



## **'True Broadband' in Europe – Slowly Arriving But Increasingly Needed.**

### **Nielsens Law for Broadband Speeds (Similar to Moore's Law for Computing Power) Works in Europe and Predicts Arrival Dates of 100 Mbit/s Broadband**

The extent of the ever increasing consumer appetite for high speed broadband – and the potential knock on effect for the entertainment and gaming industries – is revealed in study presented to leading industry figures at the FTTH Council Conference in Paris last week..

According to research commissioned by the Fibre to the Home Council Europe (FTTHC)<sup>1</sup>, consumers with 'true broadband' connections of 100 Mbit/sec and more, **already consume three times as much data as a typical ADSL customer.**

The study also examined Nielsen's Law for broadband speed (think Moore's Law for silicon) and showed **that at the current rate of progress the UK will have 100 Mbit/s services more than 10 years after Sweden, 5 years behind France and 4 years after Poland.**

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The study, conducted by consultants Ventura<sup>2</sup>, examined the typical uses of this increased bandwidth and the rate of progress towards 'true broadband' speeds of 100 Mbit/sec or more based on data from both the UK and Swedish markets.

Sweden is arguably the most advanced broadband market in Europe where consumer broadband services at speeds of 100 Mbit/sec were available in a number of areas as early as 2004 and have continued to become more popular ever since. This 'true broadband', has been delivered via fibre optic networks which, unlike ADSL, deliver the same fast access speed on the uplink as well as the downlink.

The study of networks serving 100,000 homes also showed that entertainment drove this high traffic and in particular in some cases up to 80% of the traffic was generated by peer to peer file sharing applications. The faster downloads and in particular the symmetry of fibre broadband being particularly well suited to file sharing networks.

By coincidence Toshiba recently announced that the next generation of immersive "3D" televisions would need to receive data at around 300Mbit/s or possibly 100 Mbit/s with new compression. Fibre broadband was cited as a key delivery mechanism but 100Mbit/s and even 1000Mbit/s services are already common in Japan where ADSL broadband is in decline as households replace it with fibre. If present trends continue consumer electronics and new services for fibre speeds will be common in Japan while most European consumers are disadvantaged.

"Put together the huge range of entertainment content on the internet (from movies to social networks and gaming) and the speed and responsiveness of 'true broadband' and you have a pretty powerful new medium. Add the fact that Europe's home TV screens are growing in average size 20% a year and are

increasingly networked and you have the basis of a high definition on-demand revolution.” says Stefan Stanislawski of Ventura. “Someone somewhere is going to make a lot of money by figuring out the right globally scaleable business models for HD content of all forms on the next generation Internet and those countries which have adopted fibre early have a natural advantage in capturing that innovation” he added.

However, progress towards ‘true broadband’ in the UK remains painfully slow and at the current rate of progress the UK will not hit 100 Mbit/sec before 2015. Broadband speed increases in any particular market were predicted by ‘Nielson’s law’<sup>3</sup> formulated in the late 90’s. It states that broadband speeds available to the high end consumer would increase by 50% per year – multiplying 7.5 times after five years. This implies a slightly slower rate of progress in bandwidth than in computing capability where the equivalent ‘Moore’s law’ predicts speed increases of 60% per annum.

Neilson’s law fits real market data for the UK market remarkably well (attachment 1) but Sweden, France and to a lesser extent Poland have done better than predicted. If the relationship continues to hold true then the top end of the UK market will hit 100 Mbit/sec access speeds in 2015 putting the UK market a full 10 years behind the leading European broadband market Sweden. On the same basis, France should have 100 Mbit/s broadband this year or next and Poland in [????]

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## Notes

### 1. The Fibre to the Home Council Europe (FTTHC), [www.ftthcouncil.org](http://www.ftthcouncil.org)

The Council’s members represent more than 70 of the technology industries’ leading communications companies, all of which are broadband leaders who have many years of experience in deploying complex solutions to the fast growing broadband market. The purpose of the FTTH Council Europe is to accelerate the deployment of fibre access within Europe to consumers and businesses.

### 2. Ventura Team LLP, [www.ventureteam.com](http://www.ventureteam.com)

Ventura Team LLP is a next generation consulting firm advising clients in the telecom and technology industries with a strong focus on broadband, wireless and software / applications over broadband. The lead author of the study of Stefan Stanislawski, Partner, who started the process of legalising and liberalising ADSL broadband in Europe with an EU regulatory report in November 1993 published only a year after the worldwide web had been invented. At that time, fibre was deemed too futuristic to include in the regulatory initiative.

### 3. Nielson’s law

In 1998 the web was fast growing but very new still and Jakob Nielsen was concerned with usability of web pages. Web designers tended to get carried away with the new medium and made pages too cluttered for the slow connections of the time. Nielsen’s point was that over dial-up it would take several seconds to load each page which was frustrating.

Looking at his own Internet access speed he postulated a Law and suggested that it would be until 2003 that most people could enjoy complex pages. His Law had two parts:

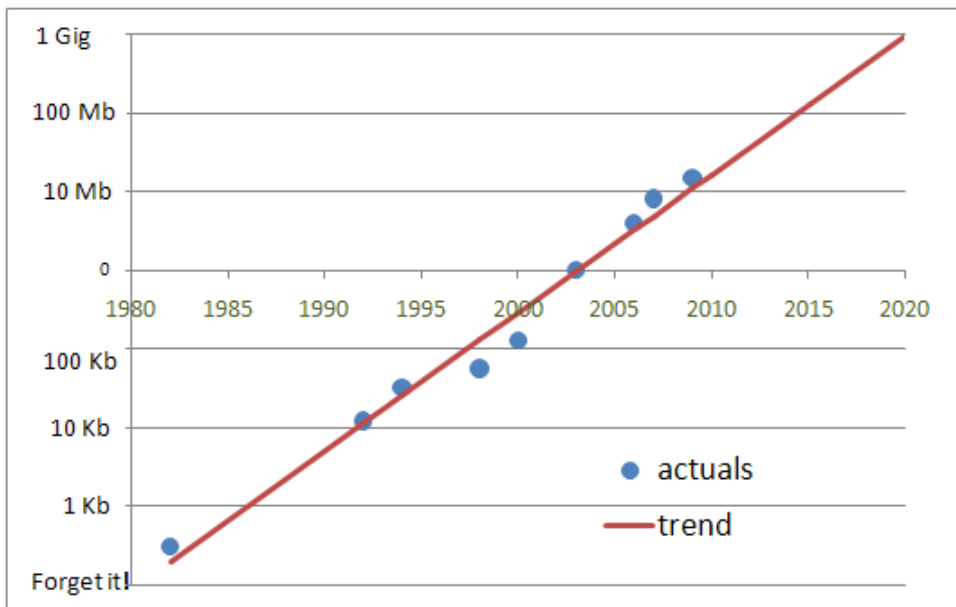
A high-end user's connection speed grows by 50% per year (this is 7.5x after 5 years)

The mass market lags the high-end by 2-3 years

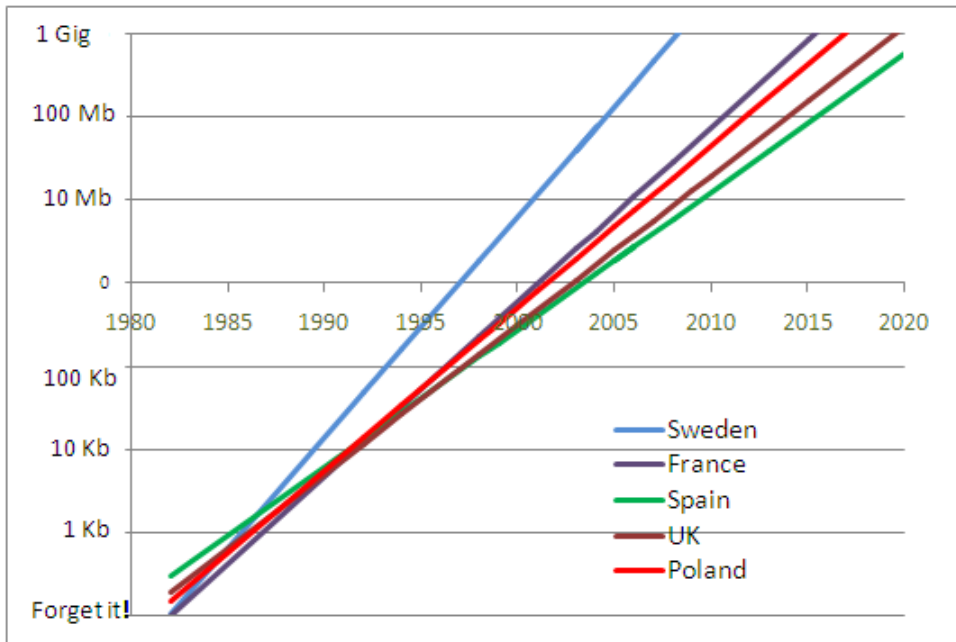
### Attachment 1. Nielsen's Law for the UK Market.

Chart shows actual and predicted development of consumer broadband speeds in the UK. The trend rate of progress is almost exactly as predicted by Nielsen – 50% per annum (in fact it is 49.87%).

**Note that the vertical scale is logarithmic so it is non-linear. The higher up the vertical scale the greater the difference – each line represents a 10 fold increase in the speed available to a high end user.**



### Attachment 2. Comparison of Past and Extrapolation of Future Top Speed Consumer Broadband Available in Various European Countries



Projected dates for launch of 100 Mbit/s if past rate of progress in each country continues:  
 Sweden – had them since 2004. 1000 Mbit/s due soon.  
 France 2009/10  
 Poland 2011  
 UK 2015  
 Spain 2016