

Broadband Britain

Finding a way forward



ADAM SMITH
INSTITUTE

23 GREAT SMITH STREET, LONDON SW1P 3BL

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Executive summary

It is an economic imperative for any developed nation to ensure that their communications infrastructure is upgraded in a timely and cost-efficient manner to deliver broadband — a high capacity information pipe — into all our homes and offices.

Although we are at early stage in deploying broadband, the UK has significantly fallen behind other developed countries and its relative position is deteriorating further.

Red herrings

The current UK position is generally explained by the following propositions:

- that the primary active government policy of **unbundled local loop** (ULL) will deliver broadband **any day now**;
- that it is all the **fault of British Telecom** who don't want to invest and through their actions prevent others from doing so;
- that the financial markets are **unwilling to fund** companies deploying broadband;
- that there is **no demand** from consumers for broadband services;
- that **alternative services** such as unmetered narrowband services meet all the customer requirements.

This paper shows that these propositions are all false. The outcome of the current approach will see an acceleration of broadband rollout in the UK over the next two years. However, the UK's relative position will continue to decline, broadband will remain relatively expensive, and large segments of society will be unable to benefit from broadband services.

It is government policy with regard to the macro regulatory framework that is at fault. Unintentionally, government policy with regard to broadband is effectively a policy of social exclusion.

For the most part, the government is unaware of the links between its policy and the outcomes it produces in the marketplace. This provides hope for change.

The regulatory framework

This paper sets out to explain the consequences of the current regulatory framework, and comes to the following assessment:

- 1) don't blame OFTEL: they do not have the remit, or the enforcement tools to be able to do their job properly;
- 2) the primary policy of Unbundled Local Loop (ULL) is fundamentally flawed and poorly implemented;
 - the economics of ULL only justify a duopoly across 25% of BT's telephone exchanges and require a monopoly across the remainder until at least 2005;
 - the operational framework to deliver ULL in cooperation with BT is only now being finalised more than 2 years after the legislation (most of the competitors ran out of money while waiting);
- 3) the framework discourages BT from investing in broadband :
 - by encouraging BT to hide its true costs, and inflate its assets — significant investment would begin to reveal the true costs;
 - by providing no incentive for BT to reduce its actual costs — creating a justification for high prices;
 - by failing to adequately address the issues of sunk costs, and revenue cannibalisation;
 - by artificially attempting to create competitive opportunities at all levels of the markets, and in doing so making it difficult for competitors to be financially successful. Thus competitive forces are unable to counter the effect of the above regulatory weaknesses and BT has minimal fear of market share loss in broadband;
- 4) the framework entrenches existing market structures:
 - the framework allows financial markets to 'price' existing market structures but not new ones such as a break-up of BT into a Network business (Netco) and a Service business (Servco). The markets prefer a known current value than a future uncertain value.

BT's approach to broadband

BT has been in a mess for some years. Its previous management unwisely judged international expansion to be the primary source of shareholder gains. It was believed that such investment would create greater shareholder returns than investing in the UK network, where the Regulator limits returns. However UK managers weren't very good at overseas investment and the last two years have seen Financial Restructuring become the main focus.

BT needs a clearer strategy, something its new management team is obviously working on. A move towards becoming a service provider for ICE (information, communications and entertainment) appears to be the preferred route. This requires extensive investment in broadband which BT will find difficult to finance as currently structured:

- an investment of around £750 per home is required [about £21bn for all of the UK];
- BT doesn't have enough cash flow to make this investment given the planned requirements of its other businesses (Openworld and Ignite);

- the financial markets, having seen BT pay down its debt, are not so willing to see a massive increase in its debt again.

Given this, ***we believe that the best solution for BT is to break into two separately owned parts*** (Servco and Netco). The next best alternative is for BT to deploy broadband slowly at a high price in selective areas. We believe that the financial markets currently anticipate the latter, and have consequently marked BT's share price to a recent 10 year low (as at the end of January 2002).

Breaking-up BT

We believe that BT should be broken up because it is in the best interests of BT shareholders. Such a break-up should be initiated by the financial markets and not by government intervention. Such a break up would assist broadband deployment but is not in itself sufficient.

We have assessed that BT currently gains from being vertically integrated to the tune of about £5-8bn of value [61p -97p per share], as a result of its ability to shift costs within its accounts. On the other hand, the financial markets generally view that a broken up BT would have a sum-of-the-parts valuation of some £10-15bn greater than the current market valuation [£1.22 - £1.83 / share].

The key issue for BT shareholders is being able to determine the real "sum-of-parts" valuation, and estimate the probably negative impact on the current "vertical integration gains". The new post-separation regulatory framework that would need to be developed is the primary influence in these determinations.

The government has a responsibility therefore to create a level playing field (which may involve handicapping one side) to allow the markets to assess the benefits of structural change.

Conclusions

The continuation of the current government policy with regard to broadband will lead to relative economic under-performance and is effectively a policy of social exclusion. Neither BT, nor OFTEL nor the financial markets can be reasonably blamed for this situation. EU legislation and UK government policy are primarily at fault: well-meaning, but ill-thought-out.

It is not reasonable to expect the EU or UK government to change the existing legislation which has led to this situation, although the process to remedy this should be put in train.

The Regulator can be encouraged to implement a less equal-treatment approach in dealing with the incumbent BT, and in particular the following:

- (i) oblige BT Wholesale to offer any service provided to any other part of BT, particularly standard domestic analogue and ISDN telephony, to any third party, at a discount to that which BT service businesses receive it. A discount implicitly assumes that BT is inflating Wholesale prices, and would be of the order of 15-25%;

- (ii) oblige BT to reduce the pricing of its Wholesale bundled broadband services by at least 50%;
- (iii) require BT Retail/OpenWorld to mark up the broadband Wholesale price to consumers by at least £7.50 per month before adding VAT. These actions together would deliver a basic Retail price of £25 per month (€ 40.74) including VAT. BT should not be permitted to bundle internet access with basic telephony at this time.
- (iv) Recognise that levels of competition at local exchanges must be sustainable.

Within six months, the DTI should draft and publish, in conjunction with OFTEL, BT and third parties, a new regulatory framework which would create a more “level playing field”:

- (i) that rewards full vertical separation by phasing out the discount in (i) above and the restrictions in (iii) when separation occurs – defined as change of ownership and not just structural separation;
- (ii) that provides a predictable (not necessarily stable) regime for the network utility over multiple investment cycles.

BT’s reaction will determine its fate. If BT chooses to fight these changes, a Competition Review may be required — undesirable for all sides, but manageable. If BT does not restructure and OFTEL is effective in attacking the excessive wholesale pricing, then BT’s share price might decline by roughly 10-15%. If BT accepts these changes and announces ownership separation of Netco, we believe that BT’s share price will rise by between 30-40% immediately and could double within 3 years. (Forced break-up through a hostile takeover remains a possibility.)

Whatever happens with BT, whether broken up or not, the competitive landscape will have changed; broadband will be deployed more rapidly and at lower consumer prices; competition for the consumer will increase; investment will be more focused on areas open to innovation; and the UK economy will grow more rapidly and be more competitive.

Introducing broadband

What do we mean by *Broadband Britain*? Why is it important? Why is it difficult for people to explain the answers to these questions?

Broadband is a big information pipe

In the UK, we have water & sewage pipes, electricity pipes and gas pipes into our homes. Over the last hundred years, the electricity pipes have been upgraded twice to allow a move from 1 Amp to 5 Amp systems and then to the modern 13 Amp systems that we now have in all our homes. The Broadband Britain challenge is to upgrade the “information pipe” from the exchange into all our homes: we need to increase the capacity of our information pipes from 64kbps (the standard telephone line) to over 2000kbps. [*'kbps' means thousands of bits of information per second*]

The “upgrade” can come in many forms; either through improvement of existing wires or through deployment of new, alternative technologies. Primarily though, we are concerned with the part of the network that is the final connection into the home or business. The length of this piece of wire can be anything from 100m to over 5km. Upgrading mainly consists of putting new equipment on either end of the wire, but could also involve replacing the wire e.g. from copper to fibre.

The benefits of upgrading

New information appliances: The benefits of upgrading the capacity of basic utility services are not always foreseen. Initially, they are often seen as a luxury service (as was the mobile phone), but they quickly become universally required. Electricity infrastructure was put in place to replace gas lighting (it was safer), without the foresight that it might be used to power kettles, music systems, TVs and computers. These appliances were not developed by the electricity companies but by new innovative companies that did not previously exist. The upgrade of the information pipes to much greater capacity will have a similar impact; new businesses will create as yet unimagined appliances for the information pipe. Market predictions are for more, unspecified “Information Appliances” than there are PCs, and we know how PCs have proliferated (some 45% of all households in the as at the end of January 2002).

The benefits will be numerous, not least in the areas of improving education,¹ in accelerating productivity (particularly in service industries including

¹ See Tom McMullan, *Wired to Learn: What's Holding Up the School of the Future?* (London: Adam Smith Institute, 2002).

government), in providing for efficient home working and in stimulating competition and innovation. If Broadband Britain were to develop more quickly than in other countries, it would also provide Britain with comparative economic advantage. This may be realised in the form of a powerful new home grown “Information Appliances” industry, creating new wealth for the UK.

Improving our lives: For individuals, these information appliances could reduce the amount of time required to deal with information and deliver increased control over their lives. It will make life more entertaining (playing along with “Who wants to be a Millionaire”); simplify must-do activities such as buying essential products and services (enabling monitoring and automation of such tasks); reduce the ‘costs’ of purchases (through easy, low-cost access to purchasing information); and make our lives safer by reducing crime (through new surveillance and monitoring systems).

It is important for businesses too: they need access to information to reduce their purchasing costs; to make communications with their customers and suppliers more effective; to provide increased flexibility of their business strategies.

Deploying broadband in the UK

So what progress has been made to roll out Broadband in Britain? How are we doing relative to other countries? How is the UK setting about delivering broadband? How does this differ from other countries? What is preventing us from going faster? Is there really a demand for faster rollout?

The UK is far behind the competition

By any measure, the UK has fallen far behind its competitors. The UK is the world's fourth largest economy yet is 20th (of 30) in the penetration of broadband in countries assessed by Analysis Consulting. As the months go by Britain's relative position is deteriorating – a year ago we were 16th in terms of penetration. The total number of connections as at the end of December 2001 was just 300,000 — less than 1% of all telephone lines in the UK. Brazil, with only a quarter of Britain's GDP, has more consumer broadband connections. In South Korea, broadband has reached 14% of all telephone lines!

Deployment alternatives

Across the world there have been three primary solutions deployed to provide the broadband upgrade. These are:

- xDSL (a technology which uses the twisted pair copper wires that are used to provide standard voice telephony) from the incumbent telephony operator such as BT, or from a new operator that uses the incumbent's wires (through the ULL regulation);
- IP over HFC (a Cable TV technology which uses a combination of coaxial copper and fibre) from operators such as NTL or Telewest;
- Ethernet over Fibre to the Home (a data technology primarily used in larger businesses that can now be cost-effectively deployed to the home in many areas) used by new network operators such as eBiscom (Milan, Turin, Rome) and Bredbandsbolaget (Stockholm).

A number of alternative technologies have evolved naturally in the marketplace such as Broadband Satellite and Wireless Local Loop. To date these are immature in their deployment and have had limited market impact.

The actual deployment of particular solutions varies considerably by country; this is because the starting conditions are very different.

Factors influencing broadband deployment

The primary factors influencing broadband rollout and investment determine the optimal behaviour of incumbent PTT's and their competitors. These factors appear to be as follows:

Local regulatory environment

- The regulatory approach with regard to Wholesale pricing and provisioning of both LLU and broadband services to third parties.
- The regulatory approach with regard to the encouragement of new infrastructure competition or the protection of existing natural monopolies.
- The regulatory approach with regard to the accounting separation of the Retail and Wholesale elements of the incumbent telephone operators.

We shall explain the UK approach on this shortly.

Current state of the financial markets

- The financial health of the key market participants.
- The cost and availability of equity & bank finance to support investment (raising new finance at the right moment).

Historical infrastructure

- The architecture of the incumbents fixed line network, especially relating to the average lengths of the wires between the homes and the telephone exchanges (this has a significant impact on xDSL service quality and deployment cost).
- The penetration of services such as private circuits which broadband deployment would cannibalise.
- The level of penetration of alternative infrastructure such as cable TV (the level of potential threat to existing revenues not just new revenues).
- The status of the upgrade of the alternative infrastructure and its ability to support high-speed IP connections (the ability to compete with the incumbent telephone operator and at what scale).

The cable companies, primarily NTL and Telewest, have independently rolled out broadband connections using their cable TV infrastructure which covers about 30% of UK homes and indeed they account for most of the currently available broadband connections in the UK. NTL's finances are precarious and the business will require restructuring before additional investment can be made. The financial markets are currently closed to funding new broadband deployment in the UK due to the failure of local loop unbundling.

A Comparative Assessment

Factors	Germany	Sweden	UK
Cable TV Penetration (passed/subscribed)	70% / 56%	70% / 56%	30% / 12%
Cable TV upgrade	8%	40%	20%
Cannibalisation	Limited cash earnings at risk; Competition has diminished impact	Competition has diminished impact	€600M pa cash earnings from private circuits at risk for BT
Architecture	Average wires >3km 2% of lines needed no additional investment to enable broadband	Average wires <2km 70% of lines needed no additional investment to enable broadband	Average wires ~2km 30% of lines needed no additional investment to enable broadband
External finance	Limited availability due to high debt levels in Deutsche Telekom. Finance available for cable upgrades	Limited availability due to strength of Telia and infrastructure over-building	Limited availability for BT and cable operators due to strategic weaknesses
Internal finance	Insufficient resources	Telia, well-resourced. Others have insufficient resources.	Insufficient resources
Regulatory Wholesale LLU and broadband services. (Benchmark is Retail price for basic broadband connection)	Prices set low Benchmark: €35	Competition has driven prices down Benchmark: €25	Prices set high Benchmark: €64
Regulatory – Infrastructure Competition or Monopoly	Failed infrastructure competition. EU intervention initiated	Open competition has led to localised over-building. Government subsidies to provide universal service	Failed infrastructure competition.
Regulatory – accounting separation	Price based approach at both Retail and Wholesale level.	Price based approach at both Retail and Wholesale level.	Differentiated approach – price at Retail, Cost at Wholesale level.
Assessment of broadband deployment	Fear of cable upgrade, upside potential for T-Online, failure of LLU and limited cannibalisation risk has driven Deutsche Telekom to sell at or below cost to grab market share. DT likely to pause after reaching 3M connections. Long term depends on outcome of cable TV sale and regulatory intervention on DT predatory pricing	Broadband deployment substantially complete, fibre still being deployed in quantity. Substantial acceleration of broadband take-up now imminent. Pricing levels are unsustainable and will lead to bankruptcy of several infrastructure providers. Universal service provision on hold for some years	Lack of investment by all operators and high pricing will continue to leave UK take-up trailing all other countries in EU and most of those in Central Europe. UK content more developed than other European country.
No of connections	2,000,000	200,000	300,000
Broadband Penetration per household	5.6%	5.7%	1.2%

With current levels of penetration below 6% of households, it is clear that broadband deployment is still in the early stages of development; the UK has not yet lost the opportunity to lead. Indeed, the UK (along with Sweden and

perhaps the Netherlands) is well placed from a content perspective having taken a lead in the development of Digital TV. This provides a wealth of experience in interactive services design which could accelerate the delivery of benefits from broadband should the infrastructure be deployed.

Is there just no demand for it?

No. There is a fair degree of price elasticity which is to be expected from a new service i.e. the price has to be at the right level for people to buy it. Perhaps consumers don't think there is any value from broadband? Yet US, German, Swedish, Brazilian and South Korean consumers who stand to have similar benefits from receiving broadband services have been buying broadband in large quantities. Indeed, Deutsche Telekom has had difficulty keeping up with the demand (at 200,000 per month).

As we pointed out earlier, the UK is more advanced than many markets in developing the content and interactive services that will encourage further development of broadband applications. And as we know, the UK benefits from its use of the English language, particularly in the use of broadband for the distribution of media, such as software, music and video and from the relatively large domestic media industry.

Perhaps UK residents don't have many computers or use the internet? Again, this is wrong: PC penetration and internet usage is higher in the UK than all countries but Scandinavia and the US (45% of all homes have PCs).

Perhaps the UK has some other technology (such as Teletext) that gives us access to all that useful information? Well, 35% of all Swedish consumers use Teletext every day and that hasn't dampened the demand for broadband.

In reality, the only bottleneck is a supply bottleneck. The Retail price is too high in the UK. For the most basic service, the Retail price point for substantial market take-up is likely to be about € 40/month (£25), and the Wholesale price point around € 28/month. But BT doesn't want to reduce prices and the main competitors, the cable companies, don't have the cash resources to fund customer rollout of the cable modems.

The UK government currently argues that demand is not high because of the comparatively low prices for unlimited use internet access on existing phone lines. The comparison is a false one: the incremental cost of a 768Kbps ADSL line from Deutsche Telecom is € 12.99/month (with modem), whilst BT charges a whopping € 22.80 (£13.99)/month for a maximum 64kbps line (without modem). Or put another way, one-twelfth of the speed for 75% more money.

Furthermore, BT's existing cost structures permit much lower pricing whilst still achieving in excess of the permitted regulated return on capital and BT's infrastructure is more favourable to broadband deployment than is the case in Germany.

The UK policy framework

The UK government's policy is to deliver broadband through the market, with OFTEL (the Regulator) encouraged to micro-manage faster rollout and monitor competitive behaviour.

The UK government has specifically ruled out providing incentives through the tax and benefits system. We agree with them on this.

The primary active policy, framed by the EU, is that of local loop unbundling (ULL). This is the process of obliging British Telecom (and all other incumbent operators across the EU) to lease their copper wires into the home to other companies so that those companies may add equipment and sell a broadband connection to consumers. As of 31st Dec 2001, however, only 200 BT local loops have been unbundled.

The second active policy initiative is the Office of the E-Envoy, a focal point for co-ordinating government policy across the infrastructure and content issues for broadband deployment. This initiative is making progress on the content side but is too politicised to be an effective contributor to broadband deployment.

The regulatory framework discourages broadband deployment

The current framework aims to encourage competition and innovation in providing communications services to customers.

The specific features of the current UK macro regulatory approach are:

- The framework was originally designed to encourage infrastructure competition rather than service provisioning competition. The nature of competition for the infrastructure allowed by the framework leads directly to 'unproductive' investment, which then discourages further investment. Although there are some moves away from this, the approach remains flawed. We shall investigate this in more detail with Unbundled Local Loop (ULL).
- The approach does not address the issues associated with the historical investment in assets of the incumbent, BT. Essentially, when a "better way of doing things" comes along, BT's burden of its legacy investments (sunk costs) provides a financial disincentive to invest. Why cannibalise the revenues that stream from old investments?
- The regulatory tools given to the Regulator to manage the monopoly incumbent add high costs to BT and the methodology provides scope for arbitrage between two different approaches to regulation for the same organisation. BT makes financial gains from being vertically integrated.

- The Regulator was initially created to enforce the licences offered to the operators, and BT in particular. Oftel is not equipped to be effective in competition policy; it doesn't have enough teeth to enforce its mission.
- The Efficient Operator Clause in BT's licence is weak and provides no incentive for BT to reduce costs in Wholesale provisioning. This puts Retail pricing higher than it would otherwise be.
- The regulatory approach does not facilitate a predictable valuation for alternative market structures e.g. breaking up BT, and so re-enforces the status quo.

We will explore BT's own strategy shortly. In summary though, the UK regulatory framework encourages unproductive investment by new operators who are unable to deploy broadband at any scale and discourages the incumbent, BT from making such investments.

Unbundled local loop

Unbundled local loop (ULL) is a policy enacted in EU law (and detailed in National legislation) to govern the national provision of access to the local loop owned by the incumbent telecoms operator (BT in the case of the UK). All licensed operators have a right to rent this piece of wire (between the telephone exchange and the customer's building), rent space from the incumbent operator (at the exchange) and place their own equipment and connect it to their alternative network. The primary service to be offered would be xDSL, i.e. broadband. Theoretically, this should create a lot of competition.

However, ULL is flawed because, to provide an analogy, imposing ULL on BT is like asking British Rail to make room for up to 30 other businesses to build 30 new train signalling systems (and gantries, and signal boxes etc), alongside the British Rail existing systems, and to allow them to rent existing BR tracks which the new companies would then resell onwards to the train operating companies. Most commentators would agree that this introduces competition, but few would judge it to be beneficial.

Furthermore, the economics don't work: xDSL deployment requires that to be competitive, a business must be able to achieve a market penetration of 25% (given the projected demand 2001 – 2005 reported by Ovum) at each exchange it offers service. Given the ability of the incumbent operator to maintain at least 60% market share within the time frame of any reasonable business case, and with over 30 players entering the market, it is clear that failure was inevitable. The incumbent, BT, has been required to enable ULL (so far at a cost of £15 million for 200 lines — there are over 30 million lines in the UK), yet no other operator is taking up the ULL offer on any significant scale (there are now only three parties providing service, only one serving consumers).

The only player who may yet make an impact on the consumer ULL xDSL market appears to be Bulldog, but the failure of most of the other 30 players has adversely impacted their ability to raise finance. Even so, Bulldog are only likely to be able to reach about 20% of BT's exchanges. Who will serve the other 80%?

Certainly, some locations will only have sufficient demand for one operator to achieve economies of scale.

Clearly, providing xDSL deployment of broadband using ULL required the establishment of an effective policy with the aim of creating a duopoly market at each exchange. Instead, an open-to-all-comers approach was taken, and the operational complexities of separating out bits of BT's network were only able to be dealt with on a retrospective basis by OFTEL, delaying implementation and destroying business cases and investment plans.

A new balance must be struck between promoting (wasteful) duplication of capital expenditure and operating costs on one hand, and encouraging service innovation, pricing efficiencies and competition on the other. In the case of ULL, it could be judged that the need for economies of scale, technical and cost constraints significantly out-weigh any other considerations.

The objective of a regulatory framework should be to facilitate the proper application of competitive forces, not to distort them. The dogma of the Unbundled Local Loop (ULL) in the UK, which is also echoed in Europe, has distracted OFTEL from looking at the fundamental issue in a more logical way and has delayed achieving the true goal of Broadband Britain.

Regulatory impact on BT

BT is price regulated in two ways as it has two basic businesses. First, it is regulated at the Wholesale level (where it sells services to its competitors) and secondly at the Retail level (where it sells services to consumers). Wholesale pricing is regulated under a maximum Return-on-Capital formula, and Retail pricing by use of a basket of end-user pricing (not ideal, as it can lead to customer-hostile tariffing structures).

OFTEL is currently reshaping the details of the price based regulation for Retail, although this should have no effect on the regulatory arbitrage issue as discussed here.

The current split regulatory methodology create the following distortions for BT. It:

- penalises changes in the current relationship between capex and operational expenditure;
- permits arbitrage between Retail and Wholesale regulatory mechanisms of price and cost caps;
- ensures that the actual return on capital realised from the regulated asset base is much greater than could be realised from any new infrastructure;
- allows the incumbent to overstate the current replacement cost and adjust its depreciation schedule for regulatory gain (through higher than necessary Wholesale and Retail prices) without it creating any adverse business or shareholder impact.

Evidence for some of this is in the regulatory accounts published by Oftel. The BT Wholesale Return on Capital Employed (ROCE) is a supposed 7%. On paper,

this comfortably provides room for BT to increase prices to the capped return level of 13.5%. Why is this not happening? The fact is that, on a true calculation, BT is probably already making somewhere near 20% ROCE [if we assume assets of £15.4bn, reducing by £2.1bn in depreciation on the basis of an average asset lifetime of 8.5 years rather than just 4 years].

Firm proof of all this requires a great deal of detailed argument which is inappropriate for this paper. In essence however, it is the familiar case of regulatory cat-and-mouse. BT (like all regulated utilities) guards information about its business: OFTEL searches for that information, and when it finds it, OFTEL proposes measures aimed to address any imbalances. But this leads to OFTEL increasingly micro-managing BT's operations. On the other hand, the longer BT can keep information close to its chest, the more money it makes, and the longer it delays the rather unpleasant task of cost-cutting.

It has to be said that BT, in exploiting the opportunity for playing cat-and-mouse with the Regulator, is behaving entirely rationally. Their shareholders should warmly congratulate the BT management on a job well done. Indeed, we estimate that this regulatory arbitrage adds between £5bn and £8bn to the market value of BT.

Unfortunately, the effect of this regime is to economically dis-incentivise BT from both investing in broadband deployment and from cutting its costs to become more efficient.

Wholesale services and pricing

In seeking to fulfil its mission, OFTEL sets out to balance the different level of the market to ensure there is room for competition at *all* the levels. For broadband, the main levels are ULL, Wholesale xDSL, and Retail xDSL.

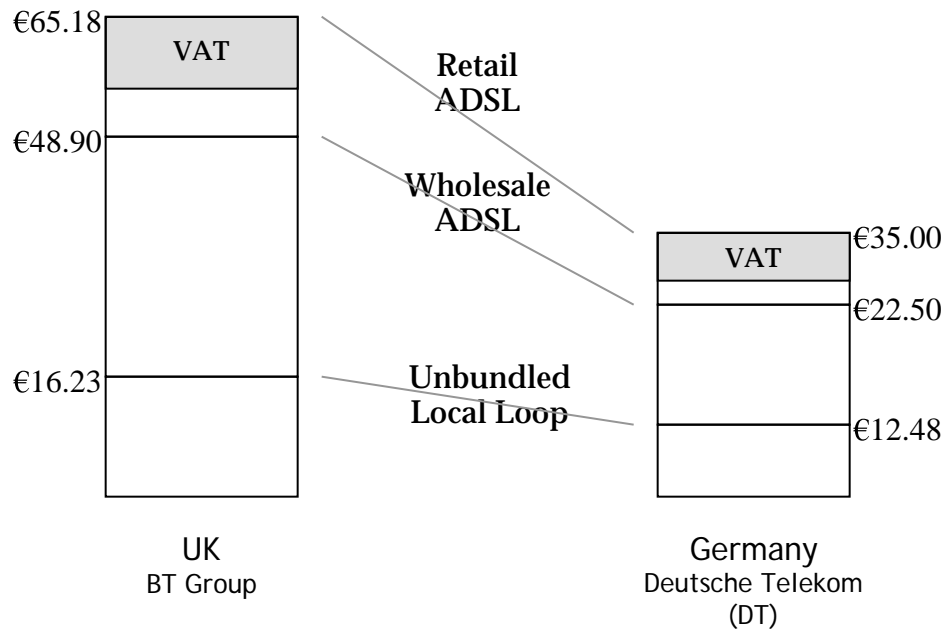
This across-the-board fair-play approach forces up Retail prices, holding back market development. The following chart demonstrates the difference in pricing at each of these levels in Germany and the UK for the simplest broadband product available to consumers.

The unbundled local loop monthly Wholesale price in the UK is € 16.23 (£10.16) and in Germany is € 12.48. This is despite the fact that DT has a higher relative cost base due to its historical network architecture (longer wires).

The impact of this higher relative Wholesale price, and Oftel's desire to create a viable market at all levels of the value chain (ULL customers, Wholesale Customers and Retail Customers) leads to the highest Retail pricing for consumers in Europe (€ 65 per month in UK vs € 25 per month in Sweden and € 35/month in Germany).

Even so, the diagram understates the point. A comparison of the incremental costs to a consumer with an existing telephony line to obtain a basic ADSL service shows that you pay € 65.18 per month and € 12.99 per month in UK and Germany respectively. Furthermore, the German service offers a higher maximum

Diagram 1. Basic Broadband Pricing from Incumbent Operator



information transfer speed. Is it any wonder that DT is deploying more each month than BT has done in total since it launched the service eighteen months ago?

Is this comparison with Germany relevant? In both cases the operators have similar objectives and similar methods, but different strategies. RegTP (the German equivalent of OFTEL) has moved more slowly but aggressively to manage the issues around ULL. Deutsche Telekom retains a 97% market share of all xDSL deployments by making things difficult for the ULL operators to deploy services, just as BT has done. Both have sought to narrow the range between their Retail price and their Wholesale bundled price to eliminate the opportunity for competitors to gain market share. Indeed until recently BT's Wholesale price was actually effectively higher than the (ex VAT) Retail price! The differences in the strategies of the two operators (DT deploying aggressively with below-cost pricing, BT not deploying and keeping prices high) reflect other factors as mentioned before (threat from cable in Germany, concern over revenue cannibalisation in the UK).

Valuing new market structures

In August 2001 it became public that two financial groups, Earthlease and Compere/WestLB were interested in purchasing some or all of the network assets from BT. Each of these proposals would create a new market structure

were they implemented. These new market structures would change the competitive forces that influence investment and pricing of services.

BT has rejected both proposals, even though many market analysts and some shareholders viewed these as being of benefit to all parties. We shall look at the internal factors that effected BT's decision later. As it happens the most important factor, is an external one — the regulatory framework.

When BT's management analyses the benefits of separation of ownership of all or part of its network, it needs to be able to calculate the regulatory benefits and costs associated with such change with some degree of certainty. Without the ability to put a value on the impact of post-separation regulatory change, it is difficult for BT to value the overall proposal in terms of shareholder value. It is thus wiser for BT to stay with a known regulatory arbitrage benefit than to risk the turmoil of change for uncertain gains.

Breaking up BT is likely to be a long and expensive task, taking around 2 years to separate the network and could cost up to £500m. Although a large sum, this represents only four weeks cash flow from the Network business, or about 3% of its resources. In the meantime BT Retail could be holding around £3bn of cash, giving it considerable flexibility to make immediate investments e.g. in interactive-TV distribution and broadband marketing.

BT group strategy

To understand BT's approach to broadband, it is useful to understand its overall business strategy. As of the end of Dec 2000, BT did not really have a strategy. In the previous 15 months it has lost its Chairman, CEO and CFO (twice). The business had followed an expansionist international strategy and came seriously unstuck.

The year 2001 has been the year of financial stabilisation for the company. Business strategy was parked and financial strategy became pre-eminent. Under the leadership of its new chairman, it reconstructed itself, exiting from many failed adventures, and rebuilt its balance sheet.

The year 2002 is critical for BT. Competition is increasing and the market is changing. The business now needs a new strategy and it has four basic options:

- The ICE service model for telephony, internet and television (e.g. BSkyB).
- The Utility service model for telephony, power, water (e.g. Centrica).
- The Wholesale communications model (let Retail wither slowly / divest)
- The portfolio management strategy (the current approach).

In its recent public statements, BT seems to be developing a preference for the first option. ICE stands for Information, Communication and Entertainment. BT would seek to provide the three key services of telephony (voice communications), internet (information access) and television (content distribution). The new and still changing management team has probably selected the best growth strategy for BT and its shareholders.

Broadband is critical to the successful implementation of such a strategy. So will BT just invest lots of money and deliver lots of broadband? Unfortunately, several problems remain:

In implementing its new strategy, BT will only be successful if it is *one* of the following:

- The lowest cost network operator with the greatest economy of scale.
- The most focused provider of internet, TV and telecommunications with the best brand.
- The best and most innovative producer of broadband content.

BT needs to choose which of the three it wants to be. To try to be all three is very high risk and is likely to reduce shareholder returns. A move towards becoming a service provider for ICE (information, communications and entertainment) appears to be the preferred route. This requires extensive investment in broadband which BT will find difficult to finance as currently structured.

- An investment of around £750 per home is required [about £21bn for all of the UK]
- BT doesn't have enough cash flow to make this investment given the planned requirements of its other businesses (Openworld and Ignite)
- The financial markets, having seen BT pay down its debt, are not so willing to see a massive increase in its debt again.

Given this, we believe that the best solution for BT is to break into two separately owned parts (Servco and Netco). The next best alternative is for BT to resist change and to deploy broadband slowly at a high price in selective areas. We believe that the financial markets currently anticipate the latter, and have marked BT's share price down accordingly.

Key observations

- 1) UK broadband deployment is poor by comparison with all major economic competitors and is deteriorating.
- 2) BT has not found it economically sensible to invest in broadband deployment to date. Other investments offered better returns (or so they thought); and there was no desire to risk cannibalising existing revenues.
- 3) A new BT strategy based on the ICE (internet, communications, entertainment) service model will require significant new capital expenditure on broadband, and is probably the right strategic direction for BT. BT's current financial position will oblige it to deploy relatively slowly. Competition would not necessarily increase if this deployment occurs.
- 4) The attempt to create competition through Unbundled Local Loop was and remains seriously flawed due to
 - The economies of scale inherent in the business allowing room for only two operators.
 - Negotiating reasonable operating conditions with BT to allow new operators to offer service has taken two years longer than the legislation (but let us congratulate OFTEL for having got there eventually).
 - The encouragement of 'wasteful' duplication of capital investment which simply pushes prices up, reducing demand.
 - The "bundled" Wholesale broadband offerings (price and service components) are poorly structured by BT and over-priced by about 100%, i.e. prices should halve. OFTEL is now trying to get BT to fix this.
- 5) In its pricing of the Retail broadband offering, BT has extracted large charges from its Retail customers, and in pricing the Retail offer (relative to its Wholesale prices) it has made competitor packages untenable.
- 6) The broad market focus of OFTEL in trying to give competitors access at all levels (ULL, Wholesale, Retail) has led to compromises which make it too difficult for those competitors to create viable businesses.
- 7) The break-up of BT, whilst providing obvious benefits to the UK economy from improved broadband deployment, is currently of uncertain value to BT's shareholders because of the existing regulatory framework.

Conclusions

The continuation of the current government policy with regard to broadband will lead to relative economic under-performance and is effectively a policy of social exclusion.

Neither BT, nor OFTEL nor the financial markets can be reasonably blamed for this situation. Well-intentioned, but ill-thought-out EU legislation and UK government policy are primarily at fault.

It is not reasonable to expect the EU or UK government to change the existing legislation which has led to this situation, although the process to remedy this should be put in train.

Immediate OFTEL actions

BT has been very effective in exploiting regulatory arbitrage and OfTel is constrained by the regulatory framework and EU legislation from effectively combating this.

The local regulatory environment is the factor that can most reasonably be adjusted. In the EU the LLU unbundling policy is mandatory, although individual countries have discretion as to its implementation. This has proved to be somewhat inflexible.

The UK Regulator can be encouraged to implement a less uniform approach in dealing with BT, in particular with the following:

- (i) Oblige BT Wholesale to offer any service provided to any other part of BT, particularly standard domestic analogue and ISDN telephony, to any third party, at a price that more accurately reflects the cost of supply. A discount of 15-25% would be appropriate, given the ability of a vertically-integrated incumbent to inflate its Wholesale prices. OFTEL has just announced preliminary moves in this area but is not proposing any discount.
- (ii) Oblige BT Wholesale to reduce the pricing of its Wholesale bundled broadband services by at least 50%.
- (iii) Require BT Retail / OpenWorld to mark up the broadband Wholesale price to consumers by at least £7.50 per month before VAT. These actions would deliver a basic Retail price of £25 per month (€ 40.74). BT should not be permitted to bundle internet access with basic telephony at this time.
- (iv) Recognise that levels of competition at local exchanges must be sustainable.

- (v) Encourage OFTEL to work with the licensed operators to oblige BT to create new Wholesale service packages (as is happening for example with Option 3 currently)

In Germany the regulator (RegTP) has freedom to assess costs using other sources than the incumbent operators accounts. Indeed, Deutsche Telekom's asset register and accounting records are so feeble that there is little meaningful data that the Regulator could use. RegTP therefore asks the competitors how much it would cost them to provide the service and sets Wholesale prices accordingly. This methodology, not readily available to OfTel, ensures that Wholesale pricing more accurately reflects true provisioning costs. Deutsche Telekom's response has been to use predatory pricing policies to successfully keep competition at bay. This has led to rapid immediate rollout of DSL in Germany but is unsustainable and a Regulatory review of DT's pricing policies. DT has just increased prices to fend off such criticism.

Creating a new macro regulatory framework

Within six months, the DTI should draft and publish, in conjunction with OFTEL, BT and third parties, a new regulatory framework which would create a "level playing field":

- that removes the hidden benefits of vertical integration and encourages shareholders to vote for change — change of ownership and not just structural separation;
- in which the audited accounts of BT Wholesale should be accepted as the regulatory accounts;
- where the licence conditions of BT Wholesale should be predictable (though not necessarily stable) over the investment lifecycle;
- which encourages competition in building replacement local loop through permitting the establishment of new regulated local infrastructure providers with interconnect rights at street furniture level;
- with transitional "allowances" for both Retail and Wholesale, which might cover (for example) losses arising from the cannibalisation of private circuits (e.g. through a higher introductory ROCE cap).

Impact of proposals

We believe that to have maximum impact that these proposals should be enacted simultaneously.

BT's reaction will determine its fate. If BT chooses to fight these changes, a Competition Review may be required — undesirable for all sides, but manageable. If BT accepts these changes, and OFTEL is effective, then BT's share

price should decline by roughly 10-15%. If BT accepts these changes and announces ownership separation of Netco, we believe that BT's share price will probably rise by between 30-40% immediately and could double within 3 years. Forced break-up through a hostile takeover remains a possibility.

Whatever happens with BT, whether broken up or not, the competitive landscape will have changed:

- broadband will be deployed more rapidly and at lower consumer prices;
- competition for the consumer will increase;
- investment will be more focused on areas open to innovation; and
- the UK economy will grow more rapidly and be more competitive.

It is time to make these change and move forward to Broadband Britain.