INTRODUCTION

Cyberspace needs governance. Information technology has provided significant new opportunities for human industry and interaction. But cyber threats—in the form of computer error, cyberexploitation, or cyberattack—represent new risks of harm to life and property.¹ As the scale of these opportunities and risks grows, so too does a consensus for more formal governance of the technology’s architecture and use.²

Recognition of a need for cyberspace governance has not, however, translated into any actual agreement on its contents. The most basic issues are highly contested, including how cyberspace should be governed, who should do so, and even what exactly cyberspace is. For starters, should cyberspace be managed primarily through socially constructed norms or must law and legal processes take a leading role? Second, who should dictate the standards of behaviour? Do the architects (e.g., the Internet Engineering Task Force or Apple) take the lead because their coding and hardware dictate what information technology can do?³ Should users govern themselves instead, and, if so, are some user communities more important than others? Or are governments the appropriate source of authority, whether they govern through new domestic laws, political commitments, international treaties, or even by delegating oversight to an international organization such as the International Telecommunications Union (ITU)?⁴

This conference’s theme—What is Stewardship in Cyberspace?—raises a third issue. What exactly is cyberspace? A stewardship ethic could be applied to cyberspace, but doing so requires a critical assumption: that cyberspace is a shared resource (or one where individual interests are so comingled as to defy separation).⁵ That vision of cyberspace is not, however, universally held. Some deny that cyberspace is “space” at all, or insist its resources can be (and are better off) apportioned to

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3 This approach was originally (and famously) advocated by Lawrence Lessig in Code and Other Laws of Cyberspace (New York: Basic Books, 1999).

4 For more on the ITU’s part in governance debates, see Panayotis A. Yannakogeorgos, “Cyberspace, the New Frontier—and the Same Old Multilateralism,” in Global Norms, American Sponsorship and the Emerging Patterns of World Politics, ed. Simon Reich (Houndmills, UK: Palgrave MacMillan, 2010).

5 As the conference organizers describe it, stewardship involves “an ethic of responsible behaviour and management of resources, typically in mixed or common pooled settings such as the environment.”
This essay analyzes the stewardship inquiry through the lens of international law. Existing debates on the nature of cyberspace have emphasized its suitability for governance by social norms, domestic law, or some combination of the two. Questions of international law—to the extent they are raised at all—have been limited to asking how (and how well) existing rules analogize to cyberspace. But international law also clearly has something to say about defining what kind of resource cyberspace is or might become.

International law has long divvied up the world’s resources into categories, with different forms of governance for different types of resources. These categories suggest that a stewardship approach to regulating cyberspace could work. But it is equally likely that using that label will trigger objections from those who would prefer to label cyberspace as subject to governance based on sovereignty. A contest pitting stewardship against sovereignty is likely to forestall, if not derail, agreement on any particular governance structure for cyberspace. Such a fight is not, however, inevitable. International law does not limit governing frameworks to those accompanying stewardship or sovereignty, but offers a spectrum of ways to regulate resources. This range of possibilities suggests that—instead of fighting over what we should call cyberspace—a discussion of what behaviour we want to encourage (or prohibit) is the more appropriate starting point.

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INTERNATIONAL LAW AND THE APPORTIONMENT OF RESOURCES

THE DEFAULT POSITION: SOVEREIGNTY

In terms of resources, territory has long served as the category of principle concern to international law. Through the concept of sovereignty, international law apportions territory to individual nation states, whose very existence depends on having some defined territory under governmental control. The state’s “territorial sovereignty” in turn triggers a specific set of international legal rights and duties. A state has the right to control what goes on in its territory to the exclusion of other states in the absence of its consent; and it has a duty to protect the interests of those other states and their nationals within its territory. Sovereignty thus presupposes that each sovereign has the authority to govern its territory barring some agreement or international law rule to the contrary. Nor is sovereignty limited to the landmass itself; international law has extended the label “territory” (and the sovereign rights and duties that accompany it) to categorize additional resources, such as the man-made infrastructure lying within a state’s territory, the air space above it, mineral and oil resource below the surface, and twelve miles of the adjacent sea and seabed.

Today, of course, most of the earth’s territorial resources are divided among nearly two hundred nation states. In rare cases, territory may be terra nullius, meaning no state has claimed it (e.g., a new volcanic island). More often, states may dispute who holds sovereignty over certain territory. In such cases, international law provides— and regulates among—various methods for settling the question. The oldest of these methods—conquest—is now generally prohibited. But the discovery of territory, which formed the basis for European states’ claims to the New World, remains in play. Such discovery

8 In addition to a territory and a government, international law also requires a state to have a permanent population and the capacity to engage in international relations with other states. See Convention on Rights and Duties of States (Montevideo Convention), 26 December 1933, 165 LNTS 20, art. 1; James Crawford, The Creation of States in International Law, 2nd ed. (Oxford, UK: Oxford University Press, 2007), 28-36.

9 Territorial sovereignty should be distinguished from other ways the term sovereignty is used. The original formulation developed by Machiavelli, Bodin, and Hobbes used the term to localize a single supreme legislative/political authority within a polity’s internal structure. More recent efforts also use sovereignty to identify legitimate membership in the international community. See Stephen D. Krasner, Sovereignty: Organized Hypocrisy (Princeton NJ: Princeton University Press, 1999), 9-25; Abram Chayes and Antonia Chayes, The New Sovereignty: Compliance with International Regulatory Agreements (Cambridge, MA: Harvard University Press, 1995), 27.

10 These principles were famously summarized by Judge Max Huber in his opinion in the Island of Palmas Arbitration (Netherlands v. United States) II RIAA 829, 839 (1928) (“Territorial sovereignty ... involves the exclusive right to display the activities of a State. This right has as corollary a duty: the obligation to protect within the territory the rights of other States, in particular their right to integrity and inviolability in peace and in war, together with the rights which each State may claim for its nationals in foreign territory”).

11 Thus, states can—and frequently do—give up sovereignty with respect to what occurs in their territory by treaty or custom, while certain other international law rules (such as prohibitions on slavery or genocide) are absolutely prohibited under the concept of jus cogens (a term used to refer to preemptory norms of international law).

12 As with a state’s land territory, state authority is not absolute in these areas. For example, treaties and customary international law afford other states a right of innocent passage through a state’s territorial sea. See United Nations Convention on the Law of the Sea, 10 December 1982, 1833 UNTS 396, art. 17 (“UNCLOS”).

13 For a recent example of this, see the new island that emerged near Tonga in 2006. “New Island Breaches Surface in Tonga Island Chain,” Hawaii Tribune-Herald, 26 November 2006; “Steam Comes True as Crew Gets a Welcome to the Pumiced Land,” The Sun-Herald (Sydney, Australia) 31 December 2006, 26. Although this island was uninhabited, it is important to appreciate that, unfortunately, terra nullius was often used during the colonial era to justify European states acquiring sovereignty over occupied territory, where those states did not regard the inhabitants as sufficiently civilized. See M.F. Lindley, The Acquisition and Government of Backward Territory in International Law (London UK: Longmans, Green, and Co., 1926), 291.

14 UN Charter, art. 2(4).
claims tend to lose, however, against a state sovereignty claim based on occupation—where a state’s authorities exercise actual control over the territory (i.e., through taxation, a police force, a military presence, etc.). Alternatively, sovereignty may come by cession, where one state transfers its title (or claim) over territory to another state. In each of these cases, however, the sovereignty principle means that states can individually acquire and hold territory, including all of its associated resources.

**Stewardship and Res Communis**

As important as sovereignty is to the current international legal order, not all resources are subject to individual state appropriation. For hundreds of years, the high seas have operated under a very different premise. Under the Latin label res communis, the high seas are said to belong to everyone, and therefore are not subject to appropriation by anyone. This is due in part to the view that states could not exercise control on the oceans in the same ways as they do on land territory, and in part to the idea that the oceans should be shared by all. The latter premise also applies, albeit more controversially, to certain areas of the international seabed. The 1982 UN Convention on the Law of the Sea refers to this seabed as the “common heritage of mankind,” denying any state the right to exercise sovereignty or sovereign rights thereon. At the height of the space race, states accorded a similar status to the moon and outer space more generally. For other resources—such as the ozone layer—the res communis label may not be used explicitly, but international regulation effectively accords it such a status.

Res communis thus contrasts with sovereignty by apportioning a resource to a collective. In lieu of individual states governing their respective territories (whether through domestic laws or social customs) governing a res communis requires collective decision making (e.g., a treaty). States may opt to self-enforce whatever rules or standards they collectively accept, or they may establish mechanisms for promoting compliance. In at least one instance—the international seabed—states created an international organization, the International Seabed Authority (ISA), to serve as a steward to manage their collective interest in that res communis. Exactly how the ISA exercises its authority is difficult to decipher, although that is due more to the absence of technology to exploit the international seabed cost effectively than any actions or inactions on the ISA’s part.

Where a resource is designated as res

15 In addition to discovery, occupation, and cession, territorial sovereignty may also arise by accretion (the geographical process by which new land is formed and becomes attached to existing land, as when a river changes direction); or prescription (where a state acquires sovereignty over territory that was not terra nullius through methods that were originally unlawful or where their legality cannot be demonstrated).

16 UNCLOS, art. 137.

17 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, 27 January 1967, 18 UST 2410, art. 2 (“Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means”).

18 And, like other areas of res communis, the ozone layer has become the subject of collective governance. See Montreal Protocol on Substances that Deplete the Ozone Layer, 16 September 1987, as adjusted and amended, 1522 UNTS 3, art 2 et seq (requiring parties to reduce consumption and production of ozone-depleting substances by specific dates).

19 Many Western nations originally refused to join UNCLOS because of the authorities given to the International Seabed Authority (the “Authority”), particularly its ability to transfer technology (and wealth) from developed states to the more numerous states of the developing world. That controversy led to a renegotiation of Part XI of UNCLOS, which limited, but did not eliminate, the Authority’s role. See Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, 28 July 1994, 1836 UNTS 3.
states have adopted frameworks for governance that ensure the resource’s reason-
able use and its sustainability. Since, by definition, everyone has an interest in res communis, international law protects the “freedom” of individual states and their nationals to use the resource, provided that such use does not interfere with others’ freedom of use. Thus, every state has the freedom to navigate, overfly, and lay submarine cables and pipelines on the high seas; similar rights pertain to the use of outer space. At the same time, an interest in sustainability—ensuring the preservation or development of the resource and its utility—underlies conservation requirements where states and other users must act to protect the resource and forgo actions that would degrade it. International law, for example, requires states to protect and preserve the marine environment, including the prevention, reduction, or control of any pollution there. As a result, stewardship is clearly part and parcel of the res communis concept under international law, although it’s only rarely named as such.

**Intermediate Options**

At first glance, therefore, international law identifies most of the earth’s resources as belonging to one of two camps, either sovereignty or res communis. But such bifurcation ignores how, over time, international law has accommodated stewardship interests in resources subject to sovereignty and vice versa. In reality, sovereignty and res communis operate as two poles with a spectrum of other resources (and alternative governance frameworks) lying in between.

For example, technologies now allow individual states to control or exploit the ocean and its seabed, removing one of the primary rationales for regarding it as res communis in the first place. As a result, states have agreed to recategorize certain parts of what had been the ocean’s res communis to allow for some state appropriations without subjecting those areas to sovereignty per se. Thus, a contiguous zone now extends twelve additional miles beyond a state’s territorial sea where the state may regulate and enforce some (but not all) of its laws and regulations (i.e., those relating to “customs, fiscal, immigration, or sanitary” matters). Additionally, an exclusive economic zone (EEZ) runs two hundred miles from a state’s shores in which it has “sovereign rights for the purpose of exploring, exploiting, conserving and managing the natural resources, whether living or non-living, of the sea-bed and sub-soil, and the superjacent waters.” “Sovereign rights,” however, are clearly distinct from actual sovereignty; a state must still accord other states the same freedoms in its EEZ as they would enjoy on the high seas, just as it must continue to act to conserve the resources found therein. Thus, categories such as the contiguous zone and the EEZ represent intermediate approaches to mediating the interests of sovereignty and stewardship.

Nor are resources subject to state sovereignty entirely immune from stewardship principles. Historically, many western states acquired colonial territory. Eventually, the principle of self-determination—the right of a people to decide on the political and legal status of the territory in which they reside—pushed colonial powers to

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20 UNCLOS, arts. 87(a)-(c), 112; Outer Space Treaty, art 1.
21 UNCLOS, arts. 192-196.
give up sovereignty over these colonies. In certain cases, international law created “mandates” and “trusts” over these territories prior to their independence.\(^\text{25}\) These arrangements usually involved a third state taking over control of the territory from the colonial power, and administering it for the benefit of the local population under international supervision. The United States, for example, spent several decades as the trustee of various Pacific Island territories until they became sovereign states in their own right. Today, this sort of stewardship approach continues to extend to those parts of a state’s territory that remain non-self-governing.\(^\text{26}\)

In some cases, the sovereignty or res communis labels may not generate the expected governance framework. A resource might formally fall within the rubric of sovereignty but have governance processes more akin to those accompanying a res communis. For example, even as states insist on a right to control those parts of the radio-frequency spectrum in their airspace, they have opted for collective regulation of that spectrum via an international organization—the ITU. The preamble to the ITU constitution emphasizes “the sovereign right of each State to regulate its telecommunication[s]” while its terms give the ITU responsibility for managing that spectrum and setting standards for the technology using it.\(^\text{27}\)

In a few cases, debates over how to categorize a resource end in a stalemate, as is most notably the case for Antarctica. Prior to 1959, eight states claimed sovereignty over various (and sometimes overlapping) portions of that continent. Rather than resolving their claims, however, these states figuratively froze them via the Antarctic Treaty.\(^\text{28}\) By its terms, the treaty does not undermine or endorse any of the pre-existing claims. Instead, it sets Antarctica aside as a “scientific preserve,” prohibiting military activities and giving all states certain freedom to engage in research there, with accompanying requirements to conserve its resources in doing so.\(^\text{29}\)

\(^\text{25}\) The mandate system originated after the First World War with respect to certain German colonies and Arabic-speaking portions of the Turkish Empire, where sovereignty was assumed by one of the allies with supervision by the League of Nations. Francis B. Sayre, “Legal Problems Arising from the United Nations Trusteeship System,” American Journal of International Law 42 (1948): 263-268. After World War II, the UN Charter established eleven “trust territories” administered by seven different States. See UN Charter, arts. 75-91.

\(^\text{26}\) UN Charter, art. 73 (“Members of the United Nations which have or assume responsibilities for the administration of territories whose peoples have not yet attained a full measure of self-government recognize the principle that the interests of the inhabitants of these territories are paramount, and accept as a sacred trust the obligation to promote to the utmost, within the system of international peace and security established in the present Charter, the well-being of the inhabitants of these territories.”).


\(^\text{28}\) Antarctica Treaty, 1 December 1959, 402 UNTS 71, art. 4.

\(^\text{29}\) Ibid, arts. 1-3. This approach has not been without controversy; some states continue to insist that the Antarctic treaty parties are too exclusive a group (there are currently 47 parties) to manage Antarctica as part of the “common heritage of mankind.”
THE DEFINITIONAL DILEMMA IN APPORTIONING CYBERSPACE

What does this abbreviated survey of international law categories suggest for the question of stewardship in cyberspace? For starters, it suggests international law can accommodate a notion of stewardship in cyberspace. Indeed, if cyberspace constitutes a *res communis*, international law has clear precedents (not to mention processes) for its governance that would preserve the free use of this space alongside rules for its sustainable development. In other words, the question of cyber-stewardship could turn on the definition of cyberspace itself; label it as a *res communis* and, in theory, stewardship norms would follow. This suggests in turn that the starting point for any cyber-stewardship project lies in having international law treat cyberspace like the high seas, the international seabed, or outer space—as a resource that belongs to everyone and therefore cannot be apportioned to individual states or other actors.

This possibility of a cyberspace *res communis* in need of stewardship must, however, be distinguished from the probability of that outcome. Here, the outlook is less bright. Those who view cyberspace in territorial terms may reject any attempt to promote an ethic of stewardship for adopting a fundamentally incorrect premise about what kind of resource cyberspace is. If one conceives of cyberspace as “just a network” of servers, routers, cables, etc. physically located within particular states, it becomes possible to argue that cyberspace is subject to territorial sovereignty—to apportionment among those states that can control a portion of the Internet infrastructure or that of other digital electronic communications. Although early thinkers contended that sovereignty had no role in cyberspace—that states could not control cyberspace behaviour—states have increasingly demonstrated a capacity to do so. The Great Firewall of China is a paradigmatic example of architectural control, while the potential for projecting force into cyberspace suggests that states may control behaviour there in other ways as well.

As with the high seas, accepting state capacity to control cyberspace would remove one of the two rationales for treating it as *res communis*. It is no longer a question of whether sovereignty or stewardship can govern cyberspace, but which one *should* do so. This gives sovereignty proponents two grounds on which to rest their claims. First, those who insist cyberspace is “just a network” can argue that sovereignty already governs cyberspace—that existing territorial boundaries among sovereigns manifest themselves in cyberspace as well. Alternatively, even if sovereignty does not currently govern cyberspace, it is possible that various sovereignty-based claims for governance could still be invoked if cyberspace is treated as akin to *terra nullius*. For example, as much as he may have viewed himself as a steward, John Postel’s claims of authority to administer the Internet Assigned Numbers Authority (IANA) may be likened instead to the claims of sovereignty made by discoverers of *terra nullius* on behalf of their respective nation states. Similarly, the idea of a “generative” Internet, where users should take the lead in dictating appropriate norms of behaviour, parallels the idea of according sovereignty to territory based on its occupation by a
state’s citizens. And nascent efforts to deploy militaries in cyberspace bear obvious analogies to claims of sovereignty by conquest, even though such claims are now barred with respect to the use of force.

To be clear, I am not claiming that international law does—or should—favour either sovereignty or stewardship in defining cyberspace (let alone suggesting any sort of priority among the various possible sovereignty claims). Rather, I mean to illustrate the contestable nature of any definition of what cyberspace is, at present. Sovereignty proponents can resist labelling cyberspace as res communis on the grounds that states can (and should) apportion it among themselves, just as easily as stewardship advocates might argue it would be incongruous with the very nature of cyberspace to do so. Moreover, in the absence of some recognized authority who can settle this dispute, the two camps will likely remain immovable on their respective positions. Thus, instead of helping devise a governance structure for cyberspace, employing a stewardship rubric might actually forestall that effort.

FOCUSING ON CONTENT NOT CONTEXT

Fortunately, the future of cyber-governance need not turn on deciding whether cyberspace is akin to state territory or some res communis. Doing so would provide an associated framework for its governance. But, as I noted, there are other points in the spectrum of international legal approaches that suggest alternative ways to define cyberspace. Indeed, the diversity of approaches incorporating aspects of sovereignty and stewardship suggests a different approach entirely. Rather than getting caught up in deciding what label to apply to cyberspace, why not first decide on its appropriate standards of behaviour?

Of course, simply focusing on standards will not guarantee agreement on their content. On the contrary, one party’s cyberthreat may be another’s opportunity, leading to competing proposals to prohibit or permit the very same conduct. Still, the nature of the debate would be different than one over foundational categories and definitions. Debates over appropriate labels for what cyberspace “is” may actually become proxies for debates over the underlying values for cyberspace governance. Focusing on the standards themselves would allow for more direct discussion of such differences in lieu of hiding them behind various legal concepts.

Beyond a more directed discourse, a standards-first approach offers several distinct advantages over either the stewardship or sovereignty approaches to governing cyberspace. First, it would permit cyberspace governance to emerge gradually. There is no requirement that all standards must be agreed to before any standard is accepted. On the contrary, a standards-first approach could begin with lowest common denominators—disavowing the worst behaviour or requiring essential actions —without purporting to establish a comprehensive regime. An agreement to prohibit cyberattacks on hospital networks, for example, does not require any overarching decision on the nature of cyberspace. Nor does it require a decision on who should govern cyberspace. If everyone agrees that hospital cyberattacks are out of bounds, everyone can take appropriate action to avoid or mitigate such behaviour.

Second, a standards-first approach could

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actually resolve the nature of cyberspace inquiry. The more standards are agreed to that favour state control over cyberspace, the stronger the case for regarding it in sovereign terms would become. Conversely, the more standards of freedom or reasonable use emerge, the stronger the case becomes for concluding cyberspace constitutes some form of *res communis*.

Third (and more likely), the adoption of cyberspace standards could accord it a unique, hybrid status in international law. Indeed, the existing spectrum of international legal approaches to governance suggests that a label may follow the adoption of behavioural standards rather than the adoption of a label dictating what standards apply. Standards for protecting the Internet domain name servers, for example, will undoubtedly track more closely to a stewardship model while policing for, and shutting down, botnets will track more to a sovereignty model. Moreover, as with the division of the world’s ocean resources, it is entirely possible that states could apportion certain aspects of cyberspace based on territorial sovereignty while appointing a steward (e.g., the ITU) to manage the remainder. Or, states could agree to certain “sovereign rights” in cyberspace (e.g., a right to actively defend core infrastructure) at the same time as they endorse a right to free and reasonable use of digital electronic telecommunications. In other words, cyberspace might end up occupying a distinct position on the spectrum between sovereignty and stewardship based on the specific content of its accepted standards of behaviour.

Finally, it’s entirely possible to employ a standards-first approach to sidestep some of the larger inquiries about cyberspace entirely. A robust set of environmental and other standards has come to govern Antarctica without ever endorsing or denying the many sovereign claims to that continent. A similar approach could work in cyberspace. States and other actors should agree to forgo further debates on how to characterize what cyberspace is, and focus instead on how they actually want to see cyberspace used.

**CONCLUSION**

The norms associated with stewardship may well be the best mechanism for governing cyberspace. But advocating for that label’s adoption may prove counterproductive. International law’s strong association between stewardship and *res communis* can be contested by a sovereign vision of cyberspace. Rather than fighting over whether cyberspace and its various components are truly *res communis* or part of an existing state’s territory, I have suggested a standards-first approach to international legal regulation of cyberspace. A similar approach may have purchase beyond international law. At present, focusing on what we want people, corporations, states, and their militaries to actually do (or not do) in cyberspace offers more potential for devising a regime to govern the construction and use of information technology than any of the ongoing debates over what cyberspace is, let alone who should govern it or how they should do so.

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