

MEASURING SUCCESS – KEY METRICS

When dealing with any complicated, dynamic environment, measuring performance is never easy. Such difficulty is compounded when dealing with a market, which is developing, such as broadband. What will constitute success? Once measures of success have been decided, how should they be interpreted?

Broadband market indices have been developed to measure and compare the attractiveness and performance of the broadband market across a range of countries. The underlying principles used to develop the indices that comprise the broadband market index are:

- **Simplicity:** the index must be transparent and easy to explain and understand
- **Quantifiable:** the data to be used in the index must exist in a consistent manner across all the countries studied
- **Realistic:** it should give as realistic an impression as possible as to the status of broadband in a given country.

In these situations it is sensible to start from an end goal and work backwards. In the UK's case, the goal is to have the most extensive and competitive broadband market in the G7¹ by 2005. Therefore, extensiveness and competitiveness are clearly the two criteria that will need to be measured. These words do not naturally lend themselves to measurement in a simple fashion

Analysys has worked closely with the DTI and the Broadband Stakeholder Group (BSG) to agree quantifiable measures of success. Consensus has emerged around a dashboard of six indicators. A range of indicators enables a deeper understanding of the relative strengths and weaknesses of each international market that cannot be attained from a single aggregated measure. A further advantage is that causes (e.g. regulation, competition) can be separated from effects (e.g. take-up) and analysed independently. This section presents definitions for each dashboard indicator and the rankings for the 11 countries studied.

Definition of indices

Six key measures of success have been identified: price, choice, regulation, availability, market context and take-up. These are calculated as indices between 0 and 1, where a high score represents a good performance. Weightings are attached to these different indices to produce extensiveness and competitiveness indices, against which countries can be ranked. All indices are defined so as to give a value between 0 and 1, so that the weightings applied to each index are transparent. All indices are calculated based on the situation at the end of September 2003.

1. Choice index

The choice index comprises three parameters:

- **Infrastructure competition:** sum of the squares of the top three infrastructure player markets shares
- **Infrastructure choice:** proportion of households with a choice of terrestrial infrastructure operator
- **Retail competition:** sum of the squares of the top five retail ISPs market shares.

The UK is ranked fifth in the eleven countries studied and fourth in the G7.

¹ G7 countries are: Canada; France; Germany; Italy; Japan; the UK and the USA.

<i>G7 Rank</i> <i>Qtr 3</i> <i>2002</i>	<i>G7 Rank</i> <i>Qtr 1</i> <i>2003</i>	<i>G7 Rank</i> <i>Qtr 3</i> <i>2003</i>	<i>Country</i>	<i>Choice index</i>
1	1	1	Japan	0.81
2	2	2	Canada	0.74
3	3	3	USA	0.73
			South Korea	0.7
4	4	4	UK	0.66
			Australia	0.59
			Sweden	0.52
6	5	5	France	0.48
			Ireland	0.47
5	6	6	Italy	0.31
7	7	7	Germany	0.14

Figure.1:
Choice index
[Source:
Analysys]

2. Price index

The price index is calculated as the price of the top 5 retail ISPs, weighted by market share. Prices used are for mainstream residential products and include connection fees amortised over a three-year period and are adjusted for purchasing power parity (PPP).² In order to give a value between 0 and 1 for this index a PPP price of USD200 or less (per year) is allocated a score of 1, with a PPP price of USD800 or more allocated 0. A linear scale is used between these points. The UK is ranked third in the G7.

² Prices are converted from local currency to USD using the exchange rate from the same time as the PPP factors to ensure consistency.

<i>G7 Rank</i> <i>Qtr 3</i> <i>2002</i>	<i>G7 Rank</i> <i>Qtr 1</i> <i>2003</i>	<i>G7 Rank</i> <i>Qtr 3</i> <i>2003</i>	<i>Country</i>	<i>Price index</i>
1	1	1	Japan	0.87
2	2	2	Canada	0.65
			Sweden	0.60
3	3	3	UK	0.55
			South Korea	0.47
4	4	4	Germany	0.46
6	6	5	France	0.4
5	5	6	USA	0.39
			Ireland	0.35
			Australia	0.29
7	7	7	Italy	0.11

Figure.2:*Price index**[Source:**Analysys]*

3. Regulation index

The regulation index compares and contrasts the broadband market actions taken by regulators in each country. The regulation index is based on simple, binary scores for the presence (or absence) of regulatory provision for:

- wholesale DSL
- wholesale cable
- local loop unbundling (LLUB) – mandated
- access upstream of MDF
- line sharing
- separation of network ownership.

The index does not provide a measure of the success of policy implementation. On this simple index, the UK is joint first with the USA in the G7. Although wholesale cable in the UK has not been regulated, it has been treated in the index as if it were since it is available as a result of negotiations between ISPs and ntl.

<i>Rank Aug 2002</i>	<i>Rank Feb 2002</i>	<i>Rank Aug 2001</i>	<i>Country</i>	<i>Regulation index</i>
2=	1=	1=	UK	1.00
1	1=	1=	USA	1.00
2=	3	3	Canada	0.83
			Ireland	0.83
			South Korea	0.83
			Australia	0.67
4=	4=	4=	France	0.67
7	4=	4=	Germany	0.67
4=	4=	4=	Italy	0.67
4=	4=	4=	Japan	0.67
			Sweden	0.67

Figure.3:
*Regulation
index [Source:
Analysys]*

4. Availability index

Availability index is a measure of the percentage of the population with access to a terrestrial broadband solution (naturally a value between 0 and 1).

After a period of little change, broadband availability in the UK has been increasing significantly as BT has upgraded exchanges that have passed their trigger levels³ and this trend is likely to continue in the near future. In September 2003, BT announced plans to bring ADSL availability potentially within reach of 90 per cent of UK homes by 2004 through the utilisation of new technologies, and cost saving initiatives. More recently, BT has announced that it is setting trigger levels for an additional 2300 BT exchanges providing a route-map for extending ADSL coverage to more than 99% of UK homes and businesses. The UK is currently ranked fourth in the G7.

³ Levels of demand BT deems necessary to trigger upgrades of further exchanges – the company has stated that upgrades of further exchanges will only be carried out where there is clear demand, indicating commercial viability.

<i>G7 Rank Qtr 3 2002</i>	<i>G7 Rank Qtr 1 2003</i>	<i>G7 Rank Qtr 3 2003</i>	<i>Country</i>	<i>Availability index</i>
1=	1	1	Japan	0.92
			South Korea	0.92
1=	2	2	Germany	0.90
3	3	3	Canada	0.85
5	4=	4	UK	0.80
4	4=	5	USA	0.77
6	7	6=	France	0.75
7	6	6=	Italy	0.75
			Sweden	0.75
			Australia	0.65
			Ireland	0.45

Figure.4:
Availability
index [Source:
Analysys]

5. Market context (potential) index

Countries with a high penetration of services that are 'part way' towards broadband (i.e. flat rate narrowband, ISDN, digital TV, 3G) have a large pool of subscribers, who may quickly switch over to broadband given certain circumstances. Hence countries with high flat rate, ISDN, or DTV penetration could expect an accelerated growth in broadband penetration either: once broadband prices are close to flat rate prices; the applications for which broadband is essential increase in attractiveness; and/or digital TV becomes a competitive platform for broadband delivery. 3G provides an additional way of providing broadband access, albeit at lower data rates/higher cost per Mbyte transferred.

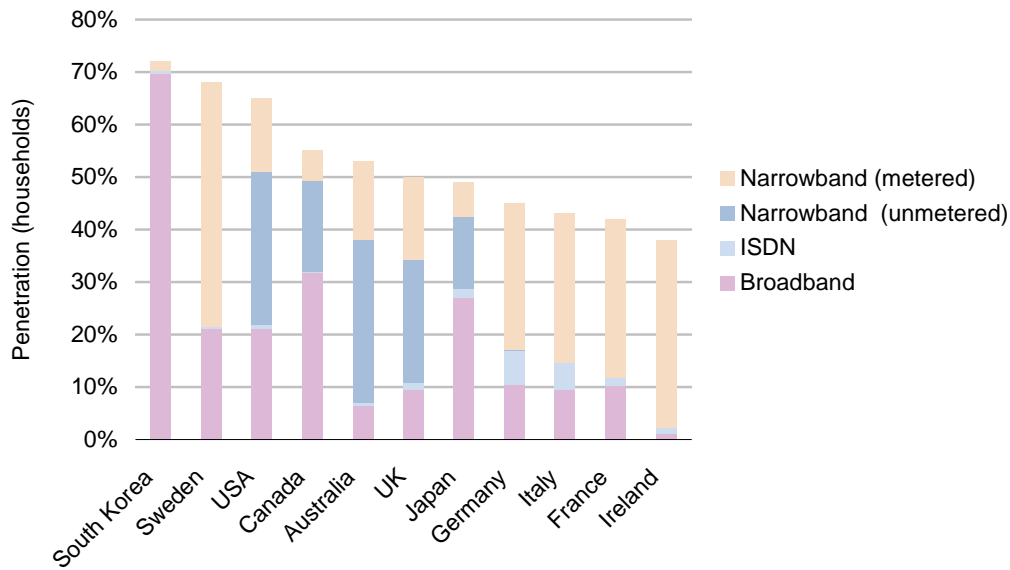


Figure 5: Residential Internet Penetration [Source: Analysys]

Flat rate Internet access is available in a number of countries (e.g. the USA, Canada, Australia), due to local calls being either untimed, or bundled with line rental. For example in the USA local calls are 'free' (effectively bundled with line rental)⁴ and in Australia local calls are a set cost, regardless of duration. Hence if the call to the ISP can be made via a local number (most cases) then the telephony element is flat rate. Payment to the ISP occurs on top of this charge and can either be a flat fee per month, or based on some sort of usage measurement (volume, time). Data on the breakdown of which price plans subscribers have adopted is scarce, however, the trend is towards flat rate prices except for low users.⁵

The UK is unusual in that flat rate services are available (via FRIACO or cable operators), even though local calls are metered. In other countries where local calls are metered e.g. Germany the availability of flat rate services is very limited. The high levels of take-up of flat rate services in the UK (over 50% of Internet subscribers) indicate that if the gap between broadband and flat rate prices is reduced, or compelling applications emerge then the UK could see a fast migration of flat rate users (who are familiar with paying monthly fees) to broadband.

This potential market is captured in the market context index as a measure of potential acceleration of broadband, where equal weighting is given to ISDN, flat rate, digital TV and 3G subscribers. In order not to penalise countries where transition from these services to broadband has already occurred, broadband penetration is also included in this index. The penetration of these services is then summed and divided by 200% to give a value between 0 and 1. The UK is ranked third in the G7.

⁴ There are a small number of exceptions where local calls are not 'free' e.g. NYC.

⁵ Assumption is that 75% of users are on a flat rate package from their ISP, if untimed local calls are available.

G7 Rank Q3 2002	G7 Rank Q1 2003	G7 Rank Q3 2003	Country	Market context index
1	1	1	USA	0.45
			South Korea	0.42
2	2	2	Canada	0.40
3	3	3	UK	0.38
4	4	4	Japan	0.27
			Australia	0.26
			Sweden	0.24
6	6	5	France	0.15
			Ireland	0.14
5	5	6	Italy	0.14
7	7	7	Germany	0.13

Figure.5:
Market context
index [Source:
Analysys]

6. Take-up index

The take-up index is a measurement of household broadband penetration (resulting in a value between 0 and 1). To qualify as broadband, a service must be capable of delivering 'always-on' services to each individual at data rates in excess of 128kbit/s.

The strong recent growth rates of broadband the UK has allowed the UK to consolidate its position as sixth in the G7 – closing the gap on Germany in particular, which raises the possibility of moving even further up the rankings during the next 12 months. The UK's strong position in leading indicators such as choice, price and market context suggest that take-up will continue to improve significantly, although other countries will also be continuing to develop in this area.

Rank Aug 2002	Rank Feb 2002	Rank Aug 2001	Country	Take-up index
			South Korea	0.697
1	1	1	Canada	0.317
3	2	2	Japan	0.270
2	3	3	USA	0.211
			Sweden	0.210
4	4	4=	Germany	0.103
6	5	4=	France	0.103
7	6	6=	UK	0.095
5	7	6=	Italy	0.095
			Australia	0.064
			Ireland	0.010

Figure.6:
Take-up index
[Source:
Analysys]

The 2005 Government target

The Government target is to have the most competitive and extensive broadband network in the G7 by 2005. The target may therefore be broken down into the two factors – competitiveness and extensiveness – which combine to provide the overall market environment for broadband. We can define these two factors in terms of the relevant dashboard indicators as follows:

- *competitiveness* is defined as a composite measure of the market regulation index (a leading indicator), market choice, and price (a lagging indicator) – these are weighted: regulation (1), choice (3) and price (3)
- *extensiveness* is defined as a composite measure of market context and broadband availability – these are weighted market context (1) and availability (2).

These indices also allow us to separate cause (competitiveness, extensiveness) and effect (take-up).

G7 Rank Qtr3 2002	G7 Rank Qtr1 2003	G7 Rank Qtr3 2003	Country	Competitiveness index
1	1	3	Japan	0.82
2	2	2	Canada	0.72
3	3	3	UK	0.66
4	4	4	USA	0.63
			South Korea	0.62
			Sweden	0.57
			Ireland	0.47
			Australia	0.47
5	5	5	France	0.47
6	7	6	Germany	0.35
7	6	7	Italy	0.28

Figure.7:
Competitiveness
index [Source:
Analysys]

The UK arguably remains one of the most competitive broadband markets in Europe, ahead of those countries with less infrastructure competition or lower retail competition in the absence of wholesale DSL services. Based on our competitiveness index, the UK is currently in third place in the G7, significantly ahead of France, Italy and Germany and marginally ahead of the USA.

G7 Rank Qtr3 2002	G7 Rank Qtr1 2003	G7 Rank Qtr3 2003	Country	Extensiveness index
			South Korea	0.75
2	2	1=	Canada	0.70
1	1	1=	Japan	0.70
5	5	3=	UK	0.66
4	4	3=	USA	0.66
3	3	5	Germany	0.64
			Sweden	0.58
7	6	6	Italy	0.55
6	7	7	France	0.55
			Australia	0.52
			Ireland	0.35

Figure.8:
Extensiveness index
[Source: Analysys]

Against the extensiveness indicator, a combination of availability and addressable market, the UK has moved up to joint third place (with the USA) from fifth in the G7. It is expected that the UK's position will continue to improve with increased broadband roll-out resulting from expansion of ADSL coverage as a result of BT's trigger level scheme and continued growth in the take-up of Internet and interactive digital TV services.

Whilst it may be challenging to develop a competitive and extensive broadband network, the two goals are not necessarily mutually exclusive, as shown by Canada, Japan and the USA in Figure 10. In fact, the plot chart indicates there may be a positive correlation between the two.

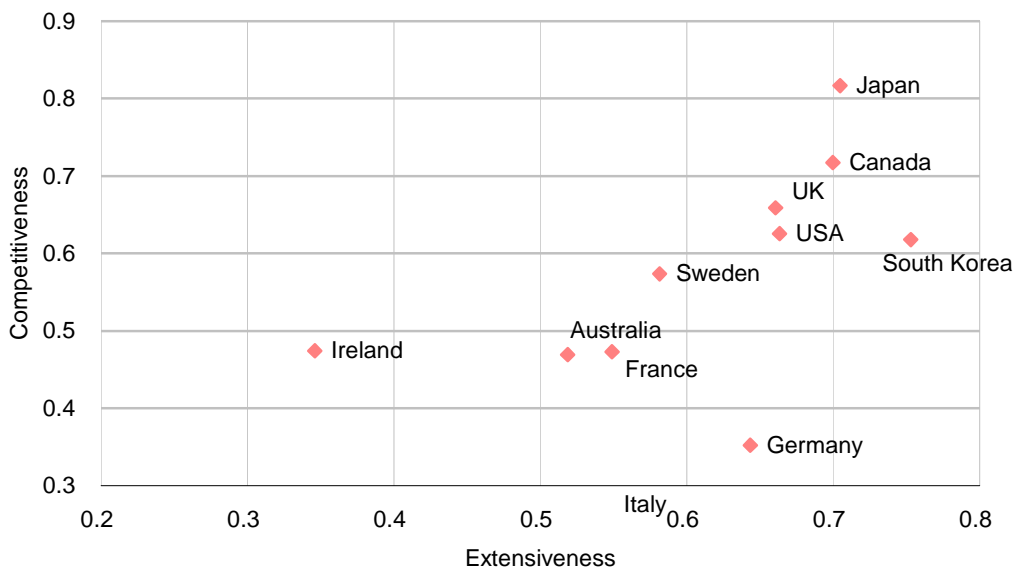


Figure 10: Extensiveness versus Competitiveness [Source: Analysys]