



TOTAL RESEARCH®

Teligen

Outlook

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In this issue

Going online

How much of a gamble is it for small and medium sized companies?

Is broadband satellite a threat to cable and ADSL?

Can the traditional provider match terrestrial operators?

Price Caps

A measure of the regulators' strength?

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Editorial

Times are tough but never say that the Telecoms sector is not inventive. Everyday seems to bring innovative deals, sharing of network infrastructure by mobile operators and with a deal that smacks more of medieval concepts of barter than 21st century high tech wizardry, Telia and Lucent have just done a deal to exchange fibre for equipment. And they are not alone in this type of swap.

Anything to reduce capital expenditure and encourage full network use. As we read these headline making stories it sometimes seems strange to us at Teligen that we are still so busy with some of the basics.

We've followed with interest the growing complaints from rural mobile users in Australia that GSM coverage is not as extensive as the old analogue lines and that roaming between the two types of networks is not always available despite the Government making it a licence condition last year. Despite all the fuss about GSM versus CDMA and so on, the majority of the world's mobile users still use analogue systems; some 80 million people according to Ericsson. As our article on competition in the Asia-Pacific region indicates, analysts need to balance the pressures for countries to open their markets to ensure that

consumers reap the benefits of competition with introducing the basics of plain old telephony to rural villages where even a public phone is unavailable.

Stephen Brown points out in his article on roaming that conventional price analysis has never been such a popular topic following raids on GSM operators in the UK and Germany and investigations elsewhere.

Despite the promises of 3G and the excitements of 4G, in our view price remains the prime concern for customers and often also for regulators charged with ensuring that consumers and small companies get a fair deal. Much as Teligen, as a leading consultancy, enjoys creating complex models for regulators to benchmark operators, we sometimes feel that the real issue is more the difficulty faced by customers in being able to see what they are paying for. Price plans are often too complex; customers need sufficient information so that they can compare like with like.

At a point where Governments in parts of the EU are ensuring that consumers are not ripped off in January 2002 when local currencies are phased out in favour of the euro, Teligen would like to ask them to introduce similar help for telecoms buyers. This would really be getting back to basics!

Index of Competitive Development Asia Pacific

Johanna Helgadottir, Consultant, Teligen

Following the success of the European Index of Competitive Development Teligen decided to expand that model into chosen countries in the Asia Pacific region. The following countries were chosen this time: Australia, Bangladesh, China, Hong Kong, India, Indonesia, Japan, South Korea, Malaysia, New Zealand, Pakistan, Philippines, Singapore, Thailand, Taiwan and Vietnam.

This was quite a challenge. In Europe we can say that the EU directives are benchmarks all carriers should meet but there is no such regional agreement in Asia Pacific. We also needed to look carefully at the range of telecoms environments: from those who have been open to competition for many years to those just beginning on that journey. There is no value in the statement that (say) Australia is a more competitive market than (for example), China. So this was a challenge for our analysts: to create an overall picture while nevertheless ensuring that various statistical tools were used to factor in these fundamental differences. Teligen also embarked on long discussions as to what the "enabling factors for competition" should be. Number portability for example, is not helpful in this case.

In the end we selected criteria that are generally accepted as promoting competition such as the privatisation of the incumbent operator, together with parameters which were used in the early stages of liberalisation in North America and Europe.

The AP-ICD will be available in early December following an ITU workshop where these criteria and the data will be shown to some of the countries featured in the Index. In the meanwhile, we would like to share some of the analysis with our Outlook readers.

Privatisation

The privatisation of the telecommunications markets in the Asia Pacific region varies greatly between countries. Regulation, in some countries, is still changing quite dramatically in aid of the privatisation process, but as with all legislation it will take some time before these gains are actually realised. As an example of the extremes in this market area, three incumbents PCCW in Hong Kong, PLDT of the Philippines and New Zealand Telecom are completely privatised, whereas, in Bangladesh, China, Taiwan and Vietnam no shares have been sold to private persons or companies. Australia, India and Japan have either reached 50% privatisation or are very close to it. Other countries are gradually moving towards privatisation but at a varied speed.



Fig1: Percentage of shares held by private investors.

WTO membership

Although controversial, one driver for improving competition and pressing for privatisation of state owned telecoms companies has been entry to the World Trade Organisation (WTO). The Philippines was the first country to liberalise the

telecommunications market (even before WTO membership). Desire for WTO access has provided a great impetus for other countries to follow that lead. Only Vietnam and Taiwan are not yet members of the WTO, China will be joining the WTO on December 11th 2001 (WTO's ministerial meeting in Doha, Qatar has approved their accession).

WTO signatory status

Country	Agreement	Telecoms Agreement	Signed
Australia	Yes	Yes	01/01/95
Bangladesh	Yes	No	01/01/95
China	Yes	Yes	11/12/01*
Hong Kong	Yes	Yes	01/01/95
India	Yes	Yes	01/01/95
Indonesia	Yes	Yes	01/01/95
Japan	Yes	Yes	01/01/95
Korea (Rep)	Yes	Yes	01/01/95
Malaysia	Yes	Yes	01/01/95
New Zealand	Yes	Yes	01/01/95
Pakistan	Yes	Yes	01/01/95
Philippines	Yes	Yes	01/01/95
Singapore	Yes	Yes	01/01/95
Sri Lanka	Yes	Yes	01/01/95
Taiwan	No	No	
Thailand	Yes	Yes	01/01/95
Vietnam	No	No	

Please note that China will join WTO 11/12/01.

Fig 2: WTO membership

Competition

Although competition is being introduced, virtual monopolies remain because State control is, or has been until recently, the main economic regime. Often overlooked are the effects of ongoing contracts, which ensure monopolist positions. Through joint ventures and strategic alliances between the incumbent operators and big foreign companies, incumbents maintain strongholds on the market. The question is: if an incumbent and global player entrant dominate the market, is it competitive? Is this telecoms imperialism or will the entrant force open the doors for local competition?

In Hong Kong, the strength of the Cable and Wireless subsidiary Hong Kong Telecom was

substantial. Interestingly enough, this strength came from the competitive nature of the teleco and the government which determined that Hong Kong became and remained a major hub for the whole region. The Hong Kong business sector has always been assertive on the world stage and we can see customer demand promoting a quality service in what was otherwise a monopoly scenario. Singtel is a similar case study. Does this mean that they provide the most competitive telco environment in the region? Well you will have to wait for the AP-ICD to see.

In Indonesia, Telkom has an exclusive right to provide domestic long distance telecommunication services nationwide for a minimum of 10 years to 2005. Indosat and Satelindo (a joint venture with Telkom and private investors) are granted the same right for exclusive provision of basic international telecommunication services. There is limited private sector participation under the guidance of and cooperation with, designated state-owned telecommunication companies. Changing these long term agreements is fraught with problems for a government.

In New Zealand self-regulation and lack of regulatory intervention has made it hard for new players to enter the market; new telecoms regulations will probably see a change in this situation. After liberalisation New Zealand Telecom used their power as an incumbent to undermine competition. Unwillingness by the government to legislate over issues number portability and interconnection was to New Zealand Telecom's advantage. A dispute of local interconnection costs between Clear (an entrant) and Telecom New Zealand took three and a half years. New Zealand is of course, not the only country which has faced this problem. Most commentators now believe that only a strong (ie not required to go to the courts for every decision) regulator that is independent of the incumbent and the Government which may have shares in the incumbent, can provide a real even field for all operators to play in. New Zealand in 2001 has introduced a more assertive competition authority.



Fig 3: shows us that of the seventeen analysed, eight of the national incumbents have a market share for PSTN of more than 80%. This is one of the clearest signals that competition has a long way to go in the region. Most citizens do not have a choice of supplier.

*Total market share for all countries, except Hong Kong and Japan local calls and total fixed lines for Indonesia.

The status of interconnection varies amongst the countries surveyed. The list of countries in Figure Four shows the countries that have given the most attention to these issues. However, Hong Kong is the only country out of the seventeen to have all the interconnection criteria in place. New Zealand, has planned unbundling of the local loop but has not yet regulated on number portability from fixed to mobile.

Status of interconnection

	Unbundling	Number portability – geographic & non geographic	Number portability – fixed to mobile	Carrier select	Carrier pre-select – local, long-dist, int, mob.
Australia	In effect	Yes	No	n/a	Available*
Hong Kong	In effect	Yes	Yes	Yes	Yes
Japan	In effect	Yes/No	No	n/a	n/a
Korea	In effect	No	n/a	n/a	No
New Zealand	Planned	Yes	No	Yes	Yes
Singapore	Planned	Yes	Yes	n/a	n/a
Taiwan	In effect	Yes	No	Yes	No/Yes

* Except for local

Fig 4.

Of course, technological developments have not waited for deregulation and many of the countries in Asia have exciting developments using newer technology. So we find nearly 20 WLL operators in the Philippines, around 10 in India, four in Vietnam; if the trials in China are successful then there will be nearly 30 projects in operation. Teledensity is more the issue in the rural areas of many countries, than providing choice of operators. Nevertheless we are seeing competition opening up in parts, especially within the mobile sector. The AP-ICD also looks at the numbers of internet hosts and of subscribers; though we recognise that actual usage is limited not only by availability of pcs but also of access lines.

Conclusion

From this perspective the ICD perhaps understates the extent to which markets in Asia have been revolutionised over the past couple of years by new technologies but as basic access becomes not a luxury but a "given" so we will see business and consumers demanding the advantages that competition in the market place can bring: faster installation times, better quality, lower prices and so on. Those scoring high in this year's index had better watch out!

Is broadband satellite a threat to cable modem and ADSL delivery?

Satellite – a mass broadcast tool

Traditionally, satellite has been used for mass broadcast of identical services over large footprints. With enough receivers ready to watch the advertisements between programmes, the economics have been made to work. No need for road-digging back to a head-end. However, this has until recently, always been one-way with no return channel. Indeed, satellite operators have had to partner with terrestrial fixed line operators to provide the return path – a slightly clumsy alternative to 2-way cable operations. Consequently, when it comes to broadband data, the terrestrial operators have seen satellite as a non-competing-technology or, at least a niche threat that will never compete with its core business due to its unique economics.

Enter Broadband satellite

In Europe and the US, a number of entrants – 4 in the next 4 months in Europe (Streambeam, Aramiska, BT Openworld and Deutsche Telekom) will launch broadband satellite offerings. There is the promise of others to come – particularly incumbents keen to show 99% broadband coverage.

So what, some may say?

It's true that the standard upon which these services will operate¹ is not particularly new. However, these companies are betting on the growth of broadband coverage via ADSL and cable; with the above-the-line advertising noise that will accompany this driving some business towards them. The larger players are not actively promoting the service yet – with, in the UK and Ireland at least, pilots and beta trials taking place in the most remote parts of the country e.g. Scottish highlands and islands.

The demand will come, however, if UPC's terrestrial numbers are anything to go by. As the largest European cable operator it now has over 500,000 broadband customers in its European footprint with a take up of 6,000 a week in the last 6

months.² In essence, for broadband satellite, the time is right for a strategy to reach the parts that conventional broadband services cannot reach.

ADSL reach will grow

In the UK – a country with a medium to high population density, BT currently claims that ADSL reaches 60% of premises. Ben Andradi, President of BT Openworld, states that BT has the technology through BT's 'extended ADSL' to cover premises 5 Kms from exchanges. This, he claims will make ADSL available to 90% of households. (2-way cable covers 25% of UK premises.) BT also claims that this is not some future technology, it is being deployed in current build and the greater reach outweighs any extra cost incurred. It is clear that BT is closely aligning itself with government policy on the creation of 'Broadband Britain', a strategy that is also happening in other EC countries via EC directives.

This leaves 10% of the country unreachable, equivalent to approximately 300,000 premises. These are by no means just farms and village shops. This includes some quite large entertainment centres e.g. golf courses, hotels and, of course private homes. This market is only reachable by satellite. Wireless local loop (WLL) does remain a possible alternative in these situations but still requires line-of site, tricky in hilly areas and requiring potential costly pre-installation site surveys. Two 'truck-rolls' per installation is never a good thing.

In Italy things are a little different. With more local exchanges, the network experts estimate that over 90% of the country could be reached with extended ADSL. This weakens the potential population attracted to broadband satellite. However, the penetration of 2-way cable is low in Italy – leaving broadband provision in the hands of the incumbent. Regulation across Europe, however, on local loop unbundling will need to drive down wholesale costs if the incumbent is to be taken on

by resellers. Already new entrants in this market have fallen by the way side. In the UK alone the number of ADSL resellers has dropped from 31 to 9 in the last 18 months. In other words, it is not the coverage of the incumbent that counts but the margin local entrepreneurs can earn in reselling it that will drive penetration.

Could broadband satellite take on ADSL/Cable?

Could Broadband satellite use the cash flow of out-of-town penetration to fund direct competition with ADSL/Cable? In the short term no. The economics of the installation are troublesome as there are no huge economies of scale in the installation of satellite.

BT has bitten the bullet and slotted its broadband satellite offering into the same price range as one of its business ADSL packages (Business 500-plus.) This is potentially deceptive though as the satellite entry price is for a single PC. The equivalent ADSL price allows up to 4 PCs to be connected. Both delivery mechanisms do, however, include 'always on' price bundling. This is significant as some of the other operators talk about per minute access prices – normally the main barrier to high take-up of satellite. The price points BT has created, unlikely to go up, will put quite some pressure on the smaller market entrants to mimic BT's pricing.

What is more, with potential satellite customers spread over a wide area (unless targeted marketing is used) servicing them could be costly. The most likely route will be to outsource the installation using the satellite TV model – subcontracting of installation to local operators with agreed service level commitments. However, a satellite operator will need quite some critical mass to be taken seriously by installers. This may push up installation costs for new entrant satellite operators.

One would-be entrant estimates the cost to be £1000 all-in to install a broadband satellite customer. This contrasts with the cost of ADSL and cable modem – both in the sub £700 range (ignoring already amortised pure network build costs.) Consequently, regulation aside, ADSL has some margin to manoeuvre price downwards and cable operators see broadband as incremental, albeit crucial, revenue on top of the current TV and phone services. Cable operators, less

constrained by cross-subsidization rules will drive hard to capture the 'triple-play' opportunity (TV, internet and telephony) and package accordingly to stop customers considering switching to rival ADSL. For example, Telewest in the UK adds its 'Blueyonder' offering to existing cable subscribers for £40 per month.

In short, satellite does not pose a threat to ADSL/cable, a fact recognised by BT Openworld. It intends to blend satellite into its portfolio to create a 99% coverage proposition. However, it recognises the separate economics and does not intend to price satellite at the same cost as basic ADSL – preferring to bring it in at the business ADSL price. In other words, even players being canny about their strategy know that the two will not compete.

Who will use broadband satellite?

Semi-rural 'soho' and home workers will use it. This is a relatively affluent set of people prepared to trade off reduced travel-to-work costs with high-spec home IT equipment. Also, they could find a ready audience in the remoter commuter 'villages' – places that look like old villages but which comprise second homes for the more affluent. This could also be part of teleworking packages encouraged by corporates keen to downsize expensive central town offices. BT is not, however, banking on the latter being a key driver – except for the most senior home-workers – due to the cost of satellite.

To date, distance from the telephone exchange has not been the criterion for choosing a house in a town area. Consequently, with ADSL reach pegged at 3km (5km when extended DSL is universal), affluent and data-hungry households may decide that it is easier to choose satellite than it is to move house. But, broadband is a long way from being a 'must-have' like the mobile phone. Indeed, cable operators know that the more affluent neighbourhoods were the slowest to adopt 2-way cable TV and telephony packages. Consequently, there has to be some doubts about the long-term efficacy on being a 'single-play' entrant.

Businesses on the fringe still have a choice

As for businesses on the fringe of a town, satellite could capitalise on the opportunity when set against ADSL. Satellite companies will need to

know their targets, employing geodemographic mapping to ensure that they can pick the best opportunities first. However, this does not open the floodgates to broadband satellite either. These out-of-town and 'greenfield' sites have often been serviced with quality fibre solutions from new entrants and the incumbents – from spurs off their trunk networks. So, any new supplier is not just up against ADSL but a faster and cost-effective fibre-to-the curb solution. The satellite operators seem to have their work cut out.

Summary

Satellite broadband is coming. But it will be a niche extension to the core delivery mechanism of mass broadband – via ADSL and cable. And to survive in it a player needs to be scrupulously cost-conscious, have deep pockets and maintain a cool nerve.

1 Digital video broadcasting with return channel via satellite (DVB-RCS)
2 UPC Chello press release October 30 2001

Profile Alex Lambert

Alex Lambert was the joint host of the mobile basket workshop (see separate report) and has been preparing the T-Basket updates each quarter for several years now. He works closely with our colleagues in the telecoms department of the OECD, and is in regular contact with both operators and regulators within the OECD area. The OECD baskets are used the world over. This sort of price comparison is a far more accurate approach than merely looking at fluctuations in individual price elements, as it considers all aspects of the associated tariff structures. However, while the OECD baskets cover standard packages of the incumbent operators, it is not always relevant to compare such information across some 30 countries. Alex undertakes a lot of single client work where he might use the basket methodologies to look at various packages from local telcos, or to examine different usage profiles and tariffs.

Alex joined Teligen in April 1997 as a Tariff Researcher, having been brought in to help with the collection of tariff information and the subsequent launch of the CD-ROM tariff product, T-World. He rapidly went on to take up the role of Assistant Manager of the Tariff Products. Later he moved into consultancy, and recently was promoted to Senior Consultant where he leads larger projects covering newer technologies and different pricing structures. However, he still gets involved in some of the updates of the

other off-the-shelf products when deadlines are tight: "I enjoy the huge variety we get from single client projects. As a Senior Consultant I get to meet more clients, which gives me a better understanding of how they are going to apply the analysis I have done to new product launches, or to moves in competitive pricing plans. By staying involved in some regular monitoring of tariffs, though, I can see trends developing that I can later explore for our customers." Alex is currently involved in the 2001 version of the Discount Tariffs Report: "...It is revealing the remarkable extent to which these telephony packages have grown, and the variety of offers now available around the world."

Alex graduated from the University of Kingston (Surrey) in November 1996, having studied Geographical Information Systems (GIS) – this modular course involved the study of statistical analysis, database management systems, integrated information systems (including data compression/transmission methods), and advanced data collection and analysis techniques.

If you would like to see some of his work, Alex also prepares the monthly pricing indicators which appear at the back of Public Networks Europe magazine. The new discount report will be available in early January; contact alexl@teligen.com if you would like to know more.

Price Cap Regulation

Chris Dineen, Managing Consultant, Econometric Analysis

Price Caps is a form of regulation applied to incumbent and SMP operators¹ in the telecoms industries of many countries during the transition from a closely regulated monopoly to a deregulated competitive market. Also known more generally as incentive regulation because it rewards efficiency improvements, price cap regulation is also used in regulating other utility industries such as electricity and natural gas provision.

Traditionally, governments have applied rate of return (RoR) regulation to monopoly incumbents through regulatory agencies or communications departments. Such regulation is required to prevent textbook monopoly behaviour i.e. setting prices much higher than costs and restricting supply. A well-known difficulty with RoR is that it focuses on earnings on invested capital and thus gives the operator an incentive to over-invest. RoR also requires the regulator to closely scrutinize the operators' capital expenditures, expenses and earnings. This form of regulation is not suitable in an emerging competitive environment such as local telephone service but the incumbent cannot be left unregulated or it would quickly drive nascent competitors out of business.

Therefore, rather than RoR, regulators have developed price cap regulation. This focuses on prices rather than earnings and is intended to mimic the workings of a competitive market. Faced with competitors, an innovative firm that can increase productivity and thereby reduce costs can either increase profits by maintaining its price or win market share by cutting prices. In time, other firms will catch up and the advantage of the innovative firm will disappear. Similarly, price cap regulation creates a strong incentive for the regulated operator to become more efficient in its operations by setting a productivity target. If this target is exceeded, the operator may reap short-

term excess profits. In some price caps regimes the operator may be required to share a portion of these excess profits with customers. This is known as earnings sharing.

The Price Cap Formula

The heart of price cap regulation is the price cap formula which determines by how much the operator is allowed to increase prices given the inflation rate and the productivity target:

$$P = I - X \pm Z$$

where

- P is maximum allowable % price increase for regulated services.
- I is the annual inflation rate measured by RPI, CPI, GDP deflator etc.
- X is the productivity offset or "X-factor", the percentage by which overall operator productivity is expected to increase
- Z is "exogenous factors" such as accounting or regulatory changes

Typically, this formula is in effect for a few years with a given productivity offset and the inflation rate updated each year. Then, a price cap review is held and a new productivity offset may be mandated. Often services offered by the operator are grouped together in baskets each of which is given a particular value for the productivity offset. Setting this offset is the most complicated part of price cap regulation.

Productivity gains are notoriously difficult to estimate and there is no guarantee that a trend established over recent years will continue into the future. Massive models using data on all the operator's input and outputs as well as their costs and prices are run to estimate Total Factor Productivity (TFP).

The price cap formula indicates that an operator doing business in a country with an inflation rate of 3%, a productivity offset of 4% and no exogenous factors would have to reduce prices by 1%.

$$P\% = 3\% - 4\% = -1\%$$

If the operator can improve its efficiency so that its actual productivity increases by say 6%, then it would be able to keep the cost savings and resulting increased profits until there is a price cap review. At this time the regulator might well increase the productivity offset to 6% reflecting the operator's improved performance.

During the initial price cap proceeding and subsequent reviews, there is seemingly endless debate among representatives from the regulated operators, their competitors and other interested parties over what measure of inflation to use, how to estimate productivity growth (total factor productivity versus labour productivity etc.), whether other factors should be considered and so on. These proceedings create much employment for lawyers, economists, consultants and expert witnesses. However, it is very important for the regulator to set the correct productivity offset. If it is too low, the regulated operator may enjoy excess profits during the life of the price cap regime while if it is too high, the operator may not be able to make a profit.

Price Cap regulation tends to work well in the sense that it provides incentives similar to a truly competitive market if as long as the regulator is strong and independent of the regulated operator. A challenging but reasonable productivity target must be set and maintained, but the operator must be allowed to keep any short term gains due to better than expected productivity improvements. Earning sharing reduces the incentive for the operator to improve in the first place.

Examples of Price Cap Regulation

In the U.K., British Telecom's retail prices have been subject to price controls since 1984. The current regime, which remains in effect until July 2002, uses a productivity offset of 4.5%. The services

controlled are connections, line rentals, local, national and international calls and operator assistance. A review is underway to determine whether price caps should be extended beyond 2002 or if finally, there is sufficient competition for Oftel to forbear from regulating the prices of these services. Price controls are also applied to BT's fixed to mobile call rates and wholesale network charges. This long-term regulatory framework has been a success in that consumers have been protected from abuse of market power by BT. It has also been a failure in the sense that competition has not evolved sufficiently over this 17 year period so that Oftel can forbear from regulation.

X-Factors Applied by Oftel to BT Services

Service	X-Factor
Retail Services	4.5
Fixed to Mobile	7
Network – Tandem Layer	13
Network – Call orig and term	10
Network – Interconnect	8.25
Network – FRIACO*	7.5

*Flat Rate Internet Access Call Origination

In Canada, price cap regulation on the "utility" services i.e. local and access telephone services of Bell Canada and the other provincial incumbents went into effect at the beginning of 1998. The first price cap review is currently in progress.

In the U.S., most of AT&T's services were subject to price cap regulation from 1989 to 1995 at which time the FCC decided to forbear from regulating AT&T as it was no longer considered a dominant carrier. Thus, the regime appears to have succeeded but many would say that the oligopoly behaviour of AT&T and its few competitors is just as bad for consumers as pure monopoly behaviour. Also in the U.S., the access charges levied on the long distance carriers by the local exchange carriers for using their networks to originate and terminate interstate calls have been subject to price cap regulation since 1991. Many Public Utility Commissions (state regulators) use Price Caps to regulate within-state calling.

¹ Those operators considered by their regulators to have "Significant Market Power"

The Phoney War

Stephen Brown, Research Consultant, Tariff Services

In a market perplexed by the question of how to make money from 3G, a service that has already cost mobile companies billions and as yet has not even been built, "roaming" profit margins will not be surrendered easily. However the European Union seem more than ready to take on roaming charges and in the name of competition and the consumer, earlier on this year they managed to shock just about everybody. Their aim already at least half-achieved, they have managed to focus everybody's eyes on roaming.

On July 11th, officers from the EU's Competition Commission accompanied by officials from national regulatory authorities, raided simultaneously in the UK BT Cellnet, Vodafone, Orange, Virgin Mobile and in Germany offices of Deutsche Telecom's One2One and T-Mobil, and the KPN owned German operator E-plus. This dramatic swoop, usually carried out by ATF (Alcohol Tobacco and Firearms) officers rather than the officials of the European Union, involved the instant removal of paperwork and files from the offices of the major Telcos.

The raids were so unexpected they made television headline news. Scandalized citizens followed the TV cameras as they followed the officials into the buildings of some of the most familiar consumer brand names.

But what were they there for? Officially they were looking for evidence of price fixing, collusion between the companies to maintain the relatively high charges of making or receiving a call from a mobile telephone whilst abroad. European Competition Commissioner Mario Monti, at the forefront of the long-running investigation into reducing the cost of calls for international travellers, justified the raids and maintained that roaming charges showed "an almost complete absence of competition". In theory if found guilty the operators could be fined 10% of their annual

turnover and maybe more still significant, they could be forced to dramatically reduce their roaming charges.

The timing of the raids seemed opportune. Less than a few weeks prior, the big mobile carriers in the UK had launched large-scale advertising campaigns to push the availability of roaming. Roaming had recently been rolled out to Pre-Pay phone customers. With a big push on roaming services underway the EU burst a big bubble. If part of the aim of the Commission was to highlight the issue of high roaming pries they really couldn't have done it better. The issues of exorbitant mobile phone call charges appeared in tabular format in most every newspaper. Indeed, some commentators suggested that it was for this purpose that the raids were conducted rather than to prove serious collusion between operators.

Prior to 11 July it was accepted that there was a low level of customer awareness over roaming prices. Here at Teligen we noticed high profile advertising campaigns that made no reference to the call costs of roaming services We wondered what would happen in the summer when customers returned from holidays abroad and found themselves with exorbitant telephone bills from using their roaming facilities. Consumers are not used to paying such high tariffs and are definitely unaccustomed to paying to receive calls from relatives back home.

The price of Roaming for British and German consumers

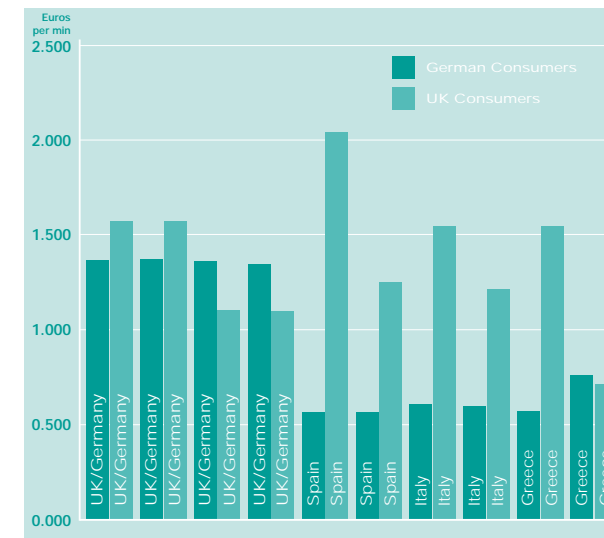


Fig 1: The cost of making a call back home from the countries listed, in euros per minute. For more information see tables below.

However the Commission may find it difficult to find hard evidence of collusion. Roaming charges vary so much. Prices vary between different carriers, countries and tariff packages, and indeed such price variation is thought wholly to negate the idea of collusion.

Some voices linked the action to the Competition Commissioner's aim of preventing carriers being allowed to co-operate to share the cost of building 3G networks. The Commissioner has suggested this co-operation may stifle competition.

Whether or not the concerns about collusion are valid, regulators have been generally slow to supervise this sector. Mobile roaming still acts as a major cash cow for telco's. Only 4% of mobile customers roam, yet roaming revenue contributes some 10% to 20% of operators ARPU (average revenue per user).

Calling back to Germany. Prices valid 01.12.2000

Home Network	Visited country	Visited Country's Network	Euro per min peak
T-Mobil D1	UK	Cellnet	1.391
T-Mobil D1	UK	Vodafone	1.380
Vodafone D2	UK	Cellnet	1.386
Vodafone D2	UK	Vodafone	1.360
T-Mobil D1	Spain	Airtel	0.762

Vodafone D2	Spain	Airtel	0.762
T-Mobil D1	Italy	TIM	0.808
Vodafone D2	Italy	TIM	0.808
T-Mobil D1	Greece	Panafon	0.772
Vodafone D2	Greece	Panafon	0.910

Fig 2

Calling back to the UK. Prices valid 01.12.2000

Home Network	Visited country	Visited Country's Network	Euro per min peak
Cellnet	Germany	T-Mobil D1	1.601
Cellnet	Germany	Vodafone D2	1.601
Vodafone	Germany	T-Mobil D1	1.164
Vodafone	Germany	Vodafone D2	1.164
Cellnet	Spain	Airtel	2.086
Vodafone	Spain	Airtel	1.310
Cellnet	Italy	TIM	1.601
Vodafone	Italy	TIM	1.261
Cellnet	Greece	Panafon	1.601
Vodafone	Greece	Panafon	0.792

Fig 3

So is it true that competitive forces are not strong in the UK mobile market? Teligen has recently conducted the update to Index of Competitive Development (ICD). This uses data on the structure, conduct and performance of the market players to quantify the degree of competition. Both Germany and the UK rank in the middle of the graph with a score of 58 and 69 respectively compared with the leader Austria with 78. (For details of the ICD please see page 3)

But if these markets are competitive why are roaming prices so high? It is an unfortunate tendency that competition can encourage telcos to focus on lowering headline call rates. These attract most publicity. Roaming prices have never been able to sell a carrier's subscriptions to the same extent that national calls, inclusive call minutes or good customer service. Until recently roaming charges have not been particularly highlighted; neither by carrier nor consumer.

However low consumer awareness of pricing is bad for competition. Ofcom research showed that in the UK less than a quarter of consumers had any knowledge of the price of using a mobile phone abroad when they bought their phone. Research undertaken for single clients by Teligen confirms

these results with business users often more ignorant of true price levels than consumers.

Customers do benefit from strong companies able to compete and invest in infrastructure and low prices can cut profits available for investment. Somewhat contrary to the EU's view, Oftel's review of the UK mobile phone market in September this year concluded that there was no need for retail price controls on calls from mobile phones.

Meanwhile dawn-raids seem to be becoming the most recent craze in mobile price regulation with October seeing authorities in both Denmark and Netherlands carrying such investigations. It is hard to be sure that this the most effective way of ensuring competition. The mobile telephony market has always been exciting to monitor, with

new carriers, technologies and various trends in pricing. In the long run, partly because of the attention given to roaming prices, we can predict that roaming charges within Europe will fall. The new focus on pricing areas will be on some of the underlying figures, like high call termination charges, and on new positive enablers of competition such as reducing the practice of locking of Subscriber Identity Modules, or SIM card, to a network. The growth of WAP, not to mention 3G will open up other areas of pricing controversy. Nevertheless it's ironic with so much happening in the industry on the technological and licensing fronts that, *of all things*, the "old fashioned" issue of price regulation has become interesting. I think we will all be watching this space.

Now available: The European Index of Competitive Development The Asia-Pacific Index of Competitive Development

These reports consist of an analysis of the state of regulation, its implementation, pricing trends, market power and subscriber coverage for telecoms services including internet access.

Customers receive a wealth of underlying data contained in a number of Excel spreadsheets, country summaries as well as the index itself which benchmarks countries by a range of competitive parameters.

- Which country is strong in mobile? And why
- Which country has a weak infrastructure despite extensive internet usage?
- Is investment in the infrastructure consistently high?
- Is competition delivering lower prices to consumers and businesses?

The indices will answer these and other questions which are critical to regulators benchmarking their industry against those of other countries and which are important to investors looking to get below the surface of other reports.

Teligen is the leading agency in the arena of benchmarking and works with Governments, operators, consumer groups and analysts around the world. We have drawn on over 25 years of experience to develop these unique models first produced for the EU DG Infosoc last year and now improved and updated.

Contact Garry Reynolds for more details: +44 208 263 5406; garryr@teligen.com.

Going online: the gamble for SMEs

Internet use by small and medium sized companies is now well established: a recent study by Total Romtec for the Department of Trade and Industry in the UK, found that 87% of businesses (including SOHO) had access to the internet in the UK; in Germany for example the figure is 84%, and in Italy 74%. For a copy of this report see <http://www.ukonlineforbusiness.gov.uk/Government/bench/Bench2001/index.html>

Much attention has been given to encouraging these smaller businesses to enter the world of e-commerce. The majority of SMEs still use dial up access though there is growing migration to xDSL. Recent analysis of dial-up pricing by Teligen indicates the wide variations in charges across the 15 member states and a trend analysis over the past three years shows an erratic movement in most countries. We also have a very mixed view on current ADSL rates. Taking all this data together, shows just how difficult it must be for a business to select the best possible package.

More choice...more confusion.

For example in 1999 a Belgian business looking at dial up access might have chosen EUNET's MiniLAN package; by 2000 they could choose from MiniLAN ConnectionTime; MiniLAN 30 hours free and MiniLAN flat fee. By the end of the year this had become MiniLAN: under 6 users, or MiniLAN: over 6 users. Likewise, T-Online has grown from a simple basic package to:

T-Online	T-Online 30
T-Online	T-Online 60
T-Online	Eco
T-Online	T-Online 90
T-Online	Pro
T-Online	T-Online 120

Tracking how many email addresses a business receives with each package, with or without web space of varying megabits, let alone domain registration (or not) can be a full time task for a small company with no dedicated IT or telecoms staff.

What about the actual prices, are they easy to track? Take as one example, Micronet in Denmark which thankfully has kept the name of "Firma" for its business package; here we find that in January 1999 the annual charge was €107. In January 2000 it had gone down to €101, only to be increased again to 107 by December (figures rounded up). Demon Business Dial in the UK has had an erratic charge pattern too. Of course, not all have changed in this way: Calcol Informatica Internet Business in Italy has had a steady connection charge of €253 over this period and lucky users of Easynet's Numeris in France have seen a steady decrease from €196 to €82.

Overall, we can see that the trend in pricing is downwards, providing businesses are prepared to shop around. The following graph takes the lowest cost package offered amongst our selection of ISPs, together with the usage charges from the incumbent telco and provides a total cost for 400 hours of usage per year at peak rate time.

Lowest cost internet charges



Fig1: 400 hours ISP + telco charges: lowest cost provider*
* Lowest cost of those in our survey: see table two for those selected in December 2000.

In selecting the lowest cost for each year, Teligen couldn't find one ISP who remained in the

category for each of the three date points and this graph shows as much the price variation in each country for the period as it does the variation within the EU.

Don't forget the call usage charges!

Part of the volatility in the market place has been due to the number of mergers and acquisitions of the small ISPs who grew up during the mid 1990s in the wake of the dotcom boom; the other part has been changes in PSTN charges over this period.

So-called free packages of course, are not free; users have to pay the call charges and below we offer a comparison of the sort of charges customers may face. The table only covers the incumbent operator in each country; clearly SMEs may find more favourable charges with other operators. Call charges are the same as for normal local calls, except in Belgium, Germany, Greece, Ireland, Luxembourg, Austria, Portugal and United Kingdom, where specific charges may apply for calls to Internet services.

In the cost comparisons only those ISP services that clearly state the use of reduced (special Internet) access charges will be assigned such charges. Many ISPs do not clearly state what kind of charges are used for dial up access, and in such cases the normal local call charges are applied. Several countries (e.g. Denmark) offer special access codes (free-phone or premium rate numbers) for access to the ISP. The use of such numbers may in some cases be combined with special discount packages. Free-phone numbers used to access the ISP will normally be combined with special ISP package rates.

All tariffs given in the following tables were valid at December 2000.

Table 1: Cost of 400 local PSTN call hours

		Peak 1100am	Economy 0800pm
B	Local	998	510
B	Internet	736	370
DK		721	257
D	Local	846	508
D	Internet	317	317
EL	Local	634	634
EL	Internet	148	148
E		579	253

F	Business	767	441
F	Residential	693	390
IRL	Local	1006	253
IRL	Internet	387	192
I		371	224
L	local	647	345
L	Internet	647	323
NL		529	294
AUT	Local	1206	614
AUT	Internet	724	256
P	Local	383	199
P	Internet	359	171
FIN		293	293
SWE		527	272
UK	Local	1315	493
UK	g4	666	333
UK	g5	333	200

Table 1: Notes

Costs in euro, excluding VAT.

Minor exchange rate variations for Denmark, Greece, Sweden and the UK affect the results.

400 calls of 1 hour each is assumed.

This table shows the PSTN call costs with the incumbent telecom operator. No ISP usage is included. "Friends and Family" type packages may in some countries also include an ISP number, providing reduced rates for ISP calls. The effects of such discounts have not been included in the comparison above, as they will be individual to each user.

In order to give you a more detailed view of the range of charges both within and across countries, we have reproduced a table included in our latest tariff tracking report for DG INFOSOC. The following table has been constructed from leading ISPs within the European Union. They are not necessarily the cheapest! In order to produce reasonably comparable costs for the different packages, the following elements are included:

- 1 One third of any nonrecurring charge, i.e. depreciated over 3 years
- 2 Annual rental (i.e. for 1 year) for the package in question
- 3 Any additional usage charges (normally given on a per hour basis) based on a total of 400 hours of usage in one year. This may not be applicable for all packages.

Please note: The usage charges mentioned here are related to the ISP, not the telecoms operator. These are charges paid for the time using the ISP services, beyond any included allowance. Not all ISPs have such additional usage charges.

Packages are selected to be high user packages, with dial up modem access, with either unlimited access, or included hours close to the 400-hour volume. Most ISPs offer a range of packages, and not all of those can be represented here.

Costs are given in euro, excluding VAT. Teligen has selected a number of packages offered to businesses; some of these are also offered to residential customers. A few of the entries have no cost assigned to them. These are "Free" services where the ISP normally generates revenue from either advertisements or from access call charges. A number of so-called free Internet services are included. These are normally based on one of two principles:

- Call charges paid to the telecoms operator will also cover the ISP costs.
- Charges paid to the ISP, either a fixed monthly charges, or on a per minute basis, will cover a free-phone number for access in addition to the ISP costs.

In order to show the real costs for such services the dial up charges as listed in table 2 'ISP and total access costs' are included in the following comparison, where relevant. The local call charges, or special Internet access charges, provided by the incumbents are used for this purpose. *As it is not always clear from the ISP which call charges should be used, only those ISPs stating the use of special Internet access charges are assigned such charges.*

Table 2: ISP and total access costs: December 2000

Country	Provider	Package	Business, peak time usage				Including access cost	
			Connect	Annual	400h usage	Total	400h access	Total cost
AUT	Atnet	jet2web	0	182	0	182	724	906
AUT	INS	Netrunner Light	6	131	0	137	724	861
AUT	INS	Netrunner Business	48	174	0	223	724	947
AUT	INS	Netrunner	6	218	0	224	724	948
AUT	Netway	UTA Biznet	0	0	0	0	724	724
AUT	Simon Media	Server Paket	43	87	0	131	724	854
B	Eunet	MiniLan < 6 users	50	840	0	890	998	1888
B	Eunet	FullLan > 6 users	74	1237	0	1311	998	2309
B	Planet Internet	GoPlanet	0	0	0	0	998	998
B	Planet Internet	Planet Premium	0	491	0	491	998	1489
B	UUnet	Office Standard	0	295	0	295	998	1293
B	UUnet	Office Advanced	0	617	0	617	998	1615
D	Jippi	powerOkaynet	0	52	201	253	846	1099
D	Jippi	call Okaynet	0	0	307	307	846	1153
D	Jippi	my Okaynet	0	95	317	412	846	1258
D	Planet Intercom	Planet-Intercom premium Max	0	0	0	0	529	529
D	Planet Intercom	Planet-Intercom by call	0	0	0	0	603	603
D	T-Online	T-Online 30	0	153	31	184	317	501
D	T-Online	T-Online 60	0	291	0	291	317	608
D	T-Online	Eco	0	42	317	360	317	677
D	T-Online	T-Online 90	0	418	0	418	317	735
D	T-Online	Pro	0	105	317	423	317	740
D	T-Online	T-Online 120	0	524	0	524	317	841
D	Uunet	UUdial Office	14	502	529	1045	0	1045
D	Worldonline	Worldonline	0	0	0	0	846	846
DK	Danish Internet Adgang	Business 1	100	155	0	256	721	976

DK	Danish Internet Adgang	Business 2	156	289	0	446	721	1166
DK	Danish Internet Adgang	Business 3	100	383	0	484	721	1204
DK	Danish Internet Adgang	Business 4	156	517	0	673	721	1394
DK	Micronet	Firma	0	107	0	107	721	827
DK	Tele Danmark Internet	NetTid 30	0	257	53	309	721	1030
DK	Tele Danmark Internet	NetTid 80	0	386	0	386	721	1106
DK	Tele Danmark Internet	NetTid 20	0	192	231	423	721	1144
DK	Tele Danmark Internet	NetTid 10	0	128	441	569	721	1289
DK	Telepartner	Euro 909S	0	332	0	332	721	1052
E	Arrakis	Professional	0	90	0	90	579	669
E	Jet Internet	Premium	0	60	0	60	579	638
E	Redestb	Iddeo Plus	0	150	0	150	579	729
E	Terra	Familiar	0	60	0	60	579	638
EL	Enternet	Enter Office Pro	0	326	0	326	148	474
EL	Forthnet	Dial up ISDN	0	270	0	270	148	418
EL	Hellas Online	i-Connect Power	8	284	0	292	148	440
EL	OTEnet	Dial up	0	154	0	154	148	302
EL	Pgcom	1 year PPP	0	177	0	177	148	325
F	AOL	Forfait Fidelite	0	83	0	83	767	851
F	AOL	Forfait Liberte	0	144	0	144	767	911
F	AOL	Forfait Limite	0	53	903	956	767	1724
F	Club Internet	Forfait 97F - 20H	0	147	267	414	0	414
F	Club Internet	Forfait 67F - 10H	0	102	467	569	0	569
F	Club Internet	Forfait 47F - 5H	0	71	567	639	0	639
F	Club Internet	Sans Abonnement	0	0	667	667	0	667
F	Club Internet	Formule Illimitee	0	117	0	117	767	884
F	Easynet	Numeris	0	82	0	82	767	850
F	Wanadoo	Pro	0	81	0	81	767	849
F	Worldnet	Economique	0	151	0	151	767	919
F	Worldnet	EcoPro	0	274	0	274	767	1042
FIN	Kolumbus	Kolumbus 1+	0	162	0	162	293	455
FIN	Surfnet	Connect	0	11	0	11	293	304
I	Calcol Informatica	Internet Business	0	253	0	253	371	625
I	Calcol Informatica	Internet PSTN	0	62	294	356	371	728
I	Tinet Professional	Premium	0	129	0	129	371	500
I	Tinet Ricaricabile	Premium	0	26	191	216	371	588
I	Tiscali Free net	LAN aziendale	0	0	0	0	371	371
IRL	Eircom net	Dial up	0	152	0	152	387	539
IRL	Eircom net	Premium	0	152	0	152	387	539
IRL	Ireland On-Line	Gold	0	126	0	126	1006	1132

IRL	Ireland On-Line	No-Limits	0	252	0	252	1006	1257	
L	ConneXion Interway	Access Entreprises	15	595	0	610	647	1257	
L	Luxembourg Online	Internet Gratuit	0	0	0	0	647	647	
L	Luxembourg Online	Internet Professional	0	71	455	526	647	1173	
L	P&T Luxembourg	Identified Access	2	50	0	53	647	700	
L	Telephonie	Dial up	0	213	0	213	647	860	
L	Visual Online	Time based	0	0	0	0	647	647	
L	Visual Online	Dial up	0	108	0	108	647	755	
NL	Demon	Standard	0	116	0	116	529	645	
NL	Demon	Office	11	218	0	229	529	759	
NL	KPN Het Net	Standard	0	139	0	139	529	669	
NL	KPN Het Net	Instap	0	60	612	672	529	1201	
NL	UUnet	Business Class Entry	3	163	0	166	529	696	
NL	XS4all		4	139	0	143	529	672	
NL	XS4all	Business Mail	0	215	0	215	529	745	
P	EUnet	Dial Eunet Light	24	358	0	382	359	741	
P	IP Global	Conta IP Office	5	0	179	0	179	359	538
P	Telepac	Net Sapo	0	0	0	0	359	359	
P	Telepac	Netpac	10	0	192	202	359	561	
P	Telepac	Assinatura	0	239	24	263	359	622	
P	Telepac	Net Number	0	0	1376	1376	0	1376	
SWE	AOL	Unlimited dial up	0	264	0	264	527	790	
SWE	AOL	Standard Dial up	0	77	1177	1254	527	1781	
SWE	Tele2	Tele2Internet	0	27	0	27	527	553	
SWE	Telia	Telia Internet ISDN Duo	23	230	0	253	527	779	
SWE	Wineasy	Dial up	0	29	0	29	527	556	
UK	AOL	Flat Rate	0	248	0	248	1315	1563	
UK	BT Internet	ClickForBusiness Access	0	0	0	0	666	666	
UK	BT Internet	ClickForBusiness Connect Lite	0	83	0	83	666	749	
UK	BT Internet	Connect2Business	0	198	0	198	666	865	
UK	Cable Internet	Standard	0	69	0	69	1315	1384	
UK	Compuserve	Flat Rate	0	124	0	124	1315	1439	
UK	Compuserve	Standard	0	115	913	1027	1315	2343	
UK	Demon	Business Dial	135	1164	0	1299	1315	2615	
UK	FreeServe	AnyTime	0	215	0	215	0	215	
UK	FreeServe	No Ties	0	0	0	0	1315	1315	
UK	FreeServe	HomeTime	0	148	0	148	1315	1464	
UK	Microsoft Network	Free Web	0	0	0	0	1315	1315	
UK	Microsoft Network	Annual Pass	0	206	0	206	1315	1522	
UK	Microsoft Network	Hourly Pass	0	82	977	1059	1315	2374	

Notes to Business ISPs

Costs in euro, excluding VAT.

400 hours of ISP usage at peak hours (11:00) is assumed, including any PSTN usage.

No assessment of the suitability of the packages to the "usage profile" has been done. Packages that seem very expensive may be more suitable for a different type of usage. Packages in bold are examples of so-called "free" packages where the ISP will get a share of the access call charges.

ADSL: is this the solution?

The xDSL technology is fast becoming popular as an economical way of having high speed Internet access. For residential and small business users the ADSL service offers a variety of speeds (bitrates), and the advantage that no special lines need to be installed. A regular telephone line can serve as the basis for the service.

Most incumbent operators are now offering ADSL services in one form or another. Control over the local extensions to the end user is key to deliver such services, and hence the incumbent operators usually control the rollout of ADSL. Only where the incumbent operator offers ADSL for resale, or alternative local networks exist, will this service be offered by other providers, for example Internet Service Providers.

The tables below show the installation and monthly rental charges for ADSL services offered by incumbent operators in the EU Member States. Not all operators offer the service yet, although in most cases a launch is expected in the near future. Charges shown are for the ADSL service alone, and do not include any additional services like Internet access. Charges related to the underlying telephone line are not included.

The offerings from the different operators vary a lot, as the tables will show. Different bitrate combinations are used, and it is difficult to make direct price comparisons. An attempt has been made to compare the price per Megabit of transfer capacity, assuming the sum of the two bitrates for up-link and down-link. The highest capacity offered in a country is then used as a basis, as this will produce the lowest price scenario. Lower bitrates will normally have a higher price per Megabit.

Table 3: **Installation charges for ADSL – €**

		Bitrate							
		64/256	64/512	128/256	128/512	128/1024	256/512	256/1024	512/2048
B	Belgacom	92.22	–	–	–	92.22	–	–	–
DK	Tele Danmark	–	–	37.50	48.24	–	–	58.99	91.22
D	Deutsche Telekom	–	–	–	51.57	–	–	–	–
EL	–	–	–	–	–	–	–	–	–
E	Terra	–	–	114.61	177.72	–	–	–	330.98
F	France Telekom	–	–	–	97.97	–	–	126.19	–
IRL	Eircom	–	–	–	–	–	–	–	–
I	Telecom Italia	–	–	–	129.11	–	–	–	–
L	P&T	131.06	131.06	–	–	131.06	–	–	–
NL	KPN	–	209.73	–	–	–	–	247.86	–
AYT	Telekom	–	109.01	–	–	–	–	–	–
P	–	–	–	–	–	–	–	–	–
FIN	Sonera	–	–	–	–	–	137.86	137.86	137.86
SWE	Telia	–	–	–	127.37	–	–	–	–
UK	BT	–	–	–	–	–	208.08	–	–

Note:
Prices in euro, excluding VAT

Table 4: **Monthly rental charges for ADSL – €**

		Bitrate							
		64/256	64/512	128/256	128/512	128/1024	256/512	256/1024	512/2048
B	Belgacom	92.22	–	–	–	92.22	–	–	–
DK	Tele Danmark	–	–	37.50	48.24	–	–	58.99	91.22
D	Deutsche Telekom	–	–	–	51.57	–	–	–	–
EL	–	–	–	–	–	–	–	–	–
E	Terra	–	–	114.61	177.72	–	–	–	330.98
F	France Telekom	–	–	–	97.97	–	–	126.19	–
IRL	Eircom	–	–	–	–	–	–	–	–
I	Telecom Italia	–	–	–	129.11	–	–	–	–
L	P&T	131.06	131.06	–	–	131.06	–	–	–
NL	KPN	–	209.73	–	–	–	–	247.86	–
AYT	Telekom	–	109.01	–	–	–	–	–	–
P	–	–	–	–	–	–	–	–	–
FIN	Sonera	–	–	–	–	–	137.86	137.86	137.86
SWE	Telia	–	–	–	127.37	–	–	–	–
UK	BT	–	–	–	–	–	208.08	–	–

Note:
Prices in euro, excluding VAT

If we normalise these monthly rental charge to a price per Mbit/s, using the lowest price available, (which normally means the price for the highest bitrate offered) then we could see the variation of rates, offered across Europe.

Table 5: **Best of the normalised prices, price per Mb/s in Euros.**

B	29.14
DK	45.52
D	32.63
EL	–
E	65.70
F	53.60
IRL	–
I	123.95
L	74.70
NL	19.83
AYT	86.02
P	–
FIN	30.05
SWE	36.95
UK	74.03

As we stated at the beginning of this article, charging structures for internet access are far from clear and prices can be erratic from year to year even if the ISP remains in existence and even if it continues to offer the same package. This all makes it difficult for an SME thinking of entering into e-commerce or planning to move a substantial element of its business online. How can they correctly plan expenditure, allocate human resources and select the best partner ISP in these circumstances? And how much more complex it will be if, despite the imminent arrival of the single currency in most States, the SME has business in several countries!

In October of this year, Teligen won an 18 month project from the EU to undertake a benchmarking of internet access charges (dial-up, adsl and cable modem) in all 15 States plus Norway and Iceland. We will be delivering the first report in early 2002. Is this the end of such huge variations in the internal market or will competitive forces deliver ever more complex and differing packages?

The tables and data for this article are taken largely taken from reports prepared by Teligen for DGINFO as part of our on-going tariff analysis. The latest report covers prices valid at December 2000 in "A report on Telecoms Tariff Data". The December 2001 report will be presented early next year. These reports are made available on website: www.europa.eu.int/ISPO. Please note that these are archived from time to time and as Teligen is not responsible for their publication we do not always know the exact url. We have also just completed the Report on Telecoms Tariff Trends 1998-2001 and would expect it to be made available to the public shortly on the same website.

Teligen Guide

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Services covered PSTN, Mobile, Data, Satellite

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Outlook

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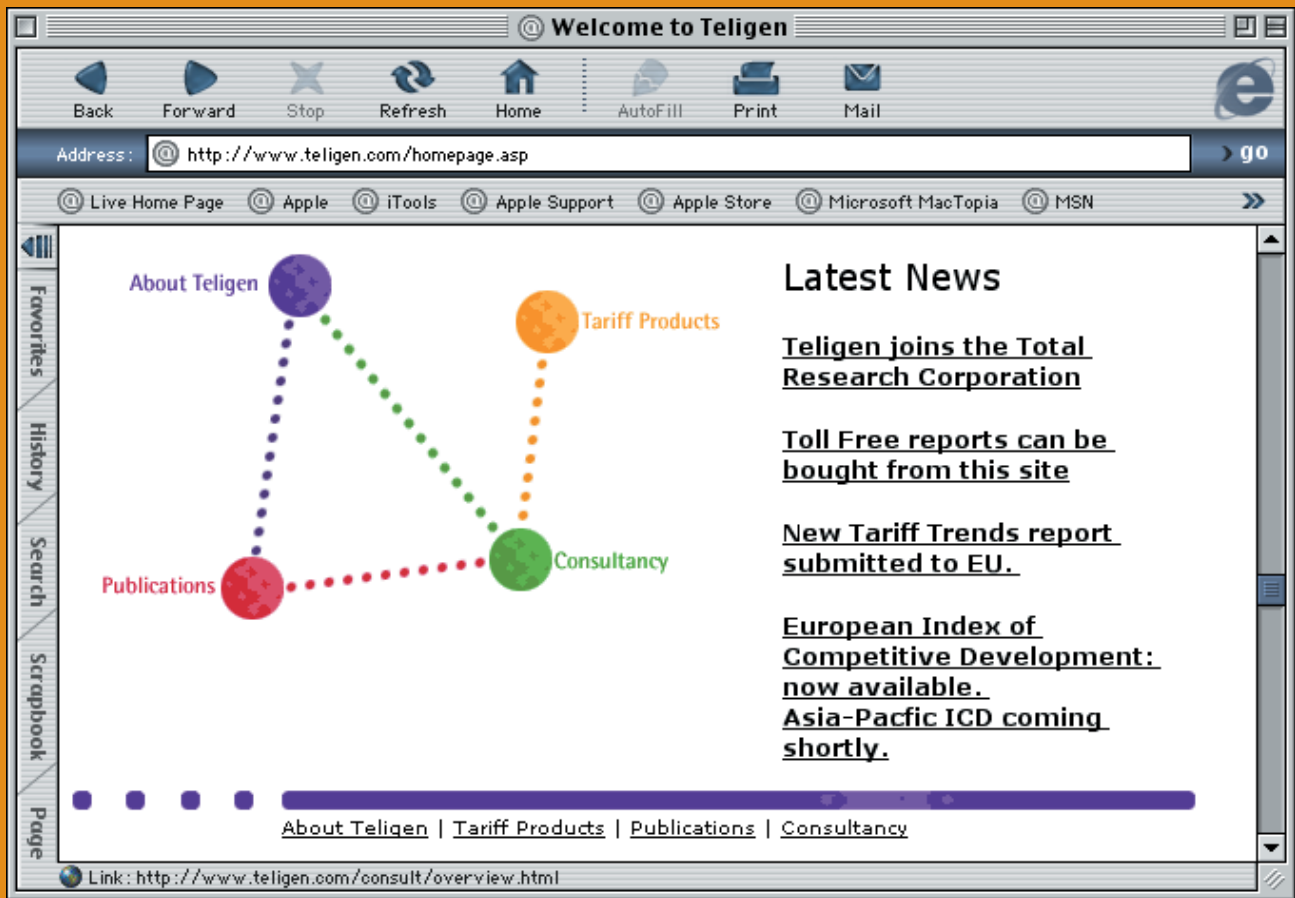
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