INSTITUTE OF DIRECTORS

Broadband:

its impact on British business

IoD POLICY PAPER

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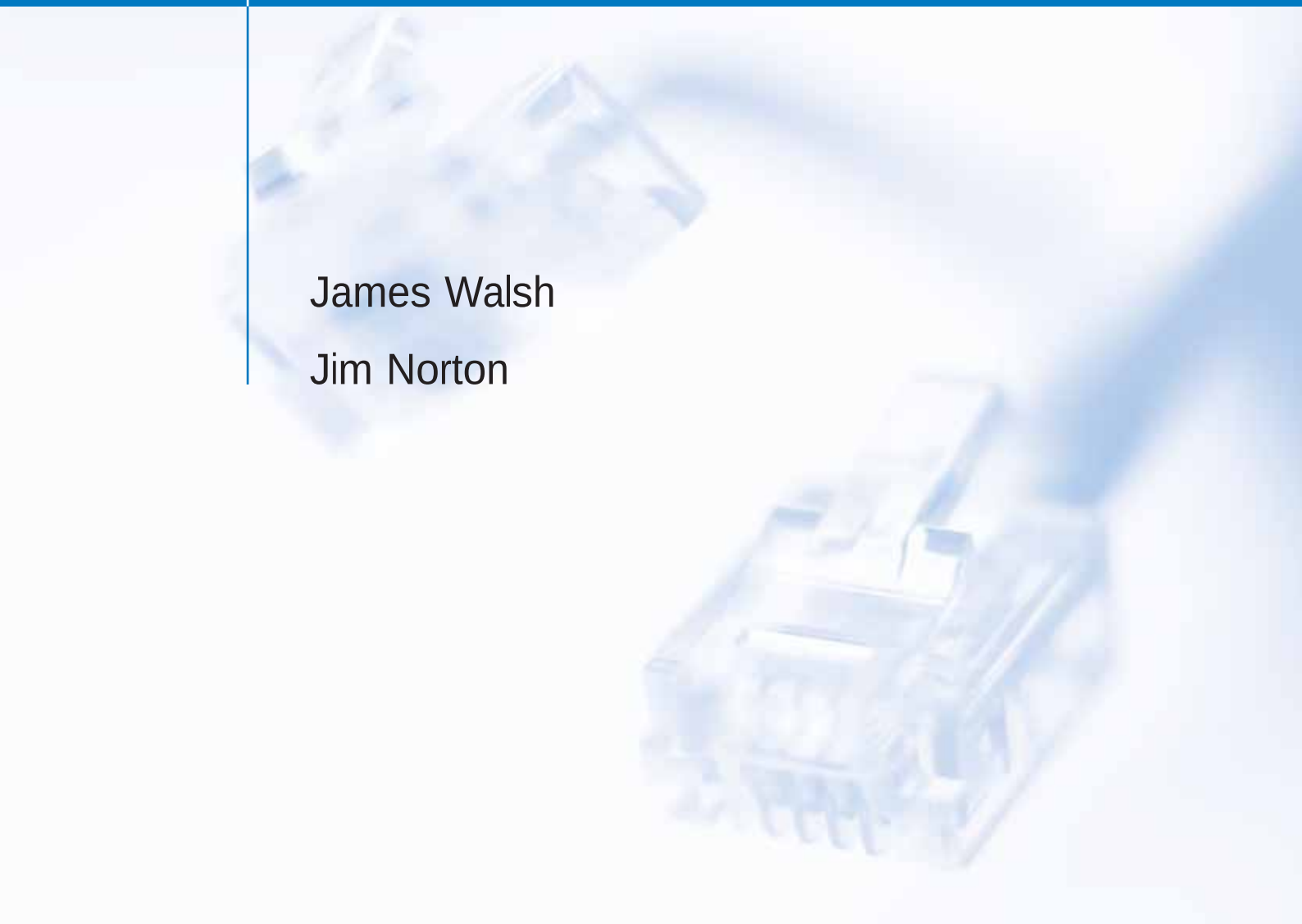

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Foreword

Since the introduction of Broadband ADSL services into the UK marketplace in 2000, Broadband in its various forms has become a mainstream technology and a hot topic for consumers and businesses alike.

Many company leaders - and a very high proportion of IoD members in particular - have already adopted this leading edge communications platform, using it to make a real difference to the performance of their organisations. However, some remain unaware of the real and tangible benefits that this technology can bring.

The research carried out by the Institute of Directors and presented in this report makes interesting reading. It lifts the veil of 'hype' that has unfortunately surrounded Broadband technologies by providing first-hand feedback from the front line of British business - together with some startling figures.

Although the survey reflects continuing concern about availability, it is worth noting that Broadband, particularly in ADSL form, is now more widely available than ever before. Since the survey was carried out, BT have removed the distance limits for 512 Kbps Broadband ADSL services and extended the reach for 1 Mbps Broadband ADSL services from 3.5km to 6km from the exchange. For those who have been unable to get a Broadband ADSL service because their exchange had not been ADSL-enabled, it is probably worth checking again - you may be pleasantly surprised!

Competition in the marketplace has been key to the evolution of Broadband services, with a wide variety of services and related solutions available. Prices have fallen dramatically in the past few years.

As a leading edge provider of Broadband services and related Security Solutions to the Business community, Nildram are pleased to have been involved in this excellent piece of IoD research. We hope that it will both act as a catalyst to uptake amongst a larger number of organisations and also provide a thought provoking insight for those businesses already using Broadband, but perhaps not taking full advantage of the opportunities presented by the technology.

Sean Stephenson
Managing Director
Nildram

1: Introduction and summary

In just a few short years, high-speed Internet access - broadband - has established itself as an indispensable part of our business infrastructure. Many companies could no more manage without broadband than they could manage without the roads network.

This paper summarises the results of a questionnaire survey of IoD members circulated with the June edition of our monthly bulletin, *IoD News*. We asked members about their broadband use at work and home. 409 responses were received. The key findings were as follows:

- Broadband is good for business. 84% of respondents who use broadband report that it has boosted productivity and 61% say that broadband has delivered cost savings. 64% report a direct link between broadband and increased profits.

- 79% of respondents have broadband access in their place of work. Over 93% expect to be signed up to broadband by mid-2005.

- Contrary to anecdotal suggestions that rising numbers of broadband subscribers must mean poorer levels of service, twice as many IoD members report an improvement in the quality of service as a decline - 24% compared with 11% respectively.

- 78% of respondents would expect increased competition to boost choice, innovation and take-up levels.

- The 'always-on' nature of broadband makes it particularly vulnerable to viruses and other threats. 96% of respondents use anti-virus software and nearly 90% have a firewall installed.

- Lack of access to broadband - especially in rural areas - remains a significant problem. Of the small numbers of IoD members who do not expect their businesses to be signed up to broadband within the next 12 months, half cited non-availability as the reason. These members will be watching closely to check that British Telecom keeps to its recent commitment to make broadband available to 99.4% of homes by summer 2005.

- The shift to homeworking has been one of the most dramatic social phenomena of recent years. The number of 'teleworkers' has been rising by 14% per year. It is not difficult to envisage a situation in which a broadband connection - and perhaps a home network that supports more than one computer - is seen as a basic home utility alongside connections to water, gas and electricity services. There are concerns that Britain's housing stock is simply not 'wired for work'.

Key broadband facts

- Broadband simply means fast, 'always on' connection to the Internet. Broadband connections run at speeds that start at 256 Kbps (kilobytes per second). Sophisticated versions of broadband allow connection speeds of 1 Mbps or even up to 2 megabits (2 Mbps). In countries such as Japan and Korea, cost effective access rates up to 100 Mbps are widely available.

- Broadband services can be delivered by many means, including ADSL (asymmetric digital subscriber line), SDSL, cable, Fixed Wireless Access and satellite.

- In April 2004 (based on Ofcom data) the UK had just under 4 million broadband subscribers. 15% of homes had broadband access.

- 2.44 million of these subscribers use DSL technologies over the BT copper loop, supported by a range of ISPs such as Wanadoo, Nildram and AOL as well as BT Openworld. There were 1.54 million cable subscribers and some 8,500 subscribers using satellite or terrestrial fixed wireless access.

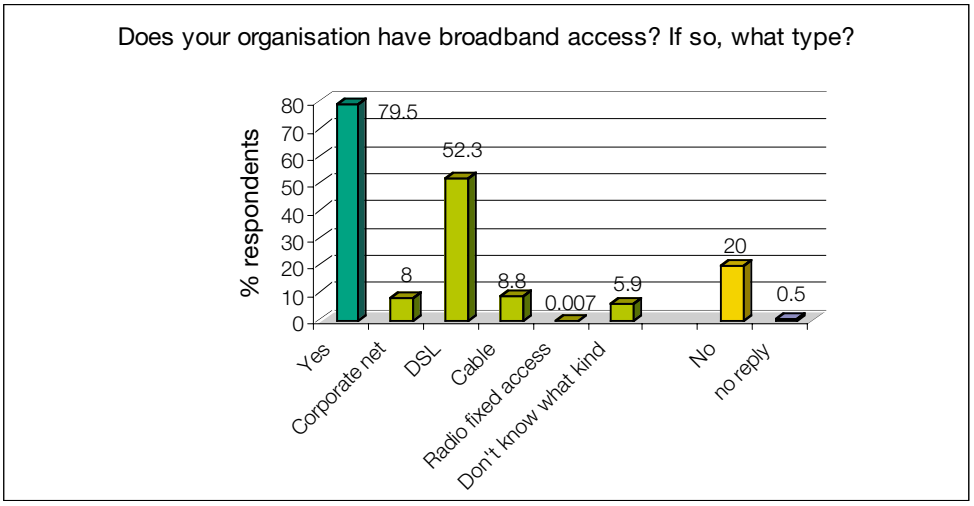
- 40,000 new broadband connections are being made every week.

- An index compiled by the Broadband Stakeholders Group and Analysys shows the UK in joint sixth place among G7 nations for broadband take-up - ranked jointly with Italy.

2: Getting Britain broadband-connected

2.1 Current extent of broadband take-up

We started by asking members a simple question - does their organisation have broadband access?



Base: all 409 survey respondents

The responses were overwhelming. 79% of respondents have broadband access at their place of work. Although the replies to a questionnaire of this kind are self-selecting, it is difficult to come to any conclusion other than that the vast majority of IoD members are signed up to broadband.

We went on to ask members which type of broadband they use. Again, the result was clear-cut. More than 52% of respondents use DSL (Digital Subscriber Line, usually provided on existing copper telephone wires), with cable the next most popular option at just 8.8%.

There are two likely reasons for DSL's dominance of the business market:

- First is simply history - British Telecom's traditional strength in supplying the highly diverse SME market. An NoP World survey of ICT sector SMEs for Intellect & Intel in March 2003 showed BT Openworld with a direct market share of 53%, with an additional 33% based on ISPs buying wholesale access from BT. Cable access had only 14% market share in this segment.

- Second, the cable companies' marketing efforts have chiefly been directed towards the domestic side of the marketplace. The origin of their investments was the residential television market and, whilst they have made inroads into the home broadband access market, they have devoted relatively little resource to breaking into the SME segment.

A breakdown of responses by business size shows that, as we might expect, broadband systems vary tremendously from small to large businesses. Whereas just 2.3% of businesses with 0-9 employees use a corporate net, the figure rises to 38.7% for organisations with 250 staff or more. Conversely, DSL is far more popular with smaller organisations. DSL accounts for 74.7% of the market for companies with 0-9 employees, but just 35.5% among 250+ employee companies (where access technologies such as dedicated leased lines have long been used).

2.2 Broadband to be near-universal

With over 79% of respondents already using broadband for business purposes, the new technology has already achieved widespread coverage. What is the potential for further take-up of broadband opportunities? We asked those respondents who currently do not have broadband (82 respondents in total) whether they plan to sign up for it in the next 12 months. (Seven did not reply.)

DOES YOUR ORGANISATION PLAN TO HAVE BROADBAND IN THE NEXT 12 MONTHS?

	No. respondents (% of sample asked this question)
Yes	48 (58.5%)
No	27 (32.9%)

Base: 82 respondents who answered 'no' to question 1 ('Does your organisation have broadband access?')

Clearly the vast majority of IoD members see broadband as a worthwhile investment for their business. If the 48 'Yes' respondents here keep their word and sign up for broadband in the next year, this will leave just 27 respondents - 6.6% of all respondents to this survey - without broadband by the middle of 2005. Over 93% will be signed up.

2.3 Lack of rural availability still a problem

It would be wrong to assume that the 6% of respondents who do not plan to sign up for broadband comprise the IoD's Luddite wing - far from it. When we asked them why they do not plan to sign up, 13 of these members - almost exactly 50% of this group - indicated that the key reason was simply that broadband is unavailable in their areas. Typical comments were as follows:

- 'BT cannot support it in this region'
- 'Business is in a rural area so it is not available'
- 'In my view it is entirely unacceptable for BT to have a monopoly position and at the same time postpone providing a modern communications system at a time when so many people work in part or full time from home'

A handful of IoD members complained - probably quite justifiably - that the questionnaire should have directly invited feedback on the question of rural unavailability. It may well be that the 13 members who referred to the issue through write-in comments represent a rather larger group of IoD members.

New BT commitment

Ofcom data for April 2004 showed DSL availability to 84% of UK homes and businesses, with cable available to 45% and radio fixed access to 13%.

Recent months have seen welcome progress towards making broadband available across the whole of the UK.

Until just a few weeks ago, BT required a certain number of local customers to register their interest in broadband before it would consider upgrading the local exchange in order to make it ADSL-compatible. If the registrations failed to reach a 'trigger level', then there would be no broadband.

The 'trigger level' scheme has proved extremely effective. Across rural Britain, campaign groups have sprung up, mobilising popular sentiment and acting as unpaid advocates for the broadband cause. Public pressure has reached the point at which BT has felt able to disband the scheme. Instead, the company has now given a blanket undertaking to upgrade all but 600 exchanges to broadband capability. BT expects broadband to be available to 99.4% of homes by summer 2005.

The IoD members who are still without broadband access will be watching closely to ensure that BT's new commitment extends to their areas.

2.4 Making Britain's housing stock 'wired for work'

The debate about rural availability of broadband is actually just part of a much wider issue about the extent to which Britain's housing stock is connected to IT networks.

56% of respondents to this survey indicated that they run organisations employing between 0 and 9 staff. Many of these may actually be sole trader businesses operated from home - what the IT industry calls a 'SOHO' (small office / home office).

Even for those whose principal place of work is still away from the home, more flexible work patterns mean that they may spend some part of the week operating from a SOHO situation.

Recent years have seen a dramatic shift towards more homeworking. At the latest count, in 2001, there were 1.8 million 'TC teleworkers' in the UK (people who work from home at least once a week using a telephone and a computer). This represents a remarkable increase of 70% over the period 1997-2001 - an average annual rise of 14%.[1]

An investigation by the Institute of Employment Studies in 2001 found that 22.6% of the UK workforce could potentially work from home. Given that this study was carried out before

broadband became widely available, it may prove to be an underestimate.[2]

These trends mean that it will be increasingly important to ensure that our housing stock is not just connected to broadband, but wired to support Local Area Networks (LANs) so that households can run more than one personal computer. This would ensure that British homes are 'wired for work' in a way that would allow our housing stock to keep pace with increasingly sophisticated demands for home working.

It takes only a little imagination to envisage a situation in which a broadband connection and a LAN (fixed or wireless) is seen as a basic home utility - alongside connections to water, gas and electricity services.

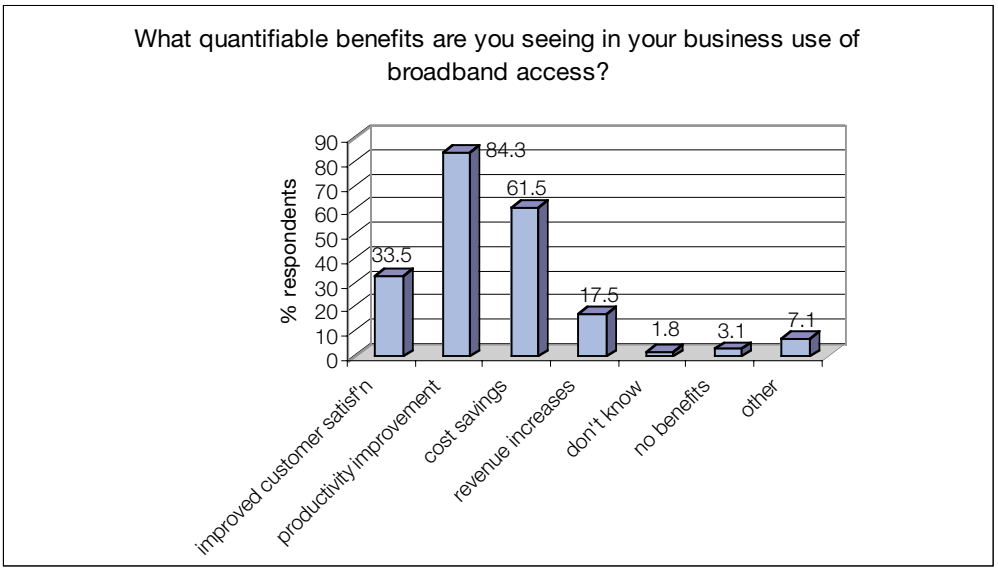
Although reports for the DTI show that 84% of the population has 'access' to an affordable broadband connection, this simply means that these households have the option of connecting if they wish to do so. The proportion actually connected is 15% of all households.[3] The number equipped with LANs is undoubtedly much lower, although figures are not readily available. Britain has a long way to go if we are to achieve the levels of connection that will allow fully flexible homeworking.

3: Benefits of broadband

3.1 Business hails broadband benefits

With large numbers of IoD members using broadband for business purposes, it would seem reasonable to assume that they confidently expect it to deliver real benefits.

We asked the members who do have broadband (79% of all respondents) what quantifiable benefits they are seeing in return for their investment.



Base: 325 respondents who use broadband for business purposes

The results were impressive. 84% of this group ascribe productivity improvements to their investment in broadband and 61% say that broadband has delivered cost savings - a direct benefit to the bottom line.

It is difficult to think of a comparable recent development in business equipment or techniques that has been so widely identified as a positive factor in terms of business performance.

An NOP World survey of ICT industry SMEs for Intellect and Intel in March 2003 showed a similar, but weaker, link; the effect on productivity was scored at 6.8 out of 10 (where 1= no effect and 10= a major effect). It seems likely that confidence in the value of broadband access for small businesses is growing strongly - with IoD members well to the fore.

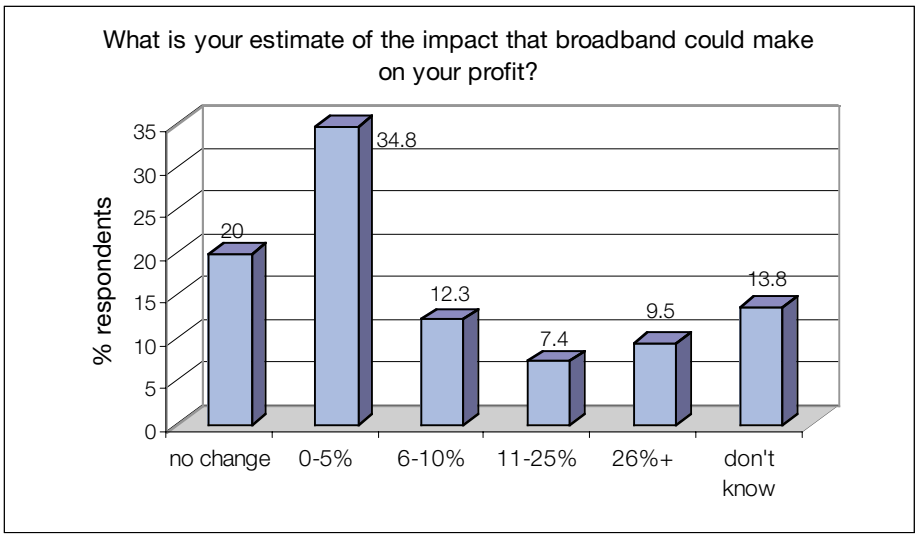
The improvements do not relate solely to costs. One third of respondents said that broadband had helped them to boost customer satisfaction and 17% said it had delivered revenue increases.

Other benefits highlighted by smaller numbers of IoD members included 'better and faster R&D', 'speed of access', 'terrific for homeworking' and 'too numerous to mention'.

3.2 Impact on the bottom line

Happier customers, faster working and better productivity are all welcome to any business, but the question that really matters is whether these advances are feeding through to the company's financial performance. In other words, is broadband helping to boost profitability?

We asked the same sample of members (the 325 who are signed up to broadband) to estimate the potential impact of broadband on their profit levels.



Base: 325 respondents who use broadband for business purposes

The results are just as positive as the responses to the previous question, with just over one-third of this group identifying a modest profit boost of up to 5%. Many respondents were even more enthusiastic, with an impressive 64% reporting a direct link of some kind between broadband and increased profits. The message is clear - broadband makes good business sense.

4: Quality of broadband service

4.1 Fast enough for all but a few

Although this report uses the term 'broadband' relatively indiscriminately, many readers will appreciate that 'broadband' covers a multitude of sins - and speeds.

Affordable broadband services available in the UK can vary from the relatively 'basic' 256 Kbps - around 5 times as fast as ordinary 'narrowband' - to 2 Mbps per second.

We should note, of course, that it is not speed alone that attracts businesses to broadband. The 'always-on' nature of most broadband services - eliminating the need for time-consuming dial-up procedures - is a major plus point. The relatively attractive tariff is a further benefit.

There is some anecdotal comment that broadband services can prove disappointing. This can particularly be the case for businesses that wish to upload large amounts of data to the net (most businesses do more downloading). The reason for this is simple - typical 'Asymmetric DSL' ('ADSL') services allow downloads at twice the speed of uploads - 512 Kbps compared with around 260 Kbps respectively. In some cases, actual speeds are rather less impressive than those claimed in marketing materials.

We wanted to test whether these whispers of dissatisfaction are shared by IoD members.

IS YOUR BUSINESS CONSTRAINED BY THE SPEED OF THE SERVICE AVAILABLE TO YOU?

Yes	15.4%
No	82.8%

Base: 325 respondents who use broadband for business purposes

The answer seems to be that concerns about broadband speeds do exist - but only for a small minority. 82% of respondents found that their broadband access speeds impose no constraint on their business.

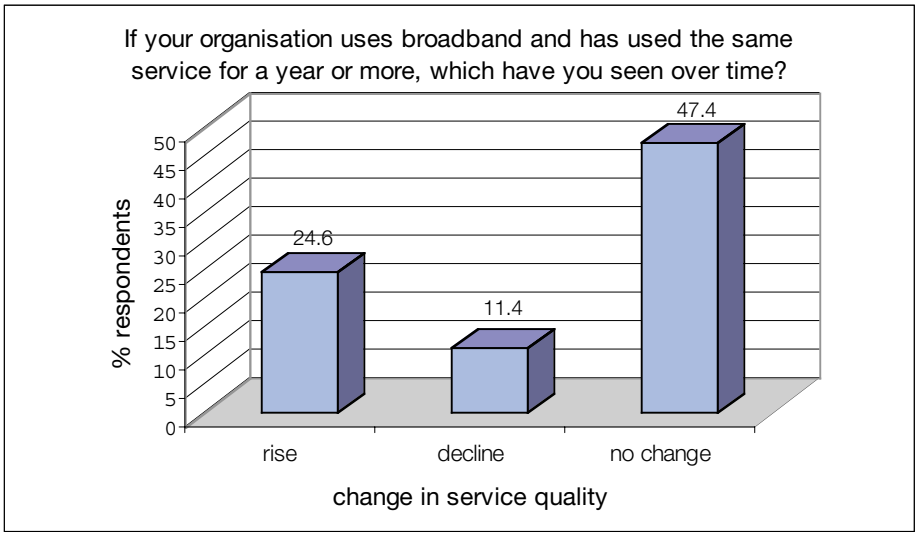
Among the 15% of respondents who identified speed constraints, typical comments included:

- Would like VOIP and video conferencing'; and[4]
- 'volume of use has increased enormously so it is purely congestion'; and
- 'sending large files so we have to pay for an ISDN line too'; and
- 'large file transfer'.

4.2 Consistent service quality

Concerns about broadband speeds are sometimes accompanied by complaints that, with more users joining the network, the quality of the service has been adversely affected.

However, the response from our sample of IoD members provided little to justify such concerns. Indeed, twice as many members had seen an improvement in the quality of service as had seen a decline - 24% compared with 11% respectively. In short, IoD members appear to be giving a major vote of confidence to broadband providers.



Base: 325 respondents who use broadband for business purposes

(16.6% did not reply.)

4.3 Charging options

As the volumes of data transferred over the Internet continue to grow rapidly, the telcos will inevitably review the structure of their user charges.

In order to fund investment in their core networks and maintain service quality, the providers are bound to look for ways of extracting higher revenues from the so-called 'power users' who generate a disproportionate amount of traffic. Volume charging beyond a cap (i.e. a flat rate for downloads up to a certain level and then a unit-based rate for further usage), is a sensible approach.

We asked IoD members what type of charging options they prefer and it was perhaps no surprise to see 87% expressing a preference for a flat rate system. Just 2.5% supported a usage charge, 1.5% wanted a peak/off peak system and 1.8% supported a volume-capped scheme.

With telcos apparently set on a course of gradual introduction of usage-based tariffs beyond a cap, the providers will need to ensure that the new pricing structures do not make life more complicated for 'standard' users who generate relatively modest amounts of data traffic.

5: Viruses and other threats

5.1 Permanent siege

The 'always on' nature of broadband is both one of its greatest attractions and one of its greatest weaknesses. Broadband-connected machines are in state of virtually permanent electronic siege.

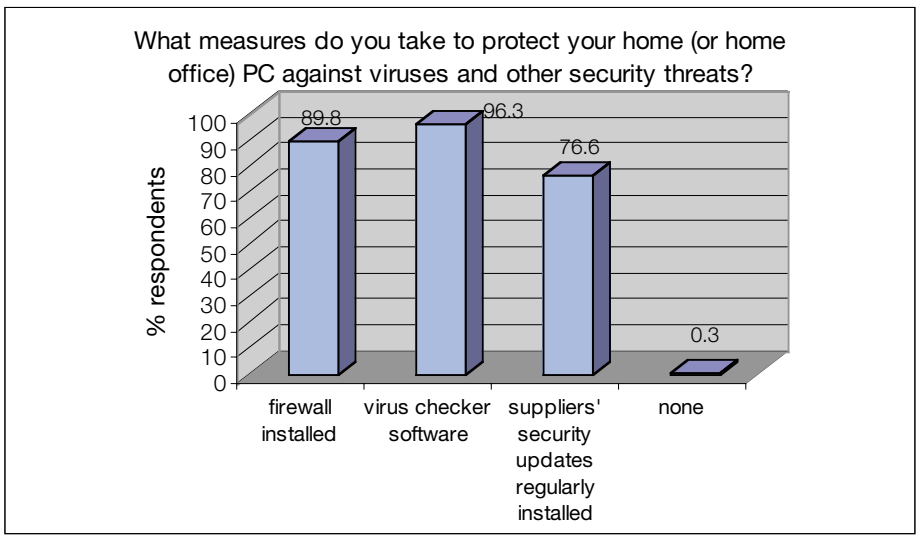
Independent trials by the US National Bureau of Standards suggest that the time taken for an unprotected PC to become infected once connected to the Internet has fallen from two hours two years ago to less than twenty minutes now. Infected PCs represent a serious concern for IoD members.

There are many forms of infection. They include those that ransack the PC for useful business or personal data (such as bank account or credit card details) and those that brigade the PC (together with thousands of others around the world) in attacks on other companies and systems - so called Distributed Denial of Service (DDoS) attacks. Clearly IoD members have a 'duty of care' to take the basic steps necessary to protect their processing and data assets.

Effective measures to protect machines from these threats are straightforward. Firewall and virus protection software is widely available and easy to keep up to date over a broadband connection. Although most businesses benefit from a degree of professional back-up (either from an in-house IT department or from a contracted IT expert), home systems are less likely to benefit from the latest security measures.

We asked IoD members how they go about protecting their home or home office machines from viruses and other threats.

As the chart shows, the vast majority of IoD members go to considerable lengths to protect their home systems.



Base: 325 respondents who use broadband for business purposes

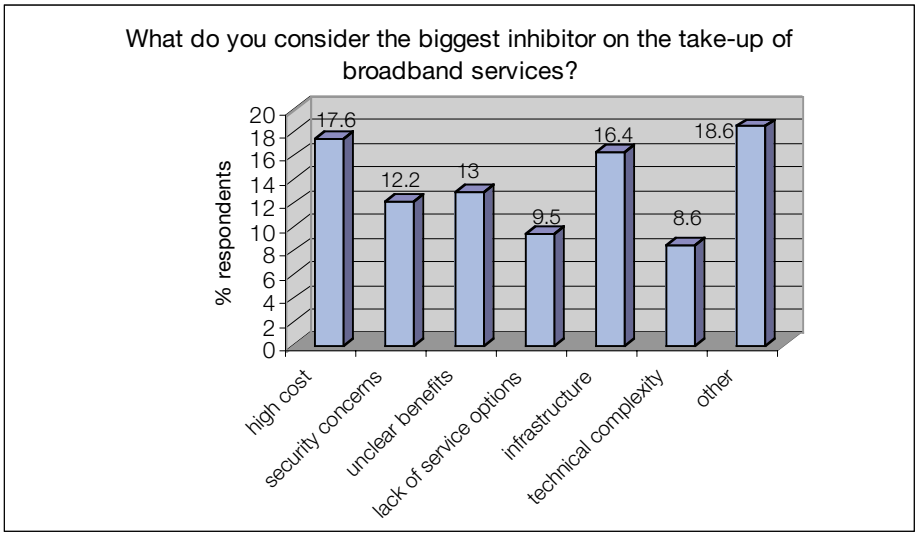
6: Keeping up with global leaders

6.1 Keeping up with global leaders

With 40,000 or more broadband connections now being made every week, take-up is set to continue rising. But the UK still has a long way to go to move from its current level (15% of households on broadband) to match take-up levels in countries such as Canada (40%), the USA (30%) and Sweden (20%). Way ahead of the field is South Korea, with more than 70% of households connected to broadband - largely because of a concerted Government investment in the network.

We cannot take further rapid increases in broadband take-up for granted. The most IT-literate have already signed up. These are the 'low-hanging fruit' of the IT marketing world. The challenge now is to persuade those who are more cautious about new technologies to follow suit.

We asked IoD members what they see as the key factors inhibiting take-up.



Base: all 409 survey respondents

It is clear from the even spread of responses that there is no single outstanding problem blocking take-up. Rather, the responses suggest that action is needed on a range of fronts in order to:

- reduce costs;
- make the product more comprehensible to the non-specialist; and
- increase competition - especially the choice of infrastructure.

The 'Other' responses are again mostly concerned with non-availability of broadband, as discussed on pp.9-10 above. It is clear that this remains a pressing problem and a key obstacle to wider take-up.

6.2 Boosting competition in the broadband market

The IoD strongly supports competition as an unrivalled mechanism for driving up standards and holding down prices. One of the key criticisms levelled at the British market for broadband in recent years is that the competition has been insufficiently robust.

On the face of it, this may seem a surprising claim; after all, there are well over 150 ISP companies (perhaps as many as 200) operating in the UK market today. Consumers are hardly short of choice.

Critics of the market usually home in on one key point - British Telecom's control of the telephone wire network. At present, other ISPs pay BT a fee of around £13 per customer per month in order to lease the company's telephone lines. Many ISPs claim that, once they have added a further charge on top of this to cover their other overheads, they are unable to compete with BT's own retail broadband services.

As this report was being prepared for publication, the telecoms regulator Ofcom indicated that it was looking favourably on a formal complaint by one of the larger ISPs, Wanadoo, to the effect that BT was in breach of the Competition Act. BT was given eight weeks to respond.[5] The most likely outcome would appear to be a further cut in BT's wholesale prices.

Such a price cut would certainly go a long way towards addressing the critics' case that the market suffers from a lack of serious competition. IoD members clearly feel that there is some way to go. Asked in our survey whether they would expect competition to boost take-up, choice and innovation in the broadband market, 78% agreed that it would.

DO YOU THINK THAT COMPETITION AT ALL LEVELS OF THE BROADBAND MARKET, BOTH RETAIL AND WHOLESALE, WILL DELIVER INCREASED TAKE-UP AS WELL AS CHOICE AND INNOVATION FOR USERS?

Yes	78.5%
No	9.8%
Don't know	10.8

Base: all 409 respondents to the survey

7: References

1. *Labour Market Trends*, ONS, June 2002, pp.311-318
2. *Where the Butterfly Alights - the Global Location of Work, IES Report*, p.378, 2001.
3. *Internet and Broadband Brief*, OFTEL, September 2003
4. VOIP is Voice over Internet Protocol, a technique for making telephone calls via the Internet instead of via a standard telephone connection.
5. *The Times*, 2nd September 2004

8: Appendix

The questionnaire on which this report is based was distributed to all IoD members with the June 2004 edition of IoD News. 409 completed questionnaires were received.

Although a survey of this kind is necessarily self-selecting, the sample size is large enough for us to claim with some confidence that its results accurately represent the views of the IoD membership as a whole.

The tables below show the breakdown of respondents by size of business and region.

PROFILE OF RESPONDENTS BY SIZE OF ORGANISATION	
0-9 employees	56.7%
10-49 employees	23.0%
50-249 employees	11.5%
250+ employees	8.1%

PROFILE OF RESPONDENTS BY REGION	
North East	6.4%
North West	9%
Yorkshire & Humber	8.6%
East Midlands	10%
West Midlands	10.5%
Eastern	9.5%
London	23.5%
South East (excl. London)	34.7%
South West	13.7%
Wales	3.4%
Scotland	8.6%
Northern Ireland	2%

N.B. Many IoD members have business operations in more than one region. They are allowed to tick as many regions as apply - hence the totals in the table above add up to more than 100%.