6   The Supply of Informal International Governance
Hierarchy plus Networks in Global Governance

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States increasingly favor informal forms of international cooperation. International actors are weaving intricate transgovernmental networks (TGNs), permeating and penetrating more formal state interactions, as well as creating higher-level informal intergovernmental organizations (IIGOs). Since 1990 the number of IIGOs has grown dramatically (from 27 to over 140) whereas the number of formal intergovernmental organizations (FIGOs) has increased only slightly (from 320 to 340) before plateauing in the new millennium.[1] Informal networks and institutions do not entail legally binding agreements or bureaucratic structures, such as secretariats or organizational headquarters. Informal commitments are typically "soft" and political in nature, and rely on voluntary implementation. But informal governance nevertheless creates shared and consistent practices that structure ongoing relations among participants. This makes them very different from purely ad hoc policy coordination.

Existing accounts explain this phenomenon by focusing on the demand for informal governance. In periods of accelerating global change and high uncertainty, states wish to avoid the sovereignty costs entailed in binding legal obligations and delegation to independent international agents. While these accounts make a persuasive case about the demand for informal arrangements, they have devoted comparatively little attention to factors that have changed the supply conditions for informal governance. This chapter fills that gap by showing that the emergence and adoption of new communication technologies increased the feasibility and lowered the cost of informal governance. This has

[1] See the Introduction. For a comparison of the definitions and growth of IIGOs versus FIGOs see Vabulas and Snidal 2020.

strongly shaped the choice and design of global governance arrangements which are now based increasingly on informal governance.

The Hierarchy plus Networks (HpN) model explains how the interconnection between IIGOs and TGNs is emerging as an important nexus of global governance. We build on key elements in the Introduction to show how the hierarchical relations between IIGOs and TGNs, combined with the network properties of TGNs, provides a new and important combination of global governance. Technological change, specifically the emergence of new possibilities for long-distance communication and their falling costs over time, have served as the main driver of this new form of governance.[2] This shift explains the relative decline in the role of FIGOs and their secretariats. While they continue to serve a vital function within the international system, FIGOs are increasingly being complemented – and in a few places supplanted – by the HpN combination of IIGOs and TGNs. However, this is not a shift from hierarchy to networks, but a complementary recombination of hierarchy *through* networks.[3] Rather than undercutting states, moreover, these informal institutional arrangements provide new opportunities for states (at least powerful ones) to increase their control over international policy. This has further implications in strengthening the foreign policy-making role of "central" executive agencies and of domestically oriented "line" departments within states. It explains the relative decline of foreign ministries (FMs) and generalist diplomats as "middle-men" gatekeepers, both domestically and abroad. Thus our analysis points toward profound changes in modes of global governance at both the global and national levels.

We begin by situating our contribution within the growing literature on informal governance. Following a historical analysis of the impact of transportation and communication technology on the design of FIGOs and the structures of multilateral diplomacy, we show how, just as the

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[2] See the Introduction on "drivers" of change. While we focus on technological change here, the increasing complexity of global problems provides a complementary reason for the emergence of HpN governance.

[3] We adopt the conceptions of hierarchy and networks advanced in the Introduction. Hierarchy is a top-down, centralized organizational form; heads of government use IIGOs to centralize coordinated top-down delegation to their respective departments, or to centrally orchestrate TGN activities. Networks are interdependent relations that entail decentralized collaboration. While hierarchically orchestrated by IIGOs, TGNs engage in decentralized, horizontal collaboration in their areas of technical expertise. Interestingly, although they are a source of hierarchy in our model, IIGOs themselves are organized through networked interaction among high-level actors. FIGOs, in contrast, rely on legalized and hub-based delegation arrangements to produce a high degree of centralized hierarchy.

advent of the telegraph and improvements in transportation enabled the rise of multilateral organizations, so internet and internet-enabled technologies are enabling new patterns of international cooperation. By lowering the costs of interaction and facilitating more decentralized modes of governance, technological change has opened up possibilities for a conjunction between high-level head of government (HOG) interactions and TGNs among lower-level national officials.

Information, and how it is communicated, is central to our analysis and we distinguish two broad categories of information. One is *technical information* about how the world works and how to implement specific policies – the sort of information handled well by experts and bureaucrats;[4] the other is *political information* generated in deciding what is to be done – the sort of information that is created by political leaders. Where issues are well-defined, meetings among top political leaders can provide the large-scale agreement necessary to guide lower-level implementation. Where issues are not well-defined, high-level meetings can provide a way to share worldviews and identify common (and conflicting) interests and values, as well as set agendas. Jennifer Mitzen argues for a "forum effect" of such meetings whereby leaders establish collective goals that guide states in governing together even for the most difficult problems.[5] Face-to-face diplomacy allows leaders to understand each other's intentions and assuage uncertainties that make it hard to cooperate;[6] in the extreme, direct meetings might allow state leaders to "bond" and achieve the high levels of trust necessary to generate collective intentions and cooperation on the most difficult issues.[7]

FIGOs traditionally brought these two types of information together by combining political decisions agreed by national political representatives (diplomats) with technical directives to be implemented by the international bureaucracy or passed through foreign ministries to national bureaucracies (which, if they lack capacity, are often supported by the international secretariats). By contrast, we argue that a new HpN arrangement is emerging whereby political decisions are determined

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[4] Although the political takes precedence over the technical (in the world and in our model), technical management is enormously consequential not just for implementing politically determined policies but also because of the autonomy and power that it can create for bureaucracies. An interesting question that we do not explore here is whether TGN networks are subject to tighter control by the political process than are FIGOs.

[5] Mitzen 2013, 46–61. In many cases, HOG agreement on collective goals depends on extensive preparatory work by "sherpas" working with TGNs, but only high-level HOGs can solidify expectations.

[6] Holmes 2018.   [7] Wheeler 2018.

through the direct interactions of HOGs[8] within IIGOs and implemented by direct interactions among networked national line departments.[9] Arguably this combination is even more powerful than traditional FIGO-based governance because it brings together the very top leadership to forge common understandings while institutionalizing those agreements through highly integrated transgovernmental networks that directly connect the implementing domestic agencies.

Our HpN model bridges hierarchy and networks. World leaders use the increasing number of available IIGOs to interact directly in order to identify priorities, agree on objectives, and steer key aspects of international life. HOGs exercise a growing agenda-setting power, relying more on their close political advisors than delegation to their foreign ministry. While HOGs use their authority to shape overall policy directions, they rely on networked collaborations through TGNs among line departments to implement their decisions and pursue the objectives identified through IIGOs. Although they formally oversee the officials interacting within TGNs, HOGs cannot track TGN interactions closely. The need for frequent high-level political approvals would, moreover, stifle the free-flowing and technical quality of information exchange that make these networks effective. Thus, elements of hierarchy remain but TGN interactions produce a strong horizontal networked quality to international cooperation.

After briefly discussing the increased demand for informal governance, we show how advances in communication technologies enable informal institutions with their accompanying reductions in management and sovereignty costs. We then represent the hierarchical interactions between high-level intergovernmental forums (IIGOs) and operational-level domestic agencies connected through TGNs in terms of a simple HpN model. We illustrate this mode of governance by analyzing the design and development of the Proliferation Security Initiative (PSI), an informal intergovernmental institution created to counter the illicit trafficking of weapons of mass destruction. We conclude with a

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[8] We use HOGs in an expansive way to refer not only to the top executive position (president, prime minister, etc.) in a given state, but also to other high-level offices with authority to make major political commitments on behalf of a state in the international setting. Plenipotentiary ambassadors historically had this capacity, as do high state officials more generally. Operationally, we follow the measurement criteria for IIGOs that defines "high-level" meetings involving actors at or above the ministerial or ambassadorial level (Vabulas and Snidal 2020).

[9] "Line departments" refers to issue-specific ministries, such as "health" or "transportation," as well as to specialized agencies within them, such as (in the US case) the Food and Drug Administration or the Federal Aviation Administration.

discussion of the implications of our analysis for international cooperation and for the exercise of power within global institutions.

The Demand for Informal Governance

States are increasingly utilizing less formal modes of international cooperation. In contrast with earlier periods of institution building, when states created dozens of formal, legally binding international agreements and organizational structures, governments are increasingly opting for an "adaptable multilateral sprawl that delivers a partial measure of international cooperation through a welter of informal arrangements and piecemeal approaches."[10] In counter-proliferation, for instance, states have supplemented formal treaty commitments, such as the Nuclear Non-Proliferation Treaty, with informal organizational arrangements, including the Proliferation Security Initiative and the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction.

Informal modes of governance are more than a waystation to formal institutions and have shown significant staying power.[11] Felicity Vabulas and Duncan Snidal find that the prevalence of IIGOs, such as the G7 and G20, has increased rapidly in recent decades vis-à-vis FIGOs. They argue that IIGOs have advantages including providing flexibility and speed while minimizing bureaucracy and protecting sovereignty.[12]

Anne-Marie Slaughter has analyzed the parallel growth of TGNs of national regulators, legislators, and judges, who have become "the new diplomats," often supplanting foreign ministries in consequential international forums.[13] TGNs represent "a prime form of global governance, equivalent in importance and effectiveness to traditional international organizations."[14] The demand for TGNs has been fueled by "complex interdependence" and the increasingly transnational quality of many issues faced by states.[15]

This phenomenon has also been noted by analysts with a more prescriptive outlook. Richard N. Haass advocates convening informal "posses" to advance US global leadership.[16] These voluntary coalitions allow states to adopt flexible nationally determined contributions as a part of a wider international effort.[17] Similarly, Stewart Patrick has highlighted the declining importance of formal legal and organizational arrangements, despite an increased demand for international

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[10] Patrick 2014.   [11] Vabulas and Snidal 2020.   [12] Vabulas and Snidal 2013, 2020.
[13] Slaughter 2004, 2017.   [14] Slaughter 2004, 230.   [15] Slaughter 2004, 39–40.
[16] Haass 2001.   [17] Haass 2017.

cooperation. States are instead opting for less bureaucratic venues.[18] For Haass and Patrick, the demand for informal governance is a consequence of states' desire to move swiftly and preserve flexibility in an uncertain and dynamic global context.

While these treatments document the growing importance of informal governance and explain the demand for these forms of cooperation, they have not analyzed the factors that have influenced the recent expansion in the supply of informal governance. Given the importance of information flows to transnational coordination, the impact of the "information revolution" should not be underestimated. The freefalling costs of creating, processing, transmitting, and searching for information are having a transformative effect on international organization. The internet era, Joseph Nye argues, has contributed to a diffusion of power to a wide array of international actors and fueled the rise of loosely structured global networks with minimal bureaucratization.[19] Taylor Owen goes further, arguing that new communications technologies have the potential to undermine large hierarchical organizations, replacing them with networked structures that are decentralized, collaborative, and resilient.[20]

Communications Technology and the Design of Multilateral Diplomacy

The possibility and design of international institutions depends on communications technologies. In a world where diplomatic dispatches were delivered via diplomatic couriers traveling on horseback or slow transatlantic vessels, messages could take months to reach their intended recipient. During Benjamin Franklin's tenure as US ambassador to France, for example, diplomatic dispatches could take six months to reach their mark.[21] As a result, before the telegraph diplomats had a very high degree of autonomy in their international engagements. The sheer difficulty of assembling top officials and decision-makers at international meetings necessitated the delegation of significant, even plenipotentiary, powers to diplomatic representatives. Diplomats were laws unto themselves, exercising sovereign authority on behalf of governments.

The widespread adoption of telegraphy altered this situation, greatly accelerating the speed of communications by disentangling it from that of long-distance transportation. Capitals could exercise closer control over

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[18] Patrick 2014.   [19] Nye 2011, 116–120.   [20] Owen 2015, 30–32.
[21] Aharoni 2015.

diplomatic interactions and even bypass resident missions altogether.[22] The impact of this enhanced capacity to communicate between national capitals was not instantaneous, however, and the full impact of these changes occurred only as the cost of telegraphy declined over a long period. A 780-word transatlantic telegraph from the USA to France in November 1866, for instance, cost an astonishing $19,540.50, over $300,000 in current dollars, a sum triple the annual salary of its sender, US Secretary of State William H. Seward.[23] While the telegraph was used as a means of diplomatic communications by all major FMs by the First World War, costs still limited direct interactions between national capitals.[24] Even in the late 1940s, George Kennan was chided for the high cost of sending his 5,000-word "long telegram."[25] Multilateral messages (i.e., sent to multiple international capitals) only compounded difficulties and costs. These means of communication were, further- more, unreliable, with messages frequently garbled in transmission or lost. The high risk of interception, furthermore, required extensive crypt- ography, which slowed telegraphic communications and further increased costs. Given the high costs and difficulty of sending diplomatic cables, documents or analyses of any substantial length were still carried by diplomatic pouch late into the twentieth century. Even the most detailed instructions, moreover, could not anticipate all the issues that might arise. This meant that details of negotiations were necessarily left to local diplomats. While advances in telephonics in the second half of the twentieth century deepened contacts between national capitals, the costs of secure teleconferencing remained high at the century's end.[26]

The costliness and unreliability of communications shaped the design of many existing intergovernmental institutions. These institutions are predicated on a hub-and-spokes structure, connecting FMs (FM_A, FM_B, etc.) through diplomatic hubs (FIGOs), as depicted in Figure 6.1. Traditional diplomatic hubs are organized around international secretar- iats with permanent state diplomatic representatives serving in

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[22] Berridge 2002, 90–91. The growing capacity to communicate with resident missions abroad also helped precipitate the creation of FMs. Berridge 2002, 5.
[23] Nickles 2003, 181.   [24] Nickles 2003, 8.   [25] Keating 2010.
[26] Telephones took a long time to become a regular instrument of governance. President Rutherford B. Hayes was an early adopter in getting a telephone into the White House telegraph room in 1877, only fourteen months after Alexander Graham Bell's famous first call. Rutherford was able to get a good number (1) but his only outside connection was to the Treasury Department. Only in 1929 did President Hoover have a telephone installed in the Oval Office. The Soviet–American "hotline" (which transmitted only text so was neither a telephone nor red) was installed in 1963 after delays in delivering diplomatic messages complicated negotiations during the Cuban Missile Crisis.
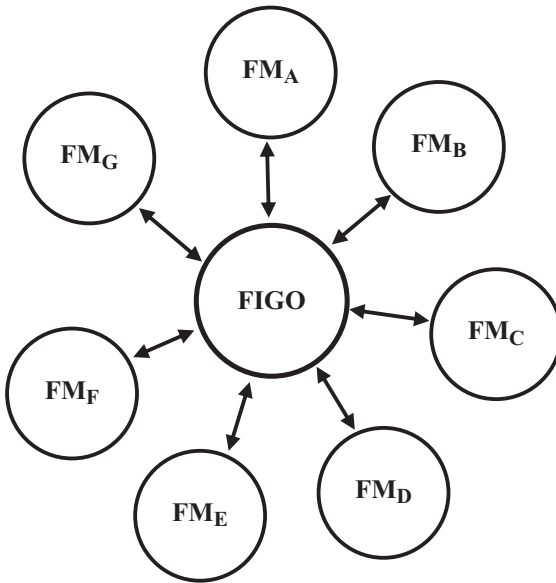
Figure 6.1 FIGOs as diplomatic hubs.

permanent missions at organizational headquarters.[27] In a world of costly communications the hub-and-spokes structure provided the best available means of multilateral diplomacy. This system was characterized by four key features.

First, states delegated authority to international organizations to provide forums and managerial capability to facilitate interstate relations. Technical expertise was concentrated within secretariats to provide advice on cooperation issues. Although states' collective technical capacity usually exceeded that housed within secretariats, this combined national capacity was dispersed and not well connected.[28] The cost of

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[27] We define diplomatic hubs in terms of traditional geographically based arrangements. Increasingly, the possibility of "virtual diplomatic hubs" is emerging, but our following discussion regarding IIGOs suggests the continued importance of personal face-to-face meetings as part of diplomacy in combination with virtual diplomacy at the intergovernmental level. Virtual diplomacy is increasing the overall scope of international relationships and will likely occupy an increasing proportion of consequential interactions, particularly as the post-Covid-19 world takes shape. But our argument does not imply that face-to-face diplomacy will fade into obsolescence.

[28] Capacity also is unequally distributed. Large and developed countries sometimes have greater capacity than the FIGO, whereas small countries are often reliant on the FIGO or other countries to provide technical assistance. International organizations may have the advantage of providing less biased information to smaller countries and serve an

direct communication, informational exchange, and policy coordination among national technocrats at multiple locations remained prohibitive through much of the twentieth century, so physical proximity of technical specialists and state representatives to handle quotidian decisions on an ongoing basis mattered greatly.

Second, because of the high costs of communications states delegated a wide and diverse array of functions to a relatively small number of international organizations with broad scope. There were scale economies to be realized when capitalizing on established communication channels between diplomatic hubs and national capitals. Maintaining government control over distant representatives was easier when organized in a more centralized manner with a smaller number of high-level national officials abroad. Even "specialized" agencies were embedded in conglomerate international organizations with broad remit, such as the UN or World Bank systems. As new cooperation problems arose, it was usually quicker, cheaper, and easier to assign new tasks to established organizations than to launch new ones.[29] Further economies of scale were achieved by locating FIGOs primarily in a few locations, especially New York and Geneva.

Third, to enhance information flow between the diplomatic hub and national capitals, states created permanent missions to international organizations.[30] Given the diverse functions addressed at hubs, top diplomats had to be generalists, able to move seamlessly across issues. Information – political and technical – was channeled back to the capital from permanent missions through foreign ministries. This system of diplomatic hubs allowed states to economize on communication costs. Large quantities of information on a range of issues could be carried by one diplomatic courier, expensive telegraphs could cover multiple subjects, and delegations from national capitals could address several priorities in one trip. While the most important decisions had to be ratified back home, efficiency required that permanent missions wield substantial autonomy on more routine decisions and in setting the agenda for items to be referred home for concurrence. To enable cooperation, therefore, the hub-and-spokes system integrates political and technical information. However, diplomatic hubs lack the authority necessary to make the highest-level decisions which depend on state membership approval where important decisions and agreements require ratification in national capitals.

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important role in bringing together national information to create a collective picture that no state has by itself.
[29] Jupille et al. 2013, chapter 2.   [30] Tobin 1933; Potter 1931.

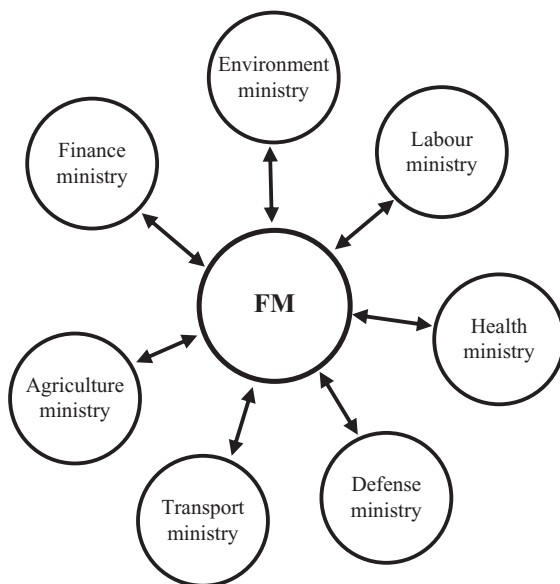

Figure 6.2 Foreign ministries as domestic hubs.

Fourth, FMs served as national hubs for the (indirect) interactions of line departments with international forums, as shown in Figure 6.2. Given the broad scope of issues addressed at diplomatic hubs, the entrenched role of FM officials in those hubs, and the high costs of communicating, FMs were gatekeepers for national engagements in international forums. Gatekeeping within national governments, and control over communications going out via costly telegraph or diplomatic pouch, allowed FMs to establish priorities – reinforcing centralization and hierarchy among and within government departments.[31] In addition, FMs controlled the amount and quality of information sent back from diplomatic hubs and managed its distribution among national government departments. With early advances in telephone communications, FMs acquired a switchboard function, regulating international calls on behalf of national government officials and departments.[32] Thus, FMs were intermediaries among government departments housing the national technical experts of member states that provided the necessary inputs for negotiation and implementation of agreements.

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[31] Nickles 2003, 34–35, 49.   [32] Berridge 2002, 14–15.

The hub-and-spokes system crystallized under the auspices of the League of Nations and became the template for modern FIGOs. An independent international civil service was established within the League of Nations in the 1920s by its secretary-general, Eric Drummond.[33] Prior to this secretariat functions had been provided mainly by temporarily detached national officials that remained partial to their own governments. As the benefits of an independent and impartial secretariat became clear, governments created permanent delegations in Geneva to facilitate communications back to capitals and maintain "a watching brief" over the secretariat.[34] Indeed, their enhanced ability to exercise control over distant agents made states more willing to delegate to international organizations. Permanent delegations were particularly prevalent among states situated far from Geneva. European countries, which faced fewer obstacles to travel from their capitals, were slower to adopt this practice.[35]

The hub-and-spokes structure ensured that detailed negotiations and technical work occurred primarily at diplomatic hubs, with technocrats within secretariats producing reports that would be discussed among state representatives and fed, as appropriate, through permanent missions and FMs back to HOGs and technical experts in capitals for input, concurrence, or implementation.[36] The reluctance of governments to concentrate too much authority at the hub – either within intergovernmental organizations' secretariats or by delegation to their own permanent representatives – limited the activities that could be undertaken at the international level. This system also limited the flow and production of political information, since interaction among HOGs was generally infrequent and mediated by FMs. This system created lengthy delegation chains, high sovereignty and management costs, and the potential for opportunism among agents. Nevertheless, it constituted the most advanced institutional technology available throughout the twentieth century to facilitate international cooperation. The alternative of direct interactions among HOGs and the involvement of national decision-makers were simply too costly, slow, and unreliable.

Improved Communications and the Design of International Institutions

Here we develop an alternative HpN model, based on HOGs agreeing in IIGOs on hierarchical directions to be carried out by TGNs among

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[33] Walters 1965, 75–80.   [34] Walters 1965, 197–199.   [35] Appathurai 1985, 95.
[36] The hub-and-spokes system, therefore, served as a mechanism for reinforcing centralization. Often this system entailed delegation to secretariats and legal-underpinnings.

national line departments. We begin by explaining how advances in communication technologies have enhanced the possibilities for informal international cooperation, resulting in an increase in the number and importance of IIGOs and TGNs. These informal international institutions have important complementarities for the management of international cooperation and limiting sovereignty costs. HOGs reach political agreements in IIGOs that can be implemented by direct TGN interactions among their respective (technical) line departments. FMs and FIGOs no longer need be central actors, although they can play important supporting roles in organizing and facilitating IIGO–TGN interactions. This system combines political and technical information in a new way, allowing them to be managed within separate spheres.

The HpN Model

The arrival of the internet, and the slate of technologies enabled by it, has fundamentally expanded the organizational possibilities available to states. The ability to transmit large quantities of data across borders quickly, cheaply, and reliably, to multiple recipients, simultaneously, has had great implications for international affairs. The telegraph and the telephone accelerated the speed of communication and progressively lowered its cost; the internet has rendered the transmission of even large amounts of information instantaneous and virtually costless; and the continuing drop in the cost and, the increased speed and – over the longer run – falling costs of international travel, has increased the frequency, quality, and scope of interpersonal international interactions.

The ease with which international information exchange and collective action can be organized utilizing new communication technologies has thus reduced the transaction costs of intergovernmental organization.[37] Correspondingly, the bureaucratic infrastructure necessary at the international level for achieving a given measure of cooperation has fallen. Dispersed technical experts can now share information and communicate on an ongoing basis without ever coming together. Video-teleconferencing and email facilitate rapid coordination with actors around the world, enabling "just in time and in place operational effectiveness."[38] Never before has physical distance been so surmountable a barrier to international engagements.[39] Following the Covid-19

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[37] Shirky 2008, 45–48.   [38] Smith 1997.

[39] This expansion of communication has had many other impacts. Notably important at the international level has been the rise of international nongovernmental organizations (INGOs) as consequential actors. We do not discuss them here, although their

pandemic, states and other international actors have stepped up their use of new communication technologies, realizing policy coordination through online platforms.[40]

New communication technologies have increased international connectivity among national officials and opened up new avenues for transnational knowledge-sharing and persuasion, facilitating international collaborations that would have been infeasible in the past.[41] Effective "self-regulation" by transnational networks of regulators creates new possibilities for regulatory innovation.[42] Professional norms and standards of practice, shared across borders among government experts, provide a vehicle for adaptable modes of governance that do not rely on formal treaties and legalization. The benefits of an independent secretariat (to provide expertise on international issues) and organizational centralization (to coordinate policies across states), two principal motivations for acting through formal international organizations, have diminished.[43]

These informal patterns of cooperation also emerge in combination with FIGOs and formal international legal measures.[44] But the proliferation of voluntary agreements, soft legalization, and TGNs has shown the growing importance of nonbinding cooperative mechanisms in supplementing legalization. These developments have a lasting effect by diminishing the expectation among states that substantive international cooperation requires FIGOs in association with international treaties.[45] Networked TGN interactions can also make it easier to informally engage non-state actors in cooperative forums. For example, less formalized rules concerning membership and participation, as well as more flexible communications, allow non-state actors to become active players within TGNs. Improved communications allow a looser and more varied

increased participation in FIGOs has been one of the important parallel changes in international governance. Ironically, the rise of IIGOs may in part be a means to limit the role of INGOs in interstate diplomacy (Vabulas and Snidal 2013).

[40] The G20 held its first virtual leaders conference on March 26, 2020 to address the pandemic; virtual G20 ministerial and working group meetings have also emerged.

[41] Manulak 2019a; Slaughter 2016   [42] Majone 1997.

[43] On the role of centralization and independence in motivating the use of FIGOs, see Abbott and Snidal 1998.

[44] Raustiala 2002, 84–88.

[45] The rapid growth of informal modes of governance reduces the proportion of consequential activity governed by international treaties. Raustiala argues that TGNs are most likely to substitute for legally binding agreements when regulatory power is moderately asymmetric, when regulatory differences among states are of moderate diversity, and when states are somewhat reluctant to compromise their domestic structures. Raustiala 2002, 16, 89.

constellation of players to interact, potentially opening up multiple centers of institutional activity and increasing flexibility.

Improvements in transportation and communication also make it dramatically easier for HOGs to interact directly through IIGOs and set international agendas. For example, in 1906 Theodore Roosevelt was the first US president to travel abroad (to Panama). Woodrow Wilson made two trips to Europe in the aftermath of the First World War and spent nearly seven months there. Going back and forth more frequently would have taken too much time, since Wilson's trips took nine days each way by ocean liner. By contrast, with the advent of jets, Dwight Eisenhower's eight European trips took about nine hours each way. In 1990 the presidential plane (Air Force One) became a modified Boeing 747 replete with a presidential bedroom, shower, secure communications, and 4,000 square feet of office space. It is hardly surprising that frequent international summitry, and the era of IIGOs, only really began in the 1970s and has since taken off.[46,47]

The speed of international travel allows HOGs to attend international meetings and expeditiously return to their capitals. The low cost and increased feasibility of international communication, moreover, have lowered the threshold point at which international leaders interact directly from their respective capitals.[48] Breaking with traditional diplomatic protocol, for example, some HOGs favor interacting on an almost impromptu basis. This can even involve direct calls over cellular phone[49] or private sidebars at conference dinners.[50] These interactions are very different from the formal, highly scripted interactions of past decades, typically coordinated with substantial FM mediation.

Improved communication technologies enable IIGOs to convene high-level political leaders from different states to provide political guidance for, and orchestrate transnational interactions among, technocrats within national line departments. The Nuclear Security Summit process exemplifies this conjunction where a high-level IIGO established the parameters of an action agenda to be implemented by lower-level informal TGNs, such as the Global Initiative to Combat

[46] See: https://en.wikipedia.org/wiki/List_of_international_trips_made_by_the_President_of_the_United_States.
[47] Only 13 of the 149 IIGOs identified by Vabulas and Snidal (2020) were created before 1970 and six of those were regional (mainly intra-European) and therefore more feasible even without modern communication.
[48] Berridge 2002, 91–96. Better communication allows leaders to manage domestic issues while abroad.
[49] PBS News Hour 2017.
[50] Famously, Donald Trump and Vladimir Putin had an (initially) secret conversation at the 2017 G20 conference dinner in Germany. BBC News 2018.

Nuclear Terrorism. Frequently, IIGO leadership takes less direct forms. Instead of calling on particular TGNs to act, high-level forums can set broad priorities that shape the incentive structures that guide lower-level national officials. Thus, even when the role of HOGs is indirect, the shadow of hierarchy can spur TGN collaboration. This arrangement provides a means through which IIGOs, which lack any independent bureaucratic capacity, reach the targets of their regulatory agenda. The lower-level networks are, in turn, enhanced through acting under the authority and legitimacy of the higher-level bodies.

While IIGOs can also orchestrate FIGOs, as the G7/G20 has done vis-à-vis international financial institutions, working through TGNs is often more advantageous from the HOG perspective. First, FIGOs may have a different membership than the IIGO that seeks to orchestrate their activities. As a result, other FIGO members may question the legitimacy of decisions taken in HOG forums in which they lack representation. Second, even for countries represented within the relevant IIGO, FIGO membership typically involves the delegation of decision authority to specific national government departments. Although HOGs ultimately exercise oversight over these delegation relationships, the relevant domestic offices typically guard their operational and decision-making autonomy jealously, even from HOGs. In contrast, the lack of formal organizational arrangements avoids these additional layers of bureaucratic infighting and enhances HOG control. Third, TGNs are flexible and have fluid membership configurations, even involving non-state actors in their deliberations. Rather than requiring consensus, furthermore, TGNs facilitate implementation through whichever domestic agencies support IIGO-sponsored activities. Finally, since informal institutions are not predicated on an international treaty they do not normally require domestic legislation to implement their (voluntary) provisions. The absence of domestic legislation means that the lead department or agency need not be legally specified and can, therefore, more easily shift as operational imperatives change.[51] In short, IIGO–TGN arrangements provide a flexible way for the HOG to control key policies and shape the activities of global technical networks. At the same time the lack of legalization and formalization can maximize the discretion and freedom of maneuver for line departments to implement the agenda.

Advances in communication technologies facilitate synergism between IIGOs and TGNs. The proliferation in the number and scope of IIGO and TGN activities in recent decades has increased the likelihood of

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[51] For a related argument that IIGOs help the executive branch circumvent domestic legislative constraints, see Vabulas and Snidal 2017.

complementary agendas and institutional aims. As HOGs consider potential cooperative opportunities, the available vehicles for realizing such international collaboration are many. Perhaps more importantly, by enabling the spread of political and technical information about the state of the world, the internet has empowered actors that would have otherwise relied on classified diplomatic dispatches or the reports of international secretariats. These actors can now engage from capitals with minimal involvement by intermediaries based at diplomatic hubs. By cutting out multiple levels of delegation between dispersed national officials responsible for implementing international agreements, states dramatically reduce the management costs of policy coordination and regulatory alignment. This means that a growing proportion of consequential international governance occurs in a more decentralized format, outside of the formally established hubs that have been the center of intergovernmental relations for a century.[52] This potent combination addresses some of the principal defects of both highly scripted, leader-driven interactions and more substantive, yet less legitimate, informal meetings of lower-level officials.[53]

Improving communication and transportation is much more than a matter of lowering costs; it is a matter of creating new possibilities for global governance. Frequent, low-cost interactions among subject matter experts allow HOGs to avoid the sovereignty costs of delegating to FIGOs, a key "demand side" explanation for the rise of IIGOs.[54] As we discuss later in this section, IIGO–TGN relations further strengthen central executive authority within states, allowing HOGs to bypass FMs and directly engage global networks of subject matter experts.

We summarize and stylize these changes in terms of the HpN model in Figure 6.3, which depicts two layers of interaction among and within

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[52] Our analysis focuses on high-level interactions among HOGs at IIGOs. Ultimately the scope of these interactions is limited by the capacities, priorities, and attention span of the HOG. Even though we include other top-level decision-makers within that category (i.e., those who can make commitments on behalf of a state, including ministers and ambassadors), and even with the expansion of the HOGs' immediate executive apparatus – such as the US National Security Council, the German Chancellery, or the Canadian Privy Council Office, – this capacity is limited. So our analysis does not include as broad a range of networked TGNs as in Anne Marie Slaughter's work, especially TGN networks focused on coordinating technical issues on relatively settled issues that operate directly between national departments.

[53] Pouliot 2016, 185–186.

[54] Vabulas and Snidal, 2013. Sovereignty and policy costs are often much more important than material costs. While many IIGOs are relatively inexpensive, others are more expensive. A striking example is the 2010 Canadian G8/G20 summits costing more than twice the Organisation for Economic Co-operation and Development annual budget. We thank David Hagebölling for this point.
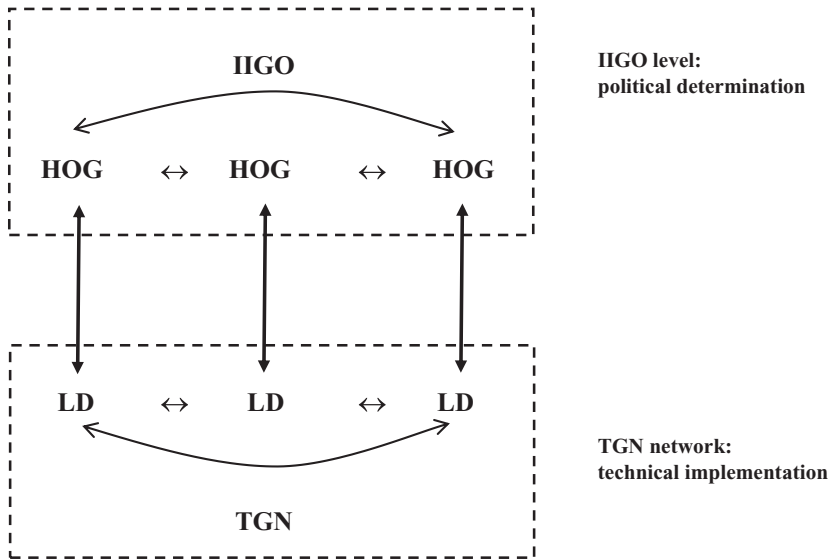
Figure 6.3 The HpN model: IIGOs governing the TGN network.

three states – although the figure could be extended to include many more states. The top IIGO layer consists of *political* interactions among HOGs and top officials from different states (HOG↔HOG) setting broad agendas, striking political bargains, and making interstate commitments. The outcome of IIGO meetings is to send directions "down" to specialized national agencies to interact with their counterparts in other states to develop and implement agreements in terms of specific policies. The lower level of Figure 6.3 represents a TGN of international *technical* interactions among national-level line departments and agencies (LD↔LD). This network operates by sharing information and expertise across national borders and negotiating details of implementation, including developing proposals to send "up" to HOGs for further commitments. But TGNs are limited to technical decisions and cannot make political commitments (although these blur into one another). Line departments also contribute to setting the agenda for HOGs at IIGOs, sometimes mediated by FMs (LD↔FM↔HOG), which we do not depict here.

Like every model, HpN offers a highly stylized depiction designed to highlight its essential differences from the diplomatic hub-and-spokes model of Figure 6.1. As noted, FMs could be included in Figure 6.3 both to show their important role in contributing to IIGO agendas and

sometimes in gatekeeping among line departments. By not including those connections we emphasize the shift whereby HOGs assume more direct control of setting international policy and TGNs exercise greater influence over the implementation of cooperation. We also do not include nongovernmental organizations (NGOs), or firms, which sometimes play a role through participation within broadened TGN networks. Similarly, we have not depicted FIGOs in Figure 6.3. Most significantly, IIGOs sometimes deal directly through FIGOs – as the G20 does by orchestrating the International Monetary Fund and other financial institutions.[55] These FIGOs, in turn, often provide information and advice to national line departments, thereby blending Figure 6.3 with the more traditional models of Figures 6.1 and 6.2. Such models provide useful benchmarks for understanding the wide variety of arrangements that have opened up in this period of more efficient communication.

Choosing HpN over Hub-and-Spokes

The ability of national experts in line departments and government agencies to communicate directly on an ongoing basis from national capitals presents an alternative to concentrating technical expertise and managerial capacity in international secretariats. While independent secretariats continue to provide important benefits in many contexts, many IIGOs and other cooperative forums without secretariats have been established in recent decades. Furthermore, the role of existing secretariats is changing. The United Nations Secretariat, for example, has seen its administrative and coordinative role decline relative to operational activities.[56] Similarly, with the increased capacity of technical experts and lower-level officials to communicate directly with their international counterparts, the representational role of diplomatic generalists with limited subject matter expertise has been lessened. Consequently, new communications technologies have eroded the logic of diplomatic hubs.[57]

The coordinative role of FMs is also undermined in a world of decentralized international communications among line departments. Costless and reliable communications diminish the gatekeeping power obtained from rationing space in costly telegraphs or diplomatic pouches. In addition, as the cost of transmitting information has fallen knowledge

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[55] Viola 2015.
[56] United Nations General Assembly, "Investing in the United Nations: For a Stronger Organization Worldwide: Report by the Secretary-General," A/60/692, March 7, 2006.
[57] For a general discussion of the internet's disintermediating effect on social relations see. Rothkopf 1998, 335.

of important international developments has become much more wide-spread. This has decreased the reliance of both line departments and HOGs on information provided by diplomats through the FM. With cheap international telephone and internet calls, the past insistence by many FMs that they play the role of switchboard or "international operator" among government departments is similarly undermined.[58] The result has been a diffusion of diplomatic functions to heads of state and other government departments, thereby diminishing the role of FMs both from "above" and, in a sense, from "below."[59]

National agencies and HOGs now participate directly in global talks on a much more frequent basis.[60] Indeed, the possibility of ongoing, decentralized interactions may be stretching the definition of "inter-national talks." This has led many line departments to establish their own international bureaus and secure their own representation within embassies abroad.[61] The diffusion of diplomatic functions across gov-ernment departments and agencies has necessitated a strengthening of the role of central executive agencies – such as the US National Security Council, Canada's Privy Council Office, the German Chancellery and the United Kingdom's Cabinet Office – in coordinating whole-of-gov-ernment international policy-making.[62] The transformation of national foreign policy-making has also affected the bureaucratic design of FMs. In order to compete with these new alternatives, FMs have expanded their subject matter expertise in recent decades, for example through a proliferation of functional bureaus within FMs covering issues such as non-proliferation, human rights, or environmental affairs.[63] This changing operational context has contributed to ongoing efforts to imple-ment major reforms within FMs. In the international affairs of the internet era, the importance of FM "middle-men" is shrinking.[64]

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[58] Berridge 2002, 14–15.   [59] Hamilton and Langhorne 2011.
[60] Copeland 2009, 152.
[61] Take the Canadian Mission to the European Union, for example. In addition to Foreign Ministry representatives, the embassy includes representatives from Agriculture and Agri-Foods Canada, the Canadian Border Services Agency, the Canadian Food Inspection Agency, Immigration, Refugees and Citizenship Canada, and the Department of Justice. See: GAC 2018.
[62] Hamilton and Langhorne 2011, 259–263.
[63] Hamilton and Langhorne 2011, 233. A comparison of the organizational charts of foreign ministries in recent decades with those of the 1940s, for example, illustrates the dramatic growth of functional bureaus. While not disappearing, geographical bureaus have remained roughly constant in number and have declined in relative prestige.
[64] Disintermediation in the international space is manifested mainly in a changing role for actors relative to their past functions. In the internet era, functions that rely mainly on physical proximity to bring value will be limited over time. See Copeland 2009, 156.

Rapid and cheap communications allow states to incur fewer sovereignty costs by minimizing the delegation of decision authority to secretariats; internally other domestic agencies are not beholden to enterprising permanent missions controlled by their FM. Thus, the availability of direct modes of governance creates opportunities for states to economize on the costs of international cooperation and provides opportunities for other departments and even HOGs to get out of the shadow of their foreign offices.

The extensive international bureaucratization of many FIGOs, which are characterized by formal decision structures and legalization, is increasingly regarded as cumbersome and unwieldy.[65] Informal arrangements can bring a degree of flexibility and adaptability to cooperative relations that complement legally binding formal structures. Orchestration points to further possibilities for voluntary collaboration, whereby high-level bodies enlist "intermediaries," such as other intergovernmental organizations, NGOs, or private regulatory bodies, in advancing regulatory aims.[66] Institutions, such as the G20, utilize their flexibility, collaborative set-up, and legitimacy to further cooperation through intermediary institutions with requisite national and international legal authorities. Orchestration can obviate the need for introducing new regulatory powers and avoid drawbacks of establishing new formal international machinery.

Opportunities for adaptation and innovation made possible by new communication technologies facilitate ongoing course corrections by regulators and decision-makers. In this environment states can flexibly move back and forth between the formulation and implementation of international agreements, adapting at more frequent intervals to changing circumstances and emerging best practices. These experiences can be shared among national government officials and HOGs, providing quick adaptation and enhancements of policies. Such "real time" international collaboration would have been infeasible or prohibitively costly before the adoption of new communication technologies into multilateral relations. This stands in stark contrast to formal legal arrangements, which require extensive negotiation, typically take years to ratify and implement, and therefore promote institutional stasis. By contrast, informal agreements can be focused on the progressive strengthening of national policies within a defined issue area. While binding legal agreements will continue to provide a key foundation for the international

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[65] Slaughter 2004, 181; Majone 1997, 267.   [66] Abbott et al. 2015.

system, informal arrangements add considerable value when flexibility is required or when binding agreements prove elusive.

Of course, FIGOs are also adopting new communication technologies, utilizing nonbinding agreements and thinning bureaucratization, but their capacity to do so is limited by their locked-in formality. The hub-and-spokes model exists uneasily alongside an informal IIGO–TGN nexus because the viability of hubs rests on ensuring that the bulk of consequential interactions occur at the hub. Formal rules and procedures enforce this system, creating a context that is inherently inimical to the development of the multiple centers of consequential institutional activity that are characteristic of decentralized networks. The established role of secretariats, permanent missions, and FMs within these institutions means that key actors have a stake in preserving the central role of formally established hubs. But it has become increasingly difficult for them to maintain a predominance that was predicated to a large extent on the costliness and infeasibility of frequent transnational interactions among national officials.

States have created informal intergovernmental structures outside the auspices of existing formal institutions for two main reasons. First, the start-up costs of launching new institutional frameworks have dropped precipitously in recent decades. Improved communications make it easier to locate like-minded actors, identify areas for agreement, and develop a cooperative response. New tools of social interaction have greatly eased coordination among actors at a distance, including, as we have seen, for HOGs and TGNs. This is the same dynamic that has lowered the barriers to entry into world political actorhood for a range of players, facilitating a diffusion of power within the international system.[67] Given low levels of bureaucratization and legalization, furthermore, informal governance structures can be established rapidly and cheaply, lowering ex ante transaction costs.[68] While falling start-up costs lower the threshold at which states create new structures, it is nevertheless normally easier to add additional functions on to an existing international organization than to launch new ones.[69] Though eased greatly by new communication technologies, efforts to coordinate participation and establish shared expectations around new structures remain resource-intensive and increase transaction costs. Thus, lower start-up costs only provide a partial explanation for the increased resort to informal governance.

The second reason for the rise of informal governance is that it dramatically reduces the ongoing costs of international organization.

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[67] Naím 2013, 44.   [68] Vabulas and Snidal 2013, 211.   [69] Jupille et al. 2013.

Limited bureaucratization of informal governance structures helps to explain the appeal of informal institutions relative to FIGOs. The absence of an organizational headquarters and, in many cases, annual budgets allows countries to limit the monetary commitments associated with their participation. The participatory and self-organizing quality of informal governance reduces the organizational and administrative burden of international cooperation, allowing activity levels to ebb and flow as required. Informal modes of governance also generally entail minimal sovereignty costs, allowing states to maximize their freedom of maneuver and flexibility. Moreover, since informal governance mechanisms do not feature binding legalization or formal organizational structures the participation of a wide array of actors with varying levels of commitment can be enabled. As the circle of involved actors widens these institutional structures can benefit from network effects.

The growing view that hub-and-spokes-style cooperation is unnecessarily costly and inefficient is thus partly a response to the increased supply of less bureaucratic institutional design alternatives. Existing, hub-and-spokes-style organizations have a bureaucratic stake in preserving the status quo that makes them change-resistant so that the most significant changes in institutional choice and design are seen in the proliferation of alternative, informal forums, such as IIGOs and TGNs. These are occupying a growing proportion of substantive international activity and contribute to changing expectations concerning the size and role of international bureaucracy. In contexts where limiting international delegation and bureaucracy is feasible, the ability to economize on management and sovereignty costs motivates states to opt for less formal modes of cooperation.

Informal Governance in the Communications Era

The preceding discussion leads to two conjectures concerning the increasing tendency for states to favor informal cooperation through IIGOs and TGNs. First, new communication possibilities make IIGOs and TGNs possible; and their low costs promote growth of informal governance mechanisms. The view that existing structures are excessively bureaucratic and that formal decision mechanisms are unnecessarily cumbersome is a key motivating factor for informality. An expressed desire among leading actors to avoid excessive formalization and bureaucratization would be an observable implication of this institutional design imperative. States also wish to minimize sovereignty costs, retaining full decision authority over cooperative efforts. Given our emphasis on the role of technology in enhancing the supply conditions for informal

governance, one would expect to observe a key role for new technologies in making informal governance arrangements possible.

Second, changes in communications technology fuel a conjunction between the high-level political activities of IIGOs and lower-level TGNs. This conjunction may be top down, with IIGOs calling on TGNs to advance priorities identified in high-level forums. Or it may be bottom up through TGN initiatives that identify a favorable political opportunity structure brought about by IIGO activities and work within these broad parameters to advance their technical or operational agenda. What distinguishes this form of cooperation from traditional hub-and-spokes interactions are: (1) a limited role for bureaucratic intermediaries, such as FMs and international secretariats; (2) the deliberate decoupling of technical and political decision-making fora; and (3) a more direct role for HOGs and line departments in international cooperation.[70] Observable implications would be interactivity between the activities of IIGOs and TGNs, such as through IIGOs statements calling on lower-level institutions to implement IIGO priorities, or the explicit invocation of IIGO decisions as a rationale for TGN activities.

The Institutional Design of the Proliferation Security Initiative

We illustrate the impact of technology on institutional design and activities through a case study of international efforts to combat the illicit trafficking of weapons of mass destruction (WMD). The creation of the PSI in 2003 constitutes a "least likely" case of institutional design for an assessment of the impact of informal governance structures. The ongoing, detailed exchange of policy information characteristic of TGNs and most informal forms of governance is unlikely to occur in issue areas with serious national security implications. Indeed, the exchange of intelligence is one of the most carefully guarded and sensitive areas of international cooperation. Moreover, while efforts to counter the trafficking of WMD have technical aspects, most of these issues have significant political implications that would make world leaders read "technical" reports with greater care and less deference.

Subsequent to the discovery of Scud missiles being transferred to Yemen on an unmarked North Korean freighter, US president George

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[70] We are drawing the extreme case here. In practice, for example, FMs may play an important role in the preparation of IIGO meetings, although with line ministers directly involved there is no FM monopoly. FIGOs may similarly play a role in facilitating TGN networks.

W. Bush proposed a PSI in a May 2003 speech; the PSI was established among eleven countries in Madrid two weeks later. Its initial design was strongly shaped by US leadership and eschewed formal bureaucratization or legally binding arrangements. Indeed, a PSI is "an activity, not an organization."[71] The PSI's foundational document, its *Statement of Interdiction Principles*, requires a political commitment by participating states to cooperate in the interdiction of shipments of WMD between "actors of proliferation concern." States join the PSI effort through unilateral endorsement of the *Statement*, which is a nonbinding pledge with no international legal standing.[72] There are no PSI "members" per se, just "endorsing" or "participating" states. The PSI has no organizational headquarters, no secretariat, and no permanent missions accredited to it.[73] All meetings are hosted on a voluntary basis by participating states.

Despite this light institutional footprint, PSI states have established shared expectations concerning key institutional design features, including criteria for participation and the scope of institutional activities. The PSI's twenty-one-country Operational Experts Group (OEG) is a TGN that meets on an annual basis and serves a steering function. High-Level Political Meetings occur on a quinquennial basis supplemented by Mid-Level Political Meetings – usually convened at the assistant secretary level – that serve the IIGO function of establishing a flexible and voluntary set of action items for endorsing states to pursue both individually and collectively. These are typically contained within "Joint Statements" adopted by endorsing states.[74]

PSI states cooperate on the interdiction of WMD, as well as in related areas, such as the enhancement of national export control and customs enforcement mechanisms. The high-level political commitments contained within the *Statement of Interdiction Principles* are coordinated at the international level while individual states implement these principles according to their specific national circumstances and legal authorities. With an OEG providing the most active forum for collaboration, the PSI enables networked cooperation among military, intelligence, customs, legal, and diplomatic officials with national operational

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[71] Durkalec 2012, 1. See also Belcher 2011.

[72] The *Statement of Interdiction Principles* proposes to make use of states' domestic legal authorities and relevant international law. Thus, it makes no claim to constitute international law.

[73] Durkalec 2012, 2. Note how closely this fits the Vabulas and Snidal's (2013, 2020) definition of IIGO

[74] Dunne 2013, 6.

responsibilities.[75] These transgovernmental connections are encouraged by the OEG but are not centrally organized. Endorsing states simply organize relevant events and attribute them to the PSI. No state or small group of states has a veto over these activities.

The PSI is a clear example of the informal HpN governance that has proliferated in recent decades. Though built upon a nonbinding, political commitment with no formal organizational foundation, TGN interactions are too structured and regularized to be regarded as purely ad hoc coordination. HOG-level interactions through an IIGO provide a political foundation for operation-level interactions.

Supply-Side Drivers

The PSI's design was shaped significantly by changed supply conditions for informal governance, allowing for a minimization of management or sovereignty costs. Consistent with our argument, informality is enabled by the technological viability of using TGN and IIGO alternatives to the hub-and-spokes system. Moreover, the adaptability and flexibility of TGNs and IIGOs allow for quick interstate cooperation to govern rapidly evolving circumstances where states would be unwilling to delegate requisite authority to FIGOs.

Endorsing states established a strong operational focus for PSI, cutting out certain diplomatic intermediaries in shaping the initiative. Controversially, diplomatic players that contributed no operational capabilities were marginalized in early discussions, ensuring that "PSI would be the real thing, not just chitchat."[76] The strong operational and expert orientation of early meetings was enhanced through joint exercises and military engagements. Intelligence and law enforcement sessions were added shortly thereafter.[77] When the OEG emerged as the institutional successor of the "core group," the PSI's technical and operational orientation was reinforced. Delegations to OEG meetings, which include representation from multiple government departments and agencies, are frequently led by defense ministries or operational agencies rather than FMs.[78] Other government organizations participating at PSI

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[75] See Manulak (2019b) for a detailed discussion of transgovernmental linkages in the context of the PSI.

[76] Bolton 2007, 122–124.   [77] Koch 2012, 20–21.

[78] Koch 2012, 20. Because PSI objectives are relatively stable there is no need for ongoing high-level intervention as there is in areas such as financial management where circumstances change more rapidly requiring that, for example, the G7 and G20 meet on a more regular basis. Were a proliferation crisis to require it, the PSI could provide the organizational framework within which to provide such leadership.

meetings frequently include customs and border services and police agencies, as well as justice, health, finance, and transport departments. These actors weave transgovernmental linkages that interact on an ongoing, intersessional basis, furthering implementation of the *Statement of Interdiction Principles* and associated national legal authorities. Linkages among OEG countries are complemented by ongoing capacity-building work.

PSI states put a premium on the development of transgovernmental linkages among operational agencies of endorsing countries. No central international coordinating machinery, such as a secretariat or permanent missions, was established to provide a basis for a hub-and-spokes structure. Interestingly, this networked set-up has proved congenial for non-state actors, such as think tanks and transnational corporations. At the 2016 OEG meeting, for example, representatives from the Royal United Services Institute and international shipping firms enjoyed almost unfettered access to the discussions. The viability of this dispersed network of officials is predicated on the availability of email and reliable telephone networks to facilitate cooperation in the interdiction of WMD shipments. A password-protected PSI website, maintained by the German government, facilitates the communication and coordination of PSI activities and promotes the sharing of best practices among national officials.[79] Such a lean cooperative endeavor would not have been feasible in a world of expensive, slow, or unreliable communication. The minimal central coordination machinery erected would have been a recipe for inaction and confusion.

This informal institutional set-up was a deliberate effort among endorsing states to make the PSI as bureaucratically lean as possible.[80] The statements and recollections of those involved in its institutional design suggest that this choice was motivated by a distaste for the longer-term costs and heavy bureaucracy characteristic of FIGOs.[81] States built a cooperative infrastructure that minimized the role of diplomatic intermediaries operating at a hub, instead weaving multiple linkages across government agencies to facilitate interdiction operations on a broad international basis.

IIGO–TGN Conjunctures

In addition to flourishing transgovernmental linkages, the PSI's cooperative agenda has been shaped by HOG engagement and linkages with

[79] Dunne 2013, 41–42.　　[80] Bolton testimony, 175.　　[81] Bolton 2007, 122–124.

IIGOs. Endorsement of the *Statement of Interdiction Principles* constitutes a HOG pledge to implement the principles contained within it. This overarching political commitment provides an authoritative basis for ongoing activities of TGNs operating through PSI forums. National recommitments to the *Statement* have been frequent, most recently at the 2018 PSI High-Level Political Meeting and the 2016 Mid-Level Political Meeting.

PSI's early development relied heavily on direct HOG engagement. Its status as a US presidential initiative immediately afforded those seeking to expand participation in the PSI with access to the highest levels of decision-making within other capitals. As one participant in the PSI's early negotiations recalls, HOG-level support meant that conversations with other governments were akin to "knocking on an open door." High-level support enabled those involved in the PSI to quickly bring line department TGNs into the PSI fold. Domestically, the PSI's status as a presidential initiative and the necessity of ensuring coordination across multiple government agencies privileged the position of the National Security Council vis-à-vis other US players.

Ongoing HOG guidance and direction has been provided at regular intervals through G7/G8 statements on nonproliferation and disarmament, including in 2008, 2009, 2012, and 2016.[82] G7/G8 statements have voiced continued support for and prioritized the PSI among competing forums and in relation to other activities underway in the non-proliferation space. Further HOG support for the PSI has been provided through other HOG statements, most notably by the US president, and through ministerial statements such as the 2016 Port of Spain Declaration of the Conference of the Defense Ministers of the Americas.[83]

The PSI advances the G7/G8 nonproliferation and disarmament agenda, providing a ready vehicle to give effect to the political agenda of HOGs. The fact that all G7/G8 members are leading participants in the PSI's OEG further reinforces this IIGO–TGN conjunction. Tight linkages forged through the PSI among national militaries, customs services, intelligence agencies, and export control bureaus complement the high-level political attributes of the G7/G8 processes. Symbiosis between political and technical forums is a defining feature of the HpN relationship. Rather than have their messaging filtered through formal diplomatic channels, HOGs call on TGNs of domestic agencies with strong operational foundations to advance this broader international political agenda.

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[82] See, G8 2008, 2009, 2012; G7 2016.
[83] Obama 2009, 2016; Conference of Defense Ministers of the Americas 2016.

TGN actors within the PSI, furthermore, benefit from the political authority and high agenda status provided by IIGO statements that reinforce and legitimize their working-level interactions. The PSI *Statement of Interdiction Principles*, for example, points to the consistency of the principles with recent G8 statements.[84] In turn the consistency of the PSI with the agenda of leading HOG forums underpins the high political status that the PSI enjoys within national government activities in the counter-proliferation realm. G7/G8 backing demonstrates that the PSI remains a high priority at the HOG level and helps to ensure that domestic government agencies continue to resource their participation in PSI exercises and activities. Within the PSI the shadow of hierarchy works in an indirect though potent manner.

There is, therefore, a strong and symbiotic relationship between the broader political agenda of the G7/G8 in the non-proliferation and disarmament space and the operational interactions of PSI-endorsing states. The G7/G8 benefits from the networked operational linkages of the PSI; conversely, the PSI, which plays host to flourishing transgovernmental linkages, benefits from the political authority of the G7/G8, and from the endorsement of the *Statement of Interdiction Principles* by HOGs. Finally, this discussion points out that the HpN model itself is flexible: just as the PSI guides multiple TGNs in different technical areas, so other IIGOs such as the G7/G8 provide political support and guidance for those TGNs.

Conclusion

This chapter has shown how technological change enables informal modes of international cooperation and motivates states to use them. In the post-Covid-19 world, where states have been forced to increase their use of communication technologies as a means of policy coordination, these trends are likely to accelerate. While traditional FIGOs have been organized around a hub-and-spokes system, improvements in communication and transportation have fundamentally altered the cooperative landscape. Whereas FMs have been traditional gatekeepers for national diplomacy and operated heavily through FIGOs in their multilateral relations, national line departments and agencies increasingly operate independently of both FMs and FIGOs. Higher-level political guidance and authorization on broad policy issues can be provided by HOGs and their central executive through periodic IIGO interactions.

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[84] Proliferation Security Initiative 2003.

Line departments and agencies then refine and implement decisions in a rapid, reliable, and low-cost manner through TGN arrangements. Both the role of FMs in managing individual states' multilateral policy and the value-added of high levels of delegation to intergovernmental organizations – key characteristics of the hub-and-spokes system – have diminished as a result. While FIGOs will continue to occupy a prominent place in the international landscape, the proportion of consequential international activities occurring within their remit is likely to continue to shrink as states increasingly embrace informal modes of governance.

Our analysis of the institutional design of the PSI explored the impact of technological change on the design and interaction of informal international institutions. The decentralized institutional form avoids high management costs associated with utilizing existing formal intergovernmental structures, which are cumbersome and excessively bureaucratic. Nonbinding commitments allow states to adapt the pace and scale of implementation to national conditions, minimizing sovereignty costs. The PSI case further highlights how high-level engagement can provide an agenda-setting and convening mechanism for a range of TGNs.

The increasingly informal design of international institutions has important implications for the exercise of power in the international system. Within the hub-and-spokes system, smaller states could concentrate diplomatic capacity at hubs and benefit from the technical expertise of secretariats. A world where policy coordination occurs increasingly through TGNs of national officials engaging on an ongoing basis from capitals further advantages states with greater national bureaucratic capacity. It has thus become more difficult for small states to use a limited number of diplomats, reinforced by the technical capacity within secretariats, to "punch above their weight" in intergovernmental organizations. States with capacity to organize operational exercises and workshops, and promote export of their regulatory models, can amplify their influence through TGNs.[85] When IIGOs orchestrate the activities of TGNs, furthermore, states that have representation in these forums are further advantaged. G7 states, for example, may be able to augment their influence in these types of arrangements.

Digital diplomacy and "webcraft" are vital tools of international influence going forward and states that continue to emphasize more traditional modes of diplomacy may be outmaneuvered by nimble international players that recognize the importance of positioning themselves in nodal positions among actors. Finally, non-state actors such as

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[85] Raustiala 2002.

firms and NGOs may gain better access through connections with domestic partners in TGN networks but have weaker access to IIGOs than to (some) FIGOs to which they are increasingly being accredited.

The preceding discussion highlights the importance of conjunctures among high-level IIGOs and TGNs, with the former authorizing, legitimizing, and convening the activities of the latter. TGNs, in turn, extend the reach of HOGs, allowing these bodies to regulate national actors. This complementary activity strengthens both forms of informal governance. In this world the value-added of the hub-and-spokes system – predicated on delegation to FMs and international secretariats – is reduced. Furthermore, flexibility and collaborative quality are major advantages of informal governance. This emerging mode of HpN governance represents a potentially fundamental shift in patterns of international cooperation.

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