

**Globalization and the Internet:
Comparing the Middle Eastern and Malaysian Experiences**

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Globalization and modernity today are clearly linked. Efforts to modernize forms of education, commerce and government are all linked to the new modes of globalized communication and their mastery. At the same time, globalization implies adopting *international* standards, especially international standards of openness with regard to communication, commerce, and government, as well as engineering and science.²

Moreover, it is important to recognize that globalization from a business and commercial point of view, is powered by three inexorable trends: globalization of communication, globalization of labor and commodity markets, and the networking of computers (within firms, between firms, nationally, and internationally).³ Although the communications revolution is centered on the telecommunications system (the largest machine in the world, as the American sociologist Alex Inkeles once put it), we should not forget the great impact that the advent of the widebody aircraft (the Boeing 747) has had on the rapid movement of human and material cargoes around the world. Any cargo in the world is 24 to 30 hours away from any other destination in the world, a span of time many orders of magnitude *less* than what it used to take to transport cargoes across the United States

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² See among others, Richard R. Nelson, *National Innovation Systems* (New York: Columbia University Press, 1993), Cynthia Ostry and R. R. Nelson, *Techno-Nationalism and Techno-Globalism* (Wash. D.C.: Brookings Institution, 1995); R. R. Nelson and Paul Romer, "Science, Economic Growth and Public Policy," *Challenge* (March-April 1996): 9-21.

³ These trends were lucidly set out by a correspondent for *Fortune* magazine a number of years ago; see Thomas Stewart, "Welcome to the Revolution," *Fortune* (December 13, 1993); among others.

by train or truck. Hence, all markets— labor and commodity— can be seen as “local.” A manufacturer can as easily get his raw materials around the world as within the US, and likewise, labor pools of fabricators are also within 24 hours of a plane flight. Financial markets similarly are part of this new global equation.

Nevertheless, the advent of fax, E-mail, and other forms of electronic communication have captured the imagination because such communication can now be accomplished within seconds anywhere around the world for a tiny fraction of a worker’s daily wages. Such possibilities were hardly imaginable just a few decades ago.

With the networking of computers around the world, via the World Wide Web (Web), virtually all commercial transactions can be done electronically. Even apart from the Web, it should be noted that retailers and wholesalers alike can send and receive orders automatically and electronically virtually around the world with the use of either fax or computers. Transactions that in the past would have taken several days to execute— the time to write up an order physically, post it in the mail, and send it to an offsite location – can now be completed within seconds or minutes. All of this is taken for granted now in the United States and the Western world, but it is not yet a reality in most Muslim or other underdeveloped countries. Moreover, with the move to locate more and more of these transactions on the Web, the obvious implication is that businesses around the world must either enter the Web/Internet world, or be bypassed economically. Thus the global revolution brought about by the new modes of communication has major and unavoidable consequences for all nations around the world. The latest phase of globalization represents a qualitatively different state of affairs than what was addressed by earlier analysts of the “world system.”⁴ Roland Robertson’s description of the

⁴ For example, Immanuel Wallerstein, *The World System* (New York: Academic Press, 1974); John Meyer, “The World Polity and the Authority of the Nation-State,” pp. 109- 38 in *Studies in of the World System*, ed. A. Bergesen (New York: Academic Press, 1980); John Meyer, “World Expansion of Mass Education, 1870-1980,” *Sociology of Education* 65 (1992): 128-149.

present phase as one of transforming the whole world into “a single place” seems particularly apt.⁵ Equally valuable is the diagnosis of Manuel Castells, “the rise of the network society.”⁶

However, because Muslim countries have long perceived themselves to be part of a separate society, a unique worldview, and a way of life set apart from the non-Muslim world, the emergence of the Internet as a major vehicle of communication raises many questions for them. These questions are not only, or even mainly, religious in nature, but political and economic— which is to say, the Internet implies an open, and open-ended, system of communication that many Muslim countries find either economically or politically risky. We know, for example, that many governments around the world are not prepared to open completely the channels of communication that we associate with the Internet. Speaking of the Middle East and North Africa (MENA), Clement Henry has coined the term “information-shy” to refer to the various governments of MENA that are fearful of the free flow of economic information and that state of affairs inhibits economic development. Professor Henry proceeds to notice the problematic status of the “public” versus the “private” sphere throughout the region:

Even the distinction between the “public” and the “private” sectors of most countries in the region is problematic; public officials may be less informed than ostensibly private actors enjoying close personal relations with government officials. Most economic as well as political information is kept out of any public domain, even that of government officials. Under such conditions, political reform may be a precondition for sustainable economic development.⁷

From this perspective it is evident that the emergence of the Internet and the World Wide Web has radically altered the world of communication and placed powerful new constraints on regimes that are

⁵ Roland Robertson, “Modernization, Globalization and the Problem of Culture in the World System Theory,” *Theory, Culture and Society*, Vol. 2 No. 3: pp. 103-18, at p. 103.

⁶ Manuel Castells, *The Rise of the Network Society*, 2nd ed. (Malden, Ma: Blackwell, 2000), 3 vols.

⁷ Clement M. Henry, “Challenge of Global Capital Markets to Information-Shy Regimes: The Case of Tunisia.” (UAE: The Emirates Center for Strategic Studies and Research. Occasional Papers #19). 1998.

information-shy. Such regimes are dependent on international (i.e., foreign) sources of investment capital. Only by making their internal markets transparent to outside investors can they attract the investments needed, whether for “old” or “new” economy enterprises. Since the global setting is now a seamless web of virtually instant communication, the Internet has laid the electronic foundations for the information-based economy and juxtaposed the relative transparency and financial worthiness of all national regimes. Because the original designers of the Internet set out to create a system of communication that could not be fatally disrupted even by missile attack, the long-term practical possibility of disabling the World Wide Web of users is virtually zero. In the end the presence of the Internet can be expected to transform politics and commerce, and will have a major impact on the conduct of government and economic affairs in developing countries, Muslim and non-Muslim alike.

It is instructive, therefore, to look at alternative responses to the emergence of the Internet and its adaptation by Muslim countries. Before doing so, however, it is helpful to review the current state of Internet development in the Middle East, North Africa and the rest of the world. As we see in Table 1, the Middle East and North Africa now lags behind Sub-Saharan Africa in the development of Internet infrastructure. Furthermore, most of MENA falls within the income group of Low and Middle income economies, and even there it falls behind the worldwide average of Internet Hosts for economies with low and middle income levels. Compared to the worldwide average of 120 hosts per 10,000 inhabitants, MENA is about 218 times less developed. If we use the most recent United Nations Development

Table 1. Internet Hosts per 10,000 People (January, 2000)

Region	Internet Hosts per 10,000 Pop.
Middle East and North Africa	0.55
Sub-Saharan Africa	2.73
South Asia	0.22
East Asia & Pacific	2.69
Low Income	0.37
Middle Income	9.96
High Income	777.22
Low and Middle Income	5.40
World	120.02

Source: World Bank *World Development Report* 2000/2001, Table 19, pp. 310-11.

Report for “Arab States,” we find 1.30 Internet hosts per 10,000 people, a slightly higher level of development due to the inclusion of the United Arab Emirates.⁸

This is not to suggest that Internet development in the Middle East has stagnated but that it is developing at a much slower rate than other parts of the world. For example, if we compare growth rates between 1997 and the year 2000 for MENA with growth rates of the world and for low and middle income countries, we find that in both cases MENA lags considerably. For example, between 1997 and 2000 indicators for worldwide Internet hosts increased by 245% (from 34.75 hosts per 10,000 people to 120 hosts per 10,000), whereas Internet hosts in MENA grew by only 140% (from 0.23 to 0.55 hosts per 10,000)⁹. Likewise for low and middle income countries Internet hosts increased during the three periods by 245% (from 1.53 to 5.4 hosts per 10,000) whereas MENA increased by only 140%. This suggests that MENA is increasingly falling behind the rest of the world with regard to Internet development.

In Table 2 one can see the range of Internet development in the various countries of North Africa and the Middle East. In that region, oil rich Kuwait has the largest ratio of Internet hosts to users while Turkey, without major oil resources, is next in line. Yet both of

⁸ UNHDP, *Human Development Report 2000* (New York: Oxford, 2000), Table 12, p. 201. This aggregate for “Arab states” lists 19 countries, including the UAE.

⁹ World Bank, *Knowledge for Development* (New York: Oxford, 1999), Table 19, p. 227 and *World Development Report 2000/2001* (New York: Oxford, 2000), Table 19, p. 311. The World Bank does not report data for the UAE because the UAE is not included in its definition of MENA. However, the United Nations *Human Development Report 2000* (New York: Oxford, 2000), includes the UAE among the “Arab states” and lists the UAE as having 7.61 per 1,000 (or 76.1 per 10,000) Internet Hosts in 1998; Table 12, p. 198. For present purposes, the UAE, with a population of only about 3 million and vast oil reserves, is treated as an outlier. Turkey likewise is not included in official MENA definitions but it is useful to include it in this analysis.

Table 2. Internet Hosts per 10,000 People, January 2000

Country	Hosts per 10,000 pop.
Algeria	0.01
Egypt	0.73
Iran	0.09
Jordan	1.27
Kuwait	20.5
Lebanon	10.93
Morocco	0.33
Saudi Arabia	1.28
Syria	0
Tunisia	0.1
Turkey	13.92
Yemen	0.02
Malaysia	25.43

Source: World Bank, *World Development Report 2000/2001*, Table 19, pp. 310-

these leaders in the Middle East fall considerably behind Malaysia, with 25.43 Internet hosts per 10,000 people. Although Internet growth in MENA has accelerated, these latest estimates of Internet development suggest that there is a constellation of impediments inhibiting Internet development in the Muslim world. These impediments transcend economic factors and include technological and political issues as well as moral and religious sentiments.¹⁰

As indicated above, these impediments involve deeper issues of political culture that concern the public sphere, that zone of public access in which people are free to discuss and debate matters of public interest, moral agendas, and collective destinies without fear of reprisal.¹¹ In some cases

¹⁰ It may be useful to point out that the correlation between the World Bank data on Internet Hosts and the United Nations data on GDP/capita is very low: only about 22% ($R^2 = .222$) of Internet growth is explained by GDP for the top 20 nations.

¹¹ For an historical overview of the legal separation of the public and the private, see Toby Huff, "Science and the Public Sphere: Comparative Institutional Development in Islam and the West," *Social Epistemology*, Vol.11 No. 1 (1997): pp. 25-37. Also see Huff, "The Internet and the Public Sphere: Technologies of Control or Liberation and Development," *Hybridity: Journal of Culture, Text and Identities in Singapore and the World*, Vol. 1 (2000): pp. 1-14.

there are troubling international issues, as for example in Syria. In January of 2000, Syria did not have even one Internet Service Provider (ISP), though it did have a program of computer literacy in place that was created by former President Hafiz al-Asad. It also had a Computer Society based in Damascus that was headed by the son of Hafez al-Asad, Bashar al-Asad, who is now President of the Syrian Republic, and who has publicly pledged to make Internet access available to all Syrians. In the meantime, Syrians wishing to access the Internet have had to make an illegal international call, usually to Lebanon, to log onto "Cyberia." Nevertheless, Syria has connected all of its major cities with fiber optic cables, but in January 2000 nothing was connected to the fiber optic ring.

One of the reasons why Syria had no ISP is that Syria has been on the US government list of states supporting terrorist activities, and therefore was ineligible to buy Internet routers and servers from companies such as Cisco Systems. In addition, the prevailing climate of secrecy that enshrouds Syria has been such that the major players shaping Internet development are not publicly known. For example, a Swedish colleague and I met with an official who had been the putative head of computer and Internet development in Syria since the mid 1980s (who did not want his identity revealed), and when we subsequently interviewed the head of Internet development at the University of Aleppo, that official did not know the name of the person in Damascus who was in charge of this development program.

Syria is, of course, the "ground zero" of Internet development in the Middle East, and while it cannot be taken as typical, it does reveal many of the developmental problems of Internet development in the Middle East. At the other end of MENA, Morocco presents a different picture. It has at least partially installed a new Internet infrastructure and used it strategically as both an economic incentive and source of revenue generation. During the last several years the government has laid down 8,000 km of fiber optic cable between its major cities, and in some cases, within sections of the cities. By adopting this strategy, the government, acting through Maroc Telecom, retains primary ownership of the telecommunications system while it leases use of its lines to all private entrepreneurs who are willing and able to provide Internet services. The government has,

however, sold the rights to cell phone communications to a conglomerate of international investors under the name of Meditel.

Currently there are 64 ISP's in Morocco, [and an official Web page lists 21 cyber cafes.](#)¹² The latter seems dated so that the real number is probably between 50 and 100. Each of the major cities seems to have five or six cyber cafes which is certainly true of Rabat and Fez, while Casablanca has many more. The service is good in those cities and the charge for an hour's use is 12dr (about \$1.10). Compared to the situation I encountered in Malaysia in 1999, however, this price is high, nearly double that charged in Kuala Lumpur. Moreover, Morocco's GDP/per capita is only 40% of that of Malaysia.¹³

Dial-up Internet services in Morocco are about \$59dh per month (presumably with unlimited access), which is on top of an additional monthly charge for the telephone line. The private ISPs, however, are forced to compete with each other and with Maroc Telecom, which appears to drive prices down. ISPs currently are unable to survive solely from ISP revenues and must therefore provide additional engineering or consulting services.

The Moroccan government is keenly aware of the manpower problems, both the failure of the universities to produce enough adequately trained IT workers, and the intense competition for such workers globally, leading to a new "brain drain" in Morocco and elsewhere. To deal with the former problem, the government has established two new agencies: *Confederation generale des entreprises Marocines (CGEM)* and *Office de Formation Professionnelle et de la Promotion du Travail (OFPPT)*. CGEM has established a program for university trained individuals who are unemployed and who are willing to undergo training in the area of information technology. They are given a small salary and some start-up funding to launch a cyber café or other Internet service of some kind. Within two years they are expected to be self-sufficient. These policies seem sensible enough and it seems surprising that Morocco's rate of Internet hosts is so low. No doubt much of this is attributable to the very high

¹² [www2.mincom.gov..ma/mol/content/eviewCat.asp?5](http://www2.mincom.gov.ma/mol/content/eviewCat.asp?5); www2.mincom.gov..ma/mol/content/eviewCat.asp?9

¹³ UNHDP, *Human Development Report 2000* (New York: Oxford, 2000), Table 1, p. 157. On the Human Development Index (HDI) Malaysia is ranked 61 while Morocco is ranked at 124.

illiteracy rate in Morocco and the high percentage of the population that still remains in the rural countryside, which is surprisingly poor.¹⁴

In between the extremes of Syria and Morocco we find Tunisia. But it too is a very slowly developing country insofar as Internet development is concerned. Public officials are eager to verbally support the idea of Internet development, and even claim that Tunisia was the first African country to be connected to the Internet in 1991 (three months before South Africa).¹⁵ Yet the numbers in Table 2 above suggest that Tunisia's embrace of the Internet has been tepid. The Tunisian government, like many governments elsewhere, is exceedingly nervous about creating an unfettered public space in which political and religious opponents could mobilize their followers. When the issue of designating Internet Service Providers for Tunisia came up a couple years ago, the government wanted the ISPs to guarantee that nothing being transmitted over the Web would be lewd or morally offensive to Tunisia's values, and that access to all networked computers be rigorously supervised, a policy that Human Rights Watch has opposed.¹⁶ Some Internet cafes in Tunis have been set up so that the monitors are clearly visible to the official running the cafe.

¹⁴ My visit to Morocco largely confirms the state of Internet development described in the Human Rights Watch Report, *The Internet in the Mideast and North Africa: Free Expression and Censorship* (June, 1999), www.hrw.org/advocacy/internet/mena/index.htm. While Moroccans say that "apparently" there is no Web surveillance, an incident occurred in March of this year involving a journalist's report about diplomatic disagreements over the administration of the Western Sahara. Subsequently a Web site discussing the issue was closed down.

¹⁵ This statement was made by Professor Salah Ben Abdallah, General Director of IRSIT (Institut Régional des Sciences Informatiques et des Télécommunications) during a conference at which an earlier version of this paper was presented. The Conference was on "Attitudes Toward Science" organized by the Center for Social and Economic Research (CERES) at the University of Tunis, January 27-28, 1999, under the direction of Professor Lilia Labidi in the Faculty of Social and Human Sciences. An overview of the Conference was published by the present writer in *Technoscience*, Vol. 12 No. 2 (1999): pp. 18-19.

¹⁶ See Human Rights Watch, *The Internet in the Mideast and North Africa: Free Expression and Censorship*. hrw.org/advocacy/internet/mena/index.htm

Apart from the problem of surveilling every computer, it is obvious that a major issue in Internet development is control over the telecommunications system. In developing countries, governments often own the infrastructure, and in this case the government is especially reluctant to allow its privatization, for then government would lose control over the nodes of communication in and out of the country. Thus, Tunisia in January 1999 had just three access nodes into and out of the country (two in Tunis and one in Sfax), and these were monitored by the government and its proxy servers. Even use of the Internet by the faculty without students having full access at the University of Tunis is enough to bring the system to a virtual halt.

Perhaps Saudi Arabia also represents a special case in which software has been installed to block access to Internet sites, and where programmers are frequently employed to block access to Internet sites that are said to be forbidden for moral reasons.¹⁷ Table 2 again tells us that despite Saudi Arabia's wealth, access to Internet servers is not part of that bounty.

Clearly one of the most central issues is the question of whether or not the central government or private interest groups should be in charge of Internet infrastructure development. Building out Internet infrastructure is a very costly endeavor and most governments in the developing world cannot afford it. Yet, if they privatize the telecommunications system to draw upon the resources of private enterprise, then they are likely to lose control of Internet development. But more than that, they are likely to lose control of the flow of information in general, and with that, control of virtually all aspects of social (and business affairs), not to mention politics, that depend on the free flow of information. Morocco's solution to this problem may seem ideal for the government but the government's role as a commercial actor in the delivery of ISP services limits the commitments of private actors, who see an unfair playing field.

In short, there are a variety of issues centering on governance and social control that must be worked out in order for Internet development to go forward. On a scale ranging from the most restrictive to the most permissive, Syria, Tunisia, and Saudi Arabia appear to be clustered at the

¹⁷ See Douglas Jehl, "The Internet's 'Open Sesame' is Answered Warily," *New York Times* March 18, 1999.

restrictive end of the continuum, while Kuwait, Turkey, Lebanon, and Morocco are clustered at the other end. Most of these countries, however, appear to be clustered at the very restrictive end of the Internet development continuum and even the more developed (as measured by Internet hosts apart from the UAE) fall far behind a country such as Malaysia, a Muslim country outside the MENA region.

With that background in mind, the case of Malaysia is particularly instructive. It is so for a variety of reasons, the first of which is that it is a Muslim country that has embarked upon a program of implementing all the possibilities (political, economic, and social) of the Web. And as we have seen, as measured by the number of Internet "hosts" installed, Malaysia's Internet development is about 46 times more developed than the Middle East and North Africa taken in aggregate. It is also instructive to consider this case because the developers of the Malaysian multimedia super corridor have articulated a rationale for adopting the Internet (with all its implications) while recognizing the downside of *not* going in that direction. It represents therefore a vanguard model, not only for the Muslim world, but perhaps for all developing countries.

MALAYSIA'S MULTIMEDIA SUPER CORRIDOR¹⁸

Malaysia has committed itself to building an internal infrastructure that it calls a "multimedia super corridor" (MSC). The MSC entails both a physical location and an electronic "cyberspace" that the government of Malaysia committed itself to building in 1996. With the construction of this corridor, Malaysians would have complete and full access to the Internet, nationally and internationally.

The MSC begins as a physical corridor 15 kilometers wide and 50 km long stretching from Kuala Lumpur south to the new international airport and two new cities: Putrajaya and Cyberjaya. The former is to be the new government headquarters and was opened for viewing on June 21, 1999. Cyberjaya, the new "e-commerce center," was officially declared open on July 8, 1999. Between

¹⁸ The following section has benefited from a return visit to Malaysia in September of 1999. I want to thank the Center for Advanced Studies at the National University of Singapore for making my trip to Singapore and Malaysia possible.

these new cities and Kuala Lumpur, a high speed, high capacity fiber optic Internet backbone has been laid. Within that corridor the Malaysians intend to provide all the technology and points of access that any individual, educational institution, or business enterprise would need to have full access to the Web. As a developing country, it is evident that Malaysia does not have the resources to install all the technological infrastructure that would be required to enable the whole country to be wired for the Internet.¹⁹ Consequently, the development of this corridor represents a limited social experiment that promises to enable Malaysia to become part of the information age economy, a society in which the free flow of information of all kinds provides the basic resource for economic development and productivity. The Malaysian leadership knows that the idea of joining the ranks of the global "information society" is a completely open-ended and unknown terrain, and therefore the establishment of this corridor of unfettered access to the Web is a sort of experimental encounter with a new concept. The leadership is aware that both religious and secular authorities are unable to provide guidance or predictions about the outcome of this adventure. Nevertheless, the Malaysian political authorities under the leadership of Prime Minister Mahathir Mohammad is fully behind this leap into "cyberspace" and the "information age."

Behind this leap of faith is the fear that with the emergence of the information age economy and a postindustrial world, Malaysians will be perpetually stuck in an underdeveloped condition in which the developed countries continuously shed unattractive "sunset" industries and assign them to underdeveloped countries. Thus, in order to attain the status of a fully "developed" country by the year 2020, the Malaysians have adopted this high tech strategy that they believe will enable them to arrive at the cutting edge of social, economic and technological development in the early 21st century.

¹⁹ The Malaysian government originally rejected the idea of simply opening up the development of the Internet to private enterprise. Their feeling was that private enterprise would develop the infrastructure in a very uneven fashion, and that it would be far less committed to the values of Malaysian society and a principled attempt to provide equality of access. However, the telecommunications industry in Malaysia is now fully privatized.

According to the official statement spelling out the function and purpose of the multimedia super corridor, the MSC will be:

- A vehicle for attracting world-class technology-led companies to Malaysia, and developing local industries;
- A Multimedia Utopia offering a productive, intelligent environment within which a multimedia value chain of goods and services will be produced and delivered across the globe;
- An island of excellence with multimedia-specific capabilities, technologies, infrastructure, legislation, policies, and systems for competitive advantage;
- A test bed for invention, research, and other ground-breaking multimedia developments spearheaded by seven multimedia applications;
- A global community living on the leading-edge of the Information Society;
- A world of Smart Homes, Smart Cities, Smart Schools, Smart Cards and SmartPartnerships.²⁰

The whole project is envisioned to take 20 years, at the end of which it is claimed that Malaysia will have achieved leadership in the Information Age. To accomplish this there are to be three phases of activity:

Phase I:

Under this phase, the MDC [Multimedia Development Corporation] will successfully create the Multimedia Super Corridor, attract a core group of world-class companies, launch seven Flagship Applications, put in place a world-leading framework of cyberlaws, and establish Cyberjaya and Putrajaya²¹ as world-first intelligent cities.

Phase II:

²⁰ MSC Web page: www.mdc.my/index.html

²¹ Both locations were officially opened in June and July of 1999. The Multimedia Development Corporation (MDC) has been working out of its headquarters in Cyberjaya for about a year as of August 1999.

The MDC envisages that during this period, it will link the MSC to other cybercities in Malaysia and the world. It will create a Web of corridors and establish a second cluster of world-class companies. It will also set global standards in flagship applications, champion cyberlaws within the global society, and establish a number of intelligent globally-linked cities.

Phase III:

During this final phase, it is expected that Malaysia will be transformed into a knowledge-based society being a true global test bed for new multimedia and IT [Information Technology] applications and a cradle for a record number of multimedia companies. It will have a cluster of intelligent cities linked to the global information superhighway, and become the platform for the International Cybercourt of Justice.²²

All of this may sound like grandiose utopian thinking, but in fact the MSC was nine months ahead of its construction schedule in the summer of 1999, despite the economic and political turmoil that Malaysia experienced in 1998. The core fiber optic cable running through the center of the MSC was fully operational in July 1999 and delivering Internet service at 2.5 gigabits/sec (but with a technical capacity of 10 gigabites per sec.). In addition to that, MIMOS (Malaysian Institute of Microelectronic Systems) has leased a high speed telecommunications line from Penang in the north (the location of Malaysia's microchip facilities) south through the MSC/Kuala Lumpur corridor all the way to the southernmost city of Jahor Bahru, just a stone's throw across the straits to Singapore. Not only that, several private telecommunication companies have installed other high speed lines connecting the north and south of the Malaysian peninsula with the MSC. Furthermore, MIMOS maintains four international lines running from the MSC to Japan, Canada, and two to the west coast of the US (to San Francisco and Los Angeles). In the summer of 1999, the Japan-Malaysia connection was providing a heavily trafficked connection to users in China. Locally, Internet cafes

²² MSC Web page: www.mdc.my/index.html

are everywhere, and their charge for Internet service is a mere 50 cents (US) an hour (\$RM 2, in September 1999).

The leadership in charge of developing the MSC, namely, the Multimedia Development Corporation (MDC), has attempted to address the whole range of technical, economic, manpower, and legal questions that have to be resolved in order for the MSC to become a functioning and viable economic reality.

For example, the Multimedia Development Corporation has issued a series of directives and legal initiatives that would guarantee no censorship on the Internet within the MSC. Likewise, traditional foreign ownership regulations have been lifted for business firms located on the MSC. In addition, entrepreneurs working to establish a presence on the MSC would only need to deal with *one* (!) government agency (the Multimedia Development Corporation) in the process of establishing itself.²³ Related to this, MSC enterprises would be granted free access to international capital markets.

Lastly, recognizing the shortage of "knowledge workers" in Malaysia, the MDC has set up a "knowledge workers Exchange" (KWX). "Knowledge workers" are defined as those who "create, collect, manipulate and disseminate information and knowledge using electronic technologies and computer tools."²⁴ These workers are further categorized as "Core Service" workers, Support Service, and Supplementary Service workers.²⁵ This exchange facility has established a central data base (and Web site) so that business enterprises can quickly find the workers they need.²⁶ At the same time, the MDC has acted to allow the free movement of knowledge workers in and out of Malaysia, recognizing that Malaysia itself cannot provide the vastly expanded pool of workers that would be needed for this new information age society based on the use of information technology (IT). It is estimated that by the year 2003, an additional 32,000 such knowledge workers would be needed,

²³ This compares to "as many as 20 documents and six months" needed to request a new business in Morocco. World Bank, *Claiming the Future* (1995), p. 6.

²⁴ MSC Press release, November 12, 1998.

²⁵ MS Press Release, November 12, 1998.

²⁶ For the knowledge workers exchange : web.kwx.com.my/kwx/asp/index.asp

which is projected to be 20% of the labor force.²⁷ To further cope with that impending labor shortage, a Multimedia University has been established (on two campuses, one in Cyberjaya and the other in Malacca) with a student body of 5,000. This privately operated institution, which plans to increase enrollment to 8,000, now recruits only from the top 5% of pre-university students and puts them through a rigorous program in math and science training when they first arrive on campus, and prior to their actual training in the “new skill set” required by the knowledge-based economy that is coming into being.

Thus Malaysia appears to be at peace with its neighbors²⁸ and does not greatly fear “cultural pollution” through the immigration of foreign nationals coming to join the new information-based society of southeast Asia. Indeed, Malaysian officials see themselves as a “melting pot” of Malays, Chinese, and Indians and see that as a unique opportunity to service those broader pools of ethnically distinct peoples — more than one billion Chinese in China, about the same number of Indians in the Asian subcontinent, as well as 200 million Indonesians who share the same linguistic, Islamic, and symbolic universe as the Malaysians.

In addition to these strategic considerations, a series of papers addressing the political, social, and economic implications of the MSC have been written and delivered before a variety of audiences in Malaysia and southeast Asian, including Japan. These papers, written by a major participant in the multimedia super corridor development project, provide a more sociological emphasis, and reflect the degree to which the Malaysians have thought out the larger political, economic, and global implications of their project. In this regard they are ahead of their fellow Muslims in the Middle East, North Africa and elsewhere.

²⁷ MSC Press Release November 12, 1998.

²⁸ There are political tensions between Malaysia and Singapore, generated largely by the desire of the Singaporean leadership to keep an external threat alive to fuel its “survivalist” ideology. See Beng Huat Chua, *Communitarian Ideology and Democracy in Singapore* (London: Routledge, 1995); as well as Michael Haas, ed., *The Singapore Puzzle* (Westport, Conn.: Praeger Press, 1999).

VISIONS OF THE INFORMATION SOCIETY

On one level, the MSC project is an innovative project that deliberately attempts to build upon the profound shift in social, political, and economic relations that we refer to as *globalization*. As noted earlier, the entire world is rapidly being integrated into a single communication system, and more importantly, into a single *economic* system. This is being made possible in large part by the Internet and what is generally referred to as “information technology.” This development obviously gives birth to the “information-based economy” and the “information age” society.

Here I want to present the optimistic interpretation of this new phenomenon and its implications as articulated by Dr. Tengku Mohd. Azzman Sheriffadeen, a Malaysian CEO and thinker, trained in engineering, and who serves on various advisory boards governing the MSC. As the CEO of MIMOS Azzman has played a major role in shaping the design and the ideology of the MSC. Moreover, MIMOS evolved into the major coordinating body of the multimedia super corridor—the Secretariat for the National Information Technology Council (NITC).²⁹ He has written a series of papers that both explore the social, political, and economic dimensions of the new information technology, and make recommendations about the particular direction that the MSC should take. That direction can be called “human intelligence enhancement.” In these papers he shows familiarity with seminal American writers on post-industrial society such as Daniel Bell and Peter Drucker. In addition it should be pointed out that all of the ideas set out by Azzman were formulated in the early 1990s and before the end of 1997.

In a paper titled “Moving Toward a More Intelligent use of Human Intelligence,”³⁰ Dr. Azzman focuses on both the technical possibilities of information technology, and the ability of the new IT to enhance human capacity, human values, and economic well-being—which appear to be his main interest. Speaking of the technical wonders of the new digital forms of communication, he mentions

²⁹ Kenneth Corey, “Electronic Space: Creating and Controlling Cyber Communities in Southeastern Asia and the United States,” p. 3. www.ssc.msu.edu/~Dean.

³⁰ Dr. Tengku Mohd. Azzman Shariffadeen, “Moving Toward a More Intelligent use of Human Intelligence,” presented at INFOTECH 95 Malaysia, November 1-5, 1995, Kuala Lumpur.

the so-called “Negroponte switch” that allows digital information “that is on the ground to go into the air [via satellites] and that which is now in the air will go into the ground. We may therefore envision,” he continues, “fully mobile untethered multimedia communication to be soon widely available in the true spirit of anyone, anywhere, anytime, and anything.”³¹ This purely technical advance Azzman sees as having a number of radical social, economic, and political implications. For example,

Widespread ownership of information processing tools and information content will democratize societies in new ways. Societies in general will see greater sharing of rights and responsibilities due to the wider and more rapid diffusion of information. Corporations can no longer operate as hierarchical organizations where decisions are only made at the top. Even governments will not be able to claim exclusivity over major national issues in this democratizing process under the onslaught of IT [Information technology] ³²

At the same time, Azzman realizes that technology per se will not solve all our problems, but that we as social actors must take the initiative – a sort of “social pull” responding to a “technological push”—to create the information society that we wish to live in. He is explicit that this technological revolution is a “paradigm shift [that] is fundamentally a social and cultural phenomenon.”³³

From a strictly economic point of view, the old paradigm focused on land, labor and capital has undergone a radical shift. Now the underlying source of value is neither land nor labor, but “information.” It is this contemporary shift that underlies the emerging “new growth theory” in economics, especially in the work of the American economist Paul Romer.³⁴ Likewise the recently

³¹ Azzman, “Moving Toward a More Intelligent use of Human Intelligence,” p. 3.

³² Azzman. *ibid.*

³³ Azzman, p. 4.

³⁴ Paul Romer, “Endogenous Technological Change,” *Journal of Political Economy*, Vol. 98 No. 5 pt 2, 1990, pp. s71-s102; and “Two Strategies for Economic Development: Using Ideas and Producing Ideas,” in *Proceedings of the World Bank Annual Conference on Development Economics 1992* (Washington, DC World Bank, 1993), pp. 63-91; as well as Richard R. Nelson, and Paul Romer, “Science, Economic Growth, and Public Policy,” *Challenge* (March- April 1996), pp. 9- 21.

published World Bank study, *Knowledge for Development*³⁵ advances this argument. As Dr. Azzman put it,

Economic and social value will increasingly accrue from human assets. Intelligence and creativity of the people will determine the economic and political status of whole nations. Henceforth the generation and application of new knowledge and technology will set the competitiveness level of their industries.³⁶

Underlying this view is the deeper insight that “ideas are commodities” and that since ideas are basically infinite in supply, the so-called law of diminishing returns is overturned.

Furthermore, Azzman holds the view that there will be multiple versions of the “information society:” “just as there are many cultures, languages, and civilizations there will be many different kinds of Information Society.”³⁷ What each society needs is an “infostructure,” a technical cum human infrastructure that will maximize the human potential to access information and to create value-added commodities and services. In addition, Dr. Azzman points out that with the new global market place based on the flow of information, individuals, corporations, and governments can get the information they need from any service provider, located anywhere in the world. Earlier Azzman linked this development to the Uruguay round of GATT agreements and the issue of “tradability.” With the new information-based products, there is a “blurring of the line between core and peripheral” countries, and “IT based services can now be generated anywhere or other and then consumed at any other location.”³⁸ This seems to suggest that all potential local providers are put on notice that they must compete on a level set by international, global standards, not those of any one country.

CHALLENGES AHEAD

³⁵ World Bank, *Knowledge for Development 1998/99* (New York: Oxford,1999).

³⁶ Azzman Shariffadeen, “Moving Toward a More Intelligent use of Human Intelligence,” p. 4.

³⁷ Azzman, “Moving Toward,” p. 3.

³⁸ Azzman, “The Malaysian Development Experience,” National Institute of Public Administration, Kuala Lumpur, 1994, p. 3.

This sketch of Internet development in Malaysia serves to highlight the huge challenges that now confront all societies, not just Muslims or the Middle East. In the Malaysian case we see a Muslim majority state³⁹ that relatively quickly saw the implications of the Internet for economic development and rapidly prepared the way for its implementation. Malaysian leaders have deliberately chosen the emerging set of hi-tech/information-technologies as a supplementary engine of economic growth for the purpose of achieving the status of a fully developed country. By the early 1990s the political and business elite of Malaysia realized that even fully developing the manufacturing sector (which has grown from very low levels at the time of independence in 1957 to 30% of GNP in 1995⁴⁰) would not be sufficient to make Malaysia a “fully developed” country by 2020 as Prime Minister Mahathir planned.⁴¹ To reach that goal, the economy has to grow by at least 7% each year, and growth of manufacturing was predicted to peak at 38% of GDP in 2005, and hence a new engine of growth was needed.⁴² Consequently, in the language of economics, Malaysia opted to make Internet-based industries a major component of its national innovation system.⁴³ Furthermore, since a focus on developing national systems of innovation is a very recent phenomenon (only identified in the economics literature of the late 1980s), Malaysia’s efforts in this direction constitute a particularly bold undertaking. Malaysia thus stands at once as an exceptional case and an enticing model.

³⁹ The 1991 Census gave a break down of the population as follows: 57% Malay and indigenous descent (who are presumed to be Muslims), 27% Chinese, about 8% Indian and the balance composed of non-Malays and non-Malaysians. As reported in *Europa World Yearbook*. (London: Europa Publications Limited, 1996), p. 2069.

⁴⁰ Jomo KS and Greg Felker eds., *Technology, Competitiveness and the State: Malaysia’s Industrial Technology Policies* (New York: Routledge, 1999), p. 30 n1; and E.T. Gomez and Jomo KS, *Malaysia’s: Political Economy* (New York: Cambridge University Press, 1997).

⁴¹ I first learned of this strategic change of plan from Dr Tengku Azzman during his presentation on the MSC in Sept of 1996. It was repeated by the Assistant to the President of the Multimedia Development Corporation during an interview with her while I was in Malaysia in September 1999.

⁴² Mahathir Mohammad, *Mahathir Mohammad On the Multimedia Super Corridor*. (Kuala Lumpur: Pelanduk Publications, 1998), p. 8.

⁴³ See note 1 above.

But there are also obvious worries regarding the potential political uses of the Web, anxieties that are shared no doubt by all political leaders. Although the study of the political uses of the Internet is only just beginning, early indications suggest that the Internet *is* used by many individuals to express political and anti-government sentiments.

For example, in their inquiry based on the analysis of messages posted on the various "Usenet" news groups by country, Hill and Hughes found that only 33% of all messages posted could be labeled as "political." Of those messages that were political in nature, about 24% were anti-government messages, while 19% of all such messages were pro-government.⁴⁴ As a percentage of *all* messages posted in the Usenet groups, anti-government messages accounted for only 8.5%. Conversely, of all posted messages, pro-government political messages accounted for only 6.4%.⁴⁵ While the Internet is a medium of anti-regime expression, anti-political messages are not a major portion of all messages posted as judged by these results. Thus the question becomes, how much public expression of political opinions, and especially negative ones, can governments in transition to democracy withstand without collapsing? At the same time Hill and Hughes found that there is a significant correlation between the level of anti-government postings by country and democratization: as the level of democracy increases, the rate of anti-government postings drops.⁴⁶

For Muslim countries in their sample, the level of anti-government postings was only moderately high, but there was no variation by level of democracy because there were no democracies in the sample.⁴⁷ In this connection, Malaysia's recent experience of political turmoil surrounding the deposition of former Deputy Prime Minister Anwar Ibrahim is an interesting test case. For despite the early threats of the Malaysian government to monitor Internet cafes, it remained faithful to its promise not to censor any aspect of Internet communication. The MSC remained fully operational and free of censorship. There is little doubt that this was connected to both the promises

⁴⁴ Kevin Hill and John E. Hughes, *Cyberpolitics. Citizen Activism in the Age of the Internet* (Lanham, Maryland: Roman and Littlefield, 1998), p. 81.

⁴⁵ Hill and Hughes, p. 84.

⁴⁶ Hill and Hughes, pp. 87-88.

⁴⁷ Hill and Hughes, Figure 4.6, p. 96.

made by Prime Minister Mahathir and the careful monitoring of developments in Malaysia by the International Board of Directors who serve as advisors to the MSC. These directors are drawn from the ranks of the CEOs of all the high profile global corporations, including Compaq, Microsoft, Sun Microsystems, Cisco Systems, among many others, as well as various internationally recognized technology experts. Hence, Malaysia's leaders realized that Malaysia was now tightly dawning into the new "network society" and global economic system. It had therefore to remain faithful to its commitments to freedom of access and communication via the Web, above all if Malaysia wanted to achieve its goal of economic develop through the use of information technology. Thus, even during the political crisis surrounding Anwar the government encouraged all potential users of the Internet to use it.

On a more practical level there are serious technical and manpower issues. On a technical level, the Internet cannot operate without an efficient telecommunications system, and increasingly, without wide bandwidth or fiber optic cable networking. Installing such a system is expensive and only by drawing upon the resources of private industry can the goal be attained. Privatizing, and thus, allowing private industry to take over the telecommunications system, is, as noted earlier, a major hurdle for developing countries everywhere.

In addition, the manpower demands of the new information-based economy, and the Internet world, are daunting. The Malaysians began to address this challenge, by creating a "knowledge workers exchange," and launching a new kind of university, the "Multi Media University" (MMU), devoted to teaching the "new skill set." At the same time, the Malaysians have allowed, and sometimes sponsored, research on the present state of manpower resources in Malaysia. A World Bank report, for example, highlighted the fact that the demand for highly skilled workers exceeds the supply, that domestic firms provide very little on-the-job training in comparison to foreign-owned firms, that consequently local firms are much less productive than foreign-owned firms, and that public institutions will have to become more responsive to these manpower needs, while private

sector actors will have to be called upon to fill the gap.⁴⁸ In a word, the manpower recruitment problem is essentially global today. It is well known that American corporations, representing the largest economy in the world, recruit IT workers globally, and especially from India.⁴⁹ Hence all other countries face the same competition, especially Europeans. In the case of Malaysia, it has to compete in its own regional niche, where it must compete with Singapore's high demand for IT/knowledge workers and their program of recruiting high school students in India before they can be recruited by American corporations.⁵⁰

CONCLUSION

The arrival of the new global network and global economy based on information technology, has ushered us into a radically new social and cultural era. The new information-based economy is clearly becoming established in the United States and in the Western world. For developing countries that wish to join this new economy, the price of admission is connecting to the Internet and establishing transparency of economic activities. Many developing countries, especially in the Middle East and North Africa, are averse to such transparency of economic information.

Setting aside all the political and practical difficulties that face any country attempting to transform itself into an information-based economy, the case of Malaysia reveals the fundamental challenges that must be confronted by developing countries around the world. These challenges stem from the fact that the world economy is being transformed in a radical way, and that all of the old assumptions about the conduct of business as well as the conduct of government are being

⁴⁸ World Bank, *Malaysia. Enterprise Training, Technology and Productivity* (Washington , D. C: The World Bank , 1997).

⁴⁹ For an analysis of this, see AnnLee Saxenian, "Silicon Valley's New Immigrant Entrepreneurs" (June 1999) <www.ppic.org/publications/PPIC120/index.html>

⁵⁰ I thank my colleagues at the National University of Singapore, Zaheer Baber and Ho Kong Chong, for these insights learned from conversations with them in August 1999 while I was a Fellow at the Center for Advanced Studies.

transformed. Once the (Internet) infrastructure is in place, startup costs for entering this new world economy seem to be especially low, and in the long run, only those societies that freely enter that electronic world using the latest information technology will be able to achieve the higher levels of development and well-being that the new information technology makes possible. Those who do not enter this new information-based market place, will be forever confined to exporting raw materials and manufacturing low level, labor intensive commodities of modest value added. They will not be able to enjoy the higher standards of living, not to mention the freedom that the participants in the new global communication system will experience.

All of this suggests that the relationship between science, technology and economic growth (as well as legal structures and economic growth) will have to be rethought in Muslim societies as well as others. Malaysia perhaps has an advantage over most other Muslim countries in the legal domain, because it was able to modernize Islamic Law, giving it all the structures and procedures of Anglo-American Common Law, and eliminating the most onerous gender-based disparities.⁵¹ Consequently, there is no significant political movement in Malaysia calling for the imposition of the *shari'a*.

Although economists since the 1950s have emphasized the importance of technological factors as inputs in the process of economic growth (as shown by Robert Solow's work of the 1950s), the latest version of the theory has redefined "technology" to mean "instructions that we follow for combining raw materials."⁵² This suggests that (1) ideas are economic commodities, and (2) economic growth remains virtually unlimited, so long as nations promote the social conditions that are conducive to creativity and innovation. These conditions are intimately tied to what I call the "public sphere," a completely open (and open-ended) sphere in which all individuals can express their thoughts and pursue their ideas and interests unfettered by political or religious censors. Moreover, in Azzman Shariffadeen's view, this new constellation of information technology constitutes a "shift from the traditional centralized power structure to the flatter distributed, web-like networks of communities

⁵¹ See Donald Horowitz, "The Qur'an and the Common Law: Islamic Law Reform and the Theory of Legal Change," *The American Journal of Comparative Law* 42 (1994); pp. 233-293, and pp. 545-580.

⁵² Paul Romer "Endogenous Technological Change," (1990), S72, *idem.* , 1993, as well as Nelson and Romer "Science, Economic Growth, and Public Policy," *Challenge*, 1996, : esp. 14ff.

[and] will require new forms of governance to evolve where the individual is empowered and government intervention is greatly reduced.”⁵³ Ideally, Azzman imagines a

self-regulating society, with virtually unlimited access to information, where the wise rule and the people actively participate in determining their destiny, [who create] a caring society with the notion of human dignity forming the cornerstone of the individual’s inalienable right against poverty and starvation.⁵⁴

It follows that citizens would have to be socialized to strong moral and ethical values, but just how this is to be accomplished has yet to be worked out.⁵⁵ Prime Minister Mahathir has given considerable support and funding to the new International Islamic University located on the outskirts of Kuala Lumpur. Its new campus in Gombak is projected to increase its enrolments from about 12,000 to 20,000 students in the near future. So far it has maintained a balance between its self-chosen “Islamization of Knowledge” platform and its commitment to teaching computer and information sciences along with courses standardized on the American model.

On the economic level, this new network of communication seems to be indispensable for achieving the highest and most efficient levels of economic as well as political development. In any event, there are good reasons for thinking that scientific and technological innovation are intimately tied together and both to economic development. As Paul Romer put it, in the next several decades, the features that will increasingly differentiate one geographic area (or city or country) from another [economically] will be the quality of public institutions. The most successful will be the

⁵³ Azzman, “Beyond Information Literary” (1997), p. 10.

⁵⁴ Azzman, p.

⁵⁵ There have been various discussions of the roles that religion, traditional values, and technological training should play in Malaysia. Needless to say, there is considerable tension between the demands of tradition, the desire to balance the educational achievements of the various ethnic groups (especially Malays versus Chinese), and the need for many more technically trained individuals in an economy whose leaders aspire to reach full maturity by 2020. Among others, see Lim Teck Ghee, “Higher Education in Malaysia and Singapore: Common Roots but Differing Directions,” *Higher Education Policy* 6 #2 (1993): 20-24; and Rosnani Hasim, *Educational Dualism in Malaysia: Implications for Theory and Practice* (Kuala Lumpur: Oxford University Press, 1996).

ones with the most competent and effective mechanisms for supporting collective interests, especially the production of new ideas.⁵⁶

It is just this task of creating the cultural and institutional conditions conducive to creativity and innovation that poses the greatest challenge to the countries of the Middle East and North Africa. It raises in the most fundamental way the old issues of censorship, but now the medium of exchange is increasingly electronic. While people often imagine that this is a venue of free-flowing, and anonymous communication, there are indeed monitoring issues that transcend those of political censorship. The need for secure communication means both that private transactions have to be guaranteed privacy while the possibility of tracking potential criminals (and purveyors of highly destructive viruses) must also be possible. These are issues that far transcend the wishes of political leaders who wish to control communication and prevent public expression of anti-government sentiments.⁵⁷ A variety of models for the control of Internet communication are now being fashioned. Not surprisingly, they range from the authoritarian to the open-ended. The Malaysians have instituted various "cyberlaws" that seek to guarantee copyright protection as well as the free and uncensored flow of information on their multimedia super-corridor. The most significant evidence that Malaysia intends to keep this promise is the fact that Malaysia during its first Internet-age political crisis, the deposition of former Deputy Prime Minister Anwar Ibrahim, there was no state-sponsored Internet censorship. However, like many other countries, the Malaysians plan to create a "cyber police" force to monitor criminal acts taking place on the Internet, just as the Germans have created a "cyber sheriff" who is to be in charge of investigating cyber crimes.⁵⁸ Singapore has installed various "proxy servers" that function to monitor the "broadcasting" of certain kinds of messages that are deemed

⁵⁶ Romer, "Endogenous Technological Change," p. 89.

⁵⁷ Among others see Huff, "The Internet and the Public Sphere: Technologies of Control or Liberation and Development;" and Lawrence Lessig, *Code and Other Laws of Cyberspace* (New York: Basic Books, 1999).

⁵⁸ "Bonn Outlines its plans for first 'cyber sheriff'," *Financial Times*, April 22, 1997, as reported in , Corey, "Electronic Space: Creating and Controlling Cyber Communities in Southeastern Asia and the United States," www.ssc.msu.edu/~Dean/, p. 17;

socially or politically harmful, while foreign businesses are allowed unrestricted Internet communication.⁵⁹ Likewise, it is claimed that email communication in Singapore is not monitored by the government, while the government itself makes unannounced entries into individuals' computers without authorization.⁶⁰ In Saudi Arabia, officials have installed a variety of software blocking mechanisms that prevent access to various forbidden sites, which are always changing.⁶¹

All of this suggests that the big political issues of freedom of expression and democracy in the Muslim world (as elsewhere) in the 21st century will be fought out within the context of the radically new medium of exchange that we call the Internet.⁶²

⁵⁹ Corey, "Electronic Space," pp. 10-13. For a discussion of the control of media in Singapore and South East Asia more generally, see Christopher Lingle, *The Rise and Fall of the Asian Century* (Hong Kong: Asia 2000 Limited, 1998), pp. 157-189 ; and Derek Davies, "The Press," in *The Singapore Puzzle*, ed. Michael Haas (Westport, CT.: Praeger Press, 1999), pp. 77-107.

⁶⁰ Chong Chee Kin, "Singet Scanning Computers," *Straits Times*, April 30, 1999: "More than 2000,000 SingNet and Singtel Magix customers' computers, or close to half of all Internet subscribers here, are being scanned without their knowledge to see if their systems are vulnerable to hacker attacks." Spokesmen for the companies then have the audacity to claim, "There is no invasion of privacy at all. Basically what we did was to check if the systems had open windows through which hackers can exploit. "

⁶¹ Doug Jehl, "The Internet's 'Open Sesame' is Answered Warily," *New York Times*, March 18, 1999.

⁶² The really big issues concerning the "architecture" of the Web, including all of the hidden means of tracking and surveillance, especially by commercial agents, have only just become visible and have been set out with striking verve by Lawrence Lessig, *Code and Other Laws of Cyberspace* (New York: Basic Books, 1999). Consequently, at the moment the threat of surveillance of individuals on the Web is far greater than the threats to political regimes, authoritarian or otherwise.