HEIDI J. S. TWOREK AND SIMONE M. MÜLLER

Introduction

In the late 1970s and early 1980s, the Carter and Reagan administrations created a new approach to exerting national power vis-à-vis the Soviet Union that actively acknowledged information as a vital component of national security. By 2000, the approach had become a concrete national security strategy for U.S. active engagement abroad, known through the acronym of DIME: diplomatic, informational, military, and economic power.[1] The national security framework now explicitly equated the "I" of information with the D, M, and E of diplomacy, military, and economics in the international realm. But governments and businesses have implicitly linked international information to military, diplomatic, and economic power since at least the mid-nineteenth century through international conferences and organizations. While the revelations about the NSA have made these connections clearer to all over the past two years, the mechanisms underlying such information, in this case Internet governance, actually arose over 150 years ago.

This special issue examines historical attempts of statesmen, administrators, reformers, and business elites to control or manage the contentious realm of international communications during the nineteenth and twentieth centuries. In communications, existing laws regulate national spaces and have given rise to a wide array of different systems for content, use, and technology. However, these are compatible systems that interact constantly with each other because they rely fundamentally on the global coordination of technical standards.[2] Indeed, global communications undergird the

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increasing integration and entanglement of our world, a process commonly known as globalization. Cross-border communications enable the movement of people, goods, and ideas around the world. Yet while international communications have fostered globalization, globalization has not led to comprehensive governance of cross-border information networks.

Our special issue tackles this irony in international communications policy and explores its historical origins. The more recent convergence of international Internet telecommunications standards has occurred partially through the idea of "network power," meaning "the power that a successful standard possesses when it enables cooperation among members of a network."[3] Our special issue unpacks exactly how and why standards became the avenue to create cooperation in the first place. At present, when sovereign states have started to question global Internet governance, this special issue seeks to understand how such forms of governance emerged in the first place and emphasizes the contested nature of their origins.

More broadly, the telecommunications sector provides one avenue into understanding the role of technical standards in international governance, business practices, and globalization processes. Whether through the size of containers in shipping or patent exchange agreements, standards often facilitated international interaction in a manner that has generally gone unnoticed. Standards also show us that international regimes do not always arise simply from an export of national models. Rather, international negotiations over standards can shape the domestic political economy of particular services and goods.

The five articles in this special issue trace the development of such standard-setting in the realm of global communications, starting with the post and moving through telegraphy, radio, and satellite. We explore how and why certain groups succeeded in creating global standards at particular moments. The special issue presents two main arguments. First, we argue that international coordination of technical standards has historically succeeded over and above any attempts to regulate content or the users of communications technology. Second, we argue that these technical standards have proven highly durable for communications, in particular because communications infrastructures are so path-dependent.

We address these arguments by using the concept of global governance, meaning "the sum of laws, norms, policies, and institutions that define, constitute, and mediate transborder relations between states, cultures, citizens, intergovernmental and nongovernmental organizations, and the market."[4] The idea of global governance enables us to examine a wider range of

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attempts to create international communications policy, whether through international legislation and regulation, through coordination, or through technical standard-setting. We also include a broader array of historical actors, namely states, businesses, and nongovernmental organizations. Since the mid-nineteenth century, these three main sets of actors have sought to coordinate the technology of communications or its use, and indeed, have battled over technical standards and their regulation. States, businesses, and newly emergent technical bodies such as the International Telegraph Union have tried different methods at different times to create governance structures for international communications. Our special issue uses this history of international communications to think more critically about which forms of governance succeeded at particular times.

The special issue analyzes conferences and movements, such as the 1863 international postal conference or Henniker Heaton's push for cheaper global telegraphy, that have often flown under the historical radar. While such initiatives sometimes did not result in lasting legislation or regulation, they were far from insignificant. Rather, they created enduring legacies ranging from alternative visions of global communications to new conceptions of the role of the state in policymaking. In fact, these movements and conferences successfully created a system of global coordination of technical standards *without* international regulation of content.[5]

The process of coordinating "information space" commenced in the mid-nineteenth century with the creation of the International Telegraph Union (ITU) in 1865, followed by the General Postal Union in 1874 (renamed the Universal Postal Union in 1878).[6] The ITU coordinated common technical standards between national telegraph systems that had originally emerged with different standards. This coordination enabled telegraph systems to communicate fairly seamlessly across borders. But the ITU had little mandate to coordinate private submarine cables, creating a duopoly between state-owned national systems and privately-owned undersea cables. Through a series of international conferences, both the UPU and ITU aimed to coordinate and standardize technologies and tariffs across borders. In the twentieth century, the process was further refined under the League of Nations system when radio came under the purview of the ITU in 1932 and the organization changed its name accordingly to the International Telecommunications Union (which remains its name today). The ITU became a specialized agency of the UN in 1949, though American attempts to reframe the role of the ITU made this development a surprisingly contentious part of postwar planning.

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By the 1970s, various groups from the private and public sectors tried to reconceptualize the international regulation of communications. Intelsat had emerged as an American-led institutional counterpoint to the ITU in the early 1960s that would regulate the provision of information in space through satellites, as Hugh Slotten's article explores. Meanwhile, UNESCO came to see information provision as a key element of development; Third World countries would seek to reform information coordination in the late 1970s through the New World Information and Communication Order, culminating in the MacBride Report of 1980. The MacBride Report criticized the predominance of Western media companies in global information provision and the inequities produced by those communication flows. The MacBride Commission argued that Western media organizations focused on disasters, famines, and military coups in Africa, perpetuating certain stereotypes of Africa and the Third World, while also underreporting on those regions in general.[7] During the Uruguay round of GATT, countries representing 91 percent of the world's telecommunications revenues also agreed to improve market access and facilitate trade in telecommunications services. This coordination across borders still exists today under the label of Internet governance (WSIS, IGF).[8] However, with liberalization in the past thirty years, the ITU and other official international organizations have lost influence. Increasingly nongovernmental organizations, such as industry consortia and forums, provide technical standards to coordinate the operation of communication networks and their services.

In contrast to the relatively fruitful coordination of technical standards, these international bodies and negotiations have not produced international law.[9] In the second half of the nineteenth century, the ITU and UPU system managed to agree on infrastructural issues, that is, the technology and its management. They coordinated technical standards that enabled cross-border communications. However, they did not reach a consensus on content or how to regulate global communications and its infrastructure during wartime. The ITU also found that it could not govern privately-run systems like submarine cables or American landlines. The ITU and UPU remain important bodies for telecommunications and post today with the ITU playing a key role in Internet infrastructure. Still, alternative institutions such as ICANN have emerged to coordinate standards involving code like ccTLDs (country code top-level domains). Although media policy has remained a tool for the state, the regulation of information beyond each national border has stayed highly disputed, as we have seen most recently with European Union directives on the right to be forgotten and NSA's Boundless Informant.

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This special issue focuses on three main aspects of international communications policy. First, the articles examine the interplay between the nation-state and global governance. They investigate why certain nation-states attempted to regulate communications on a global scale through conferences and other measures, such as international law. Conferences could function as a form of cultural diplomacy or even as a means for delegates to establish dominance at home by representing their nation abroad.[10] But nations also used international communications and conferences to lay claim to national sovereignty in times of crisis. Beyond the nation-state, the articles consider the role of international organizations in brokering written and unwritten coordination of information space. They also emphasize the central role of conferences in facilitating negotiations. What enabled certain negotiations to succeed on an international level while others failed? Even when conferences did not achieve their major goals, what legacies did they leave behind?

Second, the articles examine the critical role of businesses in coordinating international communications. While politicians found it difficult to regulate international communications, communications companies coordinated global systems of communications on the ground or under the sea.[11] These companies' motives of profit and global control sometimes clashed with politicians' plans for global communications. For some, international standards seemed a way to reinforce domestic monopolies based upon the large capital costs of telecommunications networks that created high barriers to entry. For others, standards could promote competition by enabling smaller suppliers of network components to enter the market. Disagreements did not just stem from business strategies or political calculations. Rather, discussions of global regulation often derived from conflicts about the nature of communications itself. While businesses frequently believed that global communications best served a small elite, reformers argued for the moral and economic value of providing cheap means of international communications to everyone.

Finally and more broadly, these articles on communications provide insights into the dynamics of global governance. Nations sometimes use international legislation to maneuver out of domestic legal cul-de-sacs in intellectual property law.[12] In communications policy, international negotiations often worked in the opposite direction. Conferences served as a space for nations, such as the United States, to attempt to globalize their domestic legislation or conceptions. Understanding what was or was not distinctive about communications illuminates how international coordination and regulation functioned in other realms of policy too.

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The articles each examine a different technology or communications system to explore the international regime. We excluded the telephone as this was principally used domestically until the first transatlantic telephone cable in the mid-1950s.[13] Despite radically different time periods, organizations, and actors, each article reinforces the central point that international agreements coordinated technical and organizational standards but did not regulate the content of communications.

Richard R. John's article examines two aspects of the United States' seminal role in organizing the 1863 Paris Postal Conference. Convened by U.S. postal administrator turned lawmaker, John A. Kasson, the conference first of all highlighted how the postal system's civic mandate made it uniquely qualified and predisposed to international negotiations. The civic mandate both inspired Europeans interested in postal reform and motivated many of the eventual agreements in the General Postal Union in the 1870s. But, second, the conference shows how the building of a nation in the 1860s relied upon international recognition. Kasson used the conference to project American power overseas to assert U.S. sovereignty over the Confederacy abroad, while the Civil War ravaged America at home. Finally, John's article reminds us that the genealogy of our contemporary digital communications starts with the post and steamships rather than telegraphy. The United States played an unacknowledged role in creating precedents for international standard-setting in communications.

Simone M. Müller examines the contested undersea world of submarine telegraphy and shows how questions of prices and standards revolved around morals and the value of communication in society as much as business and state interests. In contrast to state control over much of landline telegraphy, an oligopoly of firms dominated submarine telegraphy and controlled prices. They restricted cable usage to multinational companies and wealthy elites by making telegrams too expensive for anyone else, because they saw no need for the vast majority of the population to access cables. Executives portrayed submarine cables as a "natural monopoly," arguing that the submarine cable market could only survive through high prices and a low volume of telegrams. Müller's article explores two attempts to reform cable companies' pricing structures and reconfigure international communications' role in society: one through the international organization of the ITU and one through the British state. First, the ITU attempted to expand its remit beyond coordinating technical standards. Second, the British MP Henniker Heaton pushed for a penny cable system within the British Empire to match the penny post and make cables as accessible as mail. While men like Heaton believed that

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natural monopolies came with responsibilities to the public, cable company executives thought that they came with responsibilities only to shareholders and profits. Müller argues that both attempts failed because submarine cable company executives successfully used the idea of a natural monopoly to avoid regulation beyond technical standards. Technical standards, rather than coordinating prices, remained the main remit for the ITU and the state in submarine telegraphy.

In a way, Heidi J. S. Tworek's article on radio picks up where the story of Henniker Heaton's crusade to create communications access for all left off. While the other articles examine international standards, Tworek explores how those standards left room for individual nations to develop radio. Under certain circumstances, she argues, nations' experiences could parallel each other. Focusing on the crucial time when old technologies were new and path dependencies yet to be established, Tworek points to an initial international consensus on radio content and institutional arrangements. She compares American, British, and German radio, showing how the experiences of World War I as well as transnational technological and cultural exchange initially fostered similar developments. Scholarship has concentrated on differences in radio funding systems, neglecting fundamental political, social, and cultural similarities. Or scholars have categorized media systems to explain their distinctive normative characteristics. In making the models ahistorical, however, they precluded considering shared roots and lineages. Comparison in this case does not mean classification, but interconnection. Each state, as Tworek shows, not only operated within the same international political economy of media that had emerged from international conferences on standards, but they also all harbored hopes that radio would educate the masses and create national radio citizenship. Only in the late 1920s and 1930s did radio content and institutions in Germany, Great Britain, and the United States diverge significantly over the issues of news provision, direct state intervention, and transmitting radio abroad. A general optimism about listeners and radio in the 1920s gave way to fears of "the crowd mind" and propaganda. In a symbiotic relationship with the international regulation of frequencies during the 1920s, however, these countries briefly saw radio as a savior of the nation.

Frank Beyersdorf's article explores the struggle between two concepts for a postwar global telecommunication order in the 1940s: a regionally closed system within the British Commonwealth and an American-led system based on freedom of communication. During the 1930s, the British government assumed significant control over Commonwealth rates and

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standards, engineering a shift from imperial to Commonwealth communications. The dominions and India assumed a greater degree of self-determination over telecommunication policy during World War II, but maintained the principle of a closed Commonwealth system. Meanwhile, the United States became heavily invested in creating an international postwar order based upon an ideal of free trade in telecommunications services. Informed by ideals of the New Deal, the State Department and other government agencies like the Federal Communications Commission (FCC) aimed to create a supranational agency to liberalize the international telecommunication market. Since they felt that this plan only haphazardly disguised a U.S. drive for cultural dominance, postwar European and Commonwealth nations resisted and maintained the status quo of international regulation under the International Telecommunication Union at the Atlantic City conferences in 1947. More broadly, Beyersdorf argues that both sides of this debate labeled their political perspectives as technical. The very labeling of standards as "technical" was a political act that sought to erase the politics behind that label. These apparently technical debates actually concealed a highly politicized competition over international communications.

Finally, Hugh Slotten's article provides a detailed analysis of how and why the United States worked to globalize its domestic vision for satellite communications as an instrument of Cold War politics through the International Telecommunications Satellite Organization (Intelsat) in the early 1960s. Intelsat was intended to function as an institutional counterpoint to the ITU by working as both a communications network and a coordinator of standards. Slotten uses a detailed investigation of negotiations leading to the Interim Agreements on Intelsat to argue that Intelsat's emergence relied upon agreements about new organizational arrangements as well as technical standards. The ITU's system worked upon the principle of one vote per member and government officials represented voting members. In Intelsat, on the other hand, votes were apportioned by how much a country used international telecommunications traffic and thus invested in international communications. This organizational arrangement gave the United States a dominant voice as both the biggest user and the main controller of satellite technology. Regional affiliations such as Western Europe or Pacific allegiances between the United States, Australia, and Japan also played a significant role in the creation of Intelsat, unlike the ITU. For Slotten, Intelsat represents a transition between an era when the ITU dominated international communications policy and the present, when ICANN and nongovernmental organizations have frequently played a primary role in Internet governance alongside nation-states.

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The special issue closes with an Afterword by Craig Murphy and JoAnne Yates, which reflects on the contributions and discusses the importance of voluntary consensus standard setting (VCSS) processes that have dominated national and industrial standards since the nineteenth century. They also discuss how challenges have emerged to the VCSS system since the 1980s.

Contemporary debates about NSA surveillance and cooperation among the Five Eyes (the United States, Great Britain, Canada, Australia, New Zealand) are inexplicable without a history of international communications policy. The international history of computing begins with knowledge transfer in the 1940s, while Five Eyes emerged from cooperation during World War II.[14] Other international disputes have deeper roots. Countries such as Russia, China, and Iran sought in late 2012 to work through the international institution of the ITU to gain greater national autonomy over Internet policy. Others, such as the United States and Great Britain, have rejected these efforts and wish to maintain international coordination either through ostensibly neutral technical bodies like ICANN or through businesses such as Google or Yahoo, which are based in Silicon Valley.[15] Meanwhile, the EU is seeking to renegotiate its "Safe Harbor" agreement with the United States from 2000. The agreement allowed U.S. companies to export information about Europeans to the United States and elsewhere, if the companies were certified as adhering to European privacy laws. So much about these debates seems new to policymakers and campaigners. But fundamentally, current discussions continue to circle around the historical distinction between the coordination of technical standards and the regulation of information.

In the arena of communications, technological innovations often seem to call for profound policy breaks with the past. But the continuities are surprisingly robust. The history of governing international communications thus remains deeply relevant to the present. International frameworks starting with the post laid the groundwork for how international organizations and nation-states would deal with later technologies. International communications policy has followed a path dependency leading back to the international postal and telegraph systems of the mid-nineteenth century. The "constitutive choices" of the past still shape our present. They created mechanisms of entrenchment that make it hard to revoke the basic structures and processes of international communications.[16] International standard-setting might seem mundane, neutral, and technical. Its past, present, and future are anything but.

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NOTES

1. National Security Council, Presidential Directive/NSC-18 (24 August 1977), www.jimmycarterlibrary.gov/documents/pddirectives/pres_directive.phtml; National Security Council, National Security Decision Directive 32 (20 May 1982), www.reagan.utexas.edu/archives/reference/NSDDs.html#.VDMD-ce7kjU, both accessed 6 October 2014; Department of Defense, JFSC Pub 1, *The Joint Staff Officer's Guide 2000*, National Defense University, Joint Forces Staff College, 2–11, www.uscg.mil/directives/cim/3000-3999/cim_3020_15d.pdf, accessed 7 October 2014.

2. On technical standards, see Nils Brunsson and Bengt Jacobsson, *A World of Standards* (New York, 2000); Craig N. Murphy and JoAnne Yates, *The International Organization for Standardization (ISO): Global Governance Through Voluntary Consensus* (London, 2009); Hugh Richard Slotten, "The International Telecommunications Union, Space Radio Communications, and U.S. Cold War Diplomacy, 1957–1963," *Diplomatic History* 37 (2013): 313–71; Judith Schueler and Andreas Fickers, eds., *Bargaining Norms, Arguing Standards: Negotiating Technical Standards* (The Hague, 2008); Stefan Timmermans and Steven Epstein, "A World of Standards but Not a Standard World: Toward a Sociology of Standards and Standardization," *Annual Review of Sociology* 36 (2010): 69–89.

3. David Singh Grewal, *Network Power: The Social Dynamics of Globalization* (New Haven, 2008), 10.

4. Thomas G. Weiss, "The UN's Role in Global Governance," UN Intellectual History Project Briefing Note Number 15 (August 2009), 1–2, http://www.unhistory.org/briefing/15GlobalGov.pdf.

5. For the distinction between coordination and regulation, see Bernd Holznagel and Raymund Werle, "Sectors and Strategies of Global Communications Regulation," *Knowledge, Technology, and Policy* 17, no. 2 (2004): 19–37. On the national regulation of American and German telecommunications, see Günther Schulz, Mathias Schomeckel, and William J. Hausman, eds., *Regulation Between Legal Norms and Economic Reality. Intentions, Effects, and Adaptation: The German and American Experiences* (Tübingen, 2014). For an STS perspective on standardization using the examples of fax, videotext, and message handling, see Susanne Schmidt and Raymund Werle, *Coordinating Technology: Studies in the International Standardization of Telecommunications* (Cambridge, Mass., 1998).

6. For an overview history, see Francis Lyall, *International Communications: The International Telecommunication Union and the Universal Postal Union* (Burlington, Vt., 2011). On the ITU, see Léonard Laborie, *L'Europe mise en réseaux: La France et la coopération internationale dans les postes et les télécommunications (années 1850–années 1950)* (Brussels, 2011).

7. *Many Voices, One World: Toward a New, More Just, and More Efficient World Information and Communication Order* (New York, 1980). In protest at what they saw as UNESCO's increasing politicization, Britain and the United States withdrew from UNESCO in 1984 and 1985, but rejoined in 1997 and 2003, respectively.

8. On the concept of open standards, see Andrew L. Russell, *Open Standards and the Digital Age: History, Ideology, and Networks* (New York, 2014). Thanks to Francine McKenzie for information on GATT.

9. Law is a form of behavior standard. On the distinction between technical and behavior standards, see Paul A. David, "New Standards for the Economics of Standardization

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in the Information Age," in *Economic Policy and Technological Performance*, ed. Partha Dasgupta and Paul Stoneman (Cambridge, 1987), 206–39. On international law, see Martti Koskenniemi, *The Gentle Civilizer of Nations: The Rise and Fall of International Law, 1870–1960* (Cambridge, 2001).

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15. For concerns about Internet governance in both authoritarian regimes and democracies, see Rebecca MacKinnon, *Consent of the Networked: The Worldwide Struggle for Internet Freedom* (New York, 2012); Evgeny Morozov, *The Net Delusion: The Dark Side of Internet Freedom* (New York, 2011).

16. On "constitutive choices" in media, see Paul Starr, *The Creation of the Media: Political Origins of Modern Communications* (New York, 2004), 5–7.

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