything known by mankind. The French were defeated by the sheer growth of information and by the lack of technology to store and access it. As we approach the 21st century, however, the Internet could be that encyclopaedia – and much more.[486]

This made, according to BBC children's programme *Blue Peter*, the 'advantages of being connected to the Internet for a school […] obvious.'[487] As such, the Internet was an unparalleled educational resource that children urgently needed to be given access to. As Greg Hadfield, a *Daily Mail* journalist recounted, he chose to get his twelve-year-old son connected to the Internet in Christmas 1994 because 'we were told it was the greatest communications breakthrough of the computer age and would open up a whole new world of knowledge for our children.'[488] This was, as Internet historian Paolo Bory dubs

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[482] Ray Massey, 'Global class: Could try harder', *Daily Mail*, 28 March 1995.
[483] 'Welsh schoolchildren take first steps on superhighway'.
[484] The National Council for Education Technology explicitly adopted this framing of the Internet as a 'highway' relative to more advanced 'superhighways' in 1995. National Council for Education Technology, *Highways for Learning: An Introduction to the Internet for Schools and Colleges.* (Coventry: NCET, 1995).
[485] 'The global classroom', *Daily Mail*, 21 March 1995, p. 25.
[486] National Council for Education Technology, *Highways for Learning*, p. 2.
[487] *Blue Peter*, BBC One, 16 March 1995.
[488] Greg Hadfield, 'My son is only 12. But with the touch of a few buttons he can unlock a tide of

it, the myth of the Internet as a 'digital library' in action, representing the Internet as 'the perfect and infinite repository of knowledge, a virtual library aimed at organising an infinite amount of information.'[489] The logical extension of this myth was that it represented an unparalleled educational resource.

In July 1995, Labour finally announced what their information superhighways policy would actually be. Their plan was a phased removal of the restrictions on the kinds of services PTOs could offer, beginning in 1998 – a year after the likely date of the next general election, and thus very shortly after Labour formed (it expected) the next government. The key point here was, as the *Financial Times* noted, providing certainty to the PTOs so that they could begin to plan for the future, in contrast to the Conservatives' commitment to only reviewing restrictions in the new millennium, though this plan would give the cable companies less time to build up than they had initially been promised, therefore indicating a clear Labour inclination towards BT.[490] In addition, Labour proposed a system whereby franchise holders would be obliged to connect up a host of public buildings, including schools, libraries, and hospitals.[491] The privately built superhighway would therefore also be guaranteed to provide benefit to public services.

These plans were officially launched with the publication of a policy document, *Communicating Britain's Future*', on 17 July. While big on rhetoric, this document was short on much substance beyond this plan to relax PTO restrictions. As Victor Keegan observed in the *Guardian*, if the document was a clear statement of anything, it was 'the convergence of political ideologies already accepted for mainstream economic policy. If it has a guiding Clause 4 […] it could have been plucked straight from the Conservatives' manifesto: "We believe that the physical infrastructure of the new communications network will and must be developed by the private sector."'[492]

At Labour Party Conference in October 1995, Blair sought to elevate his Party's superhighway policies and place them at the fore of their policy platform. In what would come to be known as his 'young country' speech, the Labour Leader outlined a vision of national rejuvenation and renewal, in which education, aided by advanced information

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pornographic filth on his computer', *Daily Mail*, 15 September 1995, p. 8.

[489] Bory, *The Internet Myth*, p. 10.

[490] Kevin Brown and Raymond Snoddy, 'Labour plan to open 'superhighway'', *Financial Times*, 14 July 1995, p. 16.

[491] Kevin Brown, 'Taking the Internet seriously', *Financial Times*, 14 July 1995, p. 8.

[492] Victor Keegan, 'Info-rich and info-poor', *Guardian*, 17 July 1995, pp. 14-15

technologies like information superhighways, was framed as a major motor of this renewal. As Blair stated, 'education is the best economic policy there is for a modern country and it is in the marriage of education and technology that the future lies.'[493] In terms of policy, Blair reiterated the commitments in *Communicating Britain's Future* and the proposal for a University for Industry made a year earlier, but also announced that the Party had been in recent discussions with BT and had made a deal: in return for lifting restrictions on the kinds of content it could provide, the telecoms giant had agreed that, as they built their broadband network, they would connect every school, college, hospital and library for free. As described in the previous chapter, Labour quickly backtracked on many of the details of this deal as the government and Oftel criticised them for threatening the sacrosanct principle of infrastructure competition in telecoms.

Nonetheless, Blair had been tremendously successful in painting Labour as the standard bearers of information technology in British politics. He had repeatedly told Smith that he wanted information superhighway policy to be 'a real flagship for the party', and in October 1995 he had succeeded in doing so.[494] As one executive of a British IT firm told Selwyn and Fitz in an interview in 2001, it was Blair's foregrounding of ICTs for education at Party Conference in October 1995 that made him sit up and start considering that 'education and IT is going to move from being an important part of education to a key national priority in education if there's a change in government.'[495] As Selwyn and Fitz themselves put it, in late 1995, it became 'clear that educational networking was the most tangible focus for New Labour's electoral commitment to addressing the "Information Age".'[496] While the money put forward by the government for getting schools online was only small, and Labour's stance could be hard to distinguish from that of the Conservatives while its exact proposals seemed to be in flux, by late 1995, a clear political consensus had emerged that endorsed the connection of schools to the Internet. As professor Stephen Heppell of Anglia Polytechnic University's Ultralab told the *Guardian* in December 1995, 'I'm disappointed that the [Department for Education] is not able to find extra money to fund these projects. What is hugely encouraging, though, is that Labour and Conservative politicians are making the same kind of promises. They are

[493] Blair, 'Leader's speech, Brighton 1995', *British Political Speech*.
[494] Smithers, 'BT highway deal gets backing from Tebbit'.
[495] Selwyn and Fitz, 'The national grid for learning', p.132.
[496] Selwyn and Fitz, 'The national grid for learning', p.132.

all in favour of this technology.'[497]

In May 1996, Labour announced the next stage of their superhighways policy: an independent commission on the options available for developing information technology for schools in Britain, to be chaired by the prominent businessman Dennis Stevenson.[498] This followed a number of other commitments, made earlier in the year to improve education in Britain, including reducing class sizes and improving the quality of teaching.[499] Blair would foreground education even more in his Party Conference speech in October in the shadow of an oncoming general election, stating, famously: 'Ask me my three main priorities for government and I tell you: education, education and education.'[500] Blair announced that Labour had secured a commitment from BT and, this time, the cable industry as well, to keep the costs of schools connecting to the Internet 'as low and as predictable as possible'.

As Blair backtracked on his earlier announcement to include the cable industry in his plans, Labour policy became even harder to differentiate from the Conservatives'. As Labour and Tory policy seemed to further converge, Blair tried a branding exercise instead. 'Our aim', concluded Blair,

> is for every school to have access to the information superhighway, the computers to deliver it, the education programmes to go on it. With the university for industry, for adult skills, this adds up to a National Grid for Learning in Britain. This is the age of achievement come alive.

This 'National Grid for Learning' would, he argued, make Britain the 'skills superpower of the world' – a winner in the new global information economy. Thus, he extended the vision for national rejuvenation and rebirth outlined in his 'young country' speech a year earlier, while making education and the provision of information technology and services to schools even more central. In late 1996, the *Guardian* reported that about 5,000 schools in the UK were currently connected to the Internet.[501] At the time, there were some 30,000 schools in the UK, suggesting five out of every six schools

[497] Bright, 'Political talk costs money'.
[498] George Jones, 'Blair panel plugs into information highway', *Daily Telegraph*, 1 May 1996, p. 8.
[499] See for example Tony Blair, 'Battle for Britain', *Guardian*, 29 January 1996, p. 11.
[500] Blair, 'Leader's speech, Blackpool 1996', *British Political Speech*.
[501] 'What the politicians say', *Sunday Times*, 1 December 1996, p. 5.

were still not connected.[502] This meant getting British schools 'wired' would be a massive project, especially if, as Blair reiterated in December, his vision was to see 'every school, college and university hooked up to the superhighway'.[503]

In March 1997, the Stevenson Commission finally reported, though its conclusions simply reflected, more or less, what was already taken for granted by Labour policy. It served, therefore, more as an independent confirmation that Labour's approach was the right one, and to stress the urgency that the improvement of ICTs in education be pursued. 'We wish to see a society within ten years', wrote the Commission, 'where ICT has permeated the entirety of education (as it will the rest of society) so that it is no longer a talking point but taken for granted - rather as electricity has come to be.'[504] One of the novel recommendations, intended to give 'both symbolic and substantive meaning to the use of external networks' in education, was to give every teach and child over a certain age (the Commission suggested nine) their own email address.[505] In their pre-election manifesto, launched in April, the Labour Party took up this recommendation, alongside reiterating a commitment to plans for a National Grid for Learning.[506] The Conservatives, meanwhile, reiterated their commitments to liberalising telecommunications, and committed to using the Millennium Lottery Fund to 'transform the computer facilities and information links available in schools, libraries, museums, voluntary organisations and other public places after the turn of the century.'[507]

In May 1997, Labour won in a landslide victory, securing a substantial majority in Parliament. Talks were quickly proposed by Chris Smith to discuss removing the bar on PTOs from broadcasting entertainment early in exchange for wiring up schools, hospitals,

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[502] Christine Buckley, 'Schools may pay £1 per pupil for access to Internet', *The Times*, 12 July 1997, p. 5 provides the figure of 30,000 UK schools. John Carvel and Rebecca Smithers, 'Labour goes for Net gain', *Guardian*, 4 October 1997, p. 4 provides the higher figure of 32,000, which suggests the proportion of Internet connected schools was even lower.

[503] Tony Blair, 'Ruskin College Lecture: The agenda for a generation', *Education in England* (16 December 1996) [accessed 28 September 2021].

[504] Independent ICT in Schools Commission, *Information and Communications Technology in UK Schools: An Independent Inquiry* (London: Independent ICT in Schools Commission, March 1997), p. 4.

[505] Independent ICT in Schools Commission, *Information and Communications Technology in UK Schools: An Independent Inquiry*, p. 8.

[506] Labour Party, 'New Labour: Because Britain Deserves Better', *Archive of Labour Party Manifestos* (1997) <http://labour-party.org.uk/manifestos/1997/1997-labour-manifesto.shtml> [accessed 28 September 2021].

[507] Labour Party, 'New Labour: Because Britain Deserves Better', *Archive of Labour Party Manifestos*.

and libraries.[508] Almost immediately afterwards, though, BT announced that it would not be investing the £15bn it had previously proposed for building a nationwide fibre optic broadband infrastructure if broadcasting restrictions were lifted early, saying it was no longer planning to extend fibre beyond local telephone exchanges to homes as technology had changed the situation.[509] After further discussions the joint launch by BT and the Department for Education of a plan to get every school in the UK connected to the Internet was prepared for early June, but delayed by the insistence by Oftel that it would have to be assessed to ensure it wasn't anti-competitive.[510] Don Cruickshank, the Director-General, came back in July with a new proposal for BT and the cable industry for a pricing model that would see schools being granted unlimited access to the Internet for as little as £1 per year per pupil, a cheaper rate than BT alone had been able to offer.[511]

To drive home their commitment to wiring up British schools, the government also announced that 1998 would officially be dubbed 'UK NetYear', similar to the Conservatives' 'IT82' project fifteen years earlier, as well as that it was in discussions with Microsoft regarding improving IT provision to schools.[512] The goal, Blair stated, was to have every school in the UK connected to the Internet by the year 2002, which meant in late 1997, connecting up about 26,000 schools over five years, with half connected by the end of UK NetYear.[513] There was also £120m in National Lottery money earmarked for updating Britain's 500,000 teachers' IT skills and training, and plans for a prototype National Grid for Learning to be set up within twelve months.[514]

While little was done concretely to get schools connected after Labour came to power in 1997, by the end of the year, the party had put plans in place to begin this project in earnest. Certainly, the new government seemed willing to walk the walk on the commitments it had made in opposition, though some of these, such as the planned deal with BT, were knocked back by Oftel's concerns about their effects on the telecommunications market. This suggests that there was, within the Labour

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[508] Cathy Newman, 'BT to get early release from bar on broadcast TV', *Independent*, 9 May 1997, p. 22.
[509] The technology BT was specifically referring to was asymmetric digital subscriber line (ADSL). Godsmark and Newman, 'BT rules out spending £15bn on cable network'.
[510] Eric Reguly, 'BT school Net plan put back by Oftel action', *The Times*, 6 June 1997, p. 27.
[511] Buckley, 'Schools may pay £1 per pupil for access to Internet'.
[512] Carvel and Smithers, 'Labour goes for Net gain'.
[513] Christopher Price, 'BT, Oftel and Bill Gates to help put UK schools online', *Financial Times*, 3 December 1997, Education in the Internet Age, p. xi.
[514] Price, 'BT, Oftel and Bill Gates to help put UK schools online'.

government, a genuine commitment to the policy platform: the electoral value of the NGfL had been spent, but Labour was willing to carry it forward and to work to complete its aims. Where the party proved unwilling to rock the boat, however, was in telecommunications regulation and, in particular, challenging the commitment held since 1984 to infrastructural competition. As shown in chapter two, the failure of substantial competition in the local loop to develop in this period kept local calls relatively expensive and metered, discouraging people from going online from home. As far as the government and Labour were concerned, however, this was a problem for 'market forces' to solve, and the focus of 'superhighways' policy shifted to providing Internet connectivity for schools. Much as with microcomputers in the 1980s, the government was willing to fund new IT for schools, but the pricing of home microcomputers was up to the market.

As I show in the next chapter, the problem of high home Internet access costs would only be acknowledged by government when levels of Internet use were construed as an issue for Britain's international commercial competitiveness from late 1998. That is to say, the telecoms market was only considered to be malfunctioning with relation to levels of home Internet access when the promotion of higher levels of home Internet access became understood as pertinent to industrial policy. This might be extended even further as, in the words of Education Secretary David Blunkett in 1998, for Labour, education was considered an extension of industrial policy.[515] Thus, Blair would famously say that Labour's three main priorities in government were 'education, education, education', with the idea of a 'university for industry' being the clearest encapsulation of this belief in education as industrial policy.[516] Kevin Robins and Frank Webster saw a 'new vocationalism', reorienting education around the needs of industry as a key element of industrial policy in the 1980s and a prime motivator for efforts to improve IT literacy, and clearly Labour were operating within this same mould.[517] Beyond just home Internet access from late 1998, then, if we frame education policy as a subset of industrial policy as both the Conservatives and Labour did, the Internet in general was addressed primarily in British politics where it was seen as impacting upon economic performance and therefore pertinent to industrial policy. As I show in the next chapter, even this

[515] Quoted in Stephen J Ball, 'Labour, Learning and the Economy: a 'policy sociology' perspective', *Cambridge Journal of Education*, 29 (1999), 195-206 (p. 201).
[516] Blair, 'Leader's speech, Blackpool 1996', *British Political Speech*.
[517] Robins and Webster, *The Technical Fix*, p. 2.

limited embrace of the Internet as a component of industrial policy would run into conflicts with deeper-seated concerns about national security.

Superhighways to filth

The establishment by early 1995 of a clear political consensus that schools in the UK should be connected up to the Internet brought the network, often under the moniker of the 'information superhighway', to the fore of British politics at a time when the number of home Internet connections in Britain was still very low. In spite of this slow growth in use, as the Mori poll discussed at the start of this chapter shows, a large majority of the public had become aware of the Internet by the end of 1995, in particular, as a technology associated with education and, therefore, children. It is thus not surprising that computer journalist John Diamond noted in his *Times* column in June 1995 that he had come across a significant number of people thinking about getting connected to the Internet for the sake of their children's education. The overwhelming message conveyed to them by the media, he wrote, was that 'unless they get on the Net soon they – or, more often, their children – will be regarded as knuckle-dragging Neanderthals by the Net-literate majority.'[518] At the same time as many parents rushed to get their children access to the Internet, more than a quarter of adults thought the network should be banned outright on the grounds that it granted children access to pornographic material.[519]

In this section, I examine the development of these anxieties about obscene and illegal online content, beginning with their origins in late 1980s concerns about bulletin boards. The first significant peak in these concerns was in 1993/4, before the Internet had significantly percolated through mainstream public awareness, when it was claimed that children were trading computer pornography, originally sourced from bulletin boards, amongst each other via floppy disks. Subsequently, the framing of the Internet as an important educational resource by political parties and the media, combined with the crucial reduction in the difficulty of accessing online content the Web represented, saw anxieties shift towards the Internet in 1995. The Internet was, therefore, I argue, distinct

[518] John Diamond, 'Enter password', *The Times Magazine*, 17 June 1995, p. 61.
[519] 'Labour voters are more likely to use computers', *Times*.

from bulletin boards in the public consciousness in two particular ways. Firstly, it was identified as an essential educational resource children should be given access to, unlike bulletin boards which were considered to be of only niche interest; and secondly it was, in the form of the Web, significantly easier to use than bulletin boards, rendering it plausible that the average child could access pornography through it, as opposed to just those children that were exceptionally computer literate.

The endorsement of the Internet as an educational resource by British political parties both contributed to public anxieties about the Internet by encouraging children's use of the network and necessitated some kind of political response to this problem to reassure a disconcerted public. A commitment to industry self-regulation by the government resulted in the creation of the Internet Watch Foundation in 1996, dedicated to pursuing reports of illegal content online, and a commitment to developing a more robust system of content filtering tools, which substantially allayed public anxieties about children's access to obscene and illegal online content. This granted the Internet greater mainstream acceptability in the UK, especially among parents, and subsequently allowed Labour to pursue a more committed programme of connecting schools to the Internet after they came to power in 1997 without fear of condemnation for promoting a technology which carried content that was potentially harmful to children.

Early warnings

As described in chapter one, by the late 1980s, stories were beginning to appear in the British press about privately operated bulletin boards which contained obscene and potentially dangerous kinds of information. One area of particular interest was extremist political content, typically associated with the far right, including 'manuals' for committing various illegal acts all the way up to terroristic violence. There was also a wave of concern about paedophilic and pornographic bulletin boards after the issue was covered in an episode of the popular ITV current affairs programme *The Cook Report,* first aired in July 1987.[520] Concerns about computer pornography resurfaced intermittently after this wave in the late 1980s, normally taking the form of a newspaper exposé of a

[520] 'Child Pornography', *The Cook Report*, ITV, 29 July 1987.

particular bulletin board.[521] Certainly there were enough reports that some parents noticed and expressed their concerns to those they thought would be able to take action. In September 1989, Conservative MP Barney Hayhoe raised the issue of computer pornography with the Home Secretary, Douglas Hurd, following complaints he had received from constituents concerned that their children and others may be able to access computer pornography through bulletin boards. Hurd's response was that those with evidence of material being carried on such boards should report it to police, adding that 'the problem with pornography on bulletin boards is not so much a gap in the criminal law as practical difficulty in tracing the suppliers and obtaining evidence.'[522]

These negative representations of bulletin boards by the press frustrated and exasperated some proponents of computer communications. 'Computer magazines and national squaloids occasionally publish lurid stories about boards containing pornography, viruses and plans for making bombs,' lamented Anthony Ginn in a 1991 article on Fidonet. 'Why low-resolution images on computer monitors are seen as more likely to be depraved than those splashed all over daily newspapers is a mystery.'[523] What is most notable about this period, however, is how media awareness of both paedophilic and more generally pornographic bulletin boards did not tip over into a wider panic about illicit uses of computer communications, remaining instead relatively contained compared to the more substantial panic that would develop in the early 1990s.

If concerns about computer pornography had been raised in the Commons as early as 1989, why would it take until June 1993 for a Parliamentary Committee to decide to investigate the issue?[524] The crux of the moral panic around computer pornography rested on the prospect that children might gain access to such material and in viewing it be harmed or corrupted in some sense, as was the typical structure of moral panics.[525] As I showed in chapter two, bulletin boards were still a relatively obscure technology in the

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[521] See e.g. Jane Bird and Rosemary Collins, 'Children tune into computer porn by phone', *Sunday Times*, 12 March 1989, p. A4.

[522] 'Action on pornographic bulletin boards', *The Times*, 14 September 1989, p. 35.

[523] Ginn, 'Fido goes walkies a million times'.

[524] Home Affairs Committee, *First Report: Computer Pornography* (London: HMSO, 9 February 1994). The Committee states on p. v that they agreed to launch an investigation into computer pornography in June 1993.

[525] See Gavin Sutter, ''Nothing new under the sun': Old Fears and New Media', *International Journal of Law and Information Technology*, 8 (2000), 338-78 for a broader historical overview of the structure of moral panics.

UK in the early 1990s and, crucially, they were technically complicated to access, meaning only a small group of more computer literate children with an enthusiasm for computer communications would feasibly be accessing them. In the opinion of the *Observer*, it was therefore only 'young hackers' that would have the sufficient computer skills to actually access computer pornography online.[526] British Computer Society member John Lindsay, talking on *The Net* in June 1994, agreed. If a child was skilled enough in using computers that they were able to actually obtain pornography from bulletin boards, he said, 'you not only have a child with extremely wealthy parents, I'd say we get that child on board and give it a degree straight away so it can do some serious research work.'[527]

The size of this technical hurdle limited concerns about children downloading computer pornography directly from bulletin boards, as it suggested only a very small number of children could feasibly access such material. This technical barrier had been overcome, it was suggested by the press, because computer pornography acquired from bulletin boards could be transferred onto cheap floppy disks and circulated among children that way. As computer experts advising the *Daily Mail* in their investigation of computer pornography in early 1994 admitted, it would be 'difficult but not impossible' for children to gain access to pornographic bulletin boards without being discovered, and that 'he or she would also have to have extensive knowledge of what to look for and where to find it'. 'But there is a far easier way', noted the paper. 'You can simply buy, or make, the disk that contains the material and slot it into a computer – just like putting a CD on your stereo.' These disks, 'freely available in many playgrounds' were the first feasible vector for the diffusion of computer pornography among a wider range of children.[528]

The catalyst for alerting the media to this possibility was a conference organised by the pressure group, the Campaign Against Pornography and Censorship, in Birmingham in November 1992. There, Superintendent Mike Hames of the Metropolitan Police's Obscene Publications Unit gave a talk in which he claimed that children as young as eleven had been found distributing pornographic disks in school playgrounds 'in very much the same way they used to swap cigarette cards in the 1950s.'[529] The media were

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[526] Andy McSmith, 'Minister fails to plug computer porn loophole', *Observer*, 6 March 1994, p. 3.
[527] *The Net*, BBC Two, 15 June 1994.
[528] Paul Harris, 'So easy, joining the sordid world of push-button porn', *Daily Mail*, 5 March 1994, pp. 16-17.
[529] David Graves, 'Children, 11, swap computer porn in playgrounds', *Daily Telegraph*, 13 November 1992, p. 7.

quick to latch onto Hames' story, and from the winter of 1992, stories began to proliferate.

Shortly afterwards, the British Computer Society (BCS) announced it was launching an official investigation into the issue of pornography being distributed via bulletin boards and floppy disks.[530] Ron McQuaker, the society's vice-president for professional affairs, said the problem was 'pernicious' and required widespread vigilance to help stamp it out, and that he would be liaising with Catherine Itzin of the Campaign Against Pornography and Censorship on the issue.[531] In early May, a conference was organised at the University of Central Lancashire on computer pornography, the first of its kind in the UK, because, as Channel 4 News reported, 'the spread of computer pornography is emerging as a problem for schools across the country.'[532] A month later, the BCS's schools group announced that they would be collaborating with the organisers of the conference at the University of Central Lancashire to 'determine the scale of the problem'.[533] The issue gained a significant publicity boost shortly afterwards in late July when *The Cook Report* investigated, focusing on the distribution of computer pornography via bulletin boards and disks. *The Cook Report* was the most popular current affairs programme on British television at the time, and regularly drew in 10 million viewers.[534]

'The law hasn't quite caught up with the silicon revolution yet'

John Diamond was early to identify some of the regulatory issues posed by pornography distributed by computer network in his weekly *Times Magazine* column. 'If a Dutch anorak flashes a picture which is legal in Holland on to a bulletin-board computer in Britain, where it stays as a bunch of electrical blips until a second anorak in Britain chooses to download it on to his own screen, who has broken which law? That is what our legislators are busy looking at, and good luck to them.'[535]

In June 1993, as anxieties mounted in the media about children's access to

[530] 'Porn purge', *Daily Telegraph*, 9 January 1993, p. 4.
[531] Michael Becket, 'No sex please, we're boffins', *Daily Telegraph*, 18 January 1993, p. 27.
[532] *Channel 4 News*, Channel 4, 6 May 1993.
[533] Christine McGourty, ''Computer porn' study for schools', *Daily Telegraph*, 16 July 1993, p. 9.
[534] 'Television and Radio: The Cook Report', *The Times*, 13 July 1993, p. 39.
[535] John Diamond, 'Something for the weekend', *The Times Magazine*, 22 May 1993, p. 14.

computer pornography, the Home Affairs Committee, then headed by the Conservative MP Ivan Lawrence, decided to begin an investigation into the issue of computer pornography later in the year.[536] Pre-empting the Committee's investigation, in November, Home Secretary Michael Howard publicly acknowledged the problem of computer pornography and announced amendments to the forthcoming Criminal Justice Bill to tackle it.[537] These legal changes centred on the closing of loopholes in the Obscene Publications Act which exempted it from applying to digital materials, as these were not as yet classified as 'publications'. In a public statement, Michael Howard said he would not 'hesitate to act whenever those who degrade children find new means of peddling this material', and that 'we must send the clearest signal to pornographers that their activities will not be tolerated. It is vital to take tough measures at the outset if we are to succeed in stamping out this vile trade.'[538]

In February 1994, the Home Affairs Committee published its report.[539] Echoing the government's stance, it found current legislation to be inadequate and duly proposed reforms to the law. The report recommended amending the Customs Consolidation Act to criminalise the importation of obscene material by any means (in particular, via telecommunications networks) and argued for proper guidance to be given to head teachers to manage the supposed problem of pornographic disks being distributed in playgrounds. One particularly stringent measure the Committee did oppose was the suggested establishment of a registration and monitoring system for bulletin boards. In alignment with the Association of Chief Police Officers' (ACPO) assessment, such a system was judged to be ultimately harmful, as it would simply push the distribution of computer pornography underground, while also being technically impractical to operate. Pre-empting the publication of the report, Michael Howard announced further measures to tackle computer pornography, primarily focused on updating the wording in existing obscenity regulation to accommodate digitally stored and transmitted material in order to prevent pornographers 'sidestepping the law'.[540]

More than it seemed to calm them by proposing concrete measures to tackle the

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[536] Home Affairs Committee, *Minutes of Proceedings* (London: HMSO, 3 November 1993), p. xxx.
[537] Prescott and Foster, 'Police get new powers to fight computer porn'.
[538] Louise Jury, 'Crackdown on computer porn', *Guardian*, 26 November 1993, p. 2.
[539] Home Affairs Committee, *First Report: Computer Pornography*.
[540] Philip Johnston, 'New powers to outlaw computer pornography', *Daily Telegraph*, 16 February 1994, p. 7.

issue, the report and, in particular, the evidence provided to the Committee during its production, fanned the flames of public fear. Shortly afterwards, some of the worst fears about how computer pornography might affect children were seemingly confirmed when, on 3 March 1994, the *Daily Mail* reported that a thirteen-year-old boy accused of sexually assaulting a girl of six had claimed in court that he had been 'tipped over the edge' into committing the offence after viewing computer pornography on a disk brought to school by a friend.[541] Vicki Merchant, one of the key organisers of the University of Central Lancashire conference on computer pornography the preceding year, commented that this was 'exactly what we were afraid would happen', and urged the government to act quickly to stop 'what is going on all over the country'.[542] Conservative MP Peter Butler, who sat on the Home Affairs Committee, agreed that, while appalling, this story was not surprising, adding that it 'undermines the argument that children aren't influenced by violence on the screen.' The *Mail*, outraged by this scandalous story, reported on it again on the 4 and 5 March.[543]

The government promptly drew flak when it announced, within 24 hours of the court case, that it would not be going forward with the proposal put forward by the Home Affairs Committee to amend the Customs Consolidation Act to make it illegal to import obscene material through telecommunications as well as physical means.[544] Labour MP Stephen Byers, who sat on the Committee, was outraged. 'To take an extreme case,' he said, 'imagine a perverted teacher calling up a number in the Netherlands on the school computer. He could have hard-core computer pornography which it would be illegal to buy in this country transmitted down the line, without breaking the law. It is illegal to import this stuff in any other form.'[545] The government's decision not to take this step was pragmatic rather than a statement of principles. While, as the *Observer* noted, such a move flew in the face of advice from police (specifically Greater Manchester Police and

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[541] 'School porn boy tried to rape a girl aged six', *Daily Mail*, 3 March 1994, p. 5.
[542] Quoted in 'School porn boy tried to rape a girl aged six', *Daily Mail*.
[543] Nicola Tyrer, 'Dehumanised by hi-tech pornography', *Daily Mail*, 4 March 1994, p. 8; Harris, 'So easy, joining the sordid world of push-button porn'.
[544] Andy McSmith, 'Minister fails to plug computer porn loophole', *Observer*, 6 March 1994, p. 3. For the original proposal see Home Affairs Committee, *First Report: Computer Pornography*, pp. x-xi: 'We therefore recommend that the Customs Consolidation Act 1876 should be amended to take account of importation by whatever means. We believe that it is right that a power of arrest should be attached to such an offence.'
[545] McSmith, 'Minister fails to plug computer porn loophole'.

the ACPO) and the Home Affairs Select Committee, the government were acting in accordance with the advice of both the Home Office and HM Customs and Excise.[546] In a memorandum submitted to the Home Affairs Committee during their investigation, Customs had clearly outlined their opposition to making the importation of obscene materials via telecommunications links on two grounds. The first was the problem of practicality: the surveillance system needed to actually enforce such a law would be large, complicated, expensive, and largely ineffective. The second was that such a surveillance operation would involve intercepting large amounts of legitimate, private, and often very sensitive telecommunications traffic. 'Such monitoring is likely to prove controversial', they noted, 'and we are advised that legal difficulties could exist concerning the use of intercepted material as evidence of offences.'[547] The government agreed, and held to this position despite external criticism, as the problems that would be caused by adopting such a policy would likely far outweigh any supposed benefits.

Where anarchy reigns

Concerns about computer pornography originating from bulletin boards preceded not only the availability of public Internet access, but also any substantial public awareness of the Internet. In April 1994, when the *Independent* reported on an Internet-connected child computer pornography bulletin board found to be running from a computer at Birmingham, the Internet was still so novel that the paper misreported its name as 'Interlink'.[548] The Internet was thus popularised in a context in which computer pornography was widely understood to be available online already on bulletin boards, and therefore the availability of pornography available on the public Internet, understood as a related technology, was a major concern from the beginning.

Some of the earliest stories about the Internet targeted at general audiences therefore made clear that it also contained pornographic material. In the first paragraph of his profile of the Internet for the *Guardian* in April 1994, for example, Jonathan Freedland would describe it as 'a place where pornographers and Nazis walk freely,

[546] McSmith, 'Minister fails to plug computer porn loophole'.
[547] Home Affairs Committee, *First Report: Computer Pornography*, pp. 28-29.
[548] Tim Kelsey, 'Computer sex ring traced to university', *Independent*, 15 April 1994, p. 7.

where criminals roam unchecked and where anarchy reigns.'[549] This was, as discussed in the previous section, a key part of the way the Internet was presented: it was a computer network so vast that it contained something about everything, for better and for worse. It was also anarchic, and outside the remit of state control by virtue of its very design, though the problem of exerting any kind of control over foreign bulletin boards had already been established by this point. Thus, the *Independent* would frame the BBC's decision to become an ISP with the launch of the BBC Networking Club on 1 August 1994 as potentially scandalous: 'Auntie ventur[ing] into [a] taboo zone'. This was on the grounds that, by offering Internet access, the BBC would be also offering access to 'Internet's much vaunted "porn sites" and their stories of pornography', which included depictions of 'group sex, paedophilia, bestiality and other activities'. The BBC's response was that they would be putting 'disclaimers all over the place' and include 'lots of parental guidance about how to keep passwords safe from children'.[550]

Early recreational users of the Internet, however, were still largely understood to be the same as bulletin board users: computer geeks or 'anoraks', and few were concerned about their newfound ability to access supposedly great volumes of pornography online. As John Diamond put it, if computer geeks were content to use computers to look up pornography 'to save themselves the expense of taking the ferry to Amsterdam', then this was something to be sneered at and condemned but not banned, and certainly not at the expense of limiting the overall utility of the network.[551] Caris Davis put it more bluntly in the *Sunday Times,* when she said that 'the general perception of Internet users is that they are sad, anoraks geek types who spend so much time in electronic chit-chat because they haven't got a life and cannot get a date.' She quoted an article from that month's *Spy* magazine about Internet sex groups, which described the regulators of said groups as, at best, 'failed phone-sex customers', too socially awkward to even pick up a phone to get their kicks.[552] Or, as the American author Stephen Amidon had put it in the same paper a few weeks earlier, Internet pornography simply meant not having to go through the potentially socially shameful act of 'reaching for that top shelf

[549] Jonathan Freedland, 'A network heaven in your own front room', *Guardian*, 30 April 1994, p. 23.
[550] Malcolm Wheatley, 'Auntie ventures into taboo zone', *Independent*, 31 July 1994, p. 12.
[551] Diamond, 'Something for the weekend'.
[552] Caris Davis, 'Modem manners', *Sunday Times*, 21 August 1994, p. 16.

corner in the video shop'.[553] Adults finding porn online may have been painted as shameful or embarrassing, but not an area where the state needed to step in.

The critical difference between bulletin boards and the Internet was that there were no widespread claims that bulletin boards had any educational value for children: they were an obscure hobbyist pursuit that few, if any, people were arguing was essential for children to be able to access. As one *Guardian* reader wrote in a letter to the paper in response to their coverage of computer pornography, even if a child was capable of going online, 'any concerned parent could remove access by simply unplugging the telephone line from the back of the computer.' 'Surely', they concluded, 'such is not an unreasonable parental responsibility?'[554]

For concerns about pornography on the Internet to become urgent, children's access to the Internet therefore needed to be articulated as a prescription rather than simply a possibility. This prescription came through the building up, as covered in the previous section, of the Internet as an essential educational resource. To recommend a parent in the mid-1990s disconnect their child from the Internet to prevent them from accessing pornography was thus likened to recommending they take away their child's access to physical libraries on the grounds they might stumble across something untoward inside.[555] Here, Labour's attempts to push Internet access under the banner of the 'information superhighway' as part of its education policy platform from late 1994 were key, not least in the reaction they prompted from the Conservative government. This effectively produced a political consensus that schools should be connected to the Internet, which culminated in the launch of the Schools Online project in March 1995.[556] The effects of this framing can be seen clearly in contemporary survey data: a November 1995 survey of PC buyers undertaken by NOP for Compaq found that 51% of British parents wanted their children to have access to the Internet, but 21% were against it, with the primary reason given being a fear of computer pornography.[557]

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[553] Stephen Amidon, 'Lost in cyberspace', *Sunday Times*, 17 July 1994, pp. 8-9, 11.
[554] 'False alarm over hi-tech porn', *Guardian*, 6 October 1994, Letters to the Editor, p. 27.
[555] 'In the finally analysis, denying children access to the Internet completely is no answer; it is the equivalent of denying them books.' Ray Hammond, 'Internet censors fight rising tide of depravity', *Sunday Times*, 28 April 1996, p. 11. The *Guardian* also used the same metaphor: 'In the end not letting a child wander on the web is a bit like confiscating their library card.' Louise McElvogue and Robin Hunt, 'Surfing into summer', *Guardian*, 17 July 1996, p. A8.
[556] See 'The global classroom'.
[557] Schofield, 'Net a waste of time?'.

Even if parents did not want their children to access the Internet at home, the political consensus that schools should be connected to the Internet that was well established by early 1995 meant that children were soon to be accessing the Internet at school regardless, and by March 1996 about 4,500 schools and colleges in the UK would already have Internet connections.[558] The anxiety was therefore that schools were, as the *Daily Express* put it in typically sensational language, plugging into a 'computer tide of obscenity' by connecting to the Internet, and if the connection of schools to the Internet was to continue to be promoted, then the problem of obscene and illegal content online would have to be addressed.[559] As Ray Hammond explained in the *Sunday Times*, parents' individual decisions whether to get an Internet connection or not were unimportant: the government and the Opposition were both committed to providing Internet access to every school in Britain, and many schools already were connected.[560] Therefore, as the *Daily Mirror* put it in late 1995, 'if the time does come when there's a computer in every school to access the Information Superhighway, the Government of the day will have to look very carefully at how best to exercise some form of control.'[561]

Solving the porn problem

Through 1995, especially after the announcement of the Schools Online project, calls for regulation of the Internet began to intensify in the UK, and different parties began proposing ways this might be done. Some ISPs had already taken action themselves. BT, for example, decided not to carry any newsgroups it believed to circulate pornography. Adrian Edwards, commercial manager of the company's Internet service, told the *Financial Times* 'We don't want to be moral judges or Big Brother, but we will try and ensure that pornographic materials are not stored on our computers.'[562] Pipex, meanwhile, took a more libertarian stance, stating that it did not believe that it was their job as a service provider to censor the Internet. Partly, they explained, this was for legal reasons: to block newsgroups would be to imply an awareness of their contents, as well

[558] Select Committee on Science and Technology, *Information Society: An Agenda for Action in the UK* (London: HMSO, 23 July 1996), p. 44.
[559] Stephen Grey, 'Schools plug into computer tide of obscenity', *Daily Express*, 10 April 1995, pp. 1-2.
[560] Hammond, 'Internet censors fight rising tide of depravity'.
[561] 'Caught! Evil in the Net', *Daily Mirror*, 28 November 1995, pp. 10-11.
[562] Richard Vadon, 'Anarchists make the best police', *Financial Times*, 29 May 1995, Media Futures, p. 11.

as the contents of those the ISP agreed to continue carrying. If those newsgroups they did continue to carry were found to contain illegal material, it could be argued the ISP had implied it was aware of this and would therefore be liable for carrying it. It was better, then, to act as a common carrier: to carry everything without discrimination and remain formally ignorant of the content of all newsgroups.[563] This was in fact the position Prestel had adopted more than a decade earlier to avoid liability for any untoward content published on the system.[564]

One practical solution was to ensure that children were directly supervised when using the Internet. In February 1995, the National Council for Education Technology (NCET) published a free advice leaflet produced in collaboration with parents, teachers, police, and computer experts, offering advice to parents and teachers on how to tackle computer pornography. Key advice was to move computers out of children's bedrooms to a communal space, such as the kitchen, where the screen could be observed, to be careful with credit cards as these could be used to purchase porn online, and to keep an eye on the telephone bill for anything suspicious.[565] For those parents that could not ensure they were always able to observe their children's Internet use, a range of 'cybernanny' software began to emerge. These programs offered a variety of content blocking options, based on various combinations of bespoke website and newsgroup blacklists and keyword filtering (for example, blocking access to any website containing the word 'sex'). By early August 1995, there were several such packages on the market, including Net Nanny, Cybersitter, Cyber Patrol and Surfwatch, mostly originating from the US.[566] This software promised to effectively take on the role of the watchful parent in cases where parental surveillance wasn't possible, a kind of digital outsourcing of the task of supervision. At the end of the month, these were joined by the first British-made package, WinWatch Home, made by a software company based in West Sussex.[567]

Cybernanny software was effective to a point, but had serious flaws that limited its utility. Firstly, there was the problem of the rapid growth of the Web, and the speed with which new pornographic websites could come online. A cybernanny program's

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[563] Charles Arthur, 'How porn slipped the Net', *Independent*, 31 July 1995, Section Two, pp. 13-14.
[564] 'Prestel: Who'll buy?'.
[565] Christine McGourty, 'How you can ward off porn', *Daily Telegraph*, 21 February 1995, p. 16.
[566] Matthew May, 'Not in front of the children', *The Times*, 11 August 1995, p. 29.
[567] 'Filter out unwanted Net items', *Sunday Times*, 27 August 1995, p. 7.

developers would therefore need to keep a keen eye on new websites, and rapidly update blacklists to keep up. The contents of these blacklists could also be something of an issue, as the categories used were culturally sensitive, and whether a website or newsgroup was included in a particular blacklist was up to developers. Cyber Patrol, for example, contained a blacklist of 7,000 websites across twelve categories, a number of which were highly ambiguous: a parent might wonder, for instance, what counted as 'satanic/cult' material, or where the boundaries were for 'militant/extremist' content.[568] The specifically American origin of many of these programs also presented a problem for British users, as their filtering systems were built around different cultural norms and standards. In one instance, the *Independent* reported, Massachusetts-made Cyber Patrol blocked the website of the Campaign for Real Ale (CAMRA) as part of a blanket ban on content about 'alcohol, wine, and tobacco'. 'Which self-appointed Mary Whitehouse put us on their list?' asked Iain Lowe, CAMRA's research manager, when informed of this.[569] California-made CyberSitter, meanwhile, admitted to blocking any website with information on AIDS, as the program 'block[ed] anything geared to homosexual lifestyles', in the words of marketing director Marc Kanter.[570]

Keyword blocking, meanwhile, was equally rife with problems, producing large numbers of false negatives: a child searching for information on 'Essex' or 'sextants' could find legitimate websites blocked by a keyword filter for 'sex'.[571] A number of breast cancer associations were hit by this problem, as, apparently, was Web content related to the town of Scunthorpe.[572] On the flip side, there was also the issue that websites containing content inappropriate for children could have no obvious textual indicators that could be picked up by a keyword filter.

These problems collectively dinted confidence in cybernannies. As the *Daily Telegraph* observed in November 1995, a recent series of reviews in the computing press had shown that 'the task of protection by filtering is impossible', and that any software

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[568] European Commission, *Illegal and harmful content on the Internet* (Luxembourg: European Commission, 16 October 1996), p. 20.
[569] Charles Arthur, 'Real ale is too strong for the American moralists', *Independent*, 22 July 1996, Section Two, p. 11
[570] Arthur, 'Real ale is too strong for the American moralists'.
[571] This problem is described by Clive Parker, technical director of *.net* magazine, in Clive Parker, 'Parents seal off no-go areas', *The Times*, 13 March 1996, Interface, p. 8.
[572] George Cole, 'Safe surfing made easy', *Independent*, 13 January 1997, p. 13.

claiming it could provide a fool proof filtering system was lying.[573]

The IWF

Towards the end of 1995, a number of more aggressive actions were taken in other countries to censor obscenity on the Internet. In late December, a German court had ruled that CompuServe was liable for illegal content found within newsgroups it supplied access to and demanded access to over 200 newsgroups thought to contain such material be blocked in Germany. CompuServe, technically unable to block access in Germany alone, was compelled to block access to these newsgroups for all four million of its subscribers, including 200,000 in the UK.[574] In the US, two months later, the Telecommunications Act was passed, containing a 'communications decency' amendment which made it a crime, punishable by a prison sentence or a fine of up to $100,000, to transmit indecent material over a computer network that might subsequently become available to anyone under the age of 18. American civil rights groups were outraged, and immediately moved to challenge the new law.[575]

In the UK, the government chose to take a more cautious approach, seeking to avert such strident and controversial moves. This was in keeping with their similarly cool response to the Home Affairs Committee report on computer pornography in 1994, despite pressure from the Committee itself (then headed by a Conservative MP, Ivan Lawrence), anti-pornography pressure groups, two of the country's largest police forces, and self-appointed moral guardians in the tabloid press. Immediately after the court ruling against CompuServe in Germany, British Science and Technology Minister Ian Taylor reached out to UK ISPs, seeking their collaboration to 'help stem the rising tide of pornography on the Internet'. He also warned them that they 'must be fully aware of their legal obligations', and urged them 'to exercise vigilance, care and responsibility, particularly if they are in charge of the young.' He further announced plans to meet with

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[573] Mark Sealey, 'Can you really build a wall around this garden?', *Daily Telegraph*, 28 November 1995, p. 42.

[574] Paul Taylor, 'Internet groups suspended over pornography fears', *Financial Times*, 29 December 1995, p. 1; 'Germany forces CompuServe to censor sex on the Internet', *International Herald Tribune*, 29 December 1995; George Sivell, 'Internet services cut after porn raid', *The Times*, 29 December 1995, p. 1; Charles Arthur, 'Worldwide crackdown on Internet pornography', *Independent*, 30 December 1995, p. 4.

[575] Azeem Azhar, 'Censuring the censors', *Guardian*, 8 February 1996, OnLine, p. 4.

CompuServe representatives to discuss potential safeguards.[576]

The big, mass market service providers showed themselves willing to make compromises in order to avoid prompting more draconian interventions at a later point. The American Internet giant AOL, which launched its UK service in January 1996, decided to provide parents with a suite of tools to restrict children's access to content, while the 'dirty' newsgroups CompuServe no longer carried were not listed by default, and additional newsgroups could be easily blocked as desired.[577] Smaller ISPs, however, which typically had their origins in the bulletin board scene, proved less ready and willing to compromise. Demon Internet, started originally by CIX users, tended in particular to take a more libertarian stance on such issues. Steve Kennedy of Demon, for example, told the *Telegraph* in response to Taylor's calls for collaboration between government and the industry that 'the Internet is a global system and it's a mockery to impose national legislation to control it.'[578]

In April 1996, Taylor told the Commons he was actively putting pressure on UK ISPs to come up with a 'Highway Code' for Internet users, and hoped to see progress soon.[579] Continued pressure from the government seemed to be working, particularly as they could point to the US and Germany as examples of more draconian interventions they could make if ISPs refused self-regulation. In early May, Pipex agreed to block access to a number of newsgroups which had been identified by Scotland Yard as carrying child pornography, and to grant users a software-based filtering system. This marked a notable shift in attitude from Peter Dawe, managing director of the company and by then also political officer of the UK Internet Service Providers Association (ISPA), compared to his previously more libertarian stance. Other ISPA members, however, remained intransigent: only 40% of ISPs had signed up to the terms laid out by Ian Taylor, and Demon in particular was holding out strongly against any kind of restriction on Internet access.[580]

In turn, Taylor felt compelled to step-up his rhetoric, threatening police

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[576] Greg Hadfield, 'Internet firms are told to switch off the filth', *Daily Mail*, 30 December 1995, p. 25.
[577] Schofield, 'AOL comes out to play'.
[578] Robert Uhlig, 'Internet firms in talks to close porn access', *Daily Telegraph*, 30 December 1995, p. 3.
[579] House of Commons Debate, 'Internet Terminals', Hansard, vol. 275 (17 April 1996), cols. 705-6. Also reported in 'Warning over control of Internet', *Independent*, 18 April 1996, p. 9.
[580] James Macintosh, 'Internet access provider boosts efforts to censor pornography', *Financial Times*, 6 May 1996, p. 18.

intervention should ISPs fail to make the necessary moves towards self-regulation.[581] By mid-August, the remaining recalcitrant ISPs were in a standoff with Taylor and the police, at which point the *Observer* stormed audaciously into the debate. In an unprecedented move, the newspaper singled out Clive Feather, one of Demon Internet's directors, as a 'pedlar of child abuse' and a man who 'sells access to photos of child rape' in a front-page story.[582] The paper argued that Feather, who had resisted the Met's request for certain newsgroups to no longer be carried as 'unacceptable censorship', was directly complicit in the distribution of child pornography. Furthermore, he had openly stated that he believed there was no evidence that blocking access to paedophilic material on the Net would prevent children from being abused.[583] Online civil liberties supporters were quick to jump to Feather's defence. Oliver Morton, editor of *Wired UK*, described the *Observer* article in an open letter as a 'disgrace to the traditions of liberal, intelligent journalism', 'a disservice to […] readers, an affront to those of us who care about the future of the Internet – and a setback to the cause of fighting the brutalisation and molestation of children.'[584] The battle that he and others like Demon were fighting, he stressed, was a reasonable one: for ISPs to be regarded as common carriers rather than as publishers. In doing so, he added, they asked only 'for the same treatment that phone companies and post offices get'.

Within days of the *Observer*'s article. Demon decided to back down and yield to police pressure after a meeting between representatives from the ISP, DTI officials, and Scotland Yard detectives. Anthony Mudd, Demon's chairman, announced the company had 'taken a lead in discussions with all relevant parties' and was 'in the process of announcing restrictions to illegal material and processes to classify content, enabling users to monitor and report what is being viewed.'[585] In its follow-up article the following week, the *Observer* conceded that it had vastly oversimplified the complexities of

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[581] Robert Uhlig, 'Minister's warning over Internet porn', *Daily Telegraph*, 16 August 1996, p. 5.
[582] 'The pedlars of child abuse: We know who they are. Yet no one is stopping them', *Observer*, 25 August 1996, p. 1.
[583] David Connett and Jon Henley, 'These men are not paedophiles: they are the Internet abusers', *Observer*, 25 August 1996, p. 19.
[584] Oliver Morton, 'Open Letter from Wired to The Observer', *Redcat* (30 August 1996) <https://web.archive.org/web/19990427182330/http://www.redcat.org.uk/~matt/html/wired.html> [accessed 28 September 2021].
[585] David Connett, Tony Jewell and Jon Henley, 'The Net tightens on child abusers', *Observer*, 1 September 1996, p. 18.

censoring the Net, admitting that, even if every newsgroup were blocked, there are many other ways of moving data around the Internet.[586] As Richard Barry noted in the *Independent*, the *Observer*'s continued 'campaign to clean up the Internet' appeared to be more of an exercise in damage limitation than a victory lap.[587] James Gardiner, Demon's marketing director, took the *Observer* to task in the *Independent*, arguing that the paper's approach had been at best unhelpful and at worst totally counter-productive. Demon was already working closely with the DTI, Home Office, and Met, had adopted a new industry standard for rating and filtering online content, and was actively working on a system for rating newsgroups. It was now Demon's policy that, by the end of the year, every user would be required to have rated their Web pages for their content, and they were actively working on establishing a hotline for the reporting of Internet child pornography originating from the UK, based on a model pioneered in the Netherlands.[588]

A major breakthrough was made in late September 1996 when plans for a new watchdog, 'Safety Net', were announced.[589] The plan was spearheaded by Peter Dawe in frustration at the slow pace of change in the UK Internet industry as a whole. 'Public opinion said something had to be done', he told the *Telegraph*. 'I came to the conclusion it was going to be impossible to establish industry-wide consensus on how to tackle this issue. We are building it and there are sufficient numbers of Internet service providers expressing support that I believe it will be viable.'[590] The system had the backing of the ISPA, as well as the Home Office, DTI, and Scotland Yard. Dawe personally funded the newly formed Safety Net foundation with £5 million of his own money, with annual running costs estimated at around £100K. Central to the project was a hotline for reporting illegal material found on the Internet. Safety Net would then inform UK ISPs of the existence of the material, and they would in turn block access to it. This meant ISPs could be made aware of illegal material and be obligated to remove access to it without requiring them to undermine their claims to common carrier status through a more proactive censorship regime.

Safety Net, redubbed the Internet Watch Foundation (IWF) for its launch in

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[586] Connett, Jewell and Henley, 'The Net tightens on child abusers'.
[587] Richard Barry, 'The list and the hysteria', *Independent*, 2 September 1996, Section Two, p. 10.
[588] James Gardiner, 'Be careful who you demonise', *Independent*, 2 September 1996, Section Two, p. 11.
[589] Stewart Tendler, 'Public to help police curb porn on Internet', *The Times*, 2 December 1996, p. 3.
[590] Robert Uhlig, ''Safety net' on Internet will catch child porn', *Daily Telegraph*, 23 September 1996, p. 8.

December, provided a workable solution to tensions between authorities and ISPs. In this regard, the IWF was an undeniable success: as Dawe told *The Net* in January 1997, since the original Safety Net project had been announced in September the previous year, alarmist press coverage of Internet pornography had died down considerably, especially from the high point marked by the *Observer*'s front page attack on Demon in August 1996.[591] The UK government trumpeted the Safety Net plan as 'ground-breaking' and 'an opportunity for the UK to take a world lead.'[592] It certainly had a significant impact in Europe: EU ministers had quickly voiced their approval of the plan, and, as the EU opted to avoid any new legislation regarding the regulation of Internet content, it was agreed that the self-regulation model adopted by the UK would be the likely basis for future safeguards.[593]

The actual effectiveness of the IWF in combating illegal content on the Internet, however, seemed to be of secondary concern to the fact that it was a very public way for the ISP industry to be seen to be taking action on online pornography without compromising its independence or implementing excessive restrictions. This in turn raised the question of whether the IWF was, as the *Telegraph* put it, 'more of a public relations and responsibility-shifting exercise than a determined campaign to remove child pornography from the Internet.'[594] It was reported that, after a month of operation, the IWF had received just 34 calls, of which only half alerted to material that was actually illegal.[595] *The Net* also noted in late January that, while Demon now had a manager on duty 24 hours a day responsible for receiving reports from the IWF and taking down illegal material, they had so far only received two such reports.[596] Through 1997, the IWF did see a substantial increase in reporting, though, and by the end of the year reports to the IWF had resulted in access to more than 2,000 items being blocked in the UK.[597] This undermined claims the foundation was merely a publicity stunt, but the question of whether this progress represented a laudable success or a mere drop in the ocean

[591] *The Net*, BBC Two, 20 January 1997.
[592] Paul Taylor, 'Porn caught in Net', *Financial Times*, 30 September 1996, p. 15.
[593] Katherine Butler, 'Europe adopts British curbs on Internet porn', *Independent*, 28 September 1996, p. 5.
[594] Robert Uhlig, 'Lords of the Net to patrol their creation', *Daily Telegraph*, 24 September 1996, p. 8.
[595] Charles Arthur, 'Internet watchdog slow to sniff out porn', *Independent*, 6 January 1997, p. 7.
[596] *The Net*, BBC Two, 20 January 1997.
[597] Ian Burrell, 'Ministers plan curbs on Internet', *Independent*, 25 June 1998, p. 1.

remained unresolved.

Regardless of the effectiveness of the IWF model in combatting illegal content online, it provided a workable solution to the problem that proved sufficiently satisfactory to both ISPs and authorities, and which abated media panic. In February 1997, David Kerr, the IWF's chief executive, told the first European conference on the policing of cyberspace, hosted in London by the Association of London Government, that the scheme had so far proved a success. His claim was supported by Superintendent Martin Jauch of the Met's vice unit, who argued that self-regulation seemed to provide the means for properly enforcing existing law on the Net.[598] As consumer policy consultant Jeremy Mitchell observed of the response to the problem of illegal and harmful content online in 1997, 'amid all the ferment of debate about Internet regulation, [governments] had to be seen to be doing something in the short-term', and in the UK, the IWF represented a minimum viable product for Internet regulation.[599] With media concern diminished and lacking any major breakthroughs in how online content might better be regulated, the Major government's primary policy was continued support for the Internet Watch initiative, with Ian Taylor reiterating his support for the project in the Commons when asked about measures being taken by the DTI to limit children's access to 'adult material' on the Internet in March 1997.[600]

Labour, too, upon coming to power in May 1997, fully endorsed the watchdog, and committed to continuing to promote its work. When asked in June about the government's commitment to Internet content regulation, the newly appointed Home Secretary Alun Michael emphasised the New Labour government's support for the IWF and the particular approach to Internet regulation it represented.[601] In February 1999, a joint report by the DTI and Home Office commended the success of the IWF and its work, and praised its role in working to promote more effective Internet content ratings systems.[602] Perhaps the IWF's most important accomplishment, however, was that it had

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[598] Stuart Millar, 'Net police in limbo', *Guardian*, 20 February 1997, p. 4.
[599] Jeremy Mitchell, 'New Audiovisual and Information Services and the Protection of Children - The European Dimension', *Journal of Consumer Policy*, 21 (1998), 3-44 (31).
[600] House of Commons Debate, 'Internet', Hansard, vol. 292 (18 March 1997), cols. 501-2.
[601] House of Commons Written Answers, 'Home Department: Pornography', Hansard, vol. 296 (26 June 1997) . Support for the IWF was also stated by Home Office minister Mike O'Brien shortly after New Labour came to power. Andrew Calcutt, *White Noise: An A-Z of the Contradictions in Cyberculture* (Basingstoke: Palgrave Macmillan, 1999), pp. 149-50.
[602] Tim Richardson, 'UK government praises work of Internet watchdog', *The Register* (10 February 1999)

allayed significant public anxieties about the Internet and its safety. This, in turn, allowed New Labour to pursue a full-throated embrace of the Internet after coming to power (as discussed in more detail in the following chapter). The systems put in place by the Tories allowed Labour to implement its proposed projects to promote Internet use in schools, namely the National Grid for Learning, without being criticised for promoting an unregulated medium, and with minimal compromise. Thus, when concerns began to be raised about the danger of children being groomed by paedophiles online in 2001, the government felt that the existing framework proved largely sufficient, and the only policy change they felt compelled to make was to advise that children use classroom-level email addresses for communication to avoid children being individually identifiable, reneging on a commitment made to grant every school pupil an email address by 2002.[603]

Education, Education, Education

The New Labour government that came to power in a landslide general election victory in May 1997 was the most explicitly IT-positive government the UK had had since the first Thatcher ministry. While that government had taken some time to begin embracing information technology as a policy arena, New Labour had placed IT at the forefront of its policy platform since late 1994, immediately after Blair had become party leader.[604] The foremost area New Labour had established as where it would act to promote IT was in education, through the creation of a National Grid for Learning, and the connection of every school to the Internet, and upon entering office the government began to set in motion this flagship policy. Planning for the Grid began in earnest, culminating in the publication of a consultation paper, *Connecting the Learning Society* in October, commencing a consultation period running until December.[605] The primary goal, besides building up network resources and training teachers how to use it, was to connect every school, college, university and library and 'as many community centres as possible'

<https://www.theregister.com/1999/02/10/uk_government_praises_work/> [accessed 28 September 2021].

[603] Chris Johnston, 'New email rules are 'a complete cop-out'', *Tes* (11 May 2001) <https://www.tes.com/news/new-email-rules-are-complete-cop-out> [accessed 28 September 2021].

[604] McNeil, 'The old and new worlds of information technology in Britain'.

[605] Government of the United Kingdom, *Connecting the Learning Society* (London: Department for Education and Employment, October 1997).

to the Grid (and thus the Internet) by the year 2002 – a major project considering just 6,000 out of 32,000 schools were then connected to the Internet.[606] A novel addition was the idea that 1998 should be designated 'UK NetYear' (an education-centric revival of the Thatcher government's designation of 1982 as 'Information Technology Year 82'), with the intention of raising the profile of the project and promoting ICTs in education more generally.[607] Blair announced these plans at Party Conference in October, boasting that it amounted to 'the biggest public/private partnership in any education system, anywhere in the world'.[608]

NetYear launched in January 1998 with big goals, but, as a consortium of private companies operating on a voluntary basis, even bigger constraints on its finances. It started out with a budget of just £2 million, with plans to set up a charity with the target of raising £10 million in 1998 to help schools connect to the Internet, and a publicity campaign to get businesses and local communities involved, helping fundraise and volunteering. Quickly conscripted was the Web portal Excite, which promised to provide email accounts for 10 million pupils and 500,000 teachers by the end of the year, and by October, some 9,000 schools had registered their interest in the scheme.[609] By the end of the year, some 4,000 additional schools had been connected to the Internet – less than half of what UK NetYear had hoped to achieve, but still a significant number.[610]

Early the following year, the Liberal Democrats criticised Labour for lagging behind in its project to get schools connected to the Internet, claiming it looked as though the government would likely fail to meet the target date of 2002 for every school to be connected.[611] Charles Clarke, the schools minister, hit back, arguing that the criticisms were unfounded as the figures used were from March 1998, before any money had been committed. More recent figures showed 30% of primary schools, 90% of secondary schools, and 45% of special schools in England now had some kind of Internet connection,

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[606] Government of the United Kingdom, *Connecting the Learning Society*, pp. 24, 7.
[607] Government of the United Kingdom, *Connecting the Learning Society*, p. 7.
[608] Tony Blair, 'Leader's speech, Brighton 1997', *British Political Speech* <http://www.britishpoliticalspeech.org/speech-archive.htm?speech=203> [accessed 28 September 2021].
[609] John Carvel, 'School pupils to receive free e-mail sites for life', *Guardian*, 13 January 1998, p. 6; 'How industry and business aim to fulfil a dream', *Daily Telegraph*, 13 October 1998, p. 36.
[610] 'Schools Net trailblazer logs off', *BBC News* (26 December 1998) <http://news.bbc.co.uk/1/hi/education/241337.stm> [accessed 28 September 2021].
[611] Lucy Ward, 'Schools miss out on 'free' net link', *Guardian*, 2 March 1999, p. 9.

and many more were expected to go online in the coming year.[612] Despite the lacklustre performance of the NetYear initiative, Labour had pledged in November to commit an additional £500 million to improving IT in education over the next four years, including resources to connect every school to the National Grid for Learning, on top of existing funding commitments.[613] Based on Clarke's figures, this had clearly given a strong boost to the project of getting schools online, and two years later the initiative was well on track, with 86% of primary and 98% of secondary schools connected, and with improved ratios of one computer to every thirteen students.[614] By the end of their first term in office, then, Labour had largely succeeded in their ambition to get every school in the UK connected to the Internet.

From the beginning of 1998, as more and more schools in the UK began connecting to the Internet for the first time, increasingly large numbers of pupils began to use the Internet at school, many themselves likely for the first time. Children's increasing familiarity with the Internet in schools, analysts agreed, was likely a significant factor in driving up the number of home Internet connections from the beginning of 1998. Martin White, Principal Consultant with TFPL, a specialist in information services, thought pressure on parents from children attracted to the Internet after using it at school was a significant driver behind home connections.[615] This theory was supported by research by NOP, which found that 29% of children aged 7-16 in Great Britain had used the Internet at least once in a survey conducted in Spring 1998, with two thirds saying it was for educational purposes. Of those children, 58% said they had accessed the Internet at school, compared to just 24% who said they had accessed it from home. The survey also found that home computer ownership was strongly correlated with the presence of children in a household, with families with at least one child aged under 14 being 50% more likely to have a home computer than the national average.[616] If a large proportion of home computers were bought for children, it made sense that many home Internet connections would also be for children.

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[612] Charles Clarke, 'Internet pledge is being kept', *Guardian*, 8 March 1999, Letters to the Editor, p. 17.
[613] John Carvel, 'Blair's £1bn IT package for schools', *Guardian*, 7 November 1998, p. 7.
[614] Rebecca Smithers, 'How Labour's big moves measure up', *Guardian*, 2 March 2001, p. 7.
[615] Eve-Ann Prentice, 'Home surfers surge ahead', *The Times*, 8 July 1998, Interface, p. 5.
[616] NOP Research, 'Kids surf the net', *NOP Research* (6 May 1998) <http://web.archive.org/web/19981202001233/http://www.nopres.co.uk/internet/surveys/pr08.htm> [accessed 28 September 2021].

Another significant factor at play was the marketing push being made by AOL, which had launched in the UK and Europe in January 1996. AOL UK poured millions of pounds into advertising, with some £6 million being spent on one campaign alone which covered a range of media, including television.[617] Crucially, much of this advertising focused on the family-friendliness of the service, emphasising features like parental controls to block unwanted Internet content, and showing children as the primary users of the Internet, often doing homework.[618] Advertising for AOL keenly played up the framing of the Internet as an indispensable educational resource, pitching the service as offering maximal educational value for children at minimal cost to parents.[619] This emphasis on parental controls was crucial in selling the service to parents: research by the ISP UK Online a couple of years before had found that some 93% of parents surveyed wanted some kind of control over what their children could access online.[620] The creation of the IWF, meanwhile, had helped reassure the public, especially parents, that something was being done about illegal content online, for which the government praised the organisation. 'The IWF has made an important contribution,' said Under-Secretary for Home Affairs Kate Hoey in February 1999, 'responding to real and major public concerns about the abuse of the Internet, and I welcome its continued efforts, with the support of the police, service providers and the public, in removing this vile material.'[621]

Conclusion

'Schools plug into computer tide of obscenity' was how the *Daily Express* responded in a front-page story to the Conservative Welsh Minister John Redwood's announcement of a plan to connect Welsh schools to the Internet.[622] The recent launch of

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[617] Chris Nuttall, 'AOL UK hits half a million', *BBC News* (4 November 1998) <http://news.bbc.co.uk/1/hi/sci/tech/204802.stm> [accessed 28 September 2021].
[618] See e.g. 'AOL UK ad - Parental Controls and Free trial (1999)', *YouTube* (30 May 2019) <https://www.youtube.com/watch?v=A1l_38a4Zs0> [accessed 28 September 2021]. The service even introduced specific features for helping children with homework. 'AOL UK advert - Homework (2000)', *YouTube* (30 May 2019) <https://www.youtube.com/watch?v=vbQwdI8T1-Y> [accessed 28 September 2021].
[619] 'AOL UK ad - Parental Controls and Free trial (1999)', *YouTube*.
[620] John Courtenay Grimwood, 'Wholesome fare for your cyberbrats', *Independent*, 29 January 1996, Section Two, p. 14.
[621] Richardson, 'UK government praises work of Internet watchdog', *The Register*.
[622] Stephen Grey, 'Vision of the future is a highway to world of filth', *Daily Express*, 10 April 1995, pp. 18-

an online version of Penthouse magazine, the paper continued, was a 'graphic illustration of how the Information Superhighway – the new worldwide computer network – is rapidly becoming the Superhighway of Filth.' This article shows how two important themes discussed in the preceding section were important in shaping the media's response to the problem of Internet pornography in the mid-1990s. The first was the blurring of the boundaries between the Internet and the 'information superhighway' within education policy, and more broadly. By the end of 1994, the idea that information superhighways would deliver some kind of interactive television service was stumbling as market research began to show the true extent of disinterest from the general public in such services.[623] As this particular vision failed to materialise, the Internet took the place of interactive television as the primary service associated with information superhighways.[624] The exact differences between the two concepts had always been blurry, but became even more so with time. Thus, the *Express* would consider the terms 'Information Superhighway' and 'Internet' effectively interchangeable. The second relevant theme was the emergence of a political consensus by January 1995 that schools in Britain should begin to be connected up to the information superhighway, which, in practical terms, typically meant the Internet in reality. Since media interest in the Internet had begun to take off in 1993, the Internet had often been framed as a valuable educational tool, but by the time the *Express* was writing, this sentiment had received official endorsement from the government and the Opposition. It was, after all, an announcement by a government minister about connecting up schools to the Internet which prompted the *Express* article.

The UK left the 1990s with a clear settlement regarding how dangerous and pornographic illegal material online was to be handled – a model it had spearheaded the development of in Europe, and which was subsequently supported by the European Commission. Relevant legislation had been updated to apply equally to online content, and the IWF acted as a clearing house for reports of potentially illegal content, which would then be passed on ISPs, who would then block access to the material, and law enforcement, who would attempt to track down those responsible for the material and prosecute. The work of law enforcement in this regard often required coordination with

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[623] See for example Bannister, 'Go-slow on the European multimedia superhighway'.

[624] 'Tuned out and dropping off'.

foreign agencies, due to the international nature of the crimes themselves: to apprehend members of the 'Wonderland Club' online paedophile ring in 1998, for example, the UK National Crime Service worked with law enforcement agencies in 11 other countries to coordinate simultaneous raids on 105 addresses around the world.[625] Reaching a sufficient settlement, and being seen to do so, was essential for a Conservative government that had openly backed the connection of schools to the Internet, and maintaining this settlement was equally essential for the subsequent Labour government that had made even grander commitments to getting schools, and schoolchildren, online. As the *Daily Express* wrote in April 1995, an attempt to regulate the Internet 'must be made for the simple reason that children are likely to be using the Internet in increasing numbers as the country's schools are plugged in.'[626] Though, as one cyber rights campaigner put it, leaving the removal of illegal content online to the IWF was 'like bailing out the Atlantic with a spoon', the model stuck: a compromise solution that was acceptable to all parties involved.[627]

In spite of the limitations of the IWF, loud calls to more tightly regulate online content, like those seen from the Home Affairs Committee in 1994, were increasingly few and far between. Instead, there was a broad acquiescence to the idea that there was no fool proof solution to the problem of illegal content online, but the benefits the network promised, especially for children, were too great for this to be a reason to ban it. When it emerged at the trial of David Copeland, a neo-Nazi who detonated three nail bombs across London in April 1999, killing three and injuring 129 others, that he had acquired instructions for how to make his bombs from the Internet, concerns about the potential consequences of the availability of illegal content online first raised more than a decade earlier were seemingly confirmed. The media was, unsurprisingly, quick to jump on this novel Internet connection. Even before Copeland's identity was known, journalist and broadcaster Andrew Marr described how he now presumed an Internet link in obscene actions like the London nail bombings. 'It has become a commonplace', he wrote, 'that the bomb-making is made easier by instantly-available net information. I don't know if this is true […] but it seems plausible.'[628]

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[625] Jason Bennetto, 'Seaside clue led to hordes of child porn', *Independent*, 3 September 1998, p. 2.
[626] 'Children need Highway code', *Daily Express*, 10 April 1995.
[627] Simon Davies, 'Make it safe, but keep it free', *Independent*, 4 September 1998, p. 5.
[628] Andrew Marr, 'We're all wired-up and ready to explode. thanks to the Internet', *Observer*, 2 May 1999,

When it was confirmed Copeland had got his bomb-making instructions from the Internet, the *Daily Mirror* dubbed him the 'Nazi Net Bomber'.[629] The paper's editorial line was clear that authorities needed to 'act now to get death off the net', but unlike the *Express* a few years earlier, in this instance, the *Mirror* pre-empted critics that might argue that calls for national regulation of a global network were naive. 'The internet is international. Our government alone cannot do anything to control it. What is needed is international action in which all countries join. It is a job for the United Nations. Every country needs to sign up so that the internet can be properly policed throughout the world.'[630] These comments were echoed by Nigel Whitfield, editor of the gay website Digital Diversity, which had set up a support page for the gay community in the wake of the bombing in Soho. 'You have to accept the fact the internet is global,' he told BBC News, we don't have a global government, and it's very hard unless you want to filter every bit of internet traffic in and out of the country. I don't think many people would be very happy if we did that.'[631] Roger Darlington, chairman of the IWF, struck a similar chord when he told BBC News that the London Nail Bombings were 'made easier by the web, and we should draw some lessons from that and try to limit it, but we'll never combat it, I'm afraid, we'll never stop it completely.'[632]

The conclusion regarding children's access to harmful content was a similar acceptance of the impossibility of any kind of fool proof content filtering system, and that, ultimately, responsibility lay with parents. To this end, various forms of assistance were promoted to parents in this new task of monitoring and limiting their children's Internet access, and these remained popular – the large uptick in home Internet use in late 1998 resulting from the launch of Freeserve (discussed in the next chapter) saw sales of the CyberPatrol filtering software similarly skyrocketed.[633] The makers of CyberPatrol also noted the recent mention of the problem of the Internet being 'exploited by peddlers of

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p. 28.

[629] Adrian Shaw, 'Nazi Net bomber', *Daily Mirror*, 6 June 2000, pp. 1, 4-5.

[630] 'Act now to get death off the net', *Daily Mirror*, 6 June 2000, p. 6.

[631] Julie Etchingham, 'Net tool for bomb-makers', *BBC News* (30 June 2000) <http://news.bbc.co.uk/1/hi/uk/808745.stm> [accessed 28 September 2021].

[632] Etchingham, 'Net tool for bomb-makers', *BBC News*.

[633] The reported increase in sales was 188% between February and April 1999. Tim Richardson, 'Fears grow over web harming kids', *The Register* (4 May 1999) <https://www.theregister.com/1999/05/04/fears_grow_over_web_perverting/> [accessed 28 September 2021].

pornography and other crooks' by Prince Philip in a speech given during the royal visit to South Korea in April 1999 as a sign of how widespread awareness and concerns about computer pornography had become.[634] Likewise, AOL's ability to sustain its user base throughout the heyday of subscription free services after the launch of Freeserve was likely due to the heavy emphasis it placed on its robust parental controls, which could justify its relatively premium pricing. A more robust system of content filtering, was supposed to be being hashed out at the European level but was yet to arrive, and as the IWF reported to the Select Committee on the European Union in February 2000, the EC's bureaucratic processes meant progress was being made at a glacial pace.[635] The last line of defence, then, ultimately, was parents. James Delingpole, a self-confessed libertarian, described how the Internet's circumvention of more traditional controls on what kinds of content children could access meant he found his politics had to be 'overruled by parental duty', concluding that, if parents didn't stop children from accessing undesirable content, 'nobody will.'[636]

[634] 'Royal warning on Internet porn', *BBC News* (20 April 1999) <http://news.bbc.co.uk/1/hi/sci/tech/324568.stm> [accessed 28 September 2021].
[635] Internet Watch Foundation, 'Memorandum submitted to the Select Committee on European Union', *UK Parliament* (20 February 2000) <https://publications.parliament.uk/pa/ld199900/ldselect/ldeucom/95/95we35.htm> [accessed 28 September 2021].
[636] James Delingpole, 'What a tangled Web', *Daily Telegraph*, 19 February 2000, Weekend, p. 4.

Chapter 4 – e-commerce@its.best.uk (1998-2001)

A benchmarking study conducted for the government in early 1998, *Moving into the Information Age*, estimated that 4.4% of UK households were online by the end of 1997 and that, based on existing patterns of growth, this could be expected to increase to 14.6% by 2000. In reality, the number of households online by 2000 would be more than double that.[637] Within just three years, the number of homes with Internet access would explode, increasing by close to a factor of seven.

In this chapter, I examine how and why Internet use increased so rapidly in the UK between 1998 and 2001, in contrast to the comparatively slow growth experienced in the years up to 1998. This acceleration began with the introduction of Freeserve in September 1998, the first and most successful of a new generation of ISPs, which found a way to remove the usual subscription fee. Freeserve's new pricing model reduced the cost of going online enough to convince huge numbers of people to begin using the Internet for the first time. At the same time, the New Labour government was becoming increasingly interested in electronic commerce (e-commerce) and began to push forward plans to reform the law to accommodate new online forms of commercial activity. These plans, however, became waylaid by Home Office concerns about the possibility that unregulated cryptographic systems posed a threat to national security. The debate over cryptography highlighted the existence of departmental tensions within British government regarding the regulation of the Internet, between the more liberal approach of the DTI and the draconian attitudes of the Home Office – between the interests of industry and security. Here, the diversity of interests across government departments fractured the unified position held by Labour in Opposition, and for a party at once loudly committed to economic modernization (in particular, the promotion of ICTs) and to authoritarian posturing on matters of crime and security, this created a significant internal tension within the government. Warnings about threats to civil liberties were barely acknowledged, but this emergent tension between economic and security

[637] *Moving into the Information Age* was published online and has not been archived, however its findings are referenced in Culture Media and Sport Committee, *Second Report: The Communications White Paper*, p. viii. Oftel estimated 30% of households had Internet connections by November 2000. Oftel, 'Consumers' use of Internet: Summary of Oftel residential survey, Q3 November 2000', *Oftel*.

interests significantly derailed Labour's efforts to move Britain 'into the Information Age' in the late 1990s.

At the same time as the government's e-commerce legislation became bogged down by this newfound interest in controversial cryptographic controls, the immense success of Freeserve saw the company's IPO in 1999 firing the starting gun for a brief dotcom boom in the UK. During this boom period, several attempts were made to one-up Freeserve and create a fully unmetered Internet ISP. The lack of any wholesale unmetered tariffs, however, meant these services were inherently unstable, and frequently collapsed – sometimes in quite spectacular fashion. Luckily for those hoping to be able to browse the Web without having to also watch the clock, the government's interest in promoting e-commerce saw it paying increasingly close attention to the level of Internet use in the UK, which was seen as crucial to supporting a thriving e-commerce sector. To boost Britain's still comparatively low levels of Internet use, the government began to push for the introduction of unmetered tariffs, which were finally introduced in 2001, and proved hugely popular. Levels of home Internet penetration, as a result, began to converge with those Anglophone countries where unmetered access had been available for years already.

The Freeserve revolution

Though nowhere near as heavily publicised as its educational IT projects like the National Grid for Learning, New Labour had a number of other areas where it intended to promote information technology and the Internet in particular. These were outlined in a vision document, *Our Information Age*, published in April 1998 just as UK NetYear was getting into full swing.[638] First among these areas for intervention was, of course, 'transforming education', and it was here that the government's plans were clearly the most developed. Second to education as a priority was 'widening access', a vague goal with a limited number of plans. Listed were the proposed doubling of the number of 'IT For All' sites, where members of the public could go to learn basic IT skills; the connecting of all libraries to the Internet by 2002, similar to the goal for schools; and the extension of some small provisions for those unable to properly afford full telephone services. *Our*

[638] Government of the United Kingdom, *Our Information Age* (London: DTI, 15 April 1998).

Information Age welcomed the growth in home Internet access in the preceding year, but conspicuously absent from the plans for 'widening access' was any mention of the particular problem of Internet access costs or the relatively low level of Internet penetration in the UK relative to comparable countries.

As shown in chapter two, the UK was trailing behind every other Anglophone OECD nation bar Ireland in the mid-1990s due to the problem of metered Internet access call costs, which not only deterred people from becoming Internet service subscribers, but also pressured home Internet users to minimise the amount of time they spent online. Peter Dawe, founder of Pipex, the first commercial ISP in the UK, estimated in late 1995 that only about 10,000 of the 1.5-2 million people connected to the Internet in the UK were using it primarily as consumers rather than as a business tool, and even by late 1997, only about 4% of British households had Internet access according to NOP Research.[639] Home Internet penetration in the US was more than four times higher (18%) at this point.[640] Labour had no specific plan for addressing this problem, despite their promotion of the Internet in other regards, except for general gestures towards a 'focus on promoting choice, innovation and efficiency through competing services and infrastructures'. This was essentially just a reiteration of the Conservatives' approach to telecoms regulation – the same approach which had so far failed to deliver the new kinds of tariffs that would increase levels of home Internet use.[641]

The obvious solution to helping the UK catch up was unmetered Internet access, which was widely available in the US, and was closely associated with both higher levels of Internet penetration and more time spent online by Internet users. It was quite surprising, then, that the most significant innovation in Internet access in 1990s Britain was a service that removed the subscription fee. That service, Freeserve, was launched by the UK's leading high-street computer retailer Dixons in September 1998. Within six months, it had signed up 1.3 million users, and become the single largest ISP in the UK.[642] Freeserve represented a sufficient enough reduction in Internet access costs to, as

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[639] Peter Dawe, 'I didn't get where I am today without.', *Daily Mail*, 26 October 1995, p. 66; NOP Research, 'One in twenty-five British households now linked to Internet', *NOP Research*.
[640] 'Percentage of households with internet use in the United States from 1997 to 2019', *Statista*.
[641] Government of the United Kingdom, *Our Information Age*.
[642] David H Goff, 'Online, Time is Money: Internet Growth and the Cost of Access in the United Kingdom and Europe', in *Time and Media Markets*, ed. by Alan B Albarran and Angel Arrese (Mahwah, NJ: Lawrence Erlbaum Associates, 2003), pp. 95-111 (pp. 97-98).

Michael Duponchel, director of telecommunications industries at IBM Europe put it, 'fundamentally redefine the UK internet marketplace'.[643] By the end of 1998, according to NOP Research, some 6 million people had access to the Internet from home in the UK, compared with just 3.4 million by December 1997, a 76% increase, with a substantial portion of this growth attributable to the launch of Freeserve in the final quarter of 1998.[644] According to the ONS, compiling data from the Family Expenditure Survey, the percentage of households with Internet access had begun to plateau by April 1998 at 9%, but within just a year of Freeserve's launch, this had doubled to 18%.[645]

The astonishing speed with which Freeserve grew in the months following its launch in September 1998 reflected how quickly the market for consumer Internet services was evolving in the UK in the second half of the decade. In just under three years, AOL UK had acquired 500,000 subscribers, surpassing CompuServe's 400,000 in less than half the time.[646] By this point, however, CompuServe had been effectively bought out by AOL in September 1997.[647] Having acquired its main rival, AOL appeared ascendant, a status bolstered by the company's announcement that it would be acquiring Netscape Communications in November 1998 for $4.2 billion.[648] AOL had already effectively conquered the US market by the end of 1997, having more than trebled its membership to 10 million in just two years, and looked set to do the same in the UK.[649]

The rapid growth of AOL UK was certainly impressive compared to that CompuServe had enjoyed, but both paled in comparison to the astonishing growth of Freeserve, which was snapping at AOL's heels in terms of subscriber numbers within just

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[643] Geoffrey Nairn, 'Fundamental changes to UK internet industry', *Financial Times*, 8 October 1999, FT Telecoms, p. 8.

[644] NOP Research, 'More than 10,000 new users try the Internet each day in Britain', *NOP Research* (March 1999) <https://web.archive.org/web/20000303030148/http://www.nop.co.uk/survey/internet/internet_item2.htm> [accessed 28 September 2021].

[645] Office for National Statistics, 'Internet access - households and individuals', *Office for National Statistics* (7 August 2020) <https://www.ons.gov.uk/peoplepopulationandcommunity/householdcharacteristics/homeinternetandsocialmediausage/datasets/internetaccesshouseholdsandindividualsreferencetables> [accessed 28 September 2021]. Data from prior to April 1998 is unfortunately unavailable.

[646] Nuttall, 'AOL UK hits half a million', *BBC News*.

[647] Randy Schultz, 'CompuServe, AOL in deal', *CNN Money* (8 September 1997) <https://money.cnn.com/1997/09/08/technology/compuserve/> [accessed 28 September 2021].

[648] 'AOL buys Netscape for $4.2 billion', *CNET* (2 January 2002) <https://www.cnet.com/tech/services-and-software/aol-buys-netscape-for-4-2-billion/> [accessed 28 September 2021].

[649] Nicholas Denton, 'AOL hits the big time', *Financial Times*, 12 January 1998, p. 15.

two months of launching.[650] By January 1999, Freeserve boasted 700,000 active accounts, meaning that within just sixteen weeks it had become, by a significant margin, the leading ISP in the UK.[651] The existing state of play for the UK consumer Internet services industry had been totally upended by this innovation, and AOL's growth completely stalled. Neil Bradford, the director of Fletcher Research, described the Internet access industry as having been 'revolutionised' in the nine months following the launch of Freeserve. He added that Fletcher did not estimate any brand would be able to overtake Freeserve unless they developed a new Internet access model, such as unmetered access.[652]

The goal for Dixons had initially been to create an Internet service that they could bundle with PCs sold to customers, and plans had been drawn up for a run-of-the-mill ISP charging about £9 per month, expected to gain a modest 50,000 subscribers within a year.[653] It was decided that this wouldn't be worth the investment for the retailer, however, and the team went back to the drawing board. They noted that ISPs often spent large sums on acquiring customers (about £100 per customer in AOL's case), which were then recouped through subscription fees. As Dixons would be marketing through its retail stores to home computer buyers, they realised their customer acquisition costs could be far lower, and thus their subscription fees could be lowered in turn. Just how low they could go was realised by a team member when they were investigating the charging structure of telephone calls to ISPs and discovered what was known as the 'interconnect charge'. This charge, set by Oftel, meant that when a call originating on one telco's lines passed over another network, the first telco (nearly always BT) would split the revenue for that call with the second telco, 30:70.[654] By partnering with a telco (in their case, Energis), ensuring any calls to an ISP travelled over that telco's trunk network, and agreeing to split the revenue from the interconnect charge, the team behind Freeserve realised that they could actually make money from the time users spent connected to the

[650] Within two months Freeserve boasted 475,000 users. Andy Oldfield, 'A year is a long time in cyberspace', *Independent*, 28 December 1998, p. 8.
[651] Chris Nuttall, 'Freeserve rocks UK Net industry', *BBC News* (15 January 1999) <http://news.bbc.co.uk/1/hi/sci/tech/255200.stm> [accessed 28 September 2021].
[652] Nuttall, 'Dixons' Freeserve out in front', *BBC News*.
[653] Cellan-Jones, *Dot.Bomb*, p. 27.
[654] For more on the interconnect charge see CUT, 'The problem of interconnect', *Campaign for Unmetered Telecommunications* (1999) <http://www.unmetered.org.uk/solutions/prob_interconnect.htm> [accessed 28 September 2021].

ISP, allowing them to drop the subscription fee entirely.[655]

A potential problem for Freeserve was that this model was very easily replicated, and dozens of copycats did indeed spring up almost overnight. According to figures cited by Oftel in early 1999, there were around 150 active subscription-fee ISPs in the UK by June 1999, and by August, BBC News reported that this had reached 200.[656] Luckily for Freeserve, though, its first-mover advantage proved to be incredibly powerful, and it was able to retain a position of strong market dominance despite the proliferation of subscription-free services. Fletcher Research's UK Internet User Monitor (based on a poll of 40,000 Net users), estimated that Freeserve was by far the largest ISP in the UK by May 1999. Nearly 1/3 of Net users used Freeserve, which had twice as many users as its nearest competitor, BT ClickFree (another subscription-free service), and more than three times the users of AOL.[657]

The dominance of the subscription-free model was clearly cemented when, in July 1999, AOL announced it would be launching its own free ISP service, Netscape Online, aimed at the particular demographic it had identified as generally favouring free ISPs: 'young, male and Net-savvy'. It was to have its own editorial line aimed at the 'laddish' market and intended to establish partnerships with the likes of Maxim, SportsLine Europe, and Games Domain.[658] The ISP was launched in late August in collaboration with the retailer Woolworths, who would distribute CDs for the service in their 800 nationwide stores.[659]

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[655] Cellan-Jones, *Dot.Bomb*, pp. 27-29.

[656] Trade and Industry Committee, *Tenth Report: Electronic Commerce* (London: HMSO, 15 July 1999), p. 16; 'Netscape Online leads AOL offensive', *BBC News* (24 August 1999) <http://news.bbc.co.uk/1/hi/business/428621.stm> [accessed 28 September 2021].

[657] Nuttall, 'Dixons' Freeserve out in front', *BBC News*.

[658] Chris Nuttall, 'AOL's free ISP targets 'lads'', *BBC News* (19 July 1999) <http://news.bbc.co.uk/1/hi/sci/tech/398394.stm> [accessed 28 September 2021].

[659] Will Knight and Jane Wakefield, 'Netscape Online and Woolies target lads', *ZDNet* (24 August 1999) <https://www.zdnet.com/article/netscape-online-and-woolies-target-lads/> [accessed 28 September 2021].

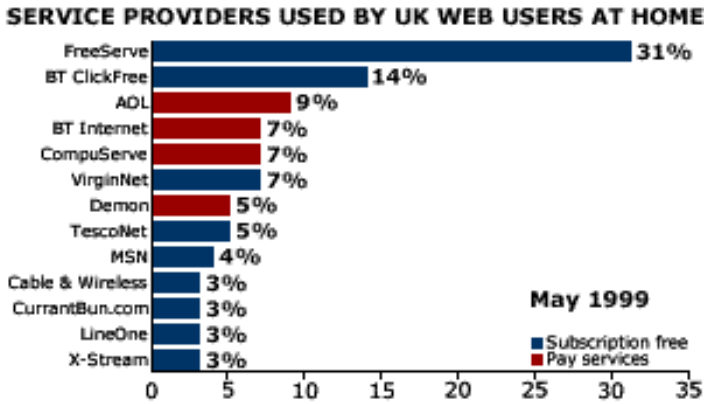

Figure 7. Comparison of home Internet user market share by ISP.

BBC News, May 1999.

This explosion of Internet access prompted by the advent of subscription-free services finally saw the UK beginning to catch-up with those countries that had stormed ahead in terms of home Internet use. Oftel admitted in 1999, based on OECD statistics, that it was only with the introduction of Freeserve and the advent of the subscription-free model of Internet access that the UK began to compare favourably with the US in terms of access prices at all.[660] Even with subscription-free services, Internet access could still be very expensive, especially for heavier users: one family with two teenage sons who were both avid Net-users told the *Daily Mail* in September 1999 that their phone bills regularly ran over £100.[661] In this instance, the parents were willing to foot the cost, but many others' eyes would have watered at such a bill, much like the parents in *2point4 Children*. Nonetheless, removing the subscription fee was clearly a significant enough reduction in cost for most people that they were finally willing to try home Internet access. As BBC business correspondent Rory Cellan-Jones put it, 'Freeserve was transforming public attitudes to the Internet by convincing a whole swathe of the population that they could afford to go online.'[662]

The unexpected introduction of subscription-free ISPs from late 1998 saw growth in home Internet use in the UK far exceed earlier expectations based on growth in subscription services. A benchmarking study conducted for the government in early

[660] Government of the United Kingdom, *"Building Confidence in Electronic Commerce": The Government's Proposals*, p. 148.
[661] Robin Eggar, 'Does your family need a net nanny?', *Daily Mail*, 21 September 1999, p. 49.
[662] Cellan-Jones, *Dot.Bomb*, p. 34.

1998, *Moving into the Information Age*, had estimated that 4.4% of UK households were online by the end of 1997, and estimated that, based on existing patterns of growth, this could be expected to increase to 14.6% by 2000. Research by Oftel found that by November 2000, some 30% of homes had Internet connections – more than double the earlier estimate.[663]

While Freeserve's pricing innovation was the primary driver of its popularity, it had several other advantages besides. Certainly, the ISP's connection to Dixons, by far the UK's largest high street computer retailer, helped tremendously. As the *Sunday Times* observed, CDs could be picked up from any of their numerous outlets (which included Currys, PC World, and The Link), and Dixons could push the service easily when making PC sales.[664] This kind of marketing, based on making free installation CDs widely available, had been essential to driving the growth of AOL in the US, though in that case marketing had been focused heavily on direct-mailing campaigns.[665] In the immediate term, Freeserve was able to generate income through the interconnect charge, as well as from charging £1 per minute for calls to its support line.[666] The proceeds from the interconnect charge were fractions of a penny per minute, however, and were split multiple ways between Freeserve itself, the telco Energis, and the ISP Planet Online, which provided the actual Internet service.[667] On such slim margins, Freeserve's ability to leverage the Dixons network of retail stores to reduce the costs of promotion and distribution was not only a boon, but a necessity for the service.[668]

The California of Europe

Freeserve realised, however, that for long term sustainability, it could not rely on the relatively small revenues from call charges alone, especially as switching ISPs was

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[663] *Moving into the Information Age* was published online and has not been archived, however its findings are referenced in Culture Media and Sport Committee, *Second Report: The Communications White Paper*, p. viii. Oftel, 'Consumers' use of Internet: Summary of Oftel residential survey, Q3 November 2000', *Oftel*.
[664] 'Beware cost of surfing new wave of free sites', *Sunday Times*, 10 January 1999, p. 10.
[665] Phil Edwards, 'In memoriam: AOL CDs, history's greatest junk mail', *Vox* (12 May 2015) <https://www.vox.com/2015/5/12/8594049/aol-free-trial-cds> [accessed 28 September 2021].
[666] 'Dixons joins online fray', *BBC News* (22 September 1998) <http://news.bbc.co.uk/1/hi/sci/tech/177467.stm> [accessed 28 September 2021].
[667] Jack Schofield, 'Free Net service hits high street', *Guardian*, 24 September 1998, online, pp. 4-5.
[668] Schofield, 'Free Net service hits high street'.

substantially easier for users when the subscription fee had been removed, and as the number of competing subscription-free services proliferated. In the longer term, then, the goal was for Freeserve to capitalise on the Web portal users logged in through to access the service, selling space to retailers and advertisers for access to users. Web portals had become the latest buzzy idea in the Internet business in 1998, spurred by the immense growth of Yahoo. By mid-1998, it had secured the largest audience of any website in the world, hitting close to 100 million page views a day, and tens of millions of unique visitors each month, and it was growing rapidly.[669] This success had been reflected in the company's skyrocketing stock prices, which had sextupled since its IPO in April 1996, reaching a valuation of $5 billion.[670] The success of Yahoo had seen various other companies stepping into the portal game to try and capture market share and potential future profitability.[671]

If Freeserve was successful, then, it was possible that it could become the UK's first big 'dotcom' success story. This is not to say the UK had not had its share of successful Internet enterprises by this time, but these were mostly Internet service providers. Business-oriented ISP Pipex was sold to US provider UUNET in 1995 for nearly £100 million, with company founder Peter Dawe realising £30 million when he sold his shares in early 1996, consumer ISP Demon Internet was sold for £66 million in May 1998 to telco Scottish Telecom, and business-to-business ISP Planet Online had been sold to Energis for £85 million in August 1998.[672]

In the US, online retail had been growing in leaps and bounds alongside massive growth in the ISP business, amid widespread excitement about the commercial possibilities of the Internet stemming from a number of major online retail success stores, themselves predicated on the huge growth in the number of home Internet users in the

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669 'Yahoo! still first portal call', *BBC News* (5 June 1998) <http://news.bbc.co.uk/1/hi/business/107667.stm> [accessed 28 September 2021].

670 'Yahoo! the kingmaker', *CNN Money* (23 July 1998) <https://money.cnn.com/1998/07/23/redherring/redherring_kingmaker/> [accessed 28 September 2021].

671 Netscape, Microsoft, Excite, and AltaVista had all already launched portals or were in the process of developing portals by June 1998. 'Yahoo! still first portal call', *BBC News*.

672 Bill Thompson, 'Closed Dawe', *Guardian*, 26 September 1996, online, p. 7; Roland Gribben, 'Top internet provider sold for £66m', *Daily Telegraph*, 2 May 1998, p. 31. The sale of Planet Online to Energis was part of a move towards vertical integration prior to the launch of Freeserve. 'Sykes sells Planet Online', *BBC News* (29 August 1998) <http://news.bbc.co.uk/1/hi/business/160712.stm> [accessed 28 September 2021].

US. Foremost among these was Amazon, which in May 1997 had a tremendously successful IPO on the NASDAQ stock exchange after having grown from 2,200 to 80,000 daily visits to its website between December 1995 and March 1997, and reached revenues of $16 million.[673] By 1998, it was the third largest bookseller in the US, with sales of $148 million in 1997.[674] Not only was e-commerce booming, it was nipping at the heels of 'old economy' stalwarts amid talk of an ongoing transition to an entirely 'new' economy.[675] Online retail in the UK, by contrast, had gotten off to a much slower start. The closest thing the UK had to a company like Amazon was The Internet Bookshop, launched by Darryl Mattocks in June 1994. In the UK, venture capital was hard to come by for would-be Net entrepreneurs, and The Internet Bookshop struggled to secure funding to grow its operations, despite achieving some early success.[676] In 1997, the company, like Amazon, also went public, but on the relatively obscure OFEX market in London, and raising just a meagre £1 million.[677]

The apparent chasm between two companies' IPOs, just months apart, and with both having started offering essentially the same service at the same time, prompted the *Economist* to ask what it was that was holding back a company that was, for all intents and purposes, the British Amazon.[678] The difference between such similar companies was undeniably staggering: after they had both gone public, Amazon was valued at fifty times The Internet Bookshop's $10 million valuation. Besides significant differences in the character of the founders (Bezos was an ex hedge-fund manager, and considered strategic in his decision-making, whereas Mattocks 'seems to have followed in the pattern of the great British amateur', as the *Economist* saw it), Mattocks' struggles in finding venture capital funding in 1995 pointed to deeper, structural differences in the financial cultures

[673] Dawn Kawamoto, 'Amazon.com IPO skyrockets', *CNET* (15 May 1997) <https://www.cnet.com/news/amazon-com-ipo-skyrockets/> [accessed 28 September 2021].
[674] Heather Connon, 'Cyberspace the limit as publishers hail Amazon', *Observer*, 19 July 1998, p. 3.
[675] See for example Alan Greenspan, 'Remarks at the Haas Annual Business Faculty Research Dialogue, University of California', *Federal Reserve Board* (4 September 1998) <https://www.federalreserve.gov/boarddocs/speeches/1998/19980904.htm> [accessed 28 September 2021].
[676] Cellan-Jones, *Dot.Bomb*, p. 15.
[677] Nigel Cope, 'Smith's turns to on-line retailing', *Independent* (23 October 2011) <https://www.independent.co.uk/news/business/smith-s-turns-to-on-line-retailing-1163847.html> [accessed 28 September 2021].
[678] 'A fable concerning ambition', *Economist*, 21 June 1997, p. 95.

of each country as being crucial.[679] Mattock had secured only tens of thousands of dollars' worth of small scale loans, having been rebuffed by venture capitalists, whereas Bezos managed to raise $11m in funding from 'west coast computer-industry luminaries and venture capitalists'.[680] David Windsor Clive, founder of the Internet Movie and Video Services (IMVS), an online music and video retailer, found a similarly icy reception among British venture capitalists.[681]

Mattocks eventually bailed on his venture a little over a year after it went public, selling what was still, at the time, Europe's largest online book retailer to WH Smith in June 1998 for just £9.4m.[682] WH Smith chief executive Richard Handover described this as a largely speculative investment: 'The electronic commerce market is currently relatively small,' he told BBC News, 'but we expect it to develop significantly over the next few years.'[683] Some British companies had clearly started to take notice of the booming successes of e-commerce companies in the US, and were beginning to move in anticipation of this boom being replicated in the UK, but were also cognisant that e-commerce was still in its early stages in the UK, even in mid-1998. The imminence of this transformation was nowhere more likely than in bookselling, as Amazon had just established a base in Britain in April 1998 when it purchased the UK's number two online book retailer, Bookpages, as well as Telebook, Germany's largest online bookstore.[684]

Overall, though, British companies found themselves being castigated for their complacency in the face of significant future competition from US online retailers. Joe Firmage, founder of US Web, which claimed at the time to be the largest Internet

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[679] 'A fable concerning ambition'. This amateurism is attested to in one person's account of a visit to the company quoted by Cellan-Jones: 'I remember visiting Daryll in Oxford. There were just piles of books everywhere. Even the guy who picked us up from the station had to move books off the seats so we could get in.' Cellan-Jones himself describes the Internet Bookshop as a 'ramshackle operation' in its early days. Cellan-Jones, *Dot.Bomb*, p. 14.

[680] 'A fable concerning ambition'.

[681] Cellan-Jones, *Dot.Bomb*, p. 19.

[682] 'WH Smith logs on to £9m internet book deal', *BBC News* (8 June 1998) <http://news.bbc.co.uk/1/hi/business/108779.stm> [accessed 28 September 2021].

[683] 'WH Smith logs on to £9m internet book deal', *BBC News*.

[684] Amazon, 'Press Release: Amazon.com Acquires Three Leading Internet Companies', *Amazon Press Centre* (27 April 1998) <https://press.aboutamazon.com/news-releases/news-release-details/amazoncom-acquires-three-leading-internet-companies> [accessed 28 September 2021]. Bookpages is cited as number two in Martin Veitch, 'Bookpages aims to be UK's Amazon.com', *ZDNet* (10 September 1997) <https://www.zdnet.com/article/bookpages-aims-to-be-uks-amazon-com/> [accessed 28 September 2021].

consultancy in the world, warned in December 1998 that, unless British retailers began rapidly developing strong and well-promoted online operations, they would be 'swamped' by US online retailers planning to extend their operations overseas within 12 months. Mark Fowle, managing director of US Web's British operation, added that Amazon's new beachhead in the UK market presented a grave threat to British book sellers. 'Christmas in the US is Christmas online', he said, and by Christmas 1999, British retailers would be facing fierce competition from US online retailers.[685] In May 1998, the Institute of Directors had sought to highlight the 'pressing need for businesses to embrace the Internet or risk being left in the Dark Ages' at an Internet exhibition and conference in London, at which the chip maker Intel warned attendees that 'businesses that are not on the Internet are doomed if they don't get there, and get there in a hurry.'[686] Such proclamations were fuelled by lofty estimates of the soon-to-be immense size of e-commerce. One such estimate was that e-commerce would be worth $220 billion by 2001, while research conducted for BT estimated that by 2003, 40% of all shopping and business transactions in Europe would be conducted over the Internet.[687]

The rapid growth in home Internet use in the UK after the launch of Freeserve seemed to signal that the tremendous success of online retailers like Amazon and eBay, and portals like Yahoo, was about to finally land on the other side of the Atlantic, and that huge amounts of money could be made for anyone able to secure a strong position in this new market, prompting declarations that there would be 'an e-commerce explosion any time now.'[688] As Freeserve looked to develop as a Web portal, the UK also seemed to finally have its own dotcom champion going into 1999. Dixons' share price had already nearly doubled from under £6 per share in September 1998 to more than £10 per share in February 1999 off the back of the success of Freeserve, and begun moving with the volatility of a NASDAQ-listed dotcom stock rather than a high street retailer. This caused substantial problems for Dixons, as the company struggled to disentangle the value of its

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[685] Chris Barrie, 'Retailers face Net invasion', *Guardian*, 15 December 1998, p. 20.
[686] 'UK takes on the Internet World', *BBC News* (11 May 1998) <http://news.bbc.co.uk/1/hi/sci/tech/91205.stm> [accessed 28 September 2021]; Chris Nuttall, 'Make the most or you're toast', *BBC News* (13 May 1998) <http://news.bbc.co.uk/1/hi/sci/tech/92545.stm> [accessed 28 September 2021].
[687] 'UK takes on the Internet World', *BBC News*.
[688] ''E-commerce set to explode'', *BBC News* (24 November 1998) <http://news.bbc.co.uk/1/hi/sci/tech/220588.stm> [accessed 28 September 2021]

bricks-and-mortar operation from its more volatile ISP business. John Pluthero, meanwhile, the head of Freeserve, was hungry to get more capital in order to fund rapid growth, and was determined that a stock market flotation of the service as a separate company from Dixons would be the answer.[689]

While Dixons developed Freeserve through 1998, and as British businesses began to manoeuvre for position in anticipation of a boom in e-commerce, the government had also begun talking about e-commerce more prominently, promising urgent legislative reform to facilitate its growth. E-commerce had been on the radar of the previous government, with the DTI's *Creating the Superhighways of the Future* report, for example, noting that 'the emergence of electronic commerce is clearly well underway' in November 1994, though this was primarily with regards to business-to-business rather than business-to-consumer transactions.[690] From 1995, as well, the Law Commission had flagged to government that requirements in English law for 'signatures', 'documents', and things to be 'in writing' might inhibit the development of e-commerce if not amended to accommodate digital alternatives, and a working party was created to hash out the issue.[691] Progress had been slow, however, as the Conservatives attached seemingly limited urgency to the issue, while they did little to publicise their efforts nor promote e-commerce.

When Labour came to power in 1997, it largely continued the previous government's work on developing the legal framework for e-commerce, committing in the *Our Information Age* policy document in April 1998 to put in place a 'secure legal framework for electronic commerce, to ensure effective and sustainable competition and to help companies exploit their strengths and improve competitiveness.'[692] In the second half of the year, though, the government began talking substantially more about e-commerce, and about promoting and supporting its development in the UK.

This was down, in large part, to the rather unexpected figure of Peter Mandelson who, on 27 July, was appointed Secretary of State for Trade and Industry, replacing Margaret Beckett. Whereas the outgoing Minister had, in the eyes of one observer, only

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[689] Cellan-Jones, *Dot.Bomb*, pp. 35-36.
[690] Department of Industry, *Creating the Superhighways of the Future: Developing Broadband Communications in the UK*, p. 6.
[691] Law Commission, *Thirtieth Annual Report* (London: HMSO, 23 April 1996), p. 30. See also Law Commission, *Thirty-First Annual Report* (London: HMSO, 12 March 1997), pp. 24-250.
[692] Government of the United Kingdom, *Our Information Age*.

'registered on the political scanner when her Tory shadow, John Redwood, attacked her for being invisible'[693], her successor was to have a more lasting impact, particularly in the area of government IT policy. 'Ask anyone in the IT industry when was the last time a government minister understood their business,' wrote Emily Bell, the *Observer*'s business editor a bit over a year later, 'and they have no hesitation in replying: "Peter Mandelson".'[694] Unfortunately for the IT industry, however, Mandelson's time at the DTI would be cut short by scandal, though he did leave a lasting legacy, having helped push e-commerce to the fore in the government's agenda, and beginning the process of playing crucial foundations for the dotcom boom in the UK that would commence just a year after his appointment with the flotation of Freeserve.

After a few months of relative quiet, Mandelson announced a bold new vision for the DTI. In his first major speech as Trade Secretary on 9 September, he pledged to use the government's powers to boost electronic commerce and make the UK Europe's 'digital laboratory', including plans for a fact-finding mission to Silicon Valley the following month. He wanted, he said, by the end of the current Parliament, for 'the UK to be globally recognised as the best environment in which to trade electronically', a commitment that would be frequently repeated by the government afterwards. In terms of specific policies, these included a commitment to, by 2001, ensure 90% of government routine purchases were made electronically, and to urgently pushing through legislation to clear up lingering legal problems around electronic commerce. He also castigated what he saw as over-regulation in other European countries, and praised liberal market competition.[695] Embarrassingly, while Mandelson made substantial amounts of bluster about the new digital economy, he was compelled to admit in October after returning from his mission to Silicon Valley that he did not, in fact, actually know how to use the Internet – though he said that he was now committed to learning.[696]

On 6 October, the DTI published its first report on the 'electronic commerce agenda for the UK', laying out the obstacles and problems laying before the UK in its

[693] 'A dedicated follower', *Guardian*, 21 July 1998, pp. 4-5.
[694] Emily Bell, 'Time Tony got real about cyberspace', *Observer*, 12 September 1999, p. 3.
[695] David Wighton, 'Mandelson plans electronic commerce boost', *Financial Times*, 10 September 1998, p. 9.
[696] Patrick Wintour, 'Media king Mandelson admits he's an Internet virgin', *Observer* (18 October 1998) [accessed 28 September 2021].

embrace of the new potentials of e-commerce.[697] In December, the government advertised for an Internet tsar (officially dubbed the 'e-envoy' or 'Special Representative on the Digital Economy') to spearhead its drive to uphold Mandelson's promise of making the UK the most e-commerce friendly country in the world by 2002.[698] This followed shortly after the government had included a statement in the Queen's Speech on 24 November stating that new legislation would be introduced to 'promote electronic commerce and start modernising the law, improving competitiveness by enabling the United Kingdom to compete in the digital marketplace.'[699] Here, as well, the government wanted to legislate quickly, to match the rapid development of the medium (Blair said use was doubling every 100 days), with the bill set to be debated in spring 1999, and become law as soon as summer.[700]

In December, the DTI published its competition White Paper, *Our Competitive Future: Building the Knowledge Driven Economy*.[701] The 'challenge' before Britain in a globalised world where capital was mobile and production internationalised was to draw on its unique and inimitable resources: its 'knowledge, skills and creativity'.[702] The DTI's philosophy thus mirrored that of the Department for Culture, Media and Sport which had, under New Labour, begun to champion Britain's cultural output not merely for its social value, but as an internationally tradable commodity.[703] A key influence on the government here was Charles Leadbeater, a leading proponent of the 'knowledge economy' theory in the UK who had recently entered the Number 10 Policy Unit. Leadbeater had written an essay for Demos in May 1997 which published a few weeks

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[697] Department of Trade and Industry, 'Net Benefit: The Electronic Commerce Agenda for the UK', *Department of Trade and Industry* (6 October 1998) <https://web.archive.org/web/19990203103148/http://www.dti.gov.uk/CII/netbenefit.html> [accessed 28 September 2021].

[698] Chris Nuttall, 'Wanted: e-Envoy to lead the business revolution', *BBC News* (4 December 1998) <http://web.archive.org/web/19990204034510/http://www.news.bbc.co.uk/hi/english/sci/tech/newsid_227000/227781.stm> [accessed 28 September 2021].

[699] House of Commons Debate, 'Queen's Speech', Hansard, vol. 321 (24 November 1998), cols. 4-8.

[700] 'Blair hails Internet revolution', *BBC News* (24 November 1998) <http://news.bbc.co.uk/1/hi/special_report/1998/11/98/queen_speech/221291.stm> [accessed 28 September 2021]; Chris Nuttall, 'Reign of e-commerce declared', *BBC News* (24 November 1998) <Reign of e-commerce declared> [accessed 28 September 2021].

[701] Department of Trade and Industry, *Our Competitive Future: Building the Knowledge Driven Economy* (HMSO: London, December 1998).

[702] Department of Trade and Industry, *Our Competitive Future*, p. 6.

[703] David Hewson, *Cultural Capital: The Rise and Fall of Creative Britain* (London: Verso, 2014).

after the election arguing that Britain should try to emulate the success of Silicon Valley (the knowledge economy bar none), and become the 'California of Europe'.[704]

Mandelson, channelling Leadbeater, seemed to have opened up a bold new front in New Labour's drive to promote new digital technologies, foremost among them the Internet, in late 1998. By the end of the year, however, he would be gone, resigning over revelations that he had not declared a suspect loan he had received from Paymaster General Geoffrey Robinson. Even with Mandelson gone, Leadbeater's influence on government policy lingered, and he was touted as being a favoured guru of Blair, with the PM even providing an endorsement for the cover of Leadbeater's 1999 book *Living on Thin Air*.[705] The e-commerce bill was still planned to begin working its way through Parliament in the new year and hopefully become law by summer, as part of the much-touted effort to make the UK the best country for e-commerce by 2002, whatever that may have actually meant concretely.

Britain enters the crypto wars

Even with Mandelson gone, Leadbeater's influence on government policy persisted, and he was touted as being a favoured guru of Blair, with the PM even providing an endorsement for the cover of Leadbeater's 1999 book *Living on Thin Air*.[706] The e-commerce bill was still planned to begin working its way through Parliament in the new year and hopefully become law by summer, as part of the much-touted effort to make the UK the 'best country' for e-commerce by 2002.. Unfortunately for those hoping the bill would sail smoothly through Parliament, it instead became waylaid by the government's simultaneous decision to wade, to the bafflement of many, into the 'crypto wars'.

In its 1997 manifesto, Labour's stance on digital encryption had been clear: the party rejected the US's controversial 'Clipper chip' policy (promoting an NSA-designed encryption chipset with a build-in backdoor usable by US law enforcement), and the principle of mandated encryption backdoors in general. In no uncertain terms, the manifesto stated that 'attempts to control the use of encryption technology are wrong in principle, unworkable in practice, and damaging to the long-term economic value of the

[704] Charles Leadbeater, *Britain: The California of Europe?* (London: Demos, 1997).
[705] Patrick Wintour, 'What do you know - Tony's got a new guru', *Observer*, 25 July 1999, p. 5.
[706] Wintour, 'What do you know - Tony's got a new guru'.

information networks.'[707] This contrasted with the outgoing Conservative government which, since about 1994, had been formulating an encryption policy which would involve the licensing of trusted third parties to hold copies of encryption keys.[708] As the Cyber-Rights & Cyber-Liberties group highlighted, this policy was clearly rushed forward to meet the deadline of the general election in 1997, and 'might uncharitably be construed as an attempt to present a new administration with a policy *fait accompli*', while providing little time for public scrutiny of the proposals.[709]

If this had been the goal of the Conservatives, then it seemed to work; in late January 1998, Labour reneged on its earlier commitments after Home Secretary Jack Straw agreed with other EU justice ministers at a security conference in Birmingham that decryption keys should be held by trusted third parties.[710] As one encryption expert told the BBC, this was a confusing move by the government – even disregarding the party's own admonishments of the policy in its election manifesto, there was no support for the policy among British businesses, strong opposition from civil liberties organisations, and the comparable Clipper chip project in the US was a catastrophe. An OECD report and European Commission expert panel had both also condemned encryption regulations as unworkable.[711] The only people who thought such a policy was a good idea were GCHQ, who clearly seemed to have the government's ear on the issue.[712] The cyber-liberties group, Stand (founded by Danny O'Brien in response to Conservative proposals), agreed that the refusal of the policy to go away stemmed from persistent requests from security services to be able to tap Net traffic more easily.[713] The Foundation for Information Policy Research, a think tank for UK Internet policy, meanwhile, suggested that it was US government pressure that forced Labour's change of tack.[714] Certainly, the proclivities of

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[707] Labour Party, 'New Labour: Because Britain Deserves Better', *Archive of Labour Party Manifestos*.
[708] Department of Trade and Industry, *On Regulatory Intent Concerning use of Encryption on Public Networks* (London: HMSO, June 1996); Department of Trade and Industry, *Licensing of Trusted Third Parties for the Provision of Encryption Services* (London: HMSO, March 1997).
[709] Yaman Akdeniz, 'First Report on UK Encryption Policy', *Cyber-Rights & Cyber-Liberties* (30 May 1997) <https://www.cyber-rights.org/crypto/ukdtirep.htm> [accessed 28 September 2021].
[710] 'Labour reverses policy on Net encryption ', *BBC News* (30 January 1998) <http://news.bbc.co.uk/1/hi/sci/tech/52117.stm> [accessed 28 September 2021].
[711] 'UK Government dithers on encryption regulation ', *BBC News* (20 February 1998) <http://news.bbc.co.uk/1/hi/special_report/1998/encryption/58499.stm> [accessed 28 September 2021].
[712] 'Labour reverses policy on Net encryption ', *BBC News*.
[713] Danny O'Brien, 'Fighting for online privacy', *Sunday Times*, 5 March 2000, p. 51.
[714] Foundation for Information Policy Research, 'The Crypto Wars Are Over!', *Foundation for Information*

Jack Straw had to be considered a significant factor. Straw had garnered a reputation for frequently positioning himself to the right of the Tories on matters of crime and justice when in opposition and was regarded as so illiberal that Paddy Ashdown had made clear that, were the Liberal Democrats offered the opportunity to form a coalition government with Labour, a non-negotiable condition would be that under no circumstances could Straw be made Home Secretary.[715]

The official government policy, announced in April after some delays and supposed leaked documents going around on the Internet, was that authorities would be able to secure a decryption key with a warrant, granted on a case-by-case basis.[716] The rationale for this policy change was vague, couched in terms of stopping crime and terrorism. 'It is not […] in the interests of business or the public for criminals and terrorists to be able to exploit these new technologies to disguise or conceal their activities', said undersecretary of state for trade and industry, Barbara Roche, in a written reply to a parliamentary question.[717] When Mandelson began talking up the importance of e-commerce in late 1998, encryption became wrapped up with the government's proposals for an e-commerce bill, set to become law as soon as summer 1999.[718] The extension of the remit of the upcoming e-commerce bill to include cryptographic measures more closely associated with law enforcement concerns was heavily criticised by the Trade and Industry Committee soon after, who argued that engorging the bill with complex and controversial cryptography policy would threaten to undermine its stated goal of facilitating the development of e-commerce.[719]

Intensive lobbying by businesses, concerned that the more draconian elements of Labour's encryption policy would smother electronic trading with an excess of bureaucracy and dint consumer confidence, prompted the government to back down substantially. This culminated in a meeting in March 1999 between the Prime Minister,

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Policy Research (25 May 2005) <https://www.fipr.org/press/050525crypto.html> [accessed 28 September 2021].

[715] Alwyn W Turner, *A Classless Society: Britain in the 1990s*, eBook (London: Aurum Press, 2013), ch. 6.

[716] 'UK Government dithers on encryption regulation ', *BBC News*.

[717] 'Encryption proposals revealed', *BBC News* (27 April 1998) <http://news.bbc.co.uk/1/hi/sci/tech/84332.stm> [accessed 28 September 2021].

[718] Department of Trade and Industry, 'Net Benefit: The Electronic Commerce Agenda for the UK', *Department of Trade and Industry*; Nuttall, 'Reign of e-commerce declared', *BBC News*.

[719] Government of the United Kingdom, *"Building Confidence in Electronic Commerce": The Government's Proposals*, pp. xxi-xxiii.

Home Secretary, Trade Secretary, and twenty business leaders, where Blair agreed to drop all plans for mandatory key escrow if businesses could soon propose a better alternative, after business leaders made clear that they believed the government's proposals would undermine e-commerce.[720] After considering industry proposals, Blair agreed to remove requirements for mandatory key escrow, backing, as the *Financial Times* saw it, the more business-friendly DTI against the more hawkish Home Office.[721] This tension between economic and security interests was clearly identified in the DTI's consultation paper on e-commerce published in October 1998, where they stated that 'encryption […] has a major drawback – the same technology used to protect sensitive business communications can be used by criminals and terrorists to circumvent the legal powers of interception by governments.'[722] As the Number 10 Performance and Innovation Unit noted, the new policy mirrored more closely the 'co-regulation' approach taken with regards to illegal online content in the form of the Internet Watch Foundation.[723] Even with this eventual change of course, the Trade and Industry Committee warned, 'UK electronic commerce policy was for so long entrapped in the blind alley of key escrow that fears have been expressed that UK's reputation as a competitive environment for electronic commerce is now severely damaged.'[724]

Despite this apparent setback, the Home Office was not deterred, and in February 2000 the government published the details of its plans for a Regulation of Investigatory Powers Act (RIPA), into which it had shunted many of the security-related policies originally contained in its e-commerce bill.[725] The proposals were immediately and widely decried as draconian and destined to face inevitable human rights challenges,

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[720] Chris Ayres, 'Bill holds the key to policing commerce on the Internet', *The Times*, 7 May 1999, p. 31.
[721] Jean Eaglesham and David Wighton, 'Government softens e-trading bill', *Financial Times*, 24 July 1999, p. 1.
[722] Department of Trade and Industry, 'Net Benefit: The Electronic Commerce Agenda for the UK', *Department of Trade and Industry*.
[723] Performance and Innovation Unit, *e-commerce@its.best.uk*, pp. 25-26. See also Performance and Innovation Unit, *Encryption and Law Enforcement* (London: Cabinet Office, May 1999).
[724] Government of the United Kingdom, *"Building Confidence in Electronic Commerce": The Government's Proposals*.
[725] Danny O'Brien claimed this may have inadvertently been his fault, as, when Stand gave a presentation to the Trade and Industry Select Committee in early 1999, they suggested the security measures proposed for the e-commerce bill should be placed be put into a separate Home Office 'wire-tapping bill'. 'Be careful what you ask for', he noted in reflection after the announcement of the RIPA. O'Brien, 'Fighting for online privacy'.

especially after the Human Rights Act entered UK law in October.[726] The new proposed powers were, the *Financial Times* argued, 'more intrusive […] than in any other western democracy', allowing authorities to collect huge amounts of data on citizens, requiring ISPs to become party to surveillance of their customers (the costs of installing the technology to do so having to be covered by the ISPs), and a requirement to grant decryption keys to authorities when legally demanded – with the non-delivery of these keys being a potentially prosecutable offence.[727] *The Register* immediately dubbed the RIPA the 'Big Brother bill', though as the *Financial Times* noted, the technologies available to model governments far exceeded those available to the fictional regime of Orwell's novel, while the *Guardian* described the bill as an 'RIP for basic liberties'.[728] The Home Office attempted to defend the bill, arguing that it was merely an updating of older powers to match new technology, but found few sympathetic ears. An unparalleled indictment was the condemnation of the bill by none other than British 'father of the Web', Tim Berners Lee, in June, though Esther Dyson's warning that the RIPA would turn Britain into a 'police state' at a July event attended by the chancellor, Gordon Brown, ran a close second.[729]

The affront the bill represented to civil liberties was considered by critics to be nothing short of astonishing. As Danny O'Brien explained, Jack Straw was seemingly attempting to criminalise forgetting your password.[730] John Naughton asked readers to imagine the absurdity of a scenario where they were sent to prison for failing to remember a password: 'Unbelievable? Couldn't happen in a liberal democracy? Well, I have news for you', he added.[731] The protestations from civil liberties campaigners were, as they had been since the encryption U-turn was announced in January 1998, loud and

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[726] Jean Eaglesham, 'Government unveils e-mail surveillance law', *Financial Times*, 11 February 2000, p. 6.
[727] 'Spies in the web', *Financial Times*, 7 March 2000, p. 20.
[728] Sean Fleming, 'UK gov't reveals Big Brother bill', *The Register* (11 February 2000) <https://www.theregister.com/2000/02/11/uk_govt_reveals_big_brother/> [accessed 28 September 2021]; 'Spies in the web'; 'RIP for basic liberties', *Guardian*, 7 March 2000, p. 23.
[729] See e.g. Sean Fleming, 'Home Office RIPs into its Big Brother critics', *The Register* (16 March 2000) <https://www.theregister.com/2000/03/16/home_office_rips_into_its/> [accessed 28 September 2021]; Charles Clarke, 'RIP Bill is to make people safe, not to usher in Big Brother', *Financial Times*, 21 March 2000, Letters to the Editor, p. 22. Jamie Doward, 'Father of the web lashes snooping bill', *Observer*, 11 June 2000, p. 13; Melissa Kite, 'E-mail snooping will create police state, guru warns', *The Times*, 6 July 2000, p. 15.
[730] O'Brien, 'Fighting for online privacy'.
[731] John Naughton, 'Encryption bill has to be last straw', *Observer*, 12 March 2000, p. 6.

clear (Stand, for example, organised a mass 'fax your MP' campaign in opposition to the bill), but were largely ignored.[732] It was hoped, then, that, as with the e-commerce bill, objections from businesses would convince the government to backtrack.

John Naughton was early to register the potential problems the bill would cause for businesses when, at a conference on the RIPA at the London School of Economics in March, where he observed the stunned response of Charles Clarke, the junior minister dispatched to defend the government's stance, to a question from an AT&T employee. The employee, who was responsible in his role for the 'security and integrity of several large banks and financial institutions', noted that he held many decryption keys as a result of his role, and had an obligation to preserve the privacy of his clients' information. Under the RIPA, however, he might be required to disclose those keys when demanded, but also required not to disclose to those clients that their secrecy had been compromised. 'As he spoke', recalled Naughton, 'you could see Clarke opening and shutting his mouth like a stunned carp. The only sound to be heard was the noise of online banks stampeding to leave the country.'[733] On 8 June, just before Berners-Lee made his remarks criticising the bill, the Institute of Directors sent a letter to the Home Office and DTI expressing significant concerns about the RIPA, just a few days after the Chamber of Commerce (which had 126,000 business members in the UK) sent a similar letter expressing major concerns about the bill to Jack Straw.[734] The government, in turn, desperately attempted to defend the bill against this barrage of criticism. Just a few months after its announcement, 'fielding opposition to the Regulation of Investigatory Powers (RIP) Bill is becoming a full-time job for the Home Office', quipped *The Register*.[735]

Despite hopes that the House of Lords might be able to block the bill at the behest

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[732] Sean Fleming, 'MPs get 1000 anti-RIP faxes', *The Register* (21 March 2000) <https://www.theregister.com/2000/03/21/mps_get_1000_antirip_faxes/> [accessed 28 September 2021].

[733] John Naughton, 'It's RIP basic human rights in 'worst UK legislation ever'', *Observer*, 26 March 2000, p. 10.

[734] The letter is available at <https://www.fipr.org/rip/IoD%20letter%208.06.2000.htm> [accessed 28 September 2021]; Linda Harrison, 'RIP could wreck UK business, Chamber of Commerce realises', *The Register* (6 June 2000) <https://www.theregister.com/2000/06/06/rip_could_wreck_uk_business/> [accessed 28 September 2021]; Dan Atkinson, 'BCC attacks 'licence to snoop'', *Guardian*, 6 June 2000, p. 24.

[735] Linda Harrison, 'Home Office kept busy defending RIP Bill', *The Register* (16 June 2000) <https://www.theregister.com/2000/06/16/home_office_kept_busy_defending/> [accessed 28 September 2021].

of resistance organised by Liberal Democrat peer Lord McNally, the RIPA still passed, and received royal assent on 28 July 2000.[736] It did so, however, with some of its most draconian edges filed down after a flurry of eleventh-hour amendments and concessions were forced on the government in the Lords. Critics welcomed, for example, the addition of new safeguards which gave express regard to proportionality and necessity, and the shifting of the burden of proof regarding whether a defendant was knowingly withholding a decryption key to the prosecution.[737] Concerns still remained, though, that the Act presumed where a decryption key was not provided that it was being deliberately withheld, and therefore 'in sum, the provisions appeared to amount to an uncomfortable attempt to punish by proxy where a more serious suspected offence could not be adequately proven.'[738] Caspar Bowden, director of the Foundation for Information Policy Research, dubbed the RIPA 'zombie legislation. Clinically dead from macabre wounds, it still lumbers on menacing individual privacy and commercial confidence.'[739]

It was quite bizarre, Hosein and Whitley noted shortly after the RIP bill passed, that the greatest proportion of debate regarding the bill occurred specifically within the House of Lords, an institution that was emphatically undemocratic and 'often felt to be disconnected with the public'.[740] This was a strange fruit, they considered, of the undemocratic approach taken by the government in trying to push through its cryptography controls, particularly after the provisions had transferred from the aegis of the DTI to the Home Office. Where the DTI had taken public consultations, which had been overwhelmingly critical, the Home Office rushed the RIP bill to Parliament with a minimal public consultation period. The result of this was that it was left to the unelected second chamber to act as the final bulwark in defence of civil liberties, as against the 'authoritarian diktats' of the Commons, an apparent paradox not lost on contemporary

[736] Kamal Ahmad, 'Snooping Bill faces Lords axe', *Observer*, 18 June 2000, p. 12.
[737] Bela Bonita Chatterjee, 'New but not improved: a critical examination of revisions to the Regulation of Investigatory Powers Act 2000 encryption provisions', *International Journal of Law and Information Technology*, 19 (2011), 264-84, pp.268-269.
[738] Chatterjee, 'New but not improved: a critical examination of revisions to the Regulation of Investigatory Powers Act 2000 encryption provisions', p.269.
[739] Linda Harrison, 'RIP branded 'zombie legislation' as it passes Lords', *The Register* (20 July 2000) <https://www.theregister.com/2000/07/20/rip_branded_zombie_legislation_as/> [accessed 28 September 2021].
[740] Ian; Whitley Hosein, Edgar A, 'The regulation of electronic commerce: learning from the UK's RIP act', *Journal of Strategic Information Systems*, 11 (2002), 31-58 (p.35).

observers.[741] The Home Office's tactics regarding the RIP bill had, however, been used by the DTI under the preceding Conservative government regarding encryption policy where, in the opinion of Cyber-Rights & Cyber-Liberties (UK), 'the timetable for consultation proposed by the DTI has been so short as to preclude adequate public study and comment', suggesting this aversion to public scrutiny vis-a-vis cryptography policy could not be considered to lay inherently within any particular department.

The bill passed through Parliament less than a week after the UN released a damning report on the UK's human rights record, which had recommended sweeping changes to the RIPA, echoing the sentiment of Amnesty International in an Open Letter to the House of Lords regarding RIPA a month earlier.[742] There were also substantial concerns that the act had irrevocably damaged the UK's reputation with regards to e-commerce. In a damning report, the Select Committee on the European Union stated that they had found 'that the continuing adverse perception of the Bill has weakened the impression that Government understands and supports the e-commerce-based sector and has threatened the Prime Minister's objective of making "the UK the best environment in the world for e-commerce".'[743] This echoed concerns raised by Richard Clayton, a consultant for ISP Thus (then owners of Demon Internet), in June 2000, when he had warned attended of an ISPA hosted event that everyone in the world connected to the Web knew about the RIP bill, and 'their confidence in our country is being hit'.[744] Even Charles Clarke admitted that the bill had attained an infamous reputation in the 'overseas media', though in his view this was due to widespread misunderstanding of the bill, for correcting which 'propaganda is needed'.[745]

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[741] Hugo Young, 'The Lords is potent, wise and quite indefensible', *Guardian*, 25 July 2000, p. 20. Young observes that the Lords' defence of civil liberties against the will of the Commons appeared to be an emergent phenomenon of the first New Labour government, a result of the party's large majority in the Commons rendering the lower chamber a 'passive agent in the body politic.'

[742] Akdeniz, 'First Report on UK Encryption Policy', *Cyber-Rights & Cyber-Liberties*; David Hencke, 'UN report scorns UK human rights record', *Guardian*, 20 July 2000, p. 1; Hencke, 'UN report scorns UK human rights record'.

[743] Select Committee on European Union, 'Fourteenth Report, Part 8: Governments' Role in Regulating E-Commerce', *UK Parliament* (25 July 2000) <https://publications.parliament.uk/pa/ld199900/ldselect/ldeucom/95/9511.htm#a74> [accessed 28 September 2021].

[744] Linda Harrison, 'RIP Bill needs 'a very big knife taking to it'', *The Register* (22 June 2000) <https://www.theregister.com/2000/06/22/rip_bill_needs_a_very/> [accessed 28 September 2021]

[745] Laura Rohde, 'U.K. e-mail snooping bill passed', *CNN* (28 July 2000) <https://edition.cnn.com/2000/TECH/computing/07/28/uk.surveillance.idg/index.html> [accessed 28

John Naughton, clearly sharing this view, considered the passing of the bill to be an 'RIP to civil liberties and the e-business revolution.'[746] At the third annual Big Brother Awards at the London School of Economics in December 2000, Jack Straw was honoured with the 'Lifetime Menace' award – the only reason he was kept off the shortlist for the 'Worst Public Servant' award being that he had won it the two years previous.[747]

Boom and bust

In June 1999, as the government's troubled plans to support the e-commerce were being waylaid by national security concerns, Dixons announced that it would soon be taking a minority stake (20%) of Freeserve public in what was set to be the UK's first major Internet stock flotation, with the service having trebled its userbase since December, reaching 1.5 million users, and accounting 31% of home Internet connections by May.[748] Investment analysts placed huge (and hugely varied) estimates of the company's value, ranging between £1.3 billion and £2.6 billion.[749] Credit Suisse First Boston (CSFB), which had been chosen to steer the flotation, settled on a price of between £1.30 and £1.50 a share, placing the company's value at the lower end of the range of estimates at between £1.3 billion and £1.5 billion – more than the newsagents WH Smith or the glass firm Pilkington, and for a company that was less than a year old.[750] Significantly, Freeserve was also to be floated on the London Stock Exchange (LSE), which had until then been hesitant about allowing untried and untested young Internet companies to list with them. Getting the LSE to agree to list Freeserve was a struggle, as Andrew Cornthwaite, the British banker who spearheaded the Freeserve IPO team explained: 'nobody understood it, we could not measure it – and the London Stock

September 2021].

[746] Rohde, 'U.K. e-mail snooping bill passed', *CNN*.

[747] Kieren McCarthy, 'Big Brother awards rock the LSE', *The Register* (5 December 2000) <https://www.theregister.com/2000/12/05/big_brother_awards_rock/> [accessed 28 September 2021].

[748] 'Dixons to float Freeserve', *BBC News* (7 June 1999) <http://news.bbc.co.uk/1/hi/business/the_company_file/362888.stm> [accessed 28 September 2021]; Nuttall, 'Dixons' Freeserve out in front', *BBC News*.

[749] 'What price Freeserve?', *BBC News* (22 June 1999) <http://news.bbc.co.uk/1/hi/business/the_company_file/375497.stm> [accessed 28 September 2021].

[750] Cellan-Jones, *Dot.Bomb*, p. 40. See also 'Freeserve gets a price tag', *BBC News* (12 July 1999) <http://news.bbc.co.uk/1/hi/business/the_company_file/391480.stm> [accessed 28 September 2021].

Exchange would not allow us to do it.'[751]

By early 1999, however, the LSE had come around to the idea of allowing Internet stock flotations.[752] The Internet stock boom in the US had begun years before, with the Netscape IPO in August 1995, a little over a year after the company's founding. In one day, a company that had made no profits reached a valuation of $2.7 billion.[753] Afterwards, multiple Internet stocks like Amazon, eBay, and Yahoo! racked up immense valuations with their IPOs. In 1998, AOL's share price (a closer comparator to Freeserve as another ISP) had grown 586%, making it worth $71 billion, with a price-to-earnings ratio of 275, more than ten times that of an 'old economy' company.[754] This had continued into early 1999, with BBC News describing an Internet stock 'frenzy' in the US in the new year: Amazon alone had effectively doubled in value in the first week of the year.[755] There was a seemingly endless parade of records being broken, and all thanks to Internet stocks. Such stocks would have been, as Cornthwaite put it, simply too speculative for the LSE, but with an undeniably incredibly successful UK Internet company now knocking on its door to ask for an IPO opportunity, the Exchange finally conceded to modifying its rules. As Cellan-Jones notes, the alternative was to risk losing out on potentially lucrative business to European competitors like Frankfurt.[756] The Exchange even commissioned two surveys in early 1999 to show that 'the London market is increasingly providing a key focus for high-tech companies and investors', in the words of LSE marketing director Martin Wheatley.[757] Freeserve, also, was not just any Internet stock: it had the bricks and mortar business of Dixons behind it. As Justin Urquhart Stewart of Barclays Stockbrokers told BBC News, it was Freeserve's connection to an effective electronics retailer with a strong marketing track record in the form of Dixons that lent the enterprise real

[751] Cellan-Jones, *Dot.Bomb*, p. 37.
[752] Though, as Cellan-Jones notes, Freeserve and the LSE clashed frequently during the deliberation process, as new rules were hashed out to allow a nine-month-old company to float. Cellan-Jones, *Dot.Bomb*, pp. 37-38.
[753] Joseph W Campbell, 'The '90s Startup That Terrified Microsoft and Got Americans to Go Online', *Wired* (27 January 2015) <https://www.wired.com/2015/01/90s-startup-terrified-microsoft-got-americans-go-online/> [accessed 28 September 2021].
[754] Cellan-Jones, *Dot.Bomb*, p. 39.
[755] 'Internet stock frenzy ', *BBC News* (8 January 1999) <http://news.bbc.co.uk/1/hi/business/the_company_file/251282.stm> [accessed 28 September 2021].
[756] Cellan-Jones, *Dot.Bomb*, pp. 37-28.
[757] 'City woos Internet shares', *BBC News* (20 May 1999) <http://news.bbc.co.uk/1/hi/business/the_economy/348855.stm> [accessed 28 September 2021].

credibility. If Freeserve was to float at new economy prices in the more apprehensive London Stock Exchange, then, it was because it had one leg firmly planted in the old economy.[758] Urquhart Stewart added that he would have been very sceptical of a flotation of a company like Freeserve if it did not have the connection that it did to a tried and tested company like Dixons.

If the US Internet stock boom had begun on 9 August 1995, then the UK (and indeed European) Internet stock boom began on 26 July 1999. The hype surrounding the float was exceptional, with reports that shares were ten times over-subscribed on 23 July, and a 30% premium on the list price expected to be paid on launch.[759] A day later, it emerged that shares were actually twenty times over-subscribed.[760] This was despite significant amounts of criticism in the financial press of the company's lofty valuation, its future profitability, and even its basic viability. Caroline Daniel observed in the *FT* that Freeserve's long term profitability relied on its portal, which required heavy traffic to the Freeserve web portal, and relied on people continuing to shop through the portal rather than going direct to online retailers, both of which were big asks.[761] In the *Guardian*, Azeem Azhar, an adviser to businesses on the Internet, warned that Freeserve's business model simply did not add up. When it floats, he wrote, 'it will be a business with precious few revenues, little prospect of early profit, virtually nothing on the balance sheet, a bunch of dubiously loyal customers, and a staff of 16.'[762] Several financial analysts said the stock, which reached 215p per share on its first day, was grossly overvalued. Credit Lyonnais Securities said it was really worth 100p per share, Teather & Greenwood 89p, and West LB Panmure a meagre 60p.[763] Even Dixons CEO John Clare admitted that buying shares in Freeserve was a 'gamble'.[764]

On their first day of trading, however, Freeserve shares performed exceptionally well in spite of significant scepticism in the financial press, ending the day 37% up on

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[758] 'Freeserve flotation price puzzle', *BBC News* (1 July 1999) <http://news.bbc.co.uk/1/hi/business/the_company_file/382006.stm> [accessed 28 September 2021].
[759] 'Freeserve 10 times over-subscribed ', *BBC News* (23 July 1999) <http://news.bbc.co.uk/1/hi/business/the_company_file/401759.stm> [accessed 28 September 2021].
[760] Charles Pretzlik, 'Freeserve flotation more than 20 times subscribed', *Financial Times*, 25 July 1999, p. 22.
[761] Caroline Daniel, 'Freeserve aims to access internet riches', *Financial Times*, 12 July 1999, p. 20.
[762] Azeem Azhar, 'Too much, too soon, for Freeserve', *Guardian*, 13 July 1999, p. 27.
[763] Ben Laurance, 'Internet is no free ride for Dixons, the retailer', *Observer*, 17 January 1999, p. 6.
[764] Susanna Voyle, 'Buying shares in Freeserve float 'a gamble', admits Dixons head', *Financial Times*, 8 July 1999, p. 23.

their initial price, valuing the company at £2.05 billion, with shares thirty times over-subscribed. After their first full day of trading, shares rose to more than 50% above their offer price.[765] The success of Freeserve even before its float had been a significant wake-up call to UK retailers as a whole regarding the significance of the Internet market, with one corporate IT advisor describing a 'sea change' in traditional retailers' attitudes to the Internet between Freeserve's launch and mid-1999.[766] Freeserve's IPO, however, was perhaps more significant as the starting gun for a boom in new online-first retail start-ups. For better or for worse, the giddy heights of the dotcom bubble had landed in the UK. For some, the only question was 'when is the bubble going to burst?'[767] For others, like Alex Brummer, the *Guardian*'s finance editor, the Freeserve float was a much-needed win for the UK, 'the creation of a multi-billion-pound Internet service provider in a matter of months, in a society which is generally deemed to be short of entrepreneurial instincts,' he thought, 'is something to be celebrated.'[768]

After Freeserve, all eyes were on the next wave of UK Internet stocks eager to follow in its wake. As BBC News observed, Internet stocks dominated the list of UK companies set to float in the following months. There was online gaming site Gameplay.com, Internet financial services company The eXchange Holdings, Web mail service Funmail, online auction site QXL, and lastminute.com, which offered deals on flights, holidays, and tickets.[769] Gameplay.com's hugely successful float on 2 August showed that Freeserve's IPO was not just a one off, as the shares gained 64% in their first day of trading.[770] The US was, however, in a far more advanced state of Internet stock fever at this point: by the time Gameplay.com, the UK's second Internet IPO, floated there had already been 156 Internet IPOs in the US in 1999 alone.[771] Or as Faisal Islam put it more colourfully in the *Observer*, 'if parallels can be drawn between the unpredictability of US high-tech shares and the emotional ups and downs of adolescence, the UK market

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[765] 'Freeserve shares stay firm ', *BBC News* (2 August 1999) <http://news.bbc.co.uk/1/hi/business/403335.stm> [accessed 28 September 2021].

[766] Caroline Daniel, 'Your time is running out, online retailers warn shops', *Financial Times*, 7 July 1999, p. 7.

[767] James Mackintosh, 'Is the internet bubble going to burst?', *Financial Times*, 17 July 1999, Money, p. 1.

[768] Laurance, 'Internet is no free ride for Dixons, the retailer'.

[769] Chris Nuttall, 'After Freeserve: The next wave of Net stocks', *BBC News*, 26 July 1999.

[770] 'Internet fever boosts Gameplay.com ', *BBC News* (3 August 1999) <http://news.bbc.co.uk/1/hi/business/410714.stm> [accessed 28 September 2021].

[771] Daniel Bogler and Richard Waters, 'A fall from grace', *Financial Times*, 7 August 1999, p. 10.

must be a spotty child on the cusp of puberty.'[772] This, in turn, saw American venture capital starting to move into the less mature markets of the UK and Europe in search of the next big thing. As Paul Zwillenberg, a consultant from Kansas who had moved to London, told the *Guardian*, 'the perception is that in the US the land grab is over. Here it's just beginning.'[773]

Through the heady heights of the dotcom boom, the UK finally seemed to have begun to develop its own 'digerati', that vaunted class that *Wired* claimed to cater to, and which had proven conspicuously absent when the magazine had attempted to set up shop in the UK just a few years earlier. It was the curse of bad historical timing that meant that the *Wired UK* venture was compelled to close up shop just before it likely would have finally found its audience. In a survey of fifty members of this emergent class, two *Guardian* journalists David Teather and John Cassy found them to be generally young, casually but fashionably dressed (a t-shirt and combat pants was the go-to uniform), multinational, and fluent in the 'vernacular of the West Coast digerati'. By and large, they were apolitical, though a number professed an affinity for New Labour.[774] Certainly, New Labour had made it explicit that it had no qualms with people making the immense amounts of money that seemed possible in the dotcom boom. During Mandelson's trip to Silicon Valley in late 1998, Lew Platt, CEO of HP, threw a question to the Minister about the Labour government being 'anti-success', and opposed to rewarding entrepreneurs who took risks and grew rich. Mandelson's (in)famous response was that 'we are intensely relaxed about people becoming filthy rich, so long as they pay their taxes.' As Mandelson later noted, the latter half was often omitted, but the key point remained: Labour was not opposed to the accrual of massive amounts of personal wealth, and it was equally keen to be seen as pro-business, pro-innovation, and pro-entrepreneur.[775] Mandelson's attitude was thus reflective of the broader tone of New Labour in talking about business. As Stuart Hall observed shortly afterwards in a special issue of *Marxism Today*, the longer the party was in power the more it 'cosie[d] up to Business, reinventing itself in full-dress corporate disguise.' This extended to the level of the basic presentation of the Party and its people: Blair was to be seen constantly in the company of

[772] 'Internet stocks round-up', *Observer*, 15 August 1999, p. 3.
[773] David Teather and John Cassy, 'The cyber slickers', *Guardian*, 4 October 1999, pp. 2-4.
[774] Teather and Cassy, 'The cyber slickers'.
[775] Peter Mandelson, *The Third Man: Life at the Heart of New Labour* (London: Harper Press, 2010), p. 265.

businessmen, while corporate logos adorned even Labour Party conference delegates' name tags. Here, Hall pointed to the National Grid for Learning as emblematic of the obsession with corporate cooperation and sponsorship, a means for corporate adverts to be 'beamed into every classroom that is wired up'.[776]

Much of the accrued wealth Labour was 'intensely relaxed' about, however, was looking increasingly like it might go up in flames in the near future. As Emily Bell and John Naughton pointed out in the *Observer* at the start of 2000, it had been more than three years since Alan Greenspan had warned of 'irrational exuberance' in stock markets, and the Dow Jones Industrial Average had since nearly doubled.[777] By the end of 1999, Freeserve's valuation had soared to £5.4 bn, exceeding that of British Airways, and the NASDAQ had risen to 80% higher than it had been at the start of the year.[778] A correction, sooner or later, seemed inevitable. As Warren Buffet explained, though, those wrapped up in the bubble were akin to Cinderella at the ball, knowing that overstaying the festivities could threaten losing all their gains, but who couldn't bear to miss even a second of what was undeniably 'one helluva party'. Everyone's plan, therefore, was to leave just before midnight. The only problem was that they were dancing in a room in which the clocks had no hands.[779]

By the end of March 2000, there were clear signs that the dotcom bubble was beginning to burst. Dutch ISP World Online, which floated on 17 March at €43 per share, had plunged by 44% within two weeks, while QXL's value had plunged from £2 bn to £1 bn in the preceding months, following rapid devaluations of big US Internet stocks like AOL, Amazon, and Yahoo.[780] Shares in Lastminute.com, which had closed up 28% in their first day of trading on 14 March[781], fell off a cliff shortly afterwards, leaving share prices 40% down on their original offer price by the end of the month.[782] By mid-April, tech

[776] Stuart Hall, 'The Great Moving Nowhere Show', *Living Marxism*, November 1998, pp. 9-14.
[777] Emily Bell and John Naughton, 'Can the dot.com delirium survive the new century?', *Observer*, 2 January 2000, p. 20.
[778] 'Stockmarkets - will they crash?', *BBC News* (29 December 1999) <http://news.bbc.co.uk/1/hi/business/581576.stm> [accessed 28 September 2021].
[779] Quoted in Ryan, *A History of the Internet and the Digital Future*, pp. 124-25.
[780] Steve Schiffres, 'European internet fever cools', *BBC News* (30 March 2000) <http://news.bbc.co.uk/1/hi/business/693297.stm> [accessed 28 September 2021].
[781] 'Lastminute shares close up 28%', *BBC News* (14 March 2000) <http://news.bbc.co.uk/1/hi/business/676852.stm> [accessed 28 September 2021].
[782] 'More trouble for Lastminute.com', *BBC News*, 31 March 2000.

stocks were tumbling, and the NASDAQ began to plummet.[783] On 14 April, about $500 bn was wiped off the value of NASDAQ listed companies.[784] In May, Dixons revealed they would be ditching their share in Freeserve[785], and by the time a buyer was found, shares had dipped below their original asking price of 150p, and far below their peak of 900p.[786] By the end of the year, the company that kickstarted the dotcom boom in the UK was owned by a French ISP, Wanadoo, itself 88% owned by France Telecom, France's old telephone monopoly.[787] As Cellan-Jones saw it, it was the sale of Freeserve that was the real symbolic marker of the end of the dotcom boom in the UK.[788] Just as soon as Freeserve had been hurled into the FTSE100, it was out again.

It was telling that the great innovation that kickstarted the arrival of dotcom mania in the UK was not a software maker like Netscape, nor even an online shop like Amazon. Freeserve fancied itself a portal like Yahoo, but fundamentally it was an ISP, the primary innovation of which was a cheaper pricing model. That this new pricing model proved sufficient to convince hundreds of thousands of people to go online for the first time in the UK showed how inhibited the Internet access market had been by that point. For unleashing that pent up demand, Freeserve created the conditions for a UK dotcom bubble by expanding the audience for e-commerce services massively. It may seem, then, that Freeserve's rollercoaster ride through the stock market encapsulated the absurdity of the dotcom period, but in Rory Cellan-Jones' estimation, that award went to AltaVista, an unmetered Internet service announced at the height of the bubble in a blizzard of hype, and which, as I show in the next section, turned out never to have existed.[789]

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[783] 'Tech stocks tumble further', *BBC News* (12 April 2000) <http://news.bbc.co.uk/1/hi/business/710881.stm> [accessed 28 September 2021].
[784] 'Tech stocks tumble further', *BBC News*.
[785] 'Dixons to 'auction' Freeserve', *BBC News* (31 May 2000) <http://news.bbc.co.uk/1/hi/business/770937.stm> [accessed 28 September 2021].
[786] 'Freeserve: UK internet pioneer', *BBC News* (6 December 2000) <http://news.bbc.co.uk/1/hi/business/1057662.stm> [accessed 28 September 2021].
[787] 'French rival clinches Freeserve deal', *BBC News* (6 December 2000) <http://news.bbc.co.uk/1/hi/business/1057317.stm> [accessed 28 September 2021].
[788] Cellan-Jones, *Dot.Bomb*, p. 225.
[789] Cellan-Jones, *Dot.Bomb*, p. 202.

Stopping the clock

In November 1999, at the height of the dotcom bubble, the *Guardian* praised the government's revised Electronic Communications Bill, recently announced in the Queen's Speech, for the boost it would give to e-commerce in the UK. There was, however,

> one other vital thing the government should do to expedite the adoption of e-commerce: it must lean even more heavily either directly or through the regulators on British Telecom to expedite the arrival of unmetered telephone charges and broadband access to the internet. These now remain the biggest obstacles to accelerated internet access.[790]

The launch of Freeserve in September 1998 had produced a tectonic shift in the UK Internet services market, but one that was altogether unexpected by critics of the relatively low level of home Internet penetration in the UK compared to the US and other anglophone OECD countries. For those observers, the change expected to bring home Internet penetration levels into alignment with these countries was the introduction of unmetered dial-up Internet access. Despite the substantial changes Freeserve brought to the Internet services market, and the moderate reduction in the cost of going online that was its key selling point, these paled in comparison to the impact unmetered Internet access was expected to have. There was, as well, thought to be a lot of money to be made by the company that was able to deliver the next big thing in Internet access after Freeserve's subscription-free model. As Neil Bradford of Fletcher Research observed, it looked unlikely that any ISP could overtake Freeserve's huge lead in the consumer Internet services market without also developing a new access model.[791]

The CUT had been lobbying for unmetered Internet access since the summer of 1998, but the booming success of Freeserve had taken the wind out of their sails. In March 1999, however, they were reinvigorated when the European arm of AOL began voicing support for unmetered access in the UK.[792] The company had been hit hard by the success of the subscription-free Internet access model, which made AOL's monthly subscription fees a tough sell. This was confirmed by research by Durlacher, published in July 1999, which concluded that the advent of subscription-free services had slowed the growth of

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[790] 'D day for e-commerce', *Guardian*, 20 November 1999, p. 25.
[791] Nuttall, 'Dixons' Freeserve out in front', *BBC News*.
[792] Carol Vorderman, 'Carol's Diary: Meter Madness', *Daily Mirror*, 4 March 1999, p. 38.

subscription-based ISPs to a crawl, and that there were already roughly two subscription-free Internet accounts for every subscription account.[793] AOL, in response, began to push for the restructuring of European public telecommunications to align more closely with the unmetered local phone calls widely available in its home market of the United States, where it was the leading ISP. In June, AOL had urged the UK government to 'turn off the clock' for Internet users, and expressed its support for a CUT-organised day-long boycott of telecommunications providers in protest at the unavailability of unmetered Internet connectivity.[794] The CUT subsequently found support among a number of MPs interested in widening Internet access, leading to a debate on UK telecommunications and the Internet on 9 June in the Commons, instigated by Lib Dem MP Steve Webb.[795] Supportive MPs joined in calls for the government to more proactively push for unmetered Internet access options. As the CUT noted, however, the Minister for Communications' reply effectively amounted to an assertion that It was up to the market to decide, and praise for the existing system of regulations.[796] Despite much publicity about its support for the Internet and widening access to it, this clearly didn't trump Labour's commitment to continuity in telecoms regulation.

The failure of significant competition in the local loop to materialise in the wake of telecoms marketisation in the UK meant that BT still controlled the vast majority of connections between homes and local exchanges. The vast majority of people were therefore stuck with metered local telephone calls until BT decided to offer them, either directly to consumers or wholesale to other telcos, unmetered access, but there was little market pressure on the ex-monopoly to do so. Despite a lack of wholesale unmetered connections being made available to ISPs in 1999, some did nonetheless manage to figure out ways of offering unmetered Internet connectivity, and were equally beset by enthusiastic consumers and intractable network issues. The limited number of CDs

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[793] Alan Cane, 'Growth of paid internet services 'halted'', *Financial Times*, 27 July 1999, p. 12.
[794] Tim Richardson, 'AOL UK urges Government to turn off Internet clock', *The Register* (3 June 1999) <https://www.theregister.com/1999/06/03/aol_uk_urges_government/> [accessed 28 September 2021].
[795] House of Commons Debate, 'Telecommunications', Hansard, vol. 332 (9 June 1999), cols. 612-20.
[796] CUT, 'Comments on the Parliamentary Debate', *Campaign for Unmetered Telecommunications* (10 June 1999) <http://www.unmetered.org.uk/news/news100699.htm> [accessed 28 September 2021]; Tim Richardson, 'UK government refuses to act on Net access costs', *The Register* (9 June 1999) <https://www.theregister.com/1999/06/09/uk_government_refuses_to_act/> [accessed 28 September 2021].

offered to access one such service, screaming.net, quickly became a precious commodity among heavy Internet users, who could make potentially huge savings by switching to an unmetered service.[797] Accounts from those lucky enough to grab a screaming.net CD, however, typically described frequent technical problems and a network that was routinely overloaded, making getting online laborious, if not often impossible.[798] The ISP's strategy of limiting the distribution of sign-up CDs to control demand was unsuccessful, and the rush overwhelmed the network.[799] By July, disgruntled users had begun planning a picket of the offices of partner telco LocalTel in outrage at the poor service quality, while LocalTel itself said it would be seeking compensation from BT for the poor service they felt they had received as a wholesale customer.[800] Within days, the embattled ISP was forced to limit time spent online to two hour blocks, and in September, Tempo decided to pull screaming.net CDs from its stores for several weeks to reduce demand.[801] The service's poor reputation culminated in a damning investigation by the BBC's *Watchdog* consumer affairs programme in October.[802]

Other attempts to launch an unmetered Internet service in 1999 were all also compelled to eventually implement the same kinds of limits on service users as screaming.net. The fundamental problem for these services was that there were no wholesale unmetered telecoms packages available to ISPs, meaning unmetered consumer prices were hiding metered costs for ISPs. The key obstacle for would-be unmetered ISPs

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[797] CUT, 'Tempomania!', *Campaign for Unmetered Telecommunications* (27 April 1999) <http://www.unmetered.org.uk/news/news270499.htm> [accessed 28 September 2021].

[798] Tim Richardson, 'What happens when free ISPs are overrun and can't support their users?', *The Register* (6 May 1999) <https://www.theregister.com/1999/05/06/what_happens_when_free_isps/> [accessed 28 September 2021].

[799] Tim Richardson, 'LocalTel ups the Tempo for Screaming.Net', *The Register* (6 July 1999) <https://www.theregister.com/1999/07/06/localtel_ups_the_tempo/> [accessed 28 September 2021].

[800] Tim Richardson, 'Coach party set to picket LocalTel', *The Register* (8 July 1999) <https://www.theregister.com/1999/07/08/coach_party_set_to_picket/> [accessed 28 September 2021]; Tim Richardson, 'Embattled LocalTel takes swipe at BT', *The Register* (8 July 1999) <https://www.theregister.com/1999/07/08/embattled_localtel_takes_swipe/> [accessed 28 September 2021].

[801] Sean Fleming, 'LocalTel restricts free Web calls to two-hour blocks', *The Register* (12 July 1999) <https://www.theregister.com/1999/07/12/localtel_restricts_free_web_calls/> [accessed 28 September 2021]; Tim Richardson, 'Tempo eases off Screaming.net distribution', *The Register* (20 September 1999) <https://www.theregister.com/1999/09/20/tempo_eases_off_screaming_net/> [accessed 28 September 2021].

[802] Jane Wakefield, 'Exclusive: Poor service leaves ISP customers Screaming', *ZDNet* (14 October 1999) <https://www.zdnet.com/article/exclusive-poor-service-leaves-isp-customers-screaming/> [accessed 28 September 2021].

was the same 'interconnect charge' that was the basis of the subscription-free model pioneered by Freeserve. This pricing scheme, set by Oftel, essentially divvied up the revenue from phone calls that crossed from one provider's local network (overwhelmingly BT) to another provider's trunk network to reach their destination in a way that favoured the latter.[803] Thus, when Freeserve partnered with telco Energis, carrying calls to Freeserve was profitable enough for Energis that they could agree to share some of the revenue with the ISP, making the subscription-free model viable. Crucially for would-be unmetered ISPs, this charge was metered, meaning the wholesale cost of a phone call to an ISP not on the same local network as the caller (which is to say, nearly all ISPs) was always metered. Offering consumers unmetered Internet access, then, meant having to find some way to cover the metered wholesale cost of users connecting to the service through fixed prices. At the same time, the removal of any association between time spent online and costs for consumers removed financial constraints on time spent online, increasing strain on the network (thus the endless connectivity problems that beset screaming.net).

The CUT had therefore been sceptical of such unmetered services from the start, based as they were upon fragile compromises between the service they offered and the costs they incurred to the provider, and consistently argued that as long as interconnect charges remained metered, real sustainable unmetered Internet access would not be forthcoming.[804] They described the various attempts to make unmetered access workable on top of metered costs a 'freak show of offers', ranging from high subscription fees which subsidised unmetered data calls, to the cross-subsidisation of unmetered off-peak data calls with peak data calls, to the truly bizarre offer from one ISP, strayduck, which granted users free Internet access one week in every three.[805] The infamy quickly accrued by screaming.net and others very publicly put paid to the idea that truly unmetered consumer Internet access could not sustainably be provided over a network based on metered charges.

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[803] For a simple explainer on the interconnect charge see CUT, 'The problem of interconnect', *Campaign for Unmetered Telecommunications*.

[804] Tim Richardson, 'Toll-free Web access doomed to fail', *The Register* (14 May 1999) <https://www.theregister.com/1999/05/14/tollfree_web_access_doomed/> [accessed 28 September 2021].

[805] CUT, 'A freak show of offers', *Campaign for Unmetered Telecommunications* (27 October 1999) https://www.unmetered.org.uk/news/news271099.htm [accessed 5 August 2022].

At the same time, the government was increasingly coming to see unmetered access as essential to promoting wider Internet use and, in turn, boosting e-commerce. The Performance and Innovation Unit recommended that, in order to encourage greater levels of Internet use (which would in turn boost e-commerce, as more people would be buying and selling online), 'unnecessary barriers to novel tariffs' should be removed. To this end, it recommended both that telecoms operators be 'encouraged to offer a wider range of tariff structure options', and that 'telecommunications operators should be encouraged to explore new commercial interconnect arrangements with BT, allowing more flexible retail tariffs.'[806] Blair pledged to maintain pressure to drive down the cost of Internet access, and Patricia Hewitt, the newly appointed 'e-minister', expressed support for unmetered Internet access specifically.[807]

This new interest from government in lowering Internet access costs saw the CUT being taken more seriously by key actors. On 30 September, they had their first formal meeting with BT, and with Patricia Hewitt on 20 October, where the e-minister reiterated her belief in the importance of securing the availability of unmetered consumer Internet access.[808] In the intervening period, the *Times* had also jumped in in support of the CUT, launching its 'Free the Net' campaign with an editorial and an article highlighting the work of the CUT and campaigning by AOL for unmetered Internet access.[809]

[806] Performance and Innovation Unit, *e-commerce@its.best.uk*, p. 53.
[807] CUT, 'The Government gets it!', *Campaign for Unmetered Telecommunications* (15 September 1999) <http://www.unmetered.org.uk/news/news150999.htm> [accessed 28 September 2021].
[808] CUT, 'It's good to talk', *Campaign for Unmetered Telecommunications* (5 October 1999) <http://www.unmetered.org.uk/news/news051099.htm> [accessed 28 September 2021]; CUT, 'Yes, Minister, but.', *Campaign for Unmetered Telecommunications* (23 October 1999) <http://www.unmetered.org.uk/news/news231099.htm> [accessed 28 September 2021]
[809] 'Free the Net', *The Times*, 12 October 1999, p. 25; Alan Copps, 'Pressure grows for cheaper use of the Internet', *The Times*, 12 October 1999, p. 16.

SurfTime's up

> Why are BT so rubbish? That's what you should be asking when you look at e-commerce in Britain.
>
> – John Pluthero, CEO of Freeserve[810]

On 7 December 1999, after months of campaigning by the CUT, now with the backing of AOL and, more recently, the *Times* and *Guardian*, and with mounting pressure on BT from Oftel and the government, it seemed BT finally was ready to introduce a genuinely unmetered service that would put an end to the 'freak show' of unmetered services that had sprung up in 1999. BT's proposal, announced that Tuesday morning, was called 'SurfTime', and was to include three tiers of access based on when users could surf unmetered: off-peak weekdays for £6.99 per month, off-peak weekdays and weekends for £13.98, or at any time for £34.99. BT said the service could come into operation as early as January (pending Oftel approval) and framed it as a revolution in British Internet access, calling it 'the most significant development for the Internet in the UK.'[811]

For the significant number of Internet users that had rushed to try those too-good-to-be-true earlier unmetered services like screaming.net, this must have initially seemed like the breakthrough they had been waiting for. Quickly, however, the faults in BT's plans began to be exposed. The first and most obvious criticism was the cost: £34.99 per month was an eye-wateringly high sum to pay out for unmetered narrowband Internet access, especially considering the comparatively cheap rates a number of unmetered ISPs had been able to cobble together under existing telecoms arrangements. AOL Europe CEO Andreas Schmidt was quick to point out that this would mean British Internet users would be paying almost twice what American Internet users were paying for an identical service. Ajay Chowdhury, managing director of the free ISP LineOne, agreed that £34.99 per month was far too high for most users, as did the CUT, which argued that £20 was a

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[810] Cellan-Jones, *Dot.Bomb*, p. 237.

[811] 'BT offers unmetered net access', *BBC News* (7 December 1999) <http://news.bbc.co.uk/1/hi/business/554072.stm> [accessed 28 September 2021]. See CUT, 'Another momentous announcement', *Campaign for Unmetered Telecommunications* (7 December 1999) <http://www.unmetered.org.uk/news/news071299_2.htm> [accessed 28 September 2021] for a copy of the official press release.

much more reasonable price.[812] In a more detailed assessment of SurfTime, the CUT concluded that, while it represented an important step towards unmetered Internet access, the pricing was 'much too expensive, being anything between two and four times what they should be.'[813] Research by the Gartner Group found consumers broadly agreed with this assessment of SurfTime's pricing. A survey of 1,000 Internet users found that £35 per month was considered by 81% to be too expensive for unmetered broadband Internet access, let alone narrowband.[814]

That SurfTime was a raw deal for Internet users in Britain seemed to be definitively proven just days after its announcement, when the cable company Telewest announced its own unmetered Internet service, SurfUnlimited, would be launching in early 2000 and would cost just £10 per month, though it would only be available to existing Telewest phone subscribers.[815] Telewest had, at the time, 1.6 million active subscribers, and the capacity to connect to some 4.4 million homes in London, the Southeast, Bristol, and the Midlands.[816] When the service eventually launched on 14 February 2000, it was hailed as a triumph for unmetered Internet access in the UK that rendered SurfTime all but obsolete. Alastair Scott of the CUT described it as 'the sort of tariff we have been campaigning for for eighteen months', adding that it had 'hopelessly undermined' SurfTime.[817]

Telewest, it seems, was also well aware of how significantly they had managed to undermine BT's offer. When asked how they could offer such a low price, a Telewest spokesperson said the company kept its costs to a minimum and saved money by not

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[812] Jane Wakefield, 'Unmetered dial-up access good first step, now let's see the price drop says industry', *ZDNet* (7 December 1999) <https://web.archive.org/web/20000303120555/http://www.zdnet.co.uk/news/1999/48/ns-12005.html> [accessed 28 September 2021].

[813] CUT, 'Time of troubles', *Campaign for Unmetered Telecommunications* (10 December 1999) <http://www.unmetered.org.uk/news/news101299.htm> [accessed 28 September 2021].

[814] Jane Wakefield, 'Is there a future for BT's unmetered plans?', *ZDNet* (21 January 2000) <https://web.archive.org/web/20000302221626/http://www.zdnet.co.uk/news/2000/2/ns-12810.html> [accessed 28 September 2021].

[815] Sean Fleming, 'Telewest to offer unlimited Net access', *The Register* (13 December 1999) <https://www.theregister.com/1999/12/13/telewest_to_offer_unlimited_net/> [accessed 28 September 2021].

[816] Wakefield, 'Is there a future for BT's unmetered plans?', *ZDNet*.

[817] Jane Wakefield, 'Forget BT's SurfTime, Telewest launches SurfUnlimited', *ZDNet* (14 February 2000) <https://www.zdnet.com/article/forget-bts-surftime-telewest-launches-surfunlimited/> [accessed 28 September 2021].

having to pay other phone companies interconnect charges. When asked why BT couldn't offer a similarly appealing price, they replied 'I can't think of a good reason why they can't.'[818] Like numerous other unmetered services before it, however, Telewest's SurfUnlimited quickly fell victim to its own success, and began bucking under demand within weeks of launch. While Telewest refused to release subscriber numbers, it admitted that it would be writing to customers individually to apologise for persistent problems with the availability of the service.[819] Telewest had, much like CallNet just a few months earlier, severely underestimated demand.[820] The latent demand for reasonably priced unmetered Internet access in the UK was clearly huge – the question that remained in early 2000 was whether BT's SurfTime, the sole hope so far of bringing sustainable unmetered Internet access to the majority of the country, would meet that qualification of 'reasonably priced'.

In an interview with the *Financial Times* on 15 February 2000, a day after the launch of SurfUnlimited, Gordon Brown reiterated concerns raised by the government in late 1999 that Internet access costs in the UK were too high, and that this was harming the development of e-commerce in the country, especially when compared to the United States.[821]

That same day, BT, in an apparent capitulation to industry criticism and the new pressure from Telewest, revealed that it would likely cut the cost of SurfTime before launching the product, as BT Internet manager Simon Brooks told the ISPCON conference in London 'if it became apparent that [SurfTime] prices are not sustainable, we will reduce them.' When pressed, neither Brooks nor BT's press office would reveal how many ISPs, exactly, had actually signed up to offer SurfTime, but insisted that there was 'very strong industry interest.'[822] According to Tim Pearson, chairman of the ISPA, speaking on 16 February, this was patently false. Pearson said SurfTime had 'incensed the entire ISP

[818] Wakefield, 'Is there a future for BT's unmetered plans?', *ZDNet*.
[819] Will Knight, 'Telewest SurfUnlimited buckles under over-demand', *ZDNet* (3 March 2000) <https://www.zdnet.com/article/telewest-surfunlimited-buckles-under-over-demand/> [accessed 28 September 2021].
[820] On CallNet's service problems, see Dave Wilby, 'All fall down - CallNet buckles', *ZDNet* (1 November 1999) <https://web.archive.org/web/19991127231302/http://www.zdnet.co.uk/news/1999/43/ns-11102.html> [accessed 28 September 2021].
[821] Ed Crooks, 'Brown to cut internet costs', *Financial Times*, 16 February 2000, p. 1.
[822] Jane Wakefield, 'Exclusive: BT caves into criticism of SurfTime', *ZDNet* (15 February 2000) <https://web.archive.org/web/20000229092109/http://www.zdnet.co.uk/news/2000/6/ns-13373.html> [accessed 28 September 2021].

industry', with widespread concerns that it was simply unworkable, and 'will damage rather than enhance the market'.[823] Following up on his comments made to the *Financial Times*, Gordon Brown delivered a speech to the Smith Institute that same day, unveiling plans to halve the cost of Internet access in the UK by the end of 2002 by opening up the local loop to service competition as soon as possible, stating 'how important it is for the competitiveness of the UK economy that urgent progress is made. There must be no foot dragging here.'[824] With BT clearly in Brown's sights, the company's stock price fell immediately, closing at 45p down by the end of the following day.[825]

However, clearly not everyone in government was on the same page regarding this newly aggressive stance towards BT. In an interview with *ZDNet* just a few days later, Patricia Hewitt would leap to the defence of the company, praising SurfTime and pushing back against a litany of criticisms of the company raised by the interviewer, Jane Wakefield.[826] Hewitt, it would later emerge, was certainly not averse to a friendlier relationship with business, exemplified in her joining BT's board as a non-executive director just a few years later in 2008 for the tidy sum of £60,000 a year, prompting renewed criticisms of the 'revolving door' that existed between business and government in the UK.[827] This minor scandal paled in comparison, though, to when Hewitt was caught up in the cash-for-influence scandal just two years later. Hewitt was secretly recorded freely discussing ways businesses could effectively lobby government with a representative from a hoax company set up by Channel 4's *Dispatches* programme. 'You know when I was Business Secretary', she explained, 'I would cheerfully accept hospitality initiations, for instance, because it was just a really useful way of getting to know business leaders rather better. Gordon [Brown] is pretty against all of that.'[828]

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[823] Jane Wakefield, 'Industry 'incensed' over SurfTime', *ZDNet* (16 February 2000) <https://web.archive.org/web/20000229153750/http://www.zdnet.co.uk/news/2000/6/ns-13400.html> [accessed 28 September 2021].
[824] Colin Blackstock, 'Brown bid to cut cost of web', *Guardian*, 16 February 2000, p. 7.
[825] 'BT fears foreign takeover', *BBC News* (18 February 2000) <http://news.bbc.co.uk/1/hi/business/647563.stm> [accessed 28 September 2021].
[826] Jane Wakefield, 'Eye2Eye: ZDNet interviews the e-Minister, Part 1', *ZDNet* (21 February 2000) <https://www.zdnet.com/article/eye2eye-zdnet-interviews-the-e-minister-part-1/> [accessed 28 September 2021].
[827] Richard Wray, 'Patricia Hewitt to join BT as non-exec director', *Guardian* (13 March 2008) <https://www.theguardian.com/business/2008/mar/13/btgroupbusiness> [accessed 28 September 2021].
[828] *Dispatches*, Channel 4, 22 March 2010.

Regardless of the mixed feelings in government, by the end of February BT was finally forced to take its deeply unpopular and widely criticised SurfTime proposals back to the drawing board by Oftel, following complaints from ISPs that the deal unfairly advantaged BT. As Paul Shalet, commercial director of unmetered ISP X-Stream, observed, the move had seemed inevitable. 'It was a smoke and mirrors offering', he told *ZDNet*, 'BT gave the perception it was doing something for the industry, but under the skin it was anything but cost effective. I am not surprised it is back to the drawing board.'[829]

Hasta la AltaVista

After the conspicuous failure of SurfTime, in early March 2000, other companies rushed to leap into the void that it had left. On 6 March, the starting gun for this race was fired by the American search engine and Web portal AltaVista, when it announced that it would be releasing an audaciously cheap Internet service in the UK within three months. The service would offer users fully unmetered Internet access for a one-off sign-up fee of £36, and from then on just £10 per year – full stop.[830] Even in an area of Internet service known for its too-good-to-be-true offers, this was unlike anything seen before – and this time, it had the backing of a big American Internet company to boot. Patricia Hewitt, having earnestly defended the track record of Oftel and the state of the Internet services market just a few weeks earlier, was quick to jump to the praises of AltaVista, hailing the new service as representing a 'step-change in UK Internet usage'.[831] BBC News thought the move represented a 'Net revolution', while the *Daily Mail*'s front page excitedly declared 'Internet surfers offered deal for life'.[832] In Cellan-Jones' recollection, 'not only was it all over the BBC, it was the frontpage lead in the *Sun*, with the headline "Free Internet". [Managing director] Andy Mitchell was everywhere, proclaiming that this was

[829] Jane Wakefield, 'SurfTime is scrapped, SurfTime II is born', *ZDNet* (29 February 2000) <https://www.zdnet.com/article/surftime-is-scrapped-surftime-ii-is-born/> [accessed 28 September 2021].
[830] 'Altavista heralds net revolution', *BBC News* (6 March 2000) <http://news.bbc.co.uk/1/hi/business/666686.stm> [accessed 28 September 2021].
[831] Jane Wakefield, 'e-Minister rushes to defend BT and Oftel', *ZDNet* (18 February 2000) <https://web.archive.org/web/20000302171303/http://www.zdnet.co.uk/news/2000/6/ns-13478.html> [accessed 28 September 2021]; 'Altavista heralds net revolution', *BBC News*.
[832] David Norris, 'Internet surfers offered free deal for life', *Daily Mail*, 6 March 2000, p. 1, 4.

the initiative which would bring a step-change in Internet use in the UK and make e-commerce viable.'[833] It seemed that the CUT had finally achieved its goal after months of concerted campaigning, and that it might even be possible for it to finally be dissolved, its purpose completed.[834] Tony Blair even went on the record in support of the offer, welcoming it as 'good for business and consumers'.[835]

Almost immediately other service providers moved to match AltaVista's bombastic announcement, kicking off an Internet access price war.[836] The following day on 7 March, cable company NTL announced that it would begin providing an unmetered service with no costs attached to be launched nationally from 17 April, and offered to even those outside the remit of the NTL network (thus outdoing Telewest). All users would need to do was switch their telephone provider to NTL and make £10 of voice calls each month.[837] Not wanting to be left out, Virgin Net announced it would begin trialling a 'competitive' service as early as April as well, and it was reported that Freeserve and AOL were also working on plans to match AltaVista's offer.[838] The same day, Tony Blair made a speech to a conference on the knowledge economy in which he pledged to get everyone in the UK online within five years, and hailed NTL's announcement as a significant step towards delivering on that promise.[839] 'The key point', he said, 'is that we are pursuing policies to get prices down. Giving people a choice. Putting consumers first. And I'm delighted to say this. The Americans have been predicting entirely free Internet access

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[833] Cellan-Jones, *Dot.Bomb*, p. 203. The story also made the front page of the *Daily Mail*. See Norris, 'Internet surfers offered free deal for life'.

[834] Tim Richardson, 'Over and out for CUT unmetered lobby group?', *The Register* (15 March 2000) <https://www.theregister.com/2000/03/15/over_and_out_for_cut/> [accessed 28 September 2021].

[835] 'AltaVista cut U.K. Web fees', *CNN Money* (6 March 2000) <https://money.cnn.com/2000/03/06/europe/altavista/> [accessed 28 September 2021].

[836] Jane Wakefield, 'Internet price war ahead as AltaVista arrives', *ZDNet* (6 March 2000) <https://web.archive.org/web/20001011201537/http://www.zdnet.co.uk/news/2000/9/ns-13868.html> [accessed 28 September 2021].

[837] 'Internet price war heats up', *BBC News* (7 March 2000) <http://news.bbc.co.uk/1/hi/business/668484.stm> [accessed 28 September 2021].

[838] Jane Wakefield, 'Virgin joins the unmetered party', *ZDNet* (7 March 2000) <https://web.archive.org/web/20001014023114/http://www.zdnet.co.uk/news/2000/9/ns-13902.html> [accessed 28 September 2021]; John Cassy, 'AltaVista 'free calls' start online war', *Guardian*, 7 March 2000, p. 29.

[839] 'Blair's five-year internet pledge', *BBC News* (7 March 2000) <http://news.bbc.co.uk/1/hi/uk/668795.stm> [accessed 28 September 2021]; Drew Cullen, 'Blair hails NTL Free Everything ISP plans', *The Register* (7 March 2000) <https://www.theregister.com/2000/03/07/blair_hails_ntl_free_everything/> [accessed 28 September 2021].

for a while. But Britain has got there first.'[840] Within a week, ISPs Breathe and LineOne had also announced new unmetered Internet services, as had the venerable giant Freeserve.[841] Jane Wakefield of *ZDNet* aptly compared the flurry of new services announced in the wake of AltaVista's proposal to the slew of subscription-free services announced in the wake of the introduction of Freeserve.[842]

BT, not wanting to be left out, quickly announced an updated version of its SurfTime package with lower prices, equating to about £30 per month.[843] Again, though, this offer was blasted by ISPs as still too expensive for most consumers, with AOL claiming the updated service was still 'twice what the consumer wanted to pay'.[844] John Pluthero, CEO of Freeserve, joined in with the criticisms, describing the new SurfTime as a 'very clumsy model'.[845] Luckily for those disgruntled with BT's meagre offerings, Oftel would issue a draft ruling that the lack of a wholesale version of SurfTime being offered to ISPs constituted anti-competitive behaviour from BT in mid-April.[846] This ruling had actually been some time coming by the time it arrived: telco MCI WorldCom had requested in September 1999 that BT supply it with an interconnection service which provided flat rate Internet access call origination (FRIACO) that was rejected by BT on 15 December, prompting MCI WorldCom to refer the dispute to Oftel on 24 December.[847]

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[840] 'Tony Blair's full speech', *Guardian* (7 March 2000) <https://www.theguardian.com/uk/2000/mar/07/tonyblair> [accessed 28 September 2021].

[841] 'Breathe freely with new deal', *BBC News* (12 March 2000) <http://news.bbc.co.uk/1/hi/business/674884.stm> [accessed 28 September 2021]; 'Freeserve unmetered move', *BBC News* (14 March 2000) <http://news.bbc.co.uk/1/hi/business/676863.stm> [accessed 28 September 2021].

[842] Jane Wakefield, 'The day the Internet went free', *ZDNet* (7 March 2000) <https://web.archive.org/web/20001014132956/http://www.zdnet.co.uk/news/2000/9/ns-13908.html> [accessed 28 September 2021].

[843] Richard Barry, 'BT announces unmetered access package', *ZDNet* (8 March 2000) <https://web.archive.org/web/20001014190040/http://www.zdnet.co.uk/news/2000/9/ns-13912.html> [accessed 28 September 2021].

[844] Anne Hyland, 'BT rivals scorn £30 internet package', *Guardian*, 9 March 2000, p. 6.

[845] Jane Wakefield, 'BT's unmetered promise under attack', *ZDNet* (9 March 2000) <https://web.archive.org/web/20001016211402/http://www.zdnet.co.uk/news/2000/9/ns-13954.html> [accessed 28 September 2021].

[846] Jane Wakefield, 'WorldCom takes on BT, offers alternative SurfTime', *ZDNet* (18 April 2000) <https://web.archive.org/web/20001002011723/http://www.zdnet.co.uk/news/2000/15/ns-14910.html> [accessed 28 September 2021]; Tim Richardson, 'Oftel backs WorldCom BT SurfTime complaints', *The Register* (18 April 2000) <https://www.theregister.com/2000/04/18/oftel_backs_WorldCom_bt_surftime/> [accessed 28 September 2021].

[847] Oftel, 'Determination of a dispute between BT and MCI WorldCom concerning the provision of a Flat

Oftel's ruling was only a draft, however, and the watchdog subsequently set to work in hashing out exactly what a FRIACO product would look like, weighing up the inputs of various concerned parties against the capacities of the public telephone network. Meanwhile, a number of new unmetered services, based on the same shaky ground as those in the preceding twelve months, began to hit the market. And, like their predecessors, were promptly hit hard by the difficult reality of offering an unmetered consumer product based on metered costs.

NTL launched its unmetered service on 11 April and was, within days, struggling with network congestion due to heavy demand.[848] Users struggled to get online, and a month later many were still waiting for their installation CDs, prompting NTL to send out a letter of apology to its customers.[849] So poor was NTL's service that within weeks, the Advertising Standards Authority (ASA) would begin investigating the company for false advertising.[850] More calamity followed other services in the following months. On 1 June, LibertySurf was forced to suspend sales of its unmetered service following problems with network and helpline congestion.[851] On 7 June, unmetered ISP FreeNet was also forced to suspend registrations, and announced that it may even need to reconsider the basic viability of its service based on the network problems high demand was causing.[852] On 10 July, another unmetered ISP, RedHotAnt, pointed the finger at heavy users of its service following numerous customer complaints about network congestion.[853] A week later, LineOne was forced to pull the plug entirely on its unmetered service, stating that it had become 'commercially and financially unviable'. Similar to the management of

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Rate Internet Access Call Origination product', *Oftel* (2000) <https://web.archive.org/web/20000817164332/http://www.oftel.gov.uk/competition/fria0500.htm#WHEREAS> [accessed 28 September 2021].

[848] Richard Barry, 'ntl's completely free Internet access starts today', *ZDNet* (11 April 200) <https://www.zdnet.com/article/ntls-completely-free-internet-access-starts-today/> [accessed 28 September 2021].

[849] Jane Wakefield, 'ntl breaks registration problems promise', *ZDNet* (25 May 2000) <https://www.zdnet.com/article/ntl-breaks-registration-problems-promise/> [accessed 28 September 2021].

[850] Jane Wakefield, 'Advertising body slaps ntl', *ZDNet* (30 June 2000) <https://www.zdnet.com/article/advertising-body-slaps-ntl/> [accessed 28 September 2021].

[851] Jane Wakefield, 'LibertySurf suspends service', *ZDNet* (1 June 2000) [accessed 28 September 2021].

[852] Jane Wakefield, 'CallNet latest victim of unmetered popularity', *ZDNet* (7 June 2000) <https://www.zdnet.com/article/callnet-latest-victim-of-unmetered-popularity/> [accessed 28 September 2021].

[853] Will Knight, 'RedHotAnt tells users to get offline', *ZDNet* (10 July 2000) <https://www.zdnet.com/article/redhotant-tells-users-to-get-offline/> [accessed 28 September 2021].

RedHotAnt, sources close to the company blamed the service's problems on heavy users generating high levels of network congestion.[854] That same day, Virgin Net confirmed that they were re-evaluating the viability of their own unmetered service, and delaying its rollout.[855] Like NTL, LineOne received numerous complaints from disgruntled customers, and even from the ISPA, which considered the company to have breached its industry code of conduct.[856]

As time went on, and more and more unmetered services ended up disgraced or deserted, questions began to be raised about whether AltaVista, which had fired the starting gun for this latest Internet gold rush, could really pull off the seemingly impossible and deliver what so many others had failed to do.

The pugnacious IT news website *The Register* was the first to raise questions about AltaVista's service. The company had claimed that it had gone live at the end of June with a managed rollout and boasted that the service could handle 90,000 new customers each month. What *The Register* found odd was that they hadn't actually heard from a single user by early August – strange, considering the high profile the service had been granted, with no less than an endorsement from the Prime Minister.[857] A few days later, *The Register* decided to begin a hunt for the mysterious AltaVista users, posting a call for anyone actually on the service to get in contact.[858] Matt Kelly, the *Daily Mirror* computer columnist who had spent the past several weeks mauling a plethora of unmetered Internet services that had over-promised and under-delivered, joined in the hunt, and printed a similar call for any AltaVista users to get in contact with him.[859] Twenty-four hours later, neither Kelly nor *The Register* had heard from any users, and *The Register*

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[854] 'Unmetered web access in trouble', *BBC News* (18 July 2000) <http://news.bbc.co.uk/1/hi/business/839387.stm> [accessed 28 September 2021]; Jane Wakefield, 'LineOne dumps unmetered access', *ZDNet* (17 July 2000) <https://www.zdnet.com/article/lineone-dumps-unmetered-access/> [accessed 28 September 2021].

[855] Jane Wakefield, 'LineOne fails, what future for unmetered?', *ZDNet* (17 July 2000) <https://www.zdnet.com/article/lineone-fails-what-future-for-unmetered/> [accessed 28 September 2021].

[856] Tim Richardson, 'ISPA slaps LineOne', *The Register* (25 July 2000) <https://www.theregister.com/2000/07/25/ispa_slaps_lineone/> [accessed 28 September 2021].

[857] Tim Richardson, 'AltaVista ISP in pointless queue-jumping exercise', *The Register* (4 August 2000) <https://www.theregister.com/2000/08/04/altavista_isp_in_pointless_queuejumping/> [accessed 28 September 2021].

[858] Tim Richardson, 'Reg Lonely Hearts', *The Register* (7 August 2000) <https://www.theregister.com/2000/08/07/reg_lonely_hearts/> [accessed 28 September 2021].

[859] Matt Kelly, 'Kelly's i', *Daily Mirror*, 7 August 2000, p. 21.

added that a newsgroup search had similarly turned up no leads.[860] A few days later there was still nothing, and similar calls put out by *The Guardian* and *.net* magazine had also turned up nothing.[861] As the increasingly bizarre hunt for AltaVista users continued, the company itself refused to comment until managing director Andy Mitchell returned from his holiday.[862] Finally, after multiple weeks of silence, the company issued a statement on 21 August that it was putting its unmetered service 'on hold', pending the availability of a wholesale flat-rate product from BT.[863] This, however, didn't answer the question of where the theoretically tens of thousands of current AltaVista users were hiding. The following day, Andy Mitchell finally publicly admitted the astonishing truth: that the service had never actually existed.[864] The latest, greatest hope for unmetered Internet access in the UK had, it turned out, been a hoax.

The revelation that AltaVista had been an entirely fictitious service prompted a flurry of finger-pointing as AltaVista tried to unburden itself of responsibility for the scandal. First and foremost, they blamed BT. 'It is very difficult to plan a business with the delaying tactics of BT', Andy Mitchell told BBC Radio 4's *Today Programme*. 'The whole industry is a fiasco. A lot of people are dependent on BT for this service. AltaVista alongside other companies are the symptom, not the cause' of the problem.[865] BT slung back, claiming AltaVista was 'standing reality on its head as it tries to wriggle away from the consequences of its ill-considered marketing hype.'[866] Oftel took BT's side, and fired

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[860] Kelly, 'Kelly's i'; Tim Richardson, 'AltaVista spooked by ghost service', *The Register* (8 August 2000) <https://www.theregister.com/2000/08/08/altavista_spooked_by_ghost_service/> [accessed 28 September 2021].

[861] Tim Richardson, 'AltaVista: the farce continues', *The Register* (10 August 2000) <https://www.theregister.com/2000/08/10/altavista_the_farce_continues/> [accessed 28 September 2021].

[862] Tim Richardson, 'AltaVista: the silence continues', *The Register* (14 August 2000) <https://www.theregister.com/2000/08/14/altavista_the_silence_continues/> [accessed 28 September 2021].

[863] Tim Richardson, 'AltaVista's world crumbles', *The Register* (22 August 2000) <https://www.theregister.com/2000/08/22/altavistas_world_crumbles/> [accessed 28 September 2021].

[864] Tim Richardson, 'AltaVista admits service a sham', *The Register* (22 August 2000) <https://www.theregister.com/2000/08/22/altavista_admits_service_a_sham/> [accessed 28 September 2021].

[865] 'Altavista blames BT for 'fiasco'', *BBC News* (22 August 2000) <http://news.bbc.co.uk/1/hi/business/890959.stm> [accessed 28 September 2021].

[866] Tim Richardson, 'BT mauls AltaVista', *The Register* (22 August 2000) <https://www.theregister.com/2000/08/22/bt_mauls_altavista/> [accessed 28 September 2021].

back at AltaVista. Nobody, the regulator argued, had forced them to announce their service when they did, and doing so before the requisite wholesale products were in place was simply irresponsible.[867] For all that the CUT had criticised BT and Oftel, it was hard even for them to deny that AltaVista was on 'weak ground' in terms of blame. 'They hoped to get an advantage by being the first but they were caught out', Erol Ziya, a spokesperson for the group, told the *Daily Telegraph*.[868] After Blair announced Labour's 'deal' with BT in October 1995, *Wired UK* editor John Browning had thought that it would go down in the 'history of Britain's lane of the information motorway […] as its most surreal moment'.[869] He hardly could have anticipated that, just a few years later, Blair would be caught out having voiced his support for an ISP that would turn out to have effectively been an elaborate hoax.

Though few disagreed AltaVista primarily had itself to blame, the fiasco lumped yet more coal on the fires of resentment toward Oftel and BT by many industry observers regarding the dismal state of Internet access in the UK compared to the US. David Hewson, writing in the *Sunday Times* in July, had nothing but scorn for the pair. 'The dire state of net access in the UK is almost entirely due to the symbiotic relationship between these two dinosaurs', he lamented. 'I trust Mr Blair will bear this in mind the next time he delivers his "Get wired or die" sermon.'[870] David Hewson, writing in the *Observer*, similarly thought 'BT's intransigence and Oftel's woolly ruling' threatened to leave the UK internet sector seriously lagging behind in the e-business race. 'So much for business at Internet speed', he concluded.[871] A letter written to the *Guardian* at the time took much the same view, blaming the 'old dinosaur' of BT and the 'toothless tiger' of Oftel for Britain's dismal Internet connection offerings, stating that 'if this was the US, it would be BT not Microsoft in the courts', alluding to the ongoing antitrust case against the American IT giant.[872] Incidentally, Blair had no qualms meeting Bill Gates when he visited the UK in October 1999, despite the Microsoft antitrust case having begun just a year

[867] Tim Richardson, 'Oftel slaps AltaVista', *The Register* (22 August 2000) <https://www.theregister.com/2000/08/22/oftel_slaps_altavista/> [accessed 28 September 2021].
[868] David Derbyshire, 'Anger over AltaVista deal that never was', *Daily Telegraph*, 23 August 2000, p. 9.
[869] Browning, 'Labour Sells Out to BT'.
[870] David Hewson, 'BT is spoiling the party', *Sunday Times*, 30 July 2000, p. 56.
[871] Jamie Doward, 'How dot Tony's kiss killed off AltaVista', *Observer*, 27 August 2000, p. 3.
[872] 'Feedback: Blame BT', *Guardian*, 31 August 2000, online, p. 2.

earlier.[873]

There were concerns among market analysts, as well, that the significant amounts of disappointment, unfilled promises, and outright lies that had abounded in the wake of AltaVista's announcement in March 2000 had contributed to a widespread sense of cynicism about Internet service offerings in the UK. Adam Scorer, spokesman for the Consumers' Association, said AltaVista's high-profile climb down would dismay consumers already finding it difficult to get online. 'This just makes it more confusing and leaves the millions that have not come online more cynical and more worried', he said.[874] The Consumers' Association even called on the ASA to launch an investigation into the Internet services industry in response.[875] The *Telegraph* aptly summarised this cynical position when it said that AltaVista's deal had 'all sounded too good to be true, and of course it was.'[876] The *Independent* agreed, stating that AltaVista had become 'the latest to prove the old adage that something which looks too good to be true generally is'.[877]

In Cellan-Jones' estimation, AltaVista's proposed service was the 'ultimate expression of the lunacy of the new economics'.[878] John Pluthero, founder of Freeserve, had apparently bumped into Andy Mitchell shortly before AltaVista's announcement. Pluthero recalled how he explained the economics of the planned service to him, and how it would only work if another telecoms firm offered them an extremely good flat-rate deal. 'I said to him, "Andy, nobody gets a better deal from UK telcos than we do.'[879] Pluthero, it seems, had been right.

The FRIACO fiasco

The failure of AltaVista, and the troubled development of unmetered Internet access in the UK in general was directly attributable to the difficult birth of FRIACO. Without a flat-rate wholesale call connection product from BT, which was still the

[873] 'Chairman Gates advises Blair in a learning curve encounter', *Guardian*, 14 October 1999.
[874] 'Internet suffers from the hard sell', *BBC News* (23 August 2000) <http://news.bbc.co.uk/1/hi/business/891569.stm> [accessed 28 September 2021].
[875] Derbyshire, 'Anger over AltaVista deal that never was'.
[876] 'AltaVista gets its wires crossed as BT stands its ground', *Daily Telegraph*, 23 August 2000, p. 29.
[877] 'Free Web access goes the way of the free lunch', *Independent*, 23 August 2000, p. 15.
[878] Cellan-Jones, *Dot.Bomb*, p. 202.
[879] Cellan-Jones, *Dot.Bomb*, p. 203.

provider of the vast majority of local loop connections, the contradiction between flat pricing and metered costs threatened ruin for any company daring to offer an unmetered consumer service. As Steve Rawlinson of ClaraNet, a leading UK ISP contracted in to support AltaVista's service, explained to the *Financial Times*,

> We need the unmetered pricing because without that, you are stuck with the unpredictability of consumer behaviour, and that is a financial risk. Unfortunately, some ISPs seem to have assumed the UK would simply follow the US, where customers are used to having flat-rate access. Here the flat-rate access packages have simply attracted heavy users who are staying online so long that they are eating into ISPs' margins.[880]

Thus, the frequency with which unmetered services built on metered wholesale call connection costs were compelled to chuck off their heaviest users. As the CUT noted as well, the widespread availability of subscription-free metered Internet services meant that lighter users saw little benefit in switching to unmetered services.[881] The tension between these services' costs and pricing model created the perverse scenario where they were actively undermined by signing up those heavier Net users that stood the most to gain from switching to unmetered Internet access. The transition to unmetered Internet access had been urged forward precisely because it was expected to increase the amount of time British people spent online (and so spur the development of e-commerce), but the contrivances of the British telecoms market meant that users spending more time online was the last thing unmetered ISPs actually wanted.

AltaVista's failure was certainly the most scandalous failure of an unmetered Internet service in this period, but it was not the only ISP that was hit hard by the delayed and confused introduction of FRIACO. Lee Stafford, managing director of Sheffield-based ISP PlusNet, warned in an interview with *The Register* in early August that the delayed rollout of FRIACO had seriously undermined BT's existing flat-rate product, SurfTime, which PlusNet offered. 'SurfTime is a failure because the market thinks it is going to get FRIACO since 1 June,' said Stafford, 'but it won't happen until next year. […] SurfTime is great value, but people expect something based on all the stuff being spouted about

[880] Carlos Grande, 'BT agrees deal to offer flat-rate web access', *Financial Times*, 23 August 2000, p. 3.
[881] CUT, 'Unmetered Agony', *Campaign for Unmetered Telecommunications* (3 September 2000) <http://www.unmetered.org.uk/news/news030900.htm> [accessed 28 September 2021].

FRIACO.'[882] While Stafford's claim that SurfTime was 'great value' was certainly contentious, his claim that SurfTime had so far been a resounding failure was certainly not: just 200,000 people had signed up for SurfTime or its sister product AnyTime since launch – substantially less people than had registered an interest for AltaVista's service pre-launch, and this in spite of £20m spent on marketing (equating to roughly £100 per acquired customer).[883]

In early August 2000, *The Register* reported that a new FRIACO deal, dubbed FRIACO Hybrid, had been placed on the table by BT. This new deal, BT said, met all of Oftel's terms, but had proved unacceptable to many operators. This was because, unlike the original promise of FRIACO, this Hybrid product still included some metered charges, and therefore did not fully insulate ISPs against potentially spiralling costs caused by heavy users.[884] Specifically, FRIACO Hybrid still contained metered charges between the local loop and regional exchanges.[885] The ISPA slammed the deal, criticising FRIACO Hybrid as fatally flawed, and criticising Oftel for taking 'three times as long as it said' to deliver FRIACO.[886] AOL was similarly incensed by FRIACO Hybrid. 'We are angrier than ever with BT', Matt Peacock, director of corporate communications at AOL Europe told *InfoWorld* in early September. 'It has failed to act, and BT has not done what the regulators have told it to do. It amounts to a betrayal of the UK consumer by BT.'[887] Nonetheless, FRIACO Hybrid was considered good enough by some, and on the same day revelations about AltaVista's non-service broke, MCI WorldCom (the company which originally lodged the complaint against BT with Oftel that set the wheels of FRIACO in motion) announced that it would begin offering unmetered Internet access as soon as possible, though it would not disclose its pricing.[888]

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[882] Tim Richardson, 'Net access in Britain is a shambles', *The Register* (10 August 2000) <https://www.theregister.com/2000/08/10/net_access_in_britain/> [accessed 28 September 2021].
[883] Richardson, 'Net access in Britain is a shambles', *The Register*; Jane Wakefield, 'BT's SurfTime is a flop', *ZDNet* (24 August 2000) <https://www.zdnet.com/article/bts-surftime-is-a-flop/> [accessed 28 September 2021].
[884] Tim Richardson, 'FRIACO hit by telco stalemate', *The Register* (9 August 2000) <https://www.theregister.com/2000/08/09/friaco_hit_by_telco_stalemate/> [accessed 28 September 2021].
[885] Doward, 'How dot Tony's kiss killed off AltaVista'.
[886] Jane Wakefield, 'Oftel dictated to by BT says ISPA', *ZDNet* (25 August 2000) <https://www.zdnet.com/article/oftel-dictated-to-by-bt-says-ispa/> [accessed 28 September 2021].
[887] Laura Rohde, 'AOL U.K. flat-rate Internet plan: sooner or', *InfoWorld*, 11 September 2000, p. 56C.
[888] Grande, 'BT agrees deal to offer flat-rate web access'; Tim Richardson, 'MCI WorldCom to roll out unmetered Net access', *The Register* (23 August 2000)

Luckily for AOL, MCI Worldcom was one of its main suppliers, and the CUT predicted that AOL would begin offering an unmetered Internet service within weeks.[889] And they were right: on 19 September, AOL was finally able to announce that it would be launching AOL Flat Rate for just £14.99 per month, all-inclusive.[890] The product was FRIACO-based, though exactly what kind of FRIACO was not immediately clear. Other ISPs revealed to *ZDNet* that they had not been able to get hold of a genuine FRIACO product from BT at all.[891] Matt Peacock explained that AOL was able to finally offer a flat-rate service because its telco suppliers had finally gotten access to a fully flat-rate FRIACO product from BT rather than the still partially-metered FRIACO Hybrid – the clincher was that FRIACO was not available nationwide yet, being limited based on the technological capabilities of exchanges.[892] AOL, though, was committed to rolling out the service nationally, 'no exclusions', meaning they either had some complex agreements in place with their suppliers, or were willing to take a temporary hit prior to a full national rollout of FRIACO. Despite these lingering problems the CUT welcomed the move and placed their confidence in AOL. The company had, after all, been a close ally in the fight for unmetered Internet access, and had cautiously refused to rush into offering unmetered access before it knew it could do so sustainably.[893]

AOL, it turned out, was in fact the only company able to put together an unmetered service based on FRIACO Hybrid by working with a variety of telcos to overcome the metered charge between local exchanges and long-distance exchanges.[894] Oftel's original direction had compelled BT to offer flat rate connectivity between other operators' long-

<https://www.theregister.com/2000/08/23/mci_WorldCom_to_roll_out/> [accessed 28 September 2021].

[889] Tim Richardson, 'AOL UK to offer unmetered Net access?', *The Register* (24 August 2000) [accessed 28 September 2021].

[890] 'AOL UK offers 24/7 flat fee Net access', *The Register* (19 September 2000) <https://www.theregister.com/2000/09/19/aol_uk_offers/> [accessed 28 September 2021]; 'AOL to offer unmetered access in UK', *BBC News* (19 September 2000) <http://news.bbc.co.uk/1/hi/business/932143.stm> [accessed 28 September 2021].

[891] Graeme Wearden, 'News Burst: Questions remain over AOL Flat Rate', *ZDNet* (20 September 2000) <https://www.zdnet.com/article/news-burst-questions-remain-over-aol-flat-rate/> [accessed 28 September 2021].

[892] Tim Richardson, 'AOL UK saves e-Britain', *The Register* (19 September 2000) <https://www.theregister.com/2000/09/19/aol_uk_saves_ebritain/> [accessed 28 September 2021].

[893] CUT, 'FRIACO kicks off after long delays', *Campaign for Unmetered Telecommunications* (21 September 2000) <http://www.unmetered.org.uk/news/news210900.htm> [accessed 28 September 2021].

[894] CUT, 'Single Tandem FRIACO summary', *Campaign for Unmetered Telecommunications* (20 November 2000) <http://www.unmetered.org.uk/news/news201100_2.htm> [accessed 28 September 2021].

distance networks and BT's local exchanges. The problem for most other operators was that they connected directly to very few local exchanges, connecting mainly instead with BT's long-distance exchanges, and were therefore at the mercy of the terms BT set for connecting calls between local and long-distance exchanges. Under the terms of FRIACO Hybrid, BT crucially included a metered charge for making this connection; a charge which was so onerous that it made FRIACO Hybrid unviable for every other operator. It was only through being able to wrangle together deals with a variety of other operators that AOL was able to put together an unmetered Internet service based on terms considered totally unworkable by the rest of the industry.

In mid-November, Oftel finally published the consultation document it had commissioned in May to review the state and capacity of BT's network, which laid out a staged path to unmetered access which prevented the overburdening of BT's network, and offered its new draft direction.[895] Full, 'Single Tandem' FRIACO, as it was dubbed, was to be finally made available starting from February 2001, including some provisions to ensure BT's telephone network would not be overloaded before important technical upgrades could be made to the network.[896] The CUT was extremely pleased with this development, but could not top the excitement of the *Daily Mail*, the front page of which on 14 November blared '24-Hour Internet Surfing for £10 a Month'.[897] Just over two years earlier, before the launch of Freeserve, £10 per month would have only covered the cost of being able to access an ISP, with most users having to pay for every minute spent connected to the Internet on top of that.

After a long, difficult birth, the unmetered revolution had finally arrived in Britain. Freeserve finally announced a FRIACO-based unmetered Internet service on 2 December, Freeserve AnyTime, to be launched in mid-January for just £12.99 a month – £2 cheaper than AOL's unmetered offer.[898] BT's own ISP, BT Internet, followed suit on 14

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[895] Oftel, 'Consultation on future interconnection arrangements for dial-up Internet in the United Kingdom', *Oftel* (November 2000) <https://web.archive.org/web/20010807014522/http://www.oftel.gov.uk/publications/internet/tech1100.htm> [accessed 28 September 2021]; Oftel, 'Draft Direction on future interconnection arrangements for dial-up Internet in the United Kingdom', *Oftel* (November 2000) <https://web.archive.org/web/20010821084333/http://www.oftel.gov.uk/publications/internet/frdd1100.htm> [accessed 28 September 2021].

[896] CUT, 'FRIACO light and darkness', *Campaign for Unmetered Telecommunications* (20 November 2000) <http://www.unmetered.org.uk/news/news201100.htm> [accessed 28 September 2021].

[897] Sean Poulter, '24-hour Internet surfing for £10 a month', *Daily Mail*, 14 November 2000, pp. 1-2.

[898] Tim Richardson, 'Freeserve offers new 24/7 unmetered package', *The Register* (2 December 2000)

December.[899] By the end of 2000, then, the UK's three largest ISPs had all announced that they would begin imminently offering genuinely unmetered consumer Internet services, and already were in the case of AOL. In mid-January 2001, BT also began finally offering a wholesale FRIACO service to other ISPs and licensed operators, SurfPort24, allowing an even wider variety of unmetered Internet services to be made available.[900] Following a complaint lodged by the ISP Cloud Nine regarding SurfPort24, BT was subsequently also compelled to offer another wholesale FRIACO product, WebPort24, that was designed for smaller ISPs in April, allowing even more ISPs to begin offering unmetered Internet access.[901]

Conclusion

By June 2001, the battle for unmetered Internet access was won, and the UK had, as AOL had put it in late 2000, caught up with the US, where the Internet is 'a way of life', and averted the 'danger' of becoming a 'second-rate nation'.[902] Oftel boasted of its own success in delivering unmetered Internet access in the UK, publishing an international benchmarking study which showed that UK Internet access was now cheaper than California or Germany.[903] The CUT, considering its singular goal attained and its work completed, voted unanimously to dissolve itself, receiving a farewell salute from *The Register*.[904] This was not, however, the first eulogy *The Register* had written for the CUT – the news site had previously hailed the group's work as seemingly completed with the

<https://www.theregister.com/2000/12/02/freeserve_offers_new/> [accessed 28 September 2021].

[899] Tim Richardson, 'BTinternet offers 24/7 unmetered Net access', *The Register* (15 December 2000) <https://www.theregister.com/2000/12/15/btinternet_offers_24_7_unmetered/> [accessed 28 September 2021].

[900] CUT, 'What to look for now', *Campaign for Unmetered Telecommunications* (5 February 2001) <http://www.unmetered.org.uk/news/news050201.htm> [accessed 28 September 2021].

[901] Tim Richardson, 'ISPs claim victory over BT', *The Register* (18 April 2001) <https://www.theregister.com/2001/04/18/isps_claim_victory_over_bt/> [accessed 28 September 2021].

[902] Poulter, '24-hour Internet surfing for £10 a month'.

[903] Tim Richardson, 'Oftel tries to steal unmetered limelight', *The Register* (14 June 2001) <https://www.theregister.com/2001/06/14/oftel_tries_to_steal_unmetered/> [accessed 28 September 2021].

[904] CUT, 'The Campaign for Unmetered Telecommunications is dissolved', *Campaign for Unmetered Telecommunications* (10 June 2001) <http://www.unmetered.org.uk/news/news100601.htm> [accessed 28 September 2021].

announcement by AltaVista of the imminent launch of its unmetered service.[905] Little did they know at the time that what would unfold in the next few months would be perhaps the greatest farce of dotcom Britain.

From statistics produced by Oftel, we can see that the latent demand for unmetered Internet connections the CUT and AOL had consistently argued existed was indeed very real. This had of course already been proven to some extent by the popularity of pre-FRIACO unmetered services, including the hundreds of thousands of pre-registrations AltaVista had received, but the real proof was in the rapid ascent of FRIACO-based unmetered services from early 2001. By May, Oftel found 24% of Internet-connected homes were using fully unmetered packages, while those using partially unmetered packages was declining. In a vindication of the arguments made by AOL, the regulator also found customers with unmetered packages spent roughly twice as long online as those on metered packages.[906] From there, the proportion of homes using fully unmetered packages continued to rise steadily, eating into the market share of metered services. As the popularity of the Freeserve model declined, so too did the market share of Freeserve itself, though it still remained the most popular ISP for some time.

By 2002, the consumer Internet services market had consolidated around four big providers: Freeserve (serving 21% of Internet-connected homes), BT (20%), AOL (17%), and NTL (11%).[907] Together, these four providers made up more than 2/3 of the home Internet market, with the final 1/3 made up of a myriad of other far smaller ISPs. By the end of that year, unmetered Internet packages were the most common way of going online (61% of homes), with nearly twice as many homes connected to the Internet through unmetered services compared to metered (32%).[908] British Internet users had, more than not, switched to unmetered Internet access, and unmetered access became finally became the norm as it had been in the US for many years.

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[905] Richardson, 'Over and out for CUT unmetered lobby group?', *The Register*.

[906] Oftel, 'Consumers' use of Internet: Oftel residential survey Q5 May 2001', *Oftel* (May 2001) <https://web.archive.org/web/20021015194428/http://www.oftel.gov.uk/publications/research/2001/q5intr0701.htm> [accessed 28 September 2021].

[907] Figures for February 2002. Oftel, 'Consumers' use of the Internet - Oftel residential survey Q8 February 2002'.

[908] Figures for August 2002. Due to a change in methodology by Oftel, 'unmetered' here includes both partially and fully unmetered services. Oftel, 'Key trends in fixed and mobile telephony and Internet - residential consumers - August 2002', *Oftel* (23 October 2002) <https://web.archive.org/web/20031219124607/http://www.oftel.gov.uk/publications/research/2002/trenr1002.htm> [accessed 28 September 2021].

The advent of fully unmetered Internet access in the UK coincided with a considerable increase in the number of homes connected to the Internet. In the 12 months leading up to May 2001, 3.75 million additional homes had connected to the Internet, bringing the total number of connected homes to 10 million, or 40% of all homes. What's more, this growth had accelerated in the past two quarters, with the proportion of homes connected to the Internet up 4% and 6% respectively compared to an average of 2% since January 1999.[909] Right as the UK seemed set to pass the significant threshold of a majority of homes being connected to the Internet, however, growth slowed. According to Oftel statistics, from May 2001 to May 2003, the proportion of homes connected to the Internet increased by just seven percentage points.[910] While not insignificant, compared to the previous rate of growth, this represented a tremendous slowdown. From May 2001, it took two years for 7% more homes to get connected, compared to the 6% that had connected in the preceding three months. Even before that, the number of homes connected had increased by more than 10% in both 1999 and 2000. The UK had, it seemed, hit a saturation point just as the saving grace of unmetered access had been delivered. The story of home Internet use in the two years from May 2001 was of substantially decelerated growth in homes connected combined with a rapid transition towards unmetered access.

The most rapid period of growth in home Internet access in the UK was therefore between the launch of Freeserve in September 1998 and May 2001, when unmetered Internet access became widely available. This was, effectively, the period where the UK caught up with other Anglophone OECD countries in terms of home Internet penetration. What was surprising was that it was not unmetered Internet access, widely believed to be the key to getting the UK to catch-up, that accounted for this change but the unexpected and novel approach of dropping the common ISP subscription fee. Freeserve dropped the barrier to entry for Internet access enough to encourage huge numbers of people to go online for the first time despite metered access costs. This model was so successful it was able to lobby the LSE to open its doors to dotcom stocks, becoming itself

[909] Oftel, 'Consumers' use of Internet: Oftel residential survey Q5 May 2001', *Oftel* (May 2001) <https://web.archive.org/web/20031204003812/http://www.oftel.gov.uk/publications/research/2001/q5intr0701.htm> [accessed 28 September 2021].

[910] Oftel, 'Consumers' use of Internet - Oftel residential survey - Q13 May 2003', *Oftel* (31 July 2003) <https://web.archive.org/web/20031219124936/http://www.oftel.gov.uk/publications/research/2003/q13intr0703.htm> [accessed 28 September 2021].

the first big dotcom flotation in the UK, and firing the starting gun for a short, but explosive, dotcom boom in the UK – starting four years later than the US, but ending in tandem. AltaVista's too-good-to-be-true promise of unmetered Internet access gained huge publicity, with thousands signing up for the Net access it promised, but it turned out, like so many other dotcoms, to have been built on thin air.

The role of the New Labour government's role in this period was complex, shaped by conflicting forces within government itself and restrained by its commitment to influencing the telecommunications market at arm's length through the industry regulator, Oftel. Certainly, the Blair government was more vocal in its support of wider Internet use than the outgoing Major government, and the significant emphasis it placed on introducing the Internet into the British education system in 1998 helped normalise the technology and encouraged the uptake of home Internet access in households with children. As discussed in chapter three, however, this policy was reliant on the crucial work of establishing a clear approach to the problem of obscene and illegal online content spearheaded by Ian Taylor in the previous government, and the Conservatives had already begun projects to connect schools to the Internet by this time. By late 1998, chiefly due to the influence of Charles Leadbeater in the DTI, the government extended its embrace of the Internet to include e-commerce and more generally the potential economic impact of the Internet on the British economy. Much of the government's work here was focused on promotion, with the appointment of e-tsars, e-envoys, and e-ministers inspiring cartoonist Steve Bell to draw Tony Blair as the 'e.pope' in 1999, proselytising in the name of the digital revolution.[911]

For many, Labour's words rang hollow, however, as the government's primary legislative effort to promote e-commerce was waylaid by the inclusion of controversial restrictions on cryptography. For some, this was a clear indication that Labour saw the Internet as having primarily aesthetic value, reinforcing an image of newness and modernity, and that the government lacked any real commitment to its promotion. One CEO of a 'UK Internet success story' said 'what the government has got to stop doing is treating the Internet as a photo opportunity and more as a serious commercial prospect.'[912] Emily Bell, the *Observer*'s business editor, had made much the same

[911] David Edgerton, *The Rise and Fall of the British Nation: A Twentieth-century History*, eBook (London: Penguin, ch. 20.
[912] Rob Evans and John Casey, 'US praises Blair for hi-tech successes', *Guardian*, 24 October 2000, p. 24.

assessment in September 1999 when she concluded that New Labour were fundamentally unserious about all things digital despite being eager to paint themselves as the standard bearers of the digital age. 'The more it seems the government wants to be taken seriously on its understanding of the digital age, electronic commerce and what-not, the more it flounders in a pool of mediocrity and muddle', Bell thought, and there seemed little will to put these things at the heart of government 'as opposed to the heart of the government's publicity drive.'[913] This dissonance was exemplified on 13 September 1999 when, on the same day that the first e-envoy was appointed and Blair made a speech urging British industry to embrace the Internet and e-commerce, it emerged that the Prime Minister did not actually know how to use the Internet himself.[914]

Where Labour did try to take more 'serious' action in relation to the Internet and ICTs more broadly during its first term in government, it did so either in the interests of business and economic modernisation or security and the security services. Other concerns – be that the civic utility of the Internet, the potential value of improving its accessibility, or the protection of civil liberties – were of secondary concern or, in the case of civil liberties and the RIPA, actively disregarded. This is clearly shown in how it was only after the high cost of Internet access in the UK was framed as a potential threat to the country's economic competitiveness that significant pressure was placed by government on Oftel to make flat rate access a reality. Indeed, even Labour's interventions to promote Internet connectivity in schools were explicitly couched in terms not of improving education for its own sake, but in the name of improving economic performance. As the initial, troubled attempts of the Home Office to push through cryptographic controls when compared to the lack of internal opposition to the RIPA, further showed how the other major concern for Labour Internet-related policymaking, security, could also only be bucked when it came into significant tension with this economistic approach. The watering down of planned cryptographic controls in 1999 and the introduction of flat rate Internet access, then, were only incidentally victories for civil liberties and consumer interests as the government pursued a more

[913] Bell, 'Time Tony got real about cyberspace'.

[914] 'Get business online - Blair ', *BBC News* (13 September 1999) <http://news.bbc.co.uk/1/hi/uk_politics/445995.stm> [accessed 28 September 2021]; 'Blair slow on super-highway', *BBC News* (13 September 1999) <http://news.bbc.co.uk/1/hi/uk_politics/446436.stm> [accessed 28 September 2021].

fundamental goal to mobilise the Internet and ICTs for the purpose of economic modernisation, mirroring the way improvements to the education system were pursued as a component of a wider economic strategy rather than for any innate civic benefits. Both attempts to widen access to ICTs and improve education, then, sprang from the same well – from a drive to rearticulate the British economy, institutions and society in anticipation of the coming 'knowledge economy'; of when we would be 'living on thin air' as Leadbeater put it.

Conclusion

As Internet penetration in the UK plateaued from mid-2001 and home Internet users switched en masse to unmetered services, the next issue many agreed that needed to be tackled after metered access costs was speed. By 1998, dial-up modem technology had already reached its limits, topping out the maximum speed that could be eked out of copper telephone lines at 56Kbps. Even then, browsing the Web still often meant lengthy waits and long download times.[915] Simon Ritchie, writing in the *Guardian* in 1999, noted that before he got onto a cable modem trial he'd 'always been put off browsing the web at home because the modem connection is slow and you pay for the calls by the minute.'[916] The widespread availability of unmetered Internet connections from 2001 solved the latter problem, but the former still persisted.

An imagined future of mass use of interactive television services, the original vision for the kinds of online services information superhighways would deliver, had thus been outpaced by real demand for higher speed Internet access.[917] Asymmetric Digital Subscriber Loop (ADSL) technology, a means of extracting higher bandwidth from existing copper telephone lines without going through the costly process of replacing the wires themselves, had originally been imagined as a way to provide VOD services, and BT's experiments with the technology had overwhelmingly focused on this use-case.[918] As Internet use expanded massively over the decade, however, it became reconceptualised as an inexpensive means of providing faster Internet access.[919]

The success of the Internet had come as a surprise because, as I showed in chapters one and two, the form mass market online services had been expected to take since the development of Prestel was a kind of interactive television. As discussed in chapter three, one of the most significant differences between the Internet and other

[915] Cliff Joseph, 'Wanted: an Internet without speed limits', *Independent*, 20 January 1998, Network, p. 2.
[916] Ritchie, 'Starting life in the fast lane'.
[917] Douglas Rushkoff argued that it was around 1997 that cable and telecoms companies seemed to finally be giving up the ghost of interactive television. Douglas Rushkoff, 'Make yourself @home', *Guardian*, 17 July 1997, online, p. 11.
[918] Martyn Warwick, 'An interesting battle looms', *Financial Times*, 16 June 1993, Telecommunications in Business, p. 5; Nicholas Bannister, 'BT staff are guinea-pig viewers of video by phone service', *Guardian*, 4 March 1994, p. 18.
[919] 'BT speeds up Internet', *BBC News* (29 July 1999) [accessed 28 September 2021].

computer networks was its framing as an unparalleled educational resource, a potential realisation of the dream to create a universal encyclopaedia.[920] Paolo Bory has dubbed this the 'digital library' metaphor: a depiction of the Internet as 'the perfect and infinite repository of knowledge, a virtual library aimed at organising an infinite amount of information.'[921] This idea resonated strongly in the UK, where computers were widely associated with children's education, and where computer ownership was far more common in homes with children.[922] As Robins and Webster have shown, as well, since the early 1980s, the implementation of new information technologies in the British education system had been considered essential to training children in the skills needed for the new information economy.[923]

New Labour pursued this idea with particular intensity, framing education as the 'best economic policy we have'.[924] The party therefore eagerly seized upon this vision of the Internet as an unparalleled educational information technology, and endorsed the connection of schools to the network. The Conservatives similarly welcomed this framing, though more reactively and with less intensity than Labour, and by 1995, both main political parties were promoting Internet connectivity for schools. There were no real political differences in kind between the main parties in this area – only differences in intensity. New Labour's pursuit of projects like the National Grid for Learning therefore appears in this broader historical view more as a reinvigoration of early Thatcherite educational IT projects rather than the radical break the party liked to present them as.

[920] National Council for Education Technology, *Highways for Learning*, p. 2.
[921] Bory, *The Internet Myth*, p. 10.
[922] NOP Research estimated in 1998 that two in five children had a home computer, and households with children up to 14 years were 50% more likely to have a PC than the national average. NOP Research, 'Kids surf the net', *NOP Research*.
[923] Robins and Webster, *The Technical Fix*.
[924] Education Secretary David Blunkett, quoted in Ball, 'Labour, Learning and the Economy: a 'policy sociology' perspective', p.201.

Figure 8. The Internet as represented in the *Economist* in late 1995: an educational resource for children outfoxing the vision of mass market online services as interactive television.

At the time, however, Internet access was widely considered too dangerous for children, and indeed too expensive. Even Labour's Shadow Spokesman on the Information Superhighway, Geoff Hoon, said in 1996 that he could 'not imagine a situation in which I would give my children a line that would allow them to spend large amounts of time online surfing the Internet. It's expensive, and it's not something I think would be appropriate.'[925] As I showed in the second half of chapter three, the creation of the IWF and the agreement of ISPs to sign up to codes of conduct allayed fears about obscene and illegal content online, while the introduction of Freeserve and subsequently unmetered Internet access, discussed in chapter four, substantially reduced the cost of going online.

[925] *The Midnight Hour*, BBC Two, 22 May 1996.

These developments resulted in the unexpected situation by 1999 whereby going online via a computer connected to the telephone network, largely considered the reserve of 'anoraks' just a few years earlier, had reached the mass market.[926] A variety of other countries had also experienced this dramatic growth, though many much faster than in the UK. As shown in chapter two, for a rich Anglophone country, the growth of home Internet access in Britain was in fact unusually slow before Freeserve's launch in September 1998, a problem widely attributed to the relatively high cost of home Internet access in the UK.

This problem, I have argued, can be traced back to the particular way the privatisation of telecommunications had been approached in Britain in the 1980s. As BT CEO Peter Bonfield noted in 1999, the 'quite large differences' between the UK and Europe came down to the fact that telecommunications in the UK had been marketized far longer than much of mainland Europe, and that the regulation of this market emphasised infrastructure competition in order to promote the development of more advanced networks.[927] In 'Financing the Information Age', Jacob Ward shows how the privatisation of BT in the UK in the 1980s is reducible to neither a selling off of a state-owned monopoly to reduce public spending nor an attempt to create a 'share-owning democracy'. He argues that, more fundamentally, the privatisation and marketisation of telecommunications in the UK should be understood as part of a broader industrial strategy which, on the one hand, emphasised the potential of free markets to secure a lead for the British IT industry, and on the other, the subordination of telecommunications to the interests of industry (in particular financial services as represented by the City of London).[928] Thus, as Frank Webster notes, freed from any civic obligations to provide a universal service, BT's first competitor, Mercury, was created 'with a mission *not* to supply an alternative telephone service, but rather to win *business* traffic, easily telecommunications' major market.'[929] The purpose of privatisation and

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[926] In 1996 Janet Street Porter described the Internet as 'blotting paper to soak up the socially challenged' for Channel 4's *J'Accuse* series. See 'J'Accuse: Technonerds', *Without Walls*, Channel 4, 19 March 1996 and Janet Street Porter, 'Forget the superhighway, get a life', *The Times*, 19 March 1996, p. 15. See also Jim McClellan, 'A bad case of anoraks nervosa', *Observer*, 17 March 1996, Review, p. 3 for commentary.

[927] Government of the United Kingdom, *"Building Confidence in Electronic Commerce": The Government's Proposals*, p. 61.

[928] Ward, 'Financing the Information Age'.

[929] Webster, *Theories of the Information Society*, p. 140. Emphasis in original.

marketisation was, first and foremost, therefore, about securing access to reduced costs and advanced services for British industry in order to improve the nation's international economic competitiveness.

What Ward and Webster do not address, however, is that there was a parallel plan for new infrastructure and services to reach consumers through legislation for a 'cable revolution'.[930] As I showed in chapter one, this was a typically Thatcherite response to contemporaneous calls for Britain to develop a broadband information infrastructure, emphasising the role of markets and private capital in contrast to the *dirigisme* of the French approach. This was, also, like the marketisation of telecoms, formulated as part of a broader industrial strategy, intended to spur the development of the domestic opto-electronics industry and introduce competition into broadcasting, with satellite television being another prong of the latter goal.[931] This approach tied the fortunes of this broadband network to the success of cable television in the British market, which the public proved consistently uninterested in, and which quickly faced stiff competition from the new satellite television industry which had been simultaneously legislated into being. Re-regulation in 1991 gave the cable industry only a modest boost, while hopes of huge profits from VOD and interactive television services in 1993/4 quickly unravelled. By 2002, both NTL and Telewest, the two major players formed through industry consolidation in the 1990s, were both in dire financial straits and burdened with immense debts.[932] 'In a nutshell,' wrote BBC business reporter Peter Day, 'they came, they dug up the roads, they lost billions.'[933]

As pay television was the only service profitable enough to justify installing new local loop connections, the disinterest of the British public in these services meant this alternative infrastructure broadly failed to materialise, and BT retained a virtual monopoly in the local loop. Without any significant competitors, therefore, pressure on BT to offer new tariffs which might make Internet access more affordable would have to come from the industry regulator. Oftel, however, was still committed to infrastructure

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[930] Ward does mention government cable plans briefly, but only in passing. Ward, 'Financing the Information Age', p. 439.

[931] See King, 'Thatcherism and the emergence of Sky Television'.

[932] Emma Clark, 'Hard-bitten NTL struggles to survive', *BBC News* (3 April 2002) <http://news.bbc.co.uk/1/hi/business/1906874.stm> [accessed 28 September 2021].

[933] 'Cable - business without profit', *BBC News* (1 February 2002) <http://news.bbc.co.uk/1/hi/business/1795397.stm> [accessed 28 September 2021].

competition, and refrained from intervening.[934] From 1994, Labour had taken the side of BT in the debate over broadcast entertainment restrictions on PTOs, accepting the telco's promise that removing restrictions would encourage them to extend fibre to the local loop, but quickly backed down when their 'deal' with BT was attacked as undermining this commitment to infrastructure competition.

Proponents of the policy of infrastructure competition claimed that it was working – both the DTI and Oftel argued in early 1997 that there had been a dramatic increase in infrastructure competition in 'all' segments of the market, but as the Trade and Industry Committee noted, this did not extend to local calls, where BT still represented 90% of the market.[935] Building competing local loop infrastructure for the comparatively meagre revenues from residential telephone use made no economic sense, so competition continued to focus as it had done on other more profitable parts of the network.[936] As in the late 1980s, the government remained principally committed to competition as the mechanism to deliver the best outcomes, despite lobbying to intervene in the market. Labour, more vocally supportive of information superhighways, was from 1994 also bound to market solutions, but chose to side with BT over the cable companies. This was the constricted terrain of telecoms policy in the UK in the 1990s, as Peter Goodwin observed: a choice between infrastructure competition or provision at the cost of private monopoly.[937]

As I showed in chapter four, it would not be until the DTI under Peter Mandelson began to take a particular interest in e-commerce in late 1998 that government began to consider Britain's relatively high metered Internet access costs a problem. Here, evidence that these costs were inhibiting growth in home Internet connections and the time people spent online sparked concerns that the viability of e-commerce was being undermined. It was therefore only when the level of Internet access in the UK was framed as significant to the UK's economic competitiveness, that is to say, when it was articulated as relevant

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[934] David Edmonds, Director General from 1998, said that the prevailing view at the regulator was that infrastructure competition was the priority. Trade and Industry Committee, *Sixth Report: Local Loop Unbundling* (London: HMSO, 6 March 2001), p. 5.

[935] Trade and Industry Committee, *Third Report: Telecommunications Regulation* (London: HMSO, 17 March 1997), p. viii.

[936] As Ofcom later noted, 'understandably, fixed infrastructure competition has followed the margin in the system, with competition to BT Group plc […] focused on core and backbone networks.' Ofcom, *Strategic Review Telecommunications Phase 2 consultation document*, p. 4.

[937] Trade and Industry Committee, *Third Report: Telecommunications Regulation*, p. 687.

to industrial policy. An otherwise laissez-faire attitude to the outcomes of a regulatory system predicated on the 'sacrosanct' principle of infrastructure competition was in turn replaced by an appraisal of telecoms regulation as having failed the kinds of tariffs likely to encourage greater Internet use.[938] This began the slow process at Oftel of augmenting infrastructure competition with services competition, resulting in the unbundling of the local loop from the rest of the telephone network and ultimately the hiving off of BT's local loop infrastructure to a new sub-division of the company, Openreach, in 2006.[939]

The failure of a model of telecoms marketisation based on infrastructural competition in the local loop lumped Britain, despite pretences that this model would deliver new and innovative tariffs and services, in with the comparatively slow to liberalise France and Germany in terms of home Internet penetration, rather than the much more explosive growth seen in the US and other rich Anglophone countries. At the same time, the trajectory at the level of the European Union was towards the privatisation and liberalisation of telecommunications as outlined in the Bangemann report.[940] This broad convergence took place over the 1990s, but was by no means uniform in Europe, and as Schulte writes, many EU states 'initially conceptualised and tried to regulate the internet as if it were a public utility, a public space, or an arm of national media organisations'.[941] At the start of the 1990s, however, the UK was already in the position EU states were moving towards, and no such attempt to regulate the Internet as if it were 'a public utility, a public space, or an arm of national media organisations' was made.

That the UK was the first to produce an innovation like subscription-free Internet access was not surprising, then, as the competitive telecoms environment that precluded this model (based as it was on the interconnect charge, which presumed a diversity of competing trunk network operators) had been in place much longer in the UK than many other European countries. Nor was it surprising that, as other countries moved to adopt a similar regulatory environment, this model was quickly replicated elsewhere.[942]

This was the paradoxical situation the UK found itself in with regards to Internet

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[938] Goodwin, 'British Media Policy Takes to the Superhighway', p. 682.
[939] 'BT unit tasked to aid competitors', *BBC News* (22 September 2005) <http://news.bbc.co.uk/1/hi/business/4270230.stm> [accessed 28 September 2021].
[940] Bangemann Group, *Europe and the Global Information Society*.
[941] Schulte, *Cached*, p. 114.
[942] Johannes M Bauer, Michel Berne and Carleen F Maitland, 'Internet access in the European Union and the United States', *Telematics and Information*, 19 (2002), 117-37.

access in the late 1990s. The relatively advanced privatisation and marketisation of telecoms meant that, within the boundaries defined by the market and the industry regulator, there was intense competition and frequent innovation. By 2000, there were some 400 ISPs in operation in the UK, and many, particularly subscription-free services, were reliant on partnerships with various telcos other than BT.[943] It is not unsurprising, given this advanced state of competition, that it was the UK and not any of the other relatively late to liberalise countries in Europe which produced the innovation of subscription-free Internet access. And yet this innovation was only necessary in the UK (and indeed Europe more generally, where it was widely imported) because of the unavailability of flat-rate Internet access.

The UK Internet access market was, then, intensely competitive but within parameters defined by the failure of competition in the local loop, which saw BT retain a virtual monopoly in this area. The best illustration of this contradiction is, undeniably, the 'freak show' of unmetered offers developed in the wake of Freeserve.[944] Here, an intensely competitive ISP market produced rapid innovations in Internet access which all ultimately failed because BT refused to offer flat-rate local calls, and Oftel refused to compel the ex-monopolist to do so. Without the pressure of competition, BT could only be forced to move by Oftel, but the regulator refused to act more aggressively against BT, instead stubbornly retaining its commitment to infrastructure competition as the agent for change. It would take a change in director general and rising anxiety at the top of government about the potential economic consequences of metered Internet access costs to finally compel Oftel to give up the ghost.

The advanced state of the neoliberal project in the UK relative to the rest of Europe was also reflected in the discursive construction of the Internet at the level of government. The notion of the Internet as a public utility was already ruled out in the UK by the privatisation and marketisation of telecommunications in the 1980s. As chapter three showed, one of the few areas the government could still legitimately act to directly promote the use of the Internet other than within government itself was education, following in the mould set by the Thatcher governments' interventions to promote the use of microcomputers in schools. The development of consumer Internet access was

[943] Bourreau, 'The economics of Internet flat rates', p. 7.
[944] CUT, 'A freak show of offers'.

otherwise left to the private sector until New Labour began taking e-commerce seriously in late 1998, at which point the lack of unmetered access options became conceptualised as a problem of international competitiveness: without sufficient numbers of people online the development of e-commerce would suffer, and the UK would fall behind. Ensuring Internet tariffs were available that encouraged more extensive use of the Internet therefore only became worthy of political intervention where broader economic performance was at risk. Otherwise, maintaining the integrity of the existing system of telecoms regulation was considered more important. Where Labour had tried to intervene to promote the development of new infrastructure it had been forced to beat a hasty retreat, lambasted by the Conservatives as 'monopolistic' in their approach.[945]

Both major interventions to promote use of the Internet in the UK in the 1990s, that is in education and in telecoms regulation, can therefore be understood to stem from the conception of the Internet as relevant to industrial policy, while their outer limits were defined by an ideological commitment to market forces and in opposition to direct state provision. As Robins and Webster argue, the provision of IT to schools was explicitly framed in terms of industrial policy and the reconfiguration of the British education system around the needs of industry in the 1980s.[946] In the 1990s, New Labour took this further and framed improving education (and IT provision within education) as the most important element of its industrial policy. This consensus resulted in the bipartisan endorsement of the Internet as an educational resource, and the connection of schools to the Internet. The high cost of Internet access in the UK, meanwhile, went uncommented upon, and where it was brought up, the outcomes of the existing system were typically defended on the grounds that competitive markets were the best mechanism to control prices and the provision of services. The threat looming behind these criticisms of market outcomes that can be seen in the zeal with which ministers reiterated that market forces were the right mechanism for controlling prices, was for renewed calls for state intervention and potentially even renationalisation.[947] As Peter Goodwin noted in 1995, the absolute block on increased public provision by both the Conservatives and Labour

[945] Hari Kunzru, 'Interview with Ian Taylor', *Wired UK*, October 1996.
[946] Robins and Webster, *The Technical Fix*.
[947] As Jane Wakefield reported of a meeting with e-Minister Patricia Hewitt in February 2000, 'Hewitt emphasised that it is the job of competition and not government to control prices and availability of Internet services.' Wakefield, 'e-Minister rushes to defend BT and Oftel', *ZDNet*.

prevented obvious solutions to the 'BT/cable industry tug-of-war' from being even countenanced, such as the creation of a public monopoly to build the kind of national optical fibre network both parties agreed was urgently needed.[948] Even Openreach, when it was formed in 2006, would remain a private company.

When government did begin to consider the high cost of Internet access in the UK a problem, it was only after widening use of the Internet had been framed as important to encouraging the development of commercial activity. Bound by its commitments to market competition in telecoms, it was restricted to urging interventions from the industry regulator. The solution, of course, was more competition.

Further research

As discussed in the introduction to this thesis, my intention here has been to provide a broad, national history of the popularisation of home Internet access in the UK to 2001 which can form the foundation for further studies. As such, an obvious direction for further research would be to study the development of the Internet in the UK at the sub-national level. Rhys Jones has provided a useful early step in this direction through a recent study of Welsh pre-Web Internet history, and hopefully the Internet histories of other regions will begin to be filled in as well.[949] Of particular interest from the perspective of telecommunications is the city of Hull, which, as discussed briefly in chapter two, had a telecommunications operator, Kingston Communications, which was never absorbed into the General Post Office. Though I have not been able to examine the case of Hull and Kingston Communications in much detail here, what I have found through my research suggests it had a number of interesting differentiations from the national telecommunications network which certainly deserve further investigation: Kingston's Internet offerings appear to have been unusually advanced by national standards, earning high praises from the CUT in 1999, and twenty years later Hull would become the 'first full fibre city in the UK'.[950] The history and fate, too, of the various

[948] Goodwin, 'British Media Policy Takes to the Superhighway', p. 687.

[949] Rhys Jones, '"Porn Shock for Dons" (and Other Stories From Welsh Pre-Web History)', in *Routledge Companion to Global Internet Histories*, ed. by Gerard Goggin and Mark McLelland (New York: Routledge, 2017), pp. 256-68.

[950] CUT, 'There is light in a dark continent', *Campaign for Unmetered Telecommunications*; 'Hull becomes UK's first city with full fibre broadband coverage', *Metro* (11 October 2019)

experimental cable and 'information superhighway' services piloted in the UK, and of the UK cable industry more broadly, could provide further insight into the failure of the dream of a 'cable revolution' which so strongly influenced the particular course of UK Internet history.

As well as examining differences and similarities at the sub-national level being an obvious next step in the development of a fuller understanding of British Internet history, the greater the detail with which this story is filled in, the more fruitful international comparisons will become. As mentioned in the introduction to this thesis, the number of national histories of the Internet has grown significantly in the past few years and continues to do so. These other national histories provide valuable reference points which can be used to compare, contrast, and contextualise the British story. As the elements of this thesis which have sought to place the UK in historical international context have implied, the framing of Internet access in terms of a global 'digital divide' between rich and poor countries is overly simplistic and masks significant variations in the development of home Internet access among rich nations. As the case of the UK in particular shows, being a rich nation or even being a rich and Anglophone nation in the 1990s did not guarantee high levels of Internet penetration, and national-level policy remained hugely important. A close comparison, therefore, of the UK with those similarly rich and English-speaking countries which outpaced it in Internet adoption promises to provide greater insight into what precise factors accounted for such significant variations in levels of Internet use.

This thesis has also been strongly focused on the more basic question of Internet access, meaning there is significant scope for more content and user-focused studies of online activity in the UK in the 1980s and 1990s. In particular, more detailed studies of UK virtual communities like Micronet and CIX could valuably contribute to the expanding field of net histories, providing a UK perspective on pre-Internet online communality. In terms of further source bases, the UK had a thriving computer press which could be consulted for more detailed studies of online activity in the 1980s, and in the 1990s there were also multiple Internet-focused magazines that it could prove valuable to analyse. This would also present a valuable opportunity to bring British Internet history into

<https://metro.co.uk/2019/10/11/hull-becomes-uks-first-city-with-full-fibre-broadband-coverage-10896919/> [accessed 28 September 2021].

closer dialogue with contemporaneous studies of home computer use, on which there was a flourishing literature, particularly after the home computer boom of the early 1980s. I have referenced some of these studies, but a more in depth investigation could provide further understanding of the experience of computer networking at the level of individual experience, fleshing out the very rough sketch of computer network users presented here. The significance of access costs and concerns about online obscenity I have highlighted at the national level raises interesting questions about how these perceptions presented in individuals and their use habits, and in particular, the question of how network use, considered problematic in these ways, was policed, both by users themselves and by parents, teachers, and carers.

The recency of much Internet history also means that many of the key actors involved are still alive, opening up valuable opportunities for oral histories that should not be wasted. A fascinating synthesis between this and further examination of the print culture surrounding home computing in the UK, I believe, would be a more detailed examination of the first iteration of *Wired UK*. Significant historical attention has been paid to the development and influence of the original *Wired*, but the fact that its first overseas edition was in the UK has been all but totally missed despite providing an intriguing historical moment that I have only been able to cover in limited detail here.

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