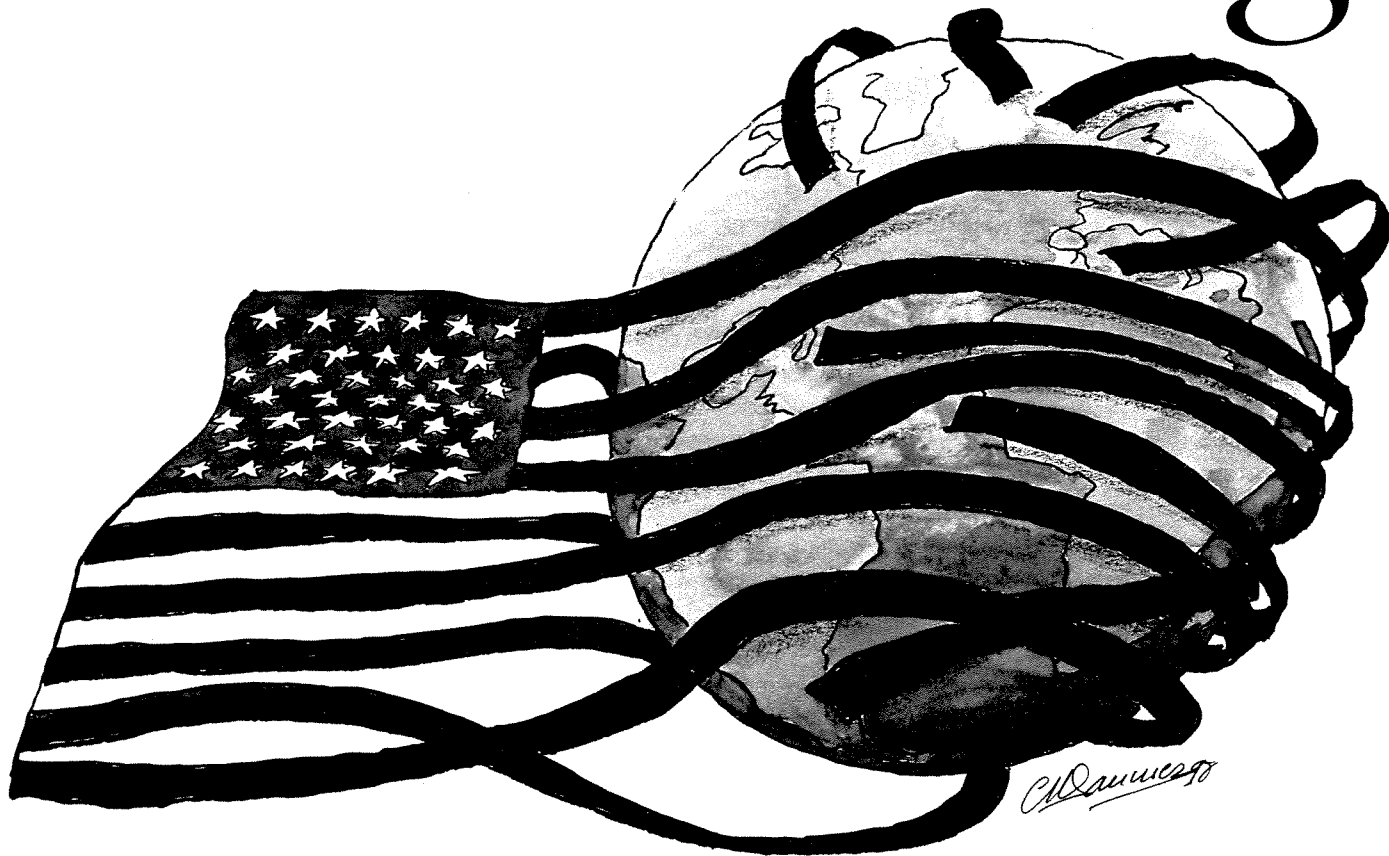



Global Warning

Cyber trade wars could heat up if U.S. growth continues on its current trajectory.



BY ELI NOAM

While e-commerce is still largely viewed through rose-colored glasses, this romance will sour in many countries as the impact of competition sets in. The expense of overcoming distance has always protected domestic firms from foreign competition. But now, the rules are being rewritten. In the new e-commerce environment, U.S. firms have taken a lead that will grow for the “farseeable” future. It is important to understand the implications for trade relations.



The key change to a globalization of e-commerce is the revolution in information transmission. Right now, the capacity of telecom networks is inadequate for many applications, such as real-time, full-motion video. The slowness of connection has led to the dismissive term the *World Wide Wait*. But soon, technology and investments will set the problem of congestion on its head. The decade of the '90s was dominated by the revolution in processing power, based on fundamental semiconductor advances of the 1980s. For a while, transmission could not keep up with processing, and bottlenecks emerged. But in the new decade, transmission will be the driver instead of the brake. Optoelectronics will be the silicon electronics of the '00s. Information transmission capability will grow at a rate double that of information processing, fueled by a combination of technological progress, abundant financing and regulatory liberalization. Wireless communications will add geographic ubiquity. Today's complaints about bandwidth shortage will seem as outmoded as the talk at the beginning of the previous century, when people worried whether there would be enough women in America to staff all those manual telephone switchboards.

The most obvious impact of this capacity is that prices drop and become time- and distance-insensitive. Basic transmission becomes a commodity, and international long-distance service becomes flat-priced. This has many long-term implications. Let's look at three services—TV, e-commerce and education.

TELEVISION MEDIA

Whenever a new media technology comes along, much of the early buzz is about culture, education, health and peace. But if media's past is a guide, the emerging international communications system will be used to a considerable extent for entertainment. The low price of transmission capacity permits customization and personalization of program delivery and advertising. It becomes possible to operate video servers at a distance and to reach viewers in other countries.

In that environment, the big winner will be Hollywood. With distribution cheap, content is the scarce element, and only Hollywood seems capable of producing the kind of premium programs desirable around the world. Vertically integrated Hollywood firms will distribute their products from a series of big video servers that they or their partners will run. This means that the emerging Internet-TV will be strongly American in content and style, except where localism is essential to content, and bypass the traditional national gatekeepers of national TV stations, networks and regulators.

E-COMMERCE

Low-priced global transmission leads to a great rise in electronic transactions. And here, too, U.S. firms will be most successful. They will benefit from proximity to technology, access to risk capital, advantage of early entry and a large home market. As in many network industries, positive network externalities exist; that is, users benefit from still other users joining. The bigger the network, the greater the users' willingness

to pay. These demand-side economies of scale give advantages to early entrants in individual markets. And once a successful model is established for the U.S. market—with transmission price near zero, with easy scaling up and with market capitalizations that encourage expansion—there is no reason to stop at the border.

HIGHER EDUCATION

Another example for the fundamental impact of low transmission cost is higher education. The traditional university system goes back 2,600 years to Nineveh and then Alexandria, and was revitalized in 13th-century Europe. The basic organizational driver had been the scarcity of information, which therefore needed to be stored and shared, with scholars coming to it and students coming to the scholars. But now, information can be anywhere. Therefore, scholars can be anywhere, linked to one another, and the students can visit the scholars electronically. This does not mean that such a form of education is superior to face-to-face or that it will replace traditional teaching. But it can be delivered at much lower cost and with greater convenience and will therefore be used in new ways and for new audiences.

Again, U.S. providers are at the forefront of utilizing these basic dynamics. American universities, of which there are a large number, are used to competing with one another for students, faculty and resources. They have already become the major world exporters of higher education, despite their high price tag. With electronic distance education, they could branch out globally. Commercial

firms such as publishers and new virtual universities will push the envelope domestically and internationally.

A CONFLUENCE OF STRENGTHS

What this discussion shows is that U.S. firms will be able to capitalize on the emerging revolution in transmission capacity and prices. It is a confluence of strengths. There is content, Hollywood. There is hardware, Silicon Valley. There is software, Redmond and elsewhere. There is capital, Wall Street and VCs. There are engineering and business schools of note. There are telemarketers and mail-order firms with an aggressive track record. There is language. There is the immigration of vast and diverse talent. There is the cultural role that comes with being the superpower. There is a large and increasingly sophisticated domestic e-commerce user base. And there are transmission carriers that have been subject to greater competition and performance pressures than elsewhere.

Of course, many factors also exist in other countries. Yet rarely do these strengths come together as much as in the United States. Yes, more Finns per capita use the Internet than Americans, but has anyone listened to good Finnish music over the Internet or bought some merchandise from a Finnish e-store lately? Domestic sites exist, of course, in many countries and often benefit from their local inside track. But they are much weaker internationally. In consequence, most of the world's major e-commerce sites are either U.S.-based or have American partners.

How can one prevent a political Luddism that is presented as the alternative to electronic Darwinism?

IMPLICATIONS FOR INTERNATIONAL TRADE RELATIONS

Success has its curses, too. It is another instance of what economist Joseph Schumpeter has called the creative destruction of capitalism. There will be many losers, and it is characteristic of losers to organize themselves and seek protection in the political sphere. There will therefore be an inevitable backlash in some countries, and various restrictions will be instituted. An example today is the transatlantic fight over the privacy protection of data, in which EU countries are threatening to block data transfers to the United States unless the United States upgrades its privacy laws. The issue is partly one of different traditions for privacy rules. But it also has a trade-protectionist dimension in that it slows down the brash U.S. telemarketing firms.

But can other countries control activities, even if they want to? Conventional wisdom says no. After all, high school kids can run electronic circles around flat-footed, heavy-handed governments. Yet such assertions reflect wishful thinking. Like it or not, governments can regulate many aspects of the Internet. Since they

cannot control many electronic transactions themselves, they will go after the less flexible elements, such as physical delivery, people, transmission facilities and assets.

So what is the conclusion?

The next decade will see the death of distance, caused by the radical drop in transmission prices. All this will have an enormous impact on just about every societal institution. In this transformation, the United States is gaining nicely, but disproportionately. Other countries could accelerate their own transformation, and they are trying. But it is not easy to catch up. The developing world, despite telecom reforms such as gradual privatization, is actually falling farther behind as the technology moves away from dumb telephony. Only 4 percent of the world's Internet hosts are in developing countries.

Instead, the easier route is to slow down the winners, and to do so collectively. And the question now is, how can one prevent this curse of success? How can one prevent a political Luddism that is presented as the alternative to electronic Darwinism? We must explore the answers to these questions. Because if we do not know where we are going, we may actually get there—to the age of cyber trade wars.

Eli Noam is a professor of finance and economics at the School and director of the Columbia Institute for Tele-Information (CITI). A former New York State Public Service Commissioner, he has written widely on global telecommunications, international film and television, media concentration, electronic banking and the cybermedia of the future.