

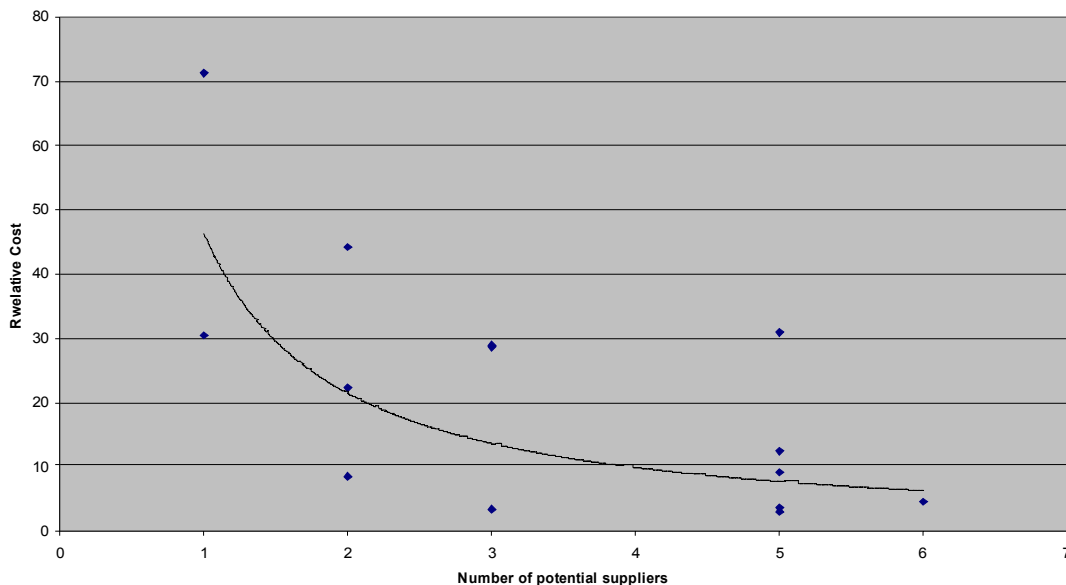
Economic Issues

Discussion note

In 2003, the SERENATE study described the issue of the digital divide – in particular, varying telecommunications costs across Europe for the same service – that was affecting European research networking. The EARNEST study of economic issues has shown that, far from disappearing, that digital divide in Europe is alive and well.

Figure (i) shows the cost of connectivity in GÉANT2 in 2006 for leased capacity versus the number of suppliers. The figure is very similar to the picture showing the situation in 2001 that was published in the SERENATE Summary Report.

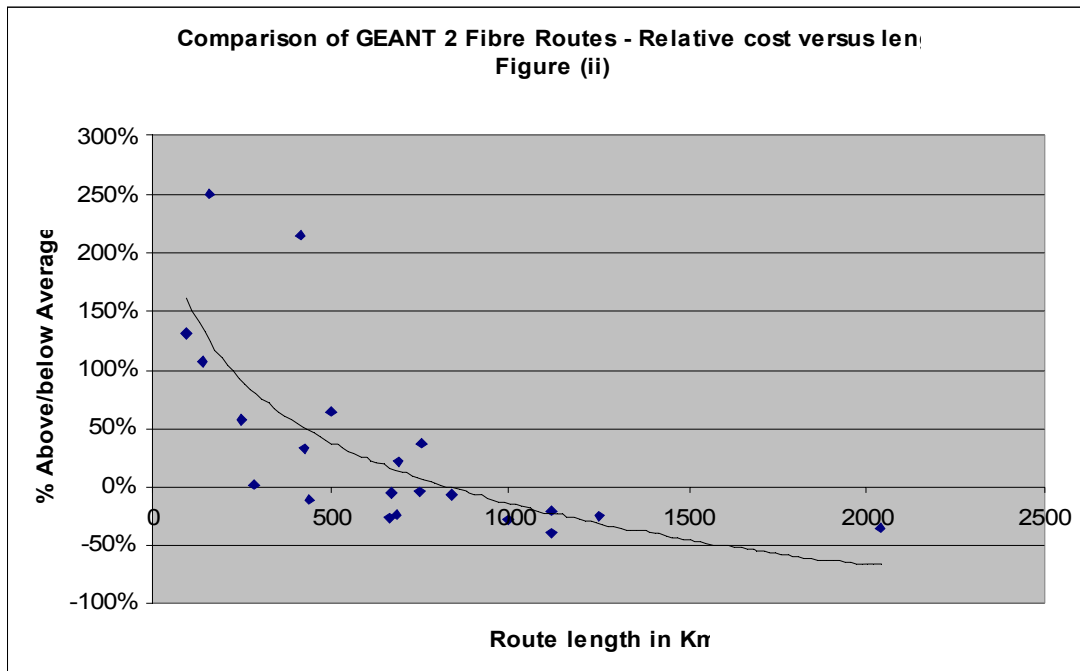
Figure (i) GEANT 2 Digital Divide



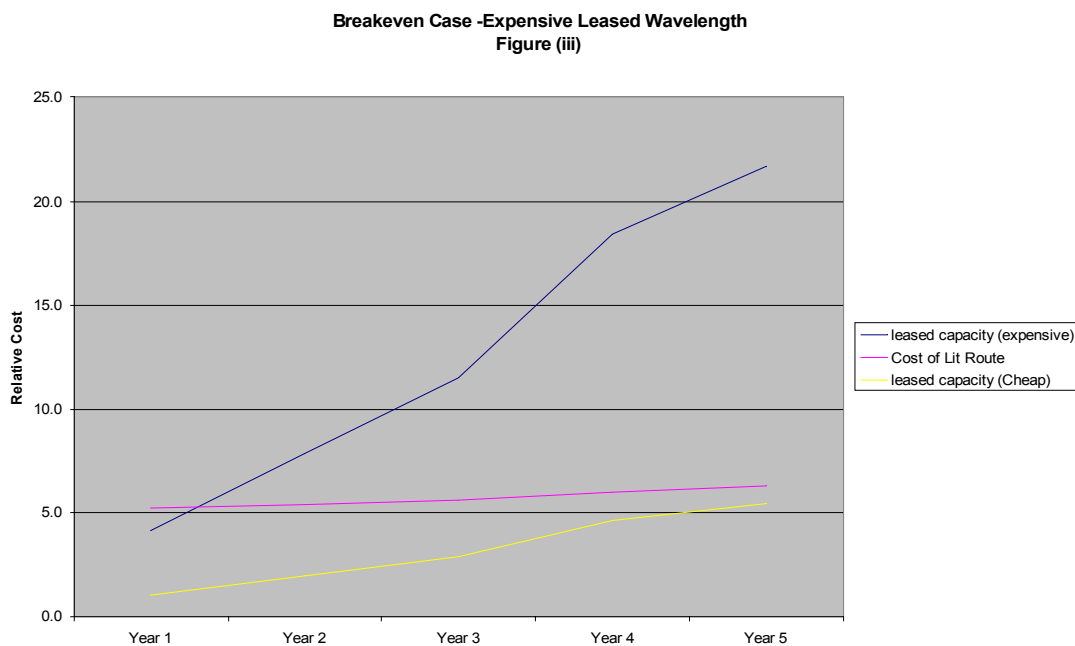
In addition to the digital divide related to the competitiveness of the telecommunications markets, a new geographic divide is appearing in Europe as investment in fibre has replaced leased circuits for much of the transmission in the GN2 project. There are three factors involved in the geographic divide:

- Firstly, there is a division between countries where international fibre is available and those where it is not.
- Secondly, even where fibre is available, the cost distribution of the fibre is heavily dependent on geographic factors, notably route length (as illustrated in Figure (ii)). In practice this means that less competitive locations with shorter international routes are cheaper in absolute terms than more competitive locations with longer routes.
- Thirdly, in looking at geographic routes those in the centre of the network have a higher population of wavelengths than those at the edge and are therefore cheaper per wavelength.

In summary, things have changed over the last five years, but they have not improved for the most expensive or less central locations. Indeed, there is a danger that the digital and geographic divides are becoming institutionalised.



Another factor is the problem created by fibre investment in high-price locations. Where leased wavelengths are very expensive, it may still be possible to justify investment in fibre. This may potentially save money, but it is likely to freeze route costs for the routes concerned for a period of several years. That institutionalises the non-competitiveness of connectivity and extends the time scales for creating a more competitive environment in Europe. Figure (iii) illustrates this point.



The figure shows that an investment in fibre would never break even if leased capacity was competitive, but where a leased circuit is 400% more expensive, a business case can be made. However, this has the effect of maintaining an uncompetitive route cost.

For discussion

How will the economic developments described above affect research and education networking in Europe? Can the networking organisations continue their current policies or are important changes of strategy necessary?

In the cost sharing for the European research network infrastructure, how much solidarity (i.e., cross-subsidisation) should there be for

- Countries where the market for international leased capacity is not competitive
- Countries where international fibre is not available
- Countries (mostly at the edges of Europe) that are disadvantaged because of long route length
- Countries (mostly at the edges of Europe) that can not benefit from the costs savings gained by running a large number of wavelengths over the same fibres?

Should fibre investment, even in high-price locations, be avoided so as not to freeze route costs for a long period?

Which recommendations to various stakeholders can be formulated based on the expected economic developments?

Which of the findings and recommendations are the most important ones that should be incorporated and highlighted in the overall Summary Report of the EARNEST Foresight Study?