

Eli Noam: The three digital divides

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With internet connectivity progressing at a fast clip, even during the dotcom downturn, the focus of attention has shifted to those left behind. The short-hand term for this concern is the "digital divide". It is a subject that unites activists on the left and media tycoons on the right, both seeking to expand the internet. Underlying virtually every discussion about the digital divide of internet connectivity is the implicit assumption that such a divide is a bad thing, requiring us to do "something".

But maybe we should first pause for a moment and understand the implications of ending this divide.

The good news is that in a few years internet connectivity, at least for narrowband, will be near universal in rich countries, like electricity or television. A major reason is that the access to the internet will be liberated from the bottleneck of the microcomputer, arguably the least consumer-friendly product ever.

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But this does not mean that the issue of the digital divide will not persist for poor countries. It is important to distinguish between three kinds of digital divide that these countries are facing. The first gap is that of *telecommunications connectivity*. Overcoming this problem is something that engineers, network companies and even government regulators now know how to do. Mostly, it takes investment money and liberalisation policy. With such ingredients applied, the telephone penetration of developing countries has been improving. But this progress will turn out to be the relatively easy part.

The second type of gap is that of *internet access*. Closing this gap will be simpler still. Once telecom networks have been constructed it is not difficult to connect computers or simple internet devices to them.

Internet connectivity, however, does not take care of the third and critical gap, which exists for *transactions* such as e-commerce and e-content. In fact, progress in bridging the first and second gaps may exacerbate the third gap.

To understand why this is so, observe three facts:

1. Most internet applications have strong economies of scale.
2. The price of international transmission is dropping fast.
3. Internet penetration in most countries is increasing rapidly.

Economies of scale in electronic commerce and content are high and therefore favour large and early entrants. These entrants are overwhelmingly companies in the developed world, especially in the US.

One lesson learned the hard way in the dotcom bust is that it is difficult and expensive to do electronic transactions well. There is vastly more involved than running a website and a shopping cart. And in content production, size and regional clustering matter, as Hollywood has been demonstrating for a long time. All this is still true for the emerging broadband internet, which requires expensive video and multimedia presentations.

Thus, the notion that the internet is a low entry-barrier environment will not prove true. Moreover, low-cost transmission makes global electronic transactions easily possible. Once a company establishes a successful model for the US market, and with fixed costs high, marginal costs low, and transmission price near zero, there is no reason to stop at the border. And concurrently, local markets for internet-based transactions have been growing around the world, as business, students and the professional classes link up.

Closing the first two gaps therefore exacerbates the third gap by creating the highways and instrumentalities for rich countries to more easily deliver products and entertainment to poor countries. Unless the third gap is overcome.

Of course, e-commerce is not a one-way street. We have all heard stories about how a local craftsman in a remote village can now access the world market for his woodcarvings. True, for certain types of products and for commodities, marketing becomes easier. But for most mass products, the complexities of sophisticated e-transactions and the value of brands are great and favour companies in developed countries.

All this will inevitably lead to future conflicts over cyber-trade and to calls for protectionism. The main alternative is to make the electronic highways into two-way routes. But what can a developing country do, concretely? To raise exports of electronic services is much more difficult than catching up with telecom and internet densities. It involves a general societal modernisation, not just the kind of infrastructure construction program that has been the focus of ritualistic internet North-South discussions.

To overcome this gap, there is no single path, no silver bullet. But there are several elements for government strategy in developing countries, beyond infrastructure construction.

Critical Mass. Governments must become a lead user and content supplier.

Commercial priority. The focus should be on serving global business markets, which are much larger than the domestic e-consumer segment.

Content. Domestic content production, whether through public broadcast institutions or small web-content producers, must also be aimed at export markets.

Customs and logistics. The transport infrastructure must be strengthened. One cannot sell abroad if one cannot ship goods quickly.

Colleges and children. Capital investments in technology require the parallel development of human technology skills.

Cross-border tele-working. Poor countries can export back-office services to other countries, utilising their low-cost labour. In the process they also develop a high-tech workforce and entrepreneurs.

Credit and investment system. The local investment climate and wealth incentives must attract domestic and foreign investors.

Commercial law reform, to make e-transactions possible.

Cultural proximity. Niche markets can be developed by leveraging geography, language and economics.

This is then the challenge to developing countries: to move beyond the first two gaps, those of telecommunications and the internet, and to focus aggressively on the closing of the gap in transactions and content, because this is much harder and slower to overcome, and less a matter of foreign aid than of domestic reforms. But without such "third gap" policies, the new technology will be absorbed for consumption rather than production and will only increase the relative development deficit.

The present downturn in the developed world provides a temporary breathing space, which should be used with urgency. The black ships of the new economy may have retreated beyond the horizon, but they will return.

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