

# Science & Technology

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## *Special: A Roundtable on Technology and International Relations*

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### **New Tools and New Challenges**

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In late February of this year, as diplomats in New York were at loggerheads over Iraqi weapons inspections and a second UN resolution, a small panel convened here at Georgetown to discuss a cluster of interrelated communications and information gathering technologies—and the implications of these technologies on the current international system. Broadly titled “Technology and International Relations: New Tools and New Challenges,” panelists dissected three specific technologies: satellite newsgathering equipment, wireless communications handsets and networks, and commercial observation satellites.

Less than a month later, television viewers around the world watched in amazement as journalists, reporters, and news editors put these tools to work in their coverage of the Second Gulf War. Twenty-four hours a day, viewers could watch live video coverage of front line bombings and firefights. Network commentators could complement live broadcasts with high-resolution satellite imagery, allowing armchair generals at home the chance to view troop movements or conduct post-bombing damage assessments. Compared to past conflicts, the information that was available during this most recent war, and the speed at which it traveled from the front lines to living rooms around the world, was truly astonishing.

The following five articles examine some of the technologies that have allowed this to happen and the most significant

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impacts that these technologies have had, and will continue to have, on the international system. But before we examine what Steven Livingston calls the "new information environment," I would like to step back and outline how *any* new or evolving technology, not just communications or information gathering technologies, impacts the international system.

It is useful to distinguish the impact of new technologies on four separate aspects of the international system: (1) its operational processes, (2) its substance, (3) its architecture, and (4) the information and perceptions on which it is based.

The first of these four, the impact of technology on *operational processes*, such as the conduct of war, diplomacy, policy formation, propaganda, and crisis management, is the clearest and most direct. Relatively cheap, mobile, and user-friendly videophones often augmented by laptop computers, wireless internet connections, and even mobile phones, make it possible to establish broadcast capability quickly in previously inaccessible places. Multiple cable news networks now provide competing outlets for news dissemination, and remote sensing imagery—once a top secret intelligence product—is now available commercially from multiple sources.

The resulting widespread dissemination of information constitutes an unprecedented challenge to the ability of governments to frame policy issues. It has empowered ordinary citizens and non-governmental organizations to carry out their own independent analyses and challenge official conclusions and priorities. Second, innovations in information technology have had an important impact on the *substance* of international relations. They have introduced a variety of new issues into international fora, such as

technical standards of telecommunications equipment, control of global positioning satellites, privacy, censorship and content control, intellectual property, taxation, and trade regulation, to name but a few.

Third, the *architecture* of the international system has been affected both by the changes in operational processes resulting from the Information Revolution and by the substantive issues to which it has given rise. These impacts are subtle but potentially far-reaching.

As regards structure, it is still not clear whether new technologies will tilt the international system towards unilateral or multilateral approaches to governance. Clearly, many of the new issues presented by the Information Revolution derive from the global scope of telecommunications and cyberspace, and seem better suited to a multilateral approach, especially given that the statistics on the geographic growth and diffusion of the Internet indicate that Americans, and indeed English speakers, will soon become a decreasing proportion of Internet users.<sup>1</sup> Some of these issues have already surfaced in diplomatic arenas or in cases before national courts, in which Internet-based activities that are entirely legal in one country—gambling, the sale of Nazi propaganda and paraphernalia, or even the spreading of democratic propaganda—have resulted in civil or criminal actions in another. These conflicts of laws raise complicated issues of coordination and harmonization that are likely to take many years to resolve.

But many of these issues point in the opposite direction, away from multilateral solutions. First of all, the alternatives provided by wireless telecommunications technology have undermined much of the basis for the century-old multilateral

regime centered on the International Telecommunications Union, a system designed to facilitate and perpetuate the control of government monopolies over post and telecommunications. Second, the dominance of the United States in many areas of information technology has led to substantial unilateral U.S. control over many aspects of information tech-

rather not take, whether these ideas are democracy and freedom of expression, or those of radical Islam.

These developments have inspired counter-pressures by governments seeking to restore some of the traditional aspects of sovereignty. The problem facing such efforts is that information and communication technology is embodied

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nology, especially those relating to the technical standards and governance of the Internet. Despite the fact that cyberspace is often supposed to be independent of geography and the nation-state, the Internet Corporation for Assigned Names and Numbers, which controls the directory that allows users to reach a desired website by typing in a plain language Uniform Resource Locator, is a creation of the U.S. government.<sup>2</sup>

New and evolving technologies have also altered many of the underlying concepts that form the architecture of the international system. Perhaps most importantly, new remote sensing and media technology have continued to erode the significance of sovereignty by increasing the permeability of sovereign states to information. This freer access to information and communication technology has contributed to the shift of power away from states, toward a variety of networks and other non-state actors, from advocacy groups to terrorist and criminal networks. It has also increased the importance of “soft power”—the power of ideas to press or even to force governments to take decisions they would

in commercially-available, user-friendly, and relatively inexpensive equipment. To be sure, governments can maintain their control over communications and information, but only at the cost of hindering—or in extreme cases, such as Myanmar and North Korea, entirely cutting off—the flow of information to and from the country, at great economic and social cost.

This tension between the simultaneous but conflicting desires to gain the economic benefits from the free flow of economic information while controlling the flow of political information is being played out differently in various countries. Perhaps the most important case is that of China, which has taken advantage of its huge population, economy, and geographic area to funnel Internet and telecommunications traffic through a relatively small number of nodes that it hopes to monitor and control. In contrast, government efforts to control the free flow of information in Saudi Arabia and other Arab countries are hindered by their relatively small size, their relative affluence, and the availability of alternative means of com-

munication, from dial-up connections to Internet Service Providers in other countries to the Qatar-based television network of al Jazeera.<sup>3</sup>

Fourth, the information revolution has had a major impact on the *information, ideas, and perceptions* on which the international system is based. The application of remote sensing technology has facilitated the monitoring and enforcement of a variety of international treaty regimes, including ones on the environment, arms control and human rights. For example, satellites have photographed pollution plumes in a variety of international bodies of water, nuclear facilities in North Korea, and mass grave sites in the Balkans. Modern communications media, fed by improvements in technology, have provided a flow of information that has altered popular perceptions of international issues ranging from terrorism to the environment to the wisdom of the U.S. intervention in Somalia. On the negative side, the media has also been used to spread messages of ethnic hatred in the former Yugoslavia and of genocide in Rwanda.

To be sure, only a minority of these impacts on the international system result from technology acting alone.

Even the development and diffusion of the technologies themselves often owe a great deal to the action of external forces. For example, al Jazeera's freedom to broadcast is the direct result of the Qatari government's desire to open the country up to the challenges and benefits of globalization—to a much greater extent than many of its neighbors around the Gulf. The free rein of remote sensing satellites is traceable to the international regime reserving outer space for "open skies" and other peaceful purposes. Finally, as a result of a curious technological trajectory, many of the unique characteristics of the Internet, especially its relative immunity from censorship, are derived from the fact that it was originally developed as a military communications network that could survive a strategic nuclear attack.

The effects of media, communications, remote sensing, and Internet technology on the processes, the substance, the architecture, and the ideas of the international system are synergistic. The overall result is an individualized, two-way, distributed system of information collection and dissemination that constitutes a major challenge to and opportunity for the international system.

#### NOTES

1 Brian Krebs "English No Longer Rules the Web," Internet, [http://www.bizreport.com/article.php?art\\_id=2501&width=800](http://www.bizreport.com/article.php?art_id=2501&width=800) (Date Accessed: 21 May 2003).

2 This phenomenon constitutes an interesting convergence of international relations theory with the theory of innovation. Innovation theorists would call it a case of the imposition of standards by virtue of market dominance, much like the domi-

nance of the Windows operating system for personal computers; political scientists, on the other hand, would call it the imposition of hegemonic power.

3 See Shanthi Kalathil and Taylor C. Boas, *Open Networks, Closed Regimes: The Impact of the Internet on Authoritarian Rule* (Washington, DC: Carnegie Endowment for International Peace, 2003).