

THE INFRASTRUCTURES OF THE GLOBAL DATA ECONOMY: UNDERSEA CABLES AND INTERNATIONAL LAW

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This Post is the third in a new Frontiers series that critically explores the connection between international law and emerging technology, featuring the writing of scholars from a variety of disciplines affiliated with the Institute for Global Law and Policy (IGLP) at Harvard Law School.

Ninety-nine percent of global data moves through undersea cables. Should their usage be interrupted for any reason, the entire global economy would be disrupted, as an estimated \$10 trillion in financial transfers are dependent upon them.¹ Undersea cables, or as Surabhi Ranganathan terms them, the “out-of-sight arteries of globalization,”² are critical infrastructure for the digital economy and the movement of capital around the world. Undersea cables are what make global “flows” and exchanges of data as a commodity possible.³ They have enabled the growth of the “global data economy,” or the economy that trades in personal information,⁴ by providing the material basis for corporations to profit from data

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¹ See DOUGLAS R. BURNETT & LIONEL CARTER, INTERNATIONAL SUBMARINE CABLES AND BIODIVERSITY OF AREAS BEYOND NATIONAL JURISDICTION: THE CLOUD BENEATH THE SEA 4 (2017).

² Surabhi Ranganathan, *The Out-of-Sight Arteries of Globalization*, VISUALIZING CLIMATE AND LOSS, <http://histecon.fas.harvard.edu/climate-loss/lawofthesea/arteries.html> (last visited Feb. 7, 2020).

³ On international legal and policy-making writing emphasizing the value of “flows” of data, see Fleur E. Johns, *The Deluge*, 1 LONDON REV. INT’L L. 9, 16 (2013).

⁴ *Id.* at 10 (citing Nils Zurawski, *Local Practice and Global Data: Loyalty Cards, Social Practices and Consumer Surveillance*, 52 SOC. Q. 509, 513 (2011)).

collection and processing.⁵

In connecting distant territories around the world, cables often implicate international law. Yet much of the international legal literature on digital data in relation to territoriality asserts that it is something immaterial, intangible, unterritorial, or post-territorial.⁶ While these conceptualizations illustrate some of the complexities that have arisen in trying to map digital data onto extant international legal frameworks, they might also have a blackboxing effect.⁷ Imagining data as deterritorialized obscures its underlying histories and power dynamics, including the territorial politics, ecological extraction, labor, and forms of knowledge that went into constructing its underlying infrastructures.

Conceptualizing data as intangible or immaterial also renders it seemingly ubiquitous, evenly spread around the world, or nowhere in particular. This obscures the unevenness of where data comes from and where it travels, who has access to and exercises control over data, and who can use it for what purposes. Data is not collected, distributed, or accessible equally. The paths data travels often depend on algorithms, corporate decision-makers and engineers, regulatory

⁵ See Nicole Starosielski, *Introduction*, in *SIGNAL TRAFFIC: CRITICAL STUDIES OF MEDIA INFRASTRUCTURES* 1, 5–6 (Lisa Parks & Nicole Starosielski eds., 2015).

⁶ See, e.g., Jennifer Daskal, *The Un-Territoriality of Data*, 125 *YALE L.J.* 326 (2015); Kristen E. Eichensehr, *Data Extraterritoriality*, 95 *TEX. L. REV.* 145 (2017); William J. Drake, *Territoriality and Intangibility: Transborder Data Flows and National Sovereignty*, in *BEYOND NATIONAL SOVEREIGNTY: INTERNATIONAL COMMUNICATION IN THE 1990S* 259 (Kaarle Noerdenstreng & Herbert I. Schiller eds., 1993); Paul De Hert & Johannes Thumfart, *The Microsoft Ireland Case and the Cyberspace Sovereignty Trilemma. Post-Territorial Technologies and Companies Question Territorial State Sovereignty and Regulatory State Monopolies*, 4 (Brussels Privacy Hub Working Paper No. 11, 2018).

⁷ Blackboxing is a concept in social science that refers to the ways in which a technology's invisibility or opaqueness can be attributed to its success. See, e.g., BRUNO LATOUR, *PANDORA'S HOPE: ESSAYS ON THE REALITY OF SCIENCE STUDIES* 304 (1999).

environments, geographies of trade, development projects, and material hardware—none of which have even geographic configurations. The paths data travels are also subject to path dependencies created by initial overlays of cables for the telegraph that were motivated by imperial ambitions, as many undersea cables today follow similar paths. For example, as undersea cable networks are typically constructed within already existing routes,⁸ many of which were developed for telegraphic cables as part of colonial projects, they tend to “reinforce existing global inequalities.”⁹

The global data economy, cloud computing, and wireless technologies are thus grounded in tangible cables,¹⁰ the uneven geographies of which affect the speeds and costs at which data travels around the world, the availability of information and communications technologies (“ICTs”) in different parts of the world, and the sites where communications can be either intercepted for surveillance purposes or cut off entirely.¹¹ As the global data economy becomes an increasingly significant part of global economic activity, the uneven geographies of cables can have significant impacts on global economic distribution.

This short article will foreground the material infrastructure underlying the global data economy to highlight its entanglement with technological, legal, and social orders.¹² It will trace how cables helped shape political thought in the nineteenth century and were in turn shaped by imperial dynamics. Then it will discuss the material turn in international law and how it provides ways for reimagining

⁸ NICOLE STAROSIELSKI, *THE UNDERSEA NETWORK* 20 (2015).

⁹ *Id.* at 12.

¹⁰ See Nicole Starosielski, *Fixed Flow: Undersea Cables as Media Infrastructure*, in *SIGNAL TRAFFIC: CRITICAL STUDIES OF MEDIA INFRASTRUCTURES*, *supra* note 5, at 53.

¹¹ See *id.* at 61–66.

¹² See *STATES OF KNOWLEDGE: THE CO-PRODUCTION OF SCIENCE AND THE SOCIAL ORDER* (Sheila Jasanoff ed., 2004).

international law's effects on everyday life. Finally, it will discuss how cables have become sites where power and contestation play out, the relationship of international law to undersea cables, and how they have mutually shaped each other. It will end with some thoughts on denaturalizing the relationship between undersea cables, international law, and the global data economy.

I. CABLES AND SPATIAL RELATIONS

For Marshall McLuhan, the medium is the message and “the ‘message’ of any medium or technology is the change of scale, pace, or pattern that it introduces into human affairs.”¹³ In this view, the content of the communications and data that travel through the medium of a cable matters less than the possibilities or limitations offered by the medium. The medium of cables helped shape and restructure social relationships and conceptualizations of space, and thereby shaped conceptualizations and practices of governance.

In the nineteenth century, with the advent of the telegraph during the height of the British Empire's power, it was thought that the new communications technology could “annihilate” space. Engineers and statesmen thought that cables linking imperial territories around the world could overcome the challenges of maintaining a global empire and a durable polity that lacked homogeneity.¹⁴ As Duncan Bell argues, global telegraphic communications, which moved through undersea cables, altered imperial governance as well as ways of thinking about political association along racialized lines rather than territorial boundaries, allowing Victorians to imagine a “politically-integrated Angloworld [which] was

¹³ MARSHALL MCLUHAN, UNDERSTANDING MEDIA: THE EXTENSIONS OF MAN 7, 8 (1964).

¹⁴ See Duncan S. A. Bell, *Dissolving Distance: Technology, Space, and Empire in British Political Thought, 1770–1900*, 77 J. MOD. HIST. 523, 532 (2005).

inconceivable without a dense communication infrastructure to bind it together.”¹⁵ Thus, more than the economic, political, and strategic possibilities offered by the advent of the submarine telegraphic cable, the altered perceptions of time and distance that undersea cables motivated transformed nineteenth-century political thought. In doing so, they enabled the imagination of unified political communities such as nations,¹⁶ and governance along new spatiotemporal scales.

II. MATERIALITY AND INTERNATIONAL LAW

While the social sciences have focused for some time on the significance of objects and materiality and their entanglement with political and social orders,¹⁷ international legal scholarship has recently started to engage with this mode of analysis in more depth. For example, Jessie Hohmann and Daniel Joyce describe the possibilities offered by engaging with objects and materials rather than classic texts and normative frameworks: “[i]n revealing the deep entanglements of international law and the material things around us, we can begin to understand how international law structures and disciplines its subjects—and sets the contours for the possibilities and limits of our lives—through objects.”¹⁸ International law’s authority is often founded on material objects.¹⁹ Luis Eslava and Sundhya Pahuja also consider that the material world is what gives international law meaning and

¹⁵ Duncan Bell, *Cyborg Imperium, c.1900*, in CODING AND REPRESENTATION FROM THE NINETEENTH CENTURY TO THE PRESENT: SCRAMBLED MESSAGES (Anne Chapman & Natalie Chowe eds., forthcoming).

¹⁶ On the nation as an “imagined political community,” see BENEDICT ANDERSON, *IMAGINED COMMUNITIES: REFLECTIONS ON THE ORIGIN AND SPREAD OF NATIONALISM* (rev. ed. 2016).

¹⁷ See, e.g., Langdon Winner, *Do Artifacts Have Politics?*, 109 *DAEDALUS* 121 (1980); Bruno Latour, *Where are the Missing Masses? The Sociology of a Few Mundane Artifacts*, in *SHAPING TECHNOLOGY / BUILDING SOCIETY: STUDIES IN SOCIOTECHNICAL CHANGE* 225 (Wiebe E. Bijker & John Law eds., 1992).

¹⁸ *INTERNATIONAL LAW’S OBJECTS*, 2 (Jessie Hohmann & Daniel Joyce eds., 2019).

¹⁹ See *id.* at 2.

effect, and it is in and through the material world, mundane objects, and artifacts that international law unfolds.²⁰ Moreover, Benedict Kingsbury argues for “thinking infrastructurally” in international law to account for the ways in which infrastructures can have regulatory effects.²¹ For him, infrastructure refers to “a set of relations, processes and imaginations” and brings together technical, social, and organizational elements in relation to law and governance.²²

As Jessie Hohmann notes, the distinction between the passive object and the agentive subject is a weak one, and our abilities to categorize and distinguish between things as belonging to one or another of those categories are often hampered by those qualities of things which are always unknowable.²³ These categorizations are also resisted by the very politics of those artifacts.²⁴ As Bruno Latour has noted, the idea that objects or things can be actants with agency creates possibilities to overcome conceptual binaries and distinctions, as well as abandon the idea that the natural and the social worlds are separate.²⁵ It challenges the notion that there are “distinct ontological zones” which create distinctions between humans and non-human actants, for example.²⁶ In this way, Latour’s concepts have been particularly useful in helping international legal scholars rethink some of the common

²⁰ See Luis Eslava & Sundhya Pahuja, *Beyond the (Post)Colonial: TWAIL and the Everyday Life of International Law*, 45 J.L. & POL. AFR. ASIA & LATIN AM. 195, 203 (2012).

²¹ See Benedict Kingsbury, *Infrastructure and InfraReg: On Rousing the International Law “Wizards of Is,”* 8 CAMBRIDGE INT’L L.J. 171 (2019).

²² *Id.* at 179.

²³ See Jessie Hohmann, *The Lives of Objects, in* INTERNATIONAL LAW’S OBJECTS, *supra* note 18, at 30, 31.

²⁴ See *id.* at 32.; Winner, *supra* note 17.

²⁵ See BRUNO LATOUR, REASSEMBLING THE SOCIAL: AN INTRODUCTION TO ACTOR-NETWORK-THEORY (2005); BRUNO LATOUR, WE HAVE NEVER BEEN MODERN (Catherine Porter tran., 1993).

²⁶ LATOUR, WE HAVE NEVER BEEN MODERN, *supra* note 25, at 10–11.

assumptions upon which international legal doctrines rest.²⁷ Nevertheless, this article proposes moving beyond a Latourian conception of objects as actants with agency on par with humans. It seeks to emphasize the exercises of power and forms of politics that the materiality of cables enable and their entanglement with technological, legal, and social orders.²⁸

III. CABLES AS SITES OF POWER AND CONTESTATION

It is important to consider not only how material objects and infrastructures help shape international law and affirm its authority, but also how international law helps facilitate their construction, and how the interaction between law and materiality helps produce social orders.²⁹ Undersea cables became the site of political, economic, and legal contestation by a variety of actors, including states, individual developers, and corporations—struggles which continue today.³⁰ These contestations involved issues of ownership, control and access, sovereignty, and territorial claim-making.³¹

In the nineteenth century, for example, the high demand for gutta percha, a natural plastic used as insulating material for cables, changed economic, social, and ecological conditions for native people in Southeast Asia,³² sparking territorial contestations that have shaped borders which still exist today.³³

²⁷ See Kingsbury, *supra* note 21, at 174.

²⁸ See Jasanoff, *supra* note 12.

²⁹ See *id.*

³⁰ See, e.g., Jeremy Page, Kate O’Keeffe & Rob Taylor, *America’s Undersea Battle With China for Control of the Global Internet Grid*, WALL STREET J. (Mar. 12, 2019), <https://www.wsj.com/articles/u-s-takes-on-chinas-huawei-in-undersea-battle-over-the-global-internet-grid-11552407466>.

³¹ See JILL HILLS, *THE STRUGGLE FOR CONTROL OF GLOBAL COMMUNICATION: THE FORMATIVE CENTURY* 83 (2002).

³² See John Tully, *A Victorian Ecological Disaster: Imperialism, the Telegraph, and Gutta-Percha*, 20 J. WORLD HIST. 559–79 (2009).

³³ See HELEN GODFREY, *SUBMARINE TELEGRAPHY AND THE HUNT FOR GUTTA PERCHA: CHALLENGE AND OPPORTUNITY IN A GLOBAL TRADE* (2018).

Moreover, cables and access to telegraphic communications not only played a role in territorial conflicts between colonial powers, but also provided the impetus for territorial claim-making over island territories.

International legal regimes both facilitated and helped construct the development of undersea cable networks. Limitations on state claims of sovereignty in the high seas gave significant leeway for the laying of cables on the seabed, as authorized by the United Nations Convention on the Law of the Sea (“UNCLOS”) and customary international law. At the same time, state claims of sovereignty and partnerships with private corporations in early developments of telegraphic cable infrastructures paved the way for corporations to play a significant role in having control over undersea cables today. This was due to the fact that some states did not want supra-national oversight or regulation by international organizations or foreign state-owned cables to come into their sovereign territorial space, including their territorial space in the sea. These dynamics show how international legal regimes and state claims of sovereignty helped shape the submarine cable networks we have in place in today, as well as how cables helped shape territorial borders, disputes, and politics.

IV. CONCLUSION

Conceptualizing data as immaterial, intangible, or unterritorial obscures the social construction of infrastructures such as undersea cables that enable it to move around the world. By rendering visible these seemingly invisible infrastructures, we might not only have a better understanding of how they were socially and legally constructed, but also the multiple sites of power, politics, and contestation they enabled, historically and today. Moreover, considering the material infrastructures underlying data might allow us to highlight issues that might otherwise be overlooked. For example, we might better understand how international legal regimes like

UNCLOS facilitated the development of infrastructures that enable the global data economy today and the roles these regimes play in shaping their past, present, and future configurations, or how cables have long challenged the divide between the public and the private.³⁴

Invisibilities are problematic when they naturalize the phenomena that they conceal. The “territorial trap” in international law risks masking how contemporary global political economy functions outside the confines of territorial borders and how it distributes power and authority.³⁵ By rendering these dynamics invisible, international law also obscures its own role in facilitating and constructing that political economy.

To counteract these invisibilities and naturalizations, this article proposes foregrounding the material infrastructures that make the global data economy possible as a way of highlighting how they have helped shape, and were shaped by, international legal regimes, everyday people, and broader social and political orders. In doing so, we might also raise different questions about how the material and international legal infrastructures of the global data economy shape global economic distribution. Rather than simply bringing more countries into the global data economy through new cable landings and assuming that will automatically bring economic development and social progress, we ought to step back and question the structures that facilitate the distribution of the value generated from the global data economy to just a small number of corporations, states, and individuals.

³⁴ Cables are owned and operated by both private actors (some state-owned) and large conglomerates of public and private actors. See Stephen Humphreys, *Data: The Given*, in INTERNATIONAL LAW'S OBJECTS, *supra* note 18, at 199.

³⁵ See generally Nikolas M. Rajkovic, *The Visual Conquest of International Law: Brute Boundaries, the Map, and the Legacy of Cartogenesis*, 31 LEIDEN J. INT'L L. 267 (2018).