

Effects of the Information Revolution on International Relations

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The information revolution is reshaping various aspects of international relations, empowering nonstate actors but also often strengthening states generally and the world's superpower in particular. This memo tries to suggest the breadth and complexity of these effects on international relations, which I group inexactly into three main types. The information revolution (1) facilitates interstate cooperation, (2) overlays interstate relations with nonstate relationships in new ways, and (3) reinforces pre-existing relations of power and dominance among states. IR theory, in my opinion, should explain all three kinds of effects, which roughly correspond with the liberal, revolutionary, and conservative world views I have discussed elsewhere. This memo draws examples from my textbook (*International Relations*, 5th ed.).

I. Liberal International Cooperation

The first main set of approaches to the information revolution in international relations sees the information revolution as making more efficient the various problem-solving functions of international organizations and regimes. In particular, cheap and plentiful information makes a range of collective goods problems somewhat more tractable.

Collective goods problems are central to international relations in all topic areas, most spectacularly in global environmental politics (notably global warming), and obviously throughout IPE (open trade; cartels; currency stability; foreign aid; etc.), but also throughout international security affairs (security dilemmas; arms control; alliance formation; burden sharing; etc.). Information technologies are making these problems less intractable for several reasons:

(1) Transparency makes free riding and double-crossing easier to detect and punish. "Transparency" reduces cheating or free riding (such as on a treaty, alliance, or cartel), because all states know what the others are doing. As evolving information technologies illuminate the world, international regimes should be strengthened. For example, in today's satellite-image world, governments are less likely to ignore evidence of pending invasions of their countries, as did Soviet leaders in 1941 and Israeli leaders in 1973.

(2) Telecommunications and computers make the administration of complex international organizations and agreements more cost-effective. New, historical forms of organization – above all the European Union and the United Nations, rely on these capabilities.

The regimes dealing with information flows themselves have been among the most successful regimes historically. The longest-established IOs are specialized agencies dealing with technical aspects of international coordination such as aviation and postal exchange, such as the *International Telecommunications Union (ITU)*, the *Universal Postal Union (UPU)*, and the *World Meteorological Association (WMO)*.

(3) More accurate information makes rational calculations more reliable (mitigating some well-known psychological barriers to rational actions in a mixed-interest game, including various misperceptions, information screens, and gaps in intelligence data). Furthermore, as the costs of seeking and processing information decline, “satisficing” outcomes come closer to optimal ones. Similarly, information technologies mitigate the time constraints that prevent full assessment of available information, especially in crises. U.S. Defense Secretary William Cohen said in 1997: “The unrelenting flow of information, the need to digest it on a minute-by-minute basis, is quite different from anything I’ve experienced before. . . . There’s little time for contemplation; most of it is action.”¹ During the Cold War, information infrastructure served as a confidence-building measure for the management of potential crises. The hot line connected the U.S. and Soviet leaders in real time. The later agreement on incidents at sea provided for efforts to control escalation after a hostile encounter or accident on the high seas. Eventually, the superpowers developed elaborate centers and systems for the exchange of information in a crisis.

(4) Information technologies are lowering transaction costs and making world markets more efficient and more tightly integrated, creating incentives for international cooperation to realize the economic benefits of trade. For example, thanks to the information revolution, more than a trillion dollars each day crosses borders in international currency markets, which are privately operated. Better information means more efficient markets. In effect, by making global trade more profitable, the information revolution is increasing the joint part of the payoff relative to the individual part, in the mixed-interest game. Interdependence alters the cost-benefit calculations of national leaders so as to make military leverage less attractive. Three cautionary notes should be added: (1) Norman Angell said as much just before World War I; (2) information-revolution issues, ranging from financial services to copyrights and patents, are points of conflict in the new round of WTO talks; and (3) the liquidity of international capital lets investors quickly bail out of emerging markets in crises, possibly destabilizing national economies.

All of these effects are felt across the range of international issues, not just in IPE. Since these effects are probably familiar to all of us, I will not elaborate on them here.

II. Revolutionary Change in the Interstate System

¹ *Washington Post*, March 5, 1997: A22.

A second set of effects, also widely discussed, are more radical in their impact on the interstate system itself. Information technologies are empowering nonstate actors in new ways, as well as fueling “globalization” with its various ramifications. Newly empowered individuals and groups have begun to create new transnational networks worldwide, bypassing states.² Telecommunications and computerization allow economics, politics, and culture alike to operate on a global scale as never before. Following Robert North, I include the information revolution on a fourth, global level of analysis added to Waltz’s three.³

One aspect of the challenge is the changing nature of territoriality. The territorial nature of the interstate system reflects the origins of that system in an age when agrarian societies relied on agriculture to generate wealth. In today’s world, where trade and technology rather than land create wealth, the territorial state matters less. Information-based economies are linked across borders instantly, and the idea of the state as having a hard shell seems archaic.⁴ Israel’s successful defense of its borders could not stop Iraqi scud missiles from hitting Israeli cities during the Gulf War.

In international environmental politics, the effects of the information revolution go further. The industrial revolution, which harnessed fossil fuels to power machinery, changed IR profoundly. Now, perhaps, a comparable revolution in technology may mark the end of industrialization and raise the possibility for the global South to bypass industrialization and the North to decrease its energy use, thus reducing global warming. Similarly, telecommunications could change the path of development in poor countries, possibly bypassing traditional infrastructure like phone lines and leapfrogging to a wireless networked economy. In Africa, cheap cell phones with cheap prepaid calling cards have let millions of relatively poor individuals bypass the lack of infrastructure previously needed to communicate. (Sub-Saharan Africa in total has fewer phone lines than Manhattan alone.)

On Bali, “water priests” traditionally controlled the allocation of scarce water resources to agriculture. In the green revolution, such practices were often dismissed as superstitious nonsense and replaced with modern water-allocation schemes. But the water priests actually had more experience with local conditions over many years, and more legitimacy with the local farmers, than did the foreign experts. A U.S. anthropologist recently developed graphical software for Macintosh computers that the water priests could use to gain access to technical information about water supplies without sacrificing their own experience and authority. In this way, information technology provided tools to empower local culture.

² Rosenau, James N. *Turbulence in World Politics: A Theory of Change and Continuity*. Princeton, 1990. Rosenau, James N., and Ernst-Otto Czempiel, eds. *Governance Without Government: Order and Change in World Politics*. NY: Cambridge, 1992.

³ North, Robert C. *War, Peace, Survival: Global Politics and Conceptual Synthesis*. Boulder: Westview, 1990.

⁴ Herz, John H. *International Politics in the Atomic Age*. Columbia, 1959.

Cultural effects of the information revolution are also far-reaching. There are about one and a half billion TV sets and two and a half billion radio receivers in the world (roughly one-third are in North America, one-third in Western and Eastern Europe and Russia, and the rest in the global South and Japan/Pacific).⁵ The Qatar-based all-news satellite TV network, al Jazeera, begun in 1996, reaches an influential audience across the region and world. (Reportedly only 10 to 15 percent of Arabs have satellite dishes, but that fraction still amounts to millions of viewers.) The only foreign network allowed to report regularly from Taliban-ruled Afghanistan during the 2001 U.S. bombing, its office there was destroyed by a U.S. missile. The fact that Israeli–Palestinian conflicts play out regionally and globally in the media make the Palestinian issue a top priority even for citizens of Arab countries not materially affected by the conflict. For example, TV footage of a 12-year-old Palestinian being fatally shot as his father pleaded with Israeli soldiers to stop shooting, was replayed repeatedly on Arab TV and deepened anti-Israeli sentiment as the second Intifada gathered steam in September 2000 [Photo].

Of course, information crossing borders on mass media is not always accurate. A poignant example came in 1991, when Albania's communist government was crumbling along with its economy. Desperately poor Albanians rode overloaded ferries to nearby Italy (where authorities eventually sent them back home). As it turned out, Albanians had an exaggerated view of Italian prosperity (though Italy was indeed more prosperous than Albania). Albanians had been seen Italian TV commercials in which cats were fed their dinners on silver platters. Having been cut off from contact with the West for decades, many Albanians took such commercials literally—even the cats in Italy were rich!

Information can be used against governments by foreign governments and domestic political opponents alike. When allowed to circulate among a population, ideas become a powerful force that can sweep aside governments, as when the idea of democracy swept away the white-rule system of apartheid in South Africa in the early 1990s. Television coverage fed popular discontent regarding the U.S. war in Vietnam in the 1960s and 1970s, and the Russian war in Chechnya in 1995. In Iran, the government was brought down in part by audiotapes containing speeches and sermons by Ayatollah Khomeini, who spoke against the inequalities and harsh repression of the pro-Western government of the Shah of Iran. The power of his sermons could not have been captured in newspapers and pamphlets. In Thailand in 1992, military leaders lost power in what some Thais called “the cellular phone revolution.” When the government shot the demonstrators in the streets, arrested them, and cut off their phone lines, the protesters stayed organized by using mobile phones and fax machines. In the Philippines in 2001, huge protests that swept a president from office were organized through text messages on cell phones (sent to entire lists at a time). The phones are used by 2 million Filipinos including some homeless people. The harsh military government in Burma (Myanmar) faced the power of shortwave radio broadcasts by the opposition movement, made using a transmitter owned by the government of Norway. In Ghana, very popular talk-shows on private FM radio programs—allowed after 1995—gave voice to ordinary people who then threw out the ruling party in 2000.⁶

⁵ UNESCO. *UNESCO Yearbook*. NY: United Nations (annual).

⁶ Shenon, Philip. Mobile Phones Primed, Affluent Thais Join Fray. *New York Times*, May 20, 1992: A10. Schmetzer, Uli. Cellphones Spurred Filipinos' Coup. *Chicago Tribune*, Jan. 22,

2001. Crossette, Barbara. Burmese Opposition Gets Oslo Radio Service. *New York Times*, July 19, 1992: A11. Friedman, Thomas L. Low-Tech Democracy. *New York Times*, May 1, 2001: A27.

Government efforts to counteract such uses of information seem to be losing a race with evolving technologies. For example, China and several other developing countries have channeled all access to the Internet (and the World Wide Web) through a few state-controlled service providers, but enterprising Chinese citizens can hack their way through these controls. Already 15 million Chinese are Internet users, and hundreds of millions more may join them within a few years. During and after the 1989 Tiananmen protests, before the Internet was a factor, the Chinese government stationed police at every fax machine in the country to screen incoming faxes after foreigners began faxing in reports of the shooting of protesters in Beijing. Even for a police state, this is a burden on both the police and the fax users, and would be a doomed effort today. In the bigger picture, it is unclear whether the ongoing Chinese opening of its economy to the world, a process that opens channels of information, can coexist with continued political authoritarianism under communist rule.

The Soviet Union during the Cold War prohibited all but a few photocopy machines. Dissidents' writings were passed from hand to hand and recopied on typewriters. In 1987 the Soviet Union had only 16 international long-distance circuits in and out of the country, all routed through Moscow. (When the Soviet Union broke up there were still only 91 circuits. A decade later Russia had 50,000.⁷) This helped the government to reduce the influence of foreign ideas and to closely monitor foreigners—but at a huge cost in economic efficiency. Soviet efforts to control information did not prevent collapse of that society. Rather, the effort to run a modern economy without photocopy machines, international phone lines, computers, and other information technologies clearly contributed to economic collapse.

The forging of transnational communities and supranational identities—a process familiar to students of the EU—is spreading widely. Riding the telecommunications revolution, a global culture is beginning to develop, notwithstanding the great divisions remaining in culture and perspective (especially between the rich and poor regions of the world. Across dozens of countries, people are tuned in to the same news, the same music, the same sports events. Along with international politics, these activities now take place on a world stage with a world audience. The process might be seen as a form of cultural integration, similar to economic and technical integration.

Ultimately, transnational cultural integration might lead to the emergence of supranational identities, including a global identity. If citizens in EU states can begin to think as Europeans, will citizens in UN member states someday begin to think as human beings and residents of Planet Earth? The answer is unclear. Group identity is an important source of conflict between in-groups and out-groups. Nationalism has tapped into the psychological dynamics of group identity in a powerful way that has legitimized the state as the ultimate embodiment of its people's aspirations and identity. Now the information revolution may aid the development of supranational identity. But

⁷ Ramirez, Anthony. Dial Direct to Moscow and Beyond. *New York Times*, May 20, 1992: D1. United States. *CIA World Factbook*, 2001.

so far, nationalism continues to hold the upper hand. Global identity has not yet come to rival national identity in any state.

For a fleeting moment at the turn of the millennium such a global identity seemed almost possible. The feared “Y2K” computer bug, which would cause old software to think time had jumped back 100 years, was fixed in a massive technology upgrade that “leveraged the resources of the whole planet,” in the words of an IBM executive. On December 31, 1999, as each time zone passed midnight, people around the world watched to see whether fears of computer failures, terrorist attacks, or riots would materialize. UN Secretary-General Annan said that “each city seemed to be rooting for cities in the next time zone to get through Y2K without any problems. It was like, ‘O.K., Tokyo is through, now how about Beijing?’ And then, ‘Moscow is through, how about New York?’ For one brief moment there was a pulling together all over the planet.”⁸ As the feared problems did not materialize, the world was left with a 24-hour moment of good feeling broadcast live on CNN and the Internet.

Although a global culture is still only nascent and the most powerful identity is still at the national level, people have begun to participate in specific communities that bridge national boundaries. International journalists, for example, are members of such a community. Though a journalist’s identity as a journalist rarely takes precedence over his or her national identity, the existence of the transnational community of journalists creates a new form of international interdependence. Like journalists, scientists and church members work in communities spanning national borders. So do members of transnational movements, such as those linking women from various countries, or environmentalists, or human rights activists. The effect once again is to undermine the state’s role as the primary actor in international affairs. More important, the links forged in such transnational epistemic communities may create a new functionalism that could encourage international integration on a global scale.

International sports competition is one of the broadest-based transnational communities, especially strong at the regional level. Of course, international sports competition can stir up animosities between neighbors, as when British soccer hooligans rampage through other European countries after their team loses a game. But sports also create a sense of participation in a supranational community. This is especially true of world-level sports events in which a global athletic community participates. The Olympic Games are a global event broadcast to a worldwide audience. The U.S.-Chinese rapprochement of 1971 was so delicate that political cooperation was impossible until the way had first been paved by sports—the U.S. table tennis team that made the first official U.S. visit to China. The U.S. wrestling team’s visit to Iran several years ago also opened new doors.

Music is also becoming globalized. People who cannot understand each other’s languages can understand each other’s music. And tourism also builds transnational

⁸ Friedman, Thomas L. The Spirit of Y2K. *The New York Times*, Jan. 7, 2000.

communities. International tourists cross borders 500 million times a year. Tourism ranks among the top export industries worldwide. Added to these contacts are exchange students and those who attend college in a foreign country.

The Internet now allows transnational dialogues to take place at a global level. The World Wide Web allows people to move seamlessly around the world. Significantly, the Web creates organizing structures and communities that can be almost totally divorced from physical location, bringing together people with common cultural or economic interest from anywhere in the world. The Internet in many ways empowers small fringe groups relative to states, and leaves states vulnerable in new ways. Hackers have taken over control of U.S. government computers (155 times in 2000) and have unleashed costly viruses against businesses and people worldwide. These cyberattacks by small-scale actors may target foreign countries. Thousands of Israeli teenagers attacked Web sites in the Arab world, and Arab hackers knocked out Israeli sites in return, during the violent “Intifada II” of Fall 2000. During the U.S.-China “spy plane” standoff in 2001, nationalistic Chinese hackers claimed to have put pro-Chinese graffiti on 1,000 U.S. Web sites, and U.S. hackers returned the favor. An Ohio school district found that its site now played China’s national anthem. The Chinese communist party criticized “Web terrorism” and the crisis eased. After September 11, however, the U.S. government worried that real terrorists could use the Internet to cause massive disruptions in U.S. economic life.⁹

The transnational connections forged by various communities—sports, music, tourism, and so forth—deepen the international interdependence that links the well-being of one state to that of other states. This may promote peace, because a person who knows more about a foreign country and has developed empathy for its culture is likely to reject political conflict with that country and support positive cooperation with it. But sometimes cultural contact increases awareness of differences, creating distrust.

Thus, as the information revolution unfolds, it increases international interdependence, making actions in one state reverberate in other states more strongly than in the past. Information is thus slowly undermining the assumptions of state sovereignty and territorial integrity held dear by realists. At the same time, by empowering substate and transnational actors, information technology is undermining the centrality of states themselves in world affairs.

III. Conservative Reinforcement of Power Politics

Although the liberal and revolutionary effects of the information revolution receive most attention, a more conservative set of effects also deserve study. Like technology in general,

⁹ Hockstader, Lee. Pings and E-Arrows Fly in Mideast Cyber-War. *The Washington Post*, Oct. 27, 2000: A1. Cha, Ariana Eunjung. Chinese Suspected of Hacking U.S. Sites. *The Washington Post*, April 13, 2001: A13.

information capabilities are new and powerful tools in the hands of the richest and most powerful actors (who can most readily afford these tools), especially states and above all the world's superpower. During the past decade of intense development of information technology, the United States has dominated the uses of these potentials—economically, culturally, and militarily. It is no coincidence, in my view, that the unprecedented information revolution coincides with the unprecedented increase in hegemonic power by the world's most powerful state.

First, information-based changes in military forces are empowering both the world's superpower and small groups like terrorists, but on balance the strong are getting stronger. Military historians refer to a period of rapid change in the conduct of war as a "revolution in military affairs." These periods usually combine innovative applications of new technology with changes in military doctrine, organization, or operations. Such revolutions may arise from innovations in organization, as when revolutionary France first mobilized an entire nation into a war machine two centuries ago. Or they may arise from new military doctrine, as when Germany used the "blitzkrieg" to overwhelm Poland and France at the outset of World War II, or from technology alone, as with the invention of nuclear weapons.

Many military analysts consider the present period, starting with the 1991 Gulf War, to be a revolution in military affairs, especially in U.S. forces. Management of information is central to this revolution. Clausewitz's famous "fog of war" refers to the confusion and uncertainty that greatly reduces the effectiveness of armies in battle. Today's U.S. forces are piercing that fog for themselves while thickening it for their enemies. As the fog of war becomes transparent, U.S. forces can also disperse light forces widely, rather than massing concentrations of heavy units as Clausewitz emphasized. The ability to conduct precision strikes and the increasing use of space in warfare are two other aspects of the present revolution.

The revolutionary potentials were first apparent in the lopsided 1991 victory over Iraq's army, which was very large and well-equipped but not technologically advanced. The 1999 Kosovo campaign was notable in achieving its war aims without loss of a single U.S. life to hostile fire. But the revolution was best exemplified in the 2001 Afghanistan campaign. Small groups of lightly armed U.S. special forces, inserted across the country, used lasers to illuminate targets for smart bombs dropped by high-flying aircraft that never touched Afghan soil. The integration of these diverse forces using information-rich battle management systems resulted in a stunningly effective bombing campaign that destroyed the Taliban as an effective army and handed victory to the smaller anti-Taliban armies, all with just a handful of U.S. casualties.

Critics worry that the revolution has brought an unrealistic expectation of low U.S. casualties, which may make political leaders unduly cautious in applying military force. For example, at the end of the Afghanistan campaign, terrorist leaders including Osama bin Laden slipped away as the United States relied on local warlords to hunt them, when larger numbers of U.S. troops might have captured them (with U.S. casualties).

A more unsettling thought is that the revolution in military affairs may work for the terrorists as well. The September 11 attackers used information technology, such as encrypted Internet communications, to coordinate forces while keeping U.S. authorities in the dark. They carried out precision strikes over long distances with very small, dispersed units. As a result, 19

attackers killed more than 3,000 people, and an expenditure of under \$1 million caused tens of *billions* of dollars in damage. Will both the world's superpower and the world's outlaws harness the revolution in military affairs? Or will the superpower, which has such vastly superior information technology, illuminate its shadowy foe and destroy it? I would bet on the latter, but with twists and turns along the way.

Admittedly, a counter-current in the information revolution works against U.S. military predominance. Electronics are changing the costs and relative capabilities of weapons across the board. Computer chips in guided missiles have made them a formidable weapon on land, sea, and air. The miniaturization of such weaponry is making smaller and cheaper military forces more powerful than ever. An infantry soldier now can use a shoulder-fired missile costing \$10,000 to destroy a main battle tank costing \$1 million. Similarly, a small boat firing an antiship missile costing \$250,000 can potentially destroy a major warship costing hundreds of millions of dollars. The U.S.-made Stinger anti-aircraft missile—portable and shoulder-launched—helped turn the tide against the Soviet Union in the war in Afghanistan in the 1980s, with far-reaching consequences. Land-based Chinese missiles could destroy expensive U.S. aircraft carriers in a conflict over Taiwan. New Chinese anti-aircraft systems reportedly can detect even “stealth” U.S. aircraft while remaining passive and thus not presenting a target. (Conventional radar sends signals to bounce off aircraft; the passive design instead detects tiny variations in existing signals like television broadcasts.)

To take advantage of new information technologies, U.S. forces are developing new battlefield tactics calling for smaller, more mobile weapons and troop units, along with more unmanned systems, linked by intensive communications networks. Unmanned drones in Afghanistan in 2001 monitored Taliban movements from the air, and were retrofitted with two remote-controlled missiles. Within the decade, the U.S. military may begin deploying a new generation of laser weapons fired from planes at targets on the ground. Strategies for *cyberwar*—disrupting enemy computer networks to degrade command-and-control, or even hacking into bank accounts electronically—were developed by NATO forces during the 1999 Kosovo war, though mostly not implemented, and will probably figure in future wars.

Information is crucial to the military uses of outer space, where again the United States holds an overwhelming advantage. Space forces are military forces designed to attack in or from outer space. (Ballistic missiles, which travel through space briefly, are not generally included in this category.) Only the United States and Russia have substantial military capabilities in space. China plans to join the manned-space club by 2005, though with far fewer capabilities overall. The development of space weapons has been constrained by the technical challenges and expenses of space operations, and by norms against militarizing space. U.S. policy makers in 2001 announced a plan to begin testing space-based lasers (for intercepting ballistic missiles) in several years. Satellites perform military surveillance and mapping, communications, weather assessment, and early warning of ballistic missile launches. Satellites also provide navigational information to military forces—army units, ships, planes, and even guided missiles in flight.

Poorer states can buy satellite photos on the commercial market—including high-resolution pictures that Russia sells for hard currency. Similarly, handheld receivers for the U.S. Global

Positioning System (GPS), a network of 18 satellites, are available commercially, so the military forces of any country can ride free on the GPS. But in general outer space is an area in which great powers have great advantages over smaller or poorer states.

The information revolution is also enhancing various means of intelligence gathering. For example, in 1999 a Russian spy taped conversations from a listening device planted in a high-level conference room at the U.S. State Department. Again, the United States holds the advantage since it operates massive intelligence-gathering operations. Satellite intelligence is supplemented by monitoring of a very high volume of electronic communications, such as radio and telephone conversations. Terrorists in remote Afghanistan had to use couriers because the U.S. military could monitor their electronic communications. In 2001, a U.S. reconnaissance airplane eavesdropping along the Chinese coast (from international waters) made an emergency landing in Chinese territory after being bumped by a Chinese fighter jet (which crashed). China held the crew for weeks to protest U.S. surveillance. (And China enjoyed an intelligence bonanza by examining the U.S. plane.) Chinese protests in part reflected the insecurity of China (and other countries) in the face of the American ability to suck up huge amounts of intelligence without ever crossing the Chinese border. Altogether, the budgets of U.S. intelligence agencies were around \$27 billion in 1998 (and increasing since September 2001). The National Security Agency (NSA), responsible for encoding and codebreaking, is believed to have the most powerful computer facility in the world. Clearly, intelligence operations taken together are very large and are growing in importance as the information revolution proceeds and as the war on terrorism makes their mission more central.

Digital Divide

Beyond military affairs, another conservative aspect of the information revolution is the “digital divide,” especially between the global North and South. The rich get richer, and the information revolution is no exception. Richer countries have much greater access to information technologies than do poorer ones. The information revolution may give the industrialized West more power than ever, and increase the North-South gap in wealth. Just as industrial infrastructure is located mostly in the North, so is the world’s information infrastructure. While a generation of students in industrialized countries go online, poorer countries still struggle to extend literacy to rural populations. Nearly half the adults in South Asia, Africa, and the Middle East are illiterate, compared with fewer than 10 percent in some middle-income third world countries, and fewer than 5 percent in the industrialized West.

Furthermore, as the Internet wires parts of the world into a tight network centered on the United States, other regions are largely left out. Poor countries and poor people cannot afford computers—the equivalent of eight years’ wages for a typical Bangladeshi, for example. Users of the World Wide Web in 2001 made up 26 percent of the population in the United States, 7 percent in Russia, and 1 percent in South Asia, the Middle East, and Africa. The worldwide community of Web users was 40 percent North American with Europeans and Asia-Pacific splitting most of the remainder. English is the language of a strong majority of Web sites worldwide, even though non-English speakers now make up a slight majority of Web users. Even the architecture of cyberspace assumes the United States as the default in such domain names as .gov (U.S. government) and .mil (U.S. military). Just from 1999 to 2001, Internet users increased from 150 million to

400 million worldwide (with China going from 7 million to 16 million). This explosive growth is mainly occurring among the richest strata of the world's people, however.¹⁰

¹⁰ United Nations Development Program. *Human Development Report 1999*. NY: UN, 1999.

Some activists hope that the Internet can transform poor villages in the global South, partly by letting them produce traditional goods locally and market them globally. The UN ECOSOC hopes to place an Internet computer within a mile of most of the world's villages, to be funded by \$1 billion in hoped-for contributions (that seem unlikely to materialize in full). A model project in Cambodia in 2001 helped revive a village silk-weaving industry by marketing locally made scarves on a village Web site. However, look more closely at this "model": The project was feasible only because a satellite company owned by the Thai prime minister donated \$18,000 per year of link time. A U.S. aid organization provided the computers, training, Web site design, and credit-card processing required to sell scarves from the village. The reality is that most poor villages cannot afford the Internet, cannot read the language of most Web sites, and cannot maintain computers and Web sites without extensive training.¹¹

A similar effect marks the rise of global culture (see above), which is primarily the culture of white Europeans and their descendants in rich areas of the world (mixed slightly with cultural elements of Japan and local third world elites). For many people, especially in the global South, the information revolution carrying global culture into their midst is, despite its empowering potential, an invasive force in practice—cultural imperialism. Because cultures are being subsumed, half of the world's nearly 7,000 languages risk extinction this century, according to UNESCO. Above all, the emerging global culture is dominated by the world's superpower, the United States, whose cultural influence is at least as strong as U.S. military influence. If there is a world language, it is English. U.S. films and TV shows dominate world markets. For instance, U.S. movies predominate in countries from Europe to Asia to Latin America (although top music titles, and most top TV shows, tend to be national, not American).¹² Culture may be just another economic product, to be produced in the place of greatest comparative advantage, but culture also is central to national identity and politics.

Power to the State

We may also reconsider the power of information in undermining governments' control, discussed earlier. This too is a two-way street. Information has become an important instrument of governments' power (domestic and interstate). Governments want *access to information*. In 1992, U.S. Secretary of State James Baker made his first visit to the newly independent Asian republics of the former Soviet Union (the poorest and most remote CIS members). At each stop, one of the first questions Baker was asked by the state leader was, "How do I get CNN?"¹³ CNN, state leaders hoped, would tie them directly to the Western world

¹¹ Chandrasekaran, Rajiv. Cambodian Village Wired to Future. *The Washington Post*, May 13, 2001: A1.

¹² Shenon, Philip. Indonesian Films Squeezed Out by U.S. Giant. *New York Times*, October 29, 1992: A17. The Media Business: What Is Playing in the Global Village? *The New York Times*, May 26, 1997: D4–D5.

¹³ *New York Times*, February 2, 1992: A10.

and symbolize their independence from Russia.

Governments spend large amounts of money and effort trying to gain information about what is happening both inside and outside their territories. They keep files on their citizens ranging from social security records to secret police files. They compile economic statistics to chart their own economic health and make estimates of the economic health of other states. Most operate intelligence-gathering agencies.

With today's information technologies, it is easier for governments to gather, organize, and store huge amounts of information. In this respect, the information revolution empowers governments more than ever. In the past, a wanted criminal, druglord, or terrorist could slip over the border and take refuge in a foreign country. The terrorists who attacked the United States in 2001 demonstrated how easy this was. Today, however, it is more likely that a routine traffic ticket in the foreign country could trigger an instant directive to arrest the person. Information technologies give repressive governments more power to keep tabs on citizens, spy on dissidents, and manipulate public opinion. Those technologies are now also being mobilized in force to strengthen international counterterrorism.

Of course, as the cost of information technology decreases, it comes into reach of more states. The great powers have always been able to maintain a worldwide presence and gather information globally. Now small states can gain some of the same capabilities electronically—if only by monitoring world affairs on CNN.

Governments also seek to *control information*. Most governments (but not the U.S. government) own and operate at least one main TV station, and many hold a monopoly on TV stations. Thus TV signals often rank with military equipment and currency as capabilities so important to a government that it must control them itself. Indeed, in a military coup d'état, usually one of the first and most important targets seized is the television broadcasting facility. When power is up for grabs in a state, it is now as likely that fighting will occur in the government TV studios or at the transmitting antenna as at the legislature or presidential offices. As the Soviet Union broke up in the early 1990s, TV towers were the scene of confrontations in several republics. In Lithuania, a crowd of Lithuanian nationalists surrounded the TV tower, and Soviet troops killed a dozen people shooting their way in.

During the 2001 U.S.-Chinese crisis regarding the U.S. reconnaissance plane, the Chinese government heavily jammed broadcasts into China of VOA and Radio Free Asia. U.S. military leaders recognized the importance of playing to a global audience when, during the bombing of Bosnian Serb forces in 1995, they designated an ammunition dump close to Sarajevo the “CNN site” because they knew the explosion would make good footage for Sarajevo-based TV cameras. During the Gulf War, the U.S. military fed TV networks pictures of precision weapons striking their targets, to help “sanitize” the bombing campaign (which mostly used unguided bombs).

Governments spread false as well as true information as a means of international influence. This is called *disinformation*. In the 1930s, the Nazis discovered that the “big lie,” if repeated enough times, would be accepted as truth by most people. It is harder to fool international audiences

these days, but domestic ones can still respond to propagandistic misinformation.

Because of the need for public support, even authoritarian governments spend great effort on *propaganda*—the public promotion of their official line—to win support for foreign policies. States use television, newspapers, and other information media in this effort. For instance, when China invited President Nixon to visit in 1972, the Chinese government mounted a major propaganda campaign to explain to its people that the United States was not so bad after all. In many countries the state owns or controls major mass media such as television and newspapers, mediating the flow of information to its citizens; however, new information technologies with multiple channels make this harder to do.

In democracies, where governments must stand for election, public opinion is even more important. An unpopular war can force a leader or party from office, as happened to U.S. President Johnson in 1968 during the Vietnam War. Or a popular war can help secure a government's mandate to continue in power, as happened to Margaret Thatcher in Britain after the 1982 Falkland Islands War. A key influence on public opinion is the content of scenes appearing on television: U.S. soldiers were sent to Somalia to assist in relief efforts in 1992 after TV news showed the heartrending results of civil war and famine there. But after TV news showed an American soldier's body being dragged through the streets by members of a Somali faction after a deadly firefight that killed 18 U.S. soldiers, public opinion shifted quickly against the Somalia operation. During the war in Bosnia, officials in the U.S. State Department said privately that the main goal of U.S. policy was often just to keep the conflict there off of the front pages of U.S. newspapers (an elusive goal, as it turned out).

Journalists serve as the gatekeepers of information passing from foreign policy elites to the public. The media and government often conflict, because of the traditional role of the press as a watchdog and critic of government actions and powers. The media try to uncover and publicize that which the government wants to hide, especially in situations such as the Iran-Contra scandal. Foreign policy decision makers also rely on the media for information about foreign affairs. Reportedly, President Kennedy noticed that State Department reports reflected stories in *The New York Times*, and ordered his own subscription to anticipate the State Department reports by one day.

Yet the media also depend on government for information; the size and resources of the foreign policy bureaucracies dwarf those of the press. These advantages give the government great power to *manipulate* journalists by feeding them information, in order to shape the news and influence public opinion. Government decision makers can create dramatic stories in foreign relations—through summit meetings, crises, actions, and so forth. Bureaucrats can also *leak* secret information to the press in order to support their own point of view and win bureaucratic battles. Finally, the military and the press have a running battle about journalists' access to military operations; for instance, in the invasion of Grenada and the Gulf War, U.S. military censors limited media coverage.

One outcome of the Cold War was the victory of “free” countries over those whose governments tried to know about and control all aspects of their citizens' lives. In communist societies like East Germany, the ruthless secret police kept files on everyone, had informers on every block,

and monitored the streets with video cameras. George Orwell's futuristic novel, *1984*, published in 1948, envisioned a totalitarian state so powerful that it watched everything and everyone through two-way TVs in every room. Signs proclaimed, "Big Brother Is Watching You!" to intimidate citizens. However, the year 1984 passed, and such extreme totalitarian societies did not develop. Instead, both the Soviet Union and China (in different ways) relaxed the state's control over personal spaces. With right-wing totalitarianism having been defeated in World War II earlier, it seemed that free societies were the rule. See-all-and-know-all government was a thing of the past.

Yet, the information revolution delivered into the hands of governments tremendous new power to extend the reach of government surveillance both horizontally (to every square foot of distant countries) and vertically (peering into what had been private places in citizens' lives). The United States, which had the most advanced technology, also had the most finely developed checks and balances on government power to prevent the abuse of information technology and preserve citizens' right to privacy.

The changes in world order since September 11 have changed this balance between the state's responsibility to provide security and individuals' rights to not have the government constantly looking over their shoulders. Today's world order is one of profound vulnerability—in which a few people in a remote country can change the tenor of life in the world's superpower. In response to the threat of terrorism, U.S. law-enforcement agencies began to expand and network together surveillance systems, such as video cameras in public locations. Washington, DC, installed a control room to monitor video feeds from around the city and track suspicious persons or objects [photo]. Tampa, Florida, operated face-recognition software to identify matches between a database of suspects and faces caught on security cameras in a popular shopping district (none had been found as of early 2002).

Privacy advocates argue that these governmental intrusions into traditionally private areas of life undermine the values that America was founded on. We live in an age when authorities can listen to phone calls and e-mails in volume, peer behind walls with infrared detectors, examine bodily fluids by using drug tests, and scan carry-on luggage with x-rays. Since September 11, governments have used these powers more freely, and citizens have largely acquiesced.

In conclusion, while we rightly celebrate the power of the information revolution to facilitate international cooperation, increase interdependence, and empower nonstate and transnational actors, we should not overlook the conservative aspects of this revolution which are reinforcing U.S. global predominance as well as giving states new power to control and suppress challengers. New directions in IR theory should reflect and explain these currents and counter-currents alike, a difficult task.