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Kathryn Taylor

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ICANN See Clearly Now: The Political Economy of Internet Governance

by

Kathryn Taylor

Dr. Eric Reinhardt
Adviser

Department of Political Science

Dr. Eric Reinhardt
Adviser

Dr. Richard Doner
Committee Member

Dr. Jinho Choi
Committee Member

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By

Kathryn Taylor

Dr. Eric Reinhardt

Adviser

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Abstract

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This thesis is a first step towards incorporating evidence from the emerging area of Internet governance into existing political theory about the creation and evolution of international institutions. The Internet Corporation for Assigned Names and Numbers (ICANN), the institution in charge of global Internet governance, has existed as a private, nonprofit corporation with multistakeholder participation since 1998, when the U.S. government created it. In 2016, however, the U.S. relinquished its historical control of ICANN, giving way to an international multistakeholder model.

In this qualitative historical case study, I investigate what political factors explain ICANN's design and evolution by analyzing the role of states, corporations, civil society, and path dependence in determining institutional form over time. I argue that state power is an important driver in this case, but that non-state actors such as corporations and technical experts have also achieved great influence in Internet governance through their possession and use of financial and informational resources. Additionally, path dependence explains why, despite shifting power dynamics, ICANN's structure has remained intact in the face of multiple efforts by United Nations bodies and members to replace it with multilateral solutions. My findings highlight the importance of the worldview of epistemic communities in framing policy debates, suggesting that that Internet technical community's desire for an interoperable global network was a key reason for the rise of a seemingly novel multistakeholder institution for Internet governance.

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GLOSSARY

AC – Advisory Committee
ALAC – At-Large Advisory Committee
ASO – Address Supporting Organization
ccNSO – Country-Code Names Supporting Organization
ccTLD – Country-Code Top-Level Domain
CORE – Council of Registrars
DNS – Domain Name System
DRSSAC – Domain Name System Root Server System Advisory Committee
GAC – Government Advisory Committee
GNSO – Generic Names Supporting Organization
gTLD – Generic Top-Level Domain
gTLD-MoU – Generic Top-Level Domain Memorandum of Understanding
IAHC – International Ad Hoc Committee
IANA – Internet Assigned Numbers Authority
ICANN – Internet Corporation for Assigned Names and Numbers
IETF – Internet Engineering Task Force
IFWP – International Forum on the White Paper
IGF – Internet Governance Forum
IP – Internet Protocol
ITAG – IANA Transition Advisors Group
ITU – International Telecommunications Union
NTIA – National Telecommunications and Information Administration
PSO – Protocol Supporting Organization
PTI – Public Technical Identifiers
RSSAC – Root Server System Advisory Committee
SO – Supporting Organization
SSAC – Security and Stability Advisory Committee
UN – United Nations
WGIG – Working Group on Internet Governance
WIPO – World Intellectual Property Organization
WSIS – World Summit on the Information Society

INTRODUCTION

The Internet Corporation for Assigned Names and Numbers (ICANN) is a private, nonprofit corporation that was created in 1998 and originally overseen by the National Telecommunications and Information Administration (NTIA) of the U.S. Department of Commerce. ICANN is the primary organization in charge of Internet governance, meaning that it is responsible, among other things, for the maintenance of the Domain Name System (DNS).¹ From the beginning, ICANN operated under the principle of “multistakeholderism,” with formalized participation avenues for individuals and groups from the private sector and civil society alongside traditional state actors. ICANN remained under U.S. supervision for 18 years, despite multiple attempts by United Nations organizations and other countries to get it to change or abandon its structure. In 2016, however, the U.S. government relinquished its oversight powers, leaving ICANN with an adjusted structure involving more internationally representative participation mechanisms.

What explains the original design of ICANN and the changes to it over time? I address this question through a qualitative analysis of the institution’s historical record, focusing specifically on the relevance of four different hypotheses about the influence of states, corporations, civil society, and path dependence on institutional form. The first hypothesis, respectively, predicts that institutional form at any given time will reflect the preferences of the

¹ The Domain Name System exists to simplify the process by which Internet users can access different websites. Individual websites are each associated with Internet Protocol (IP) addresses, which are long strings of numbers that are not easy for humans to remember. The DNS links these IP addresses to more understandable identifiers such as “icann.org.” Domain names consist of two parts: the part before the dot, such as “icann,” and the part after, such as “org.” The second part is known as a top-level domain (TLD). Each TLD (.com, .org, .net, etc.) is managed in its entirety by a single company known as a registry. Other companies called registrars are responsible for registering and selling domain names identified by the first part. For more detailed information on the DNS and its surrounding infrastructure, see <https://www.icann.org/resources/pages/what-2012-02-25-en>.

most powerful states, and that, should the power distribution among states change, there should be a subsequent shift in the institution. The second hypothesis highlights corporations as influential actors due to their monetary and informational resources, predicting that institutional form will reflect the preferences of corporations that exert control through formal and informal participation mechanisms. The third hypothesis about civil society focuses on the role of expert knowledge in shaping institutions; institutional form will reflect the worldview of issue-area experts and bureaucrats whose advisory input is required in decision-making by less knowledgeable actors such as states. The last hypothesis is about path dependence, predicting that, after an institution is created, the weight of sunk costs and the experience of increasing returns will make actors less likely to abandon the existing institution, thereby constraining change.

I chose these particular perspectives for analysis because of their prominence in the field of political science, their ability to supply robust and plentiful predictions for institutional creation and evolution, and their initially apparent relevance to the world of Internet governance, which considers states, corporations, and civil society groups to be stakeholders in its decision-making processes. Path dependence is included in addition to the three actor-centric explanations as a potential way to understand why the changes to ICANN's structure throughout its existence appear to have been relatively limited.

At critical points in ICANN's history—its creation in 1998, the World Summit for the Information Society in the early 2000s, and the 2016 transition—I synthesize and analyze multiple sources of evidence, including bylaws, policy changes, news articles, first-hand accounts, secondary sources, participation data, government papers and announcements, and Internet statistics, to determine the relative merits of each of the four hypotheses in explaining

institutional form. The purpose of this approach is to position ICANN, an organization that has not been heavily studied by political scientists, within the literature on international institutions by examining its history through the lens of leading political science theories. On the other side, publications by Internet experts and ICANN officials tend to downplay political dynamics of power and participation between different kinds of stakeholders, focusing instead on the multistakeholder model's openness, inclusivity, and equity. This paper draws from these scholars' important descriptions of the multistakeholder decision-making environment, while critically examining how and why the different actors involved are able to influence outcomes by way of their formal and informal power and avenues for participation.

This investigation ultimately concludes that each hypothesis is meaningful in capturing some degree of what influences institutional form in the case of ICANN. ICANN describes itself as a multistakeholder institution, and I have found it to be truly multistakeholder throughout its history in that its form has been shaped by powerful states, corporations, and civil society experts acting in close concert. Key to this finding, however, is that not all states, corporations, and civil society groups are created equal; they must meet certain pre-conditions of having informational, timely, and monetary resources that enable meaningful participation, and they often additionally benefit from institutionalized influence that is strengthened by path dependence. Layered with these actor-centric explanations, path dependence is important to explaining ICANN's evolution because, at each of the critical points examined, institutional alternatives were presented and yet the centrality of the ICANN structure was never abandoned. When change did occur, it took the form of non-disruptive amendments or additions to existing bylaws. ICANN's original structure and participants echo through its history and are still important factors shaping institutional form and policy today.

The influence of states, corporations, experts, and path dependence is key to understanding why the problem of globally coordinated Internet governance resulted in the particular outcome of ICANN. If multiple powerful national governments had been involved from the beginning, a fragmented, nationally managed system could have emerged as has occurred with the telephone system (Mueller 2002: 23). At multiple junctures, in the absence of the particular distribution of power and preferences that existed around this issue, the United Nations could have succeeded in housing Internet governance under its International Telecommunications Union. The contemporary ICANN multistakeholder structure was not in any way inevitable, nor was it the object of consensus. Instead, stakeholders proposed a series of very different alternatives, and only the combined influence of U.S. hegemony, corporate input, and epistemic communities' expertise within the context of constraining elements of the existing ICANN rules produced the outcome we have today. ICANN's structure was not inevitable, and it is interesting to explore other paths that the Internet could have taken if it had been managed in the manner of, say, the telephone system, which is more fragmented. I discuss this train of thought in greater detail in the paper's final section.

The multistakeholder model that was adopted with ICANN reflects the long-held belief of American Internet architects that this new technology must remain global and open and that it deserves new, distributed governance mechanisms. It does not matter whether the Internet is truly something new, but rather that its architects believed that it was, and that they were able to influence decision-making through relationships with powerful government and corporate actors in their home country. The hegemonic influence of the U.S. and its Internet economy served to lock in these preferences from the start. Path dependence explains why, when this initial condition of U.S. hegemony changed, many of ICANN's original features remained. At

ICANN's biggest turning point with the removal of U.S. oversight, the U.S. was no longer the single dominant state, but other actors' familiarity with existing institutional arrangements led to them keeping much of ICANN's structure—a structure that was designed by Americans and that had long privileged U.S. actors. A shift in state power led to institutional change, but path dependence constrained that change to be as small as possible.

There exists a dramatic distinction between expert and non-expert civil society actors in terms of their ability to influence policy and institutional change in the Internet governance environment. ICANN has always expressed a desire to represent and involve the “at-large” Internet community, including human rights groups, NGOs not directly involved in Internet issues, and the multitudes of global Internet end-users. ICANN's structures are open to these participants, but their preferences have never been cohesive or powerful enough to drive meaningful change. ICANN will never be able to capture and act upon the interests of the billions of global Internet users. It is not possible to bring all of these voices to the table. Further, the non-expert voices that do make it to the table face a high barrier to entry in terms of the technical expertise necessary to actually influence decision-making rather than simply to observe. To meaningfully create change in ICANN, one must possess monetary and/or informational resources. Therefore, an important policy implication of this thesis is that ICANN should address this gap between how it talks about non-expert civil society stakeholders and how it actually includes them so that its processes may better reflect its rhetoric.

By explicitly defining the nature of the problem of Internet governance and the influences on the arrived-at solutions, this thesis sets a foundation for ICANN to be directly compared to other cases of international institutions. This kind of comparison will allow scholars to assess the veracity of claims that ICANN represents a new development in global governance arising from

novel characteristics of the Internet itself. If ICANN is nothing new, it can be integrated into existing understanding of international telecommunications issues. If the nature of the Internet necessitates the creation of entirely new kinds of international governance, however, then political scientists must devote significant effort to parsing out how this revolutionary technology uniquely interacts with geopolitical processes. This paper is the first in a series of steps to uncover these truths.

The following section motivates my selection of ICANN for an in-depth case study. Next, I describe the coordination problem posed by the need for a centrally managed global system for domain names, and define the basic characteristics of ICANN, the institutional solution that has been chosen. In the Theory and Hypotheses section, I review the literature related to the role of states, corporations, civil society, and path dependence in shaping international institutions, ultimately deriving four hypotheses to be tested on ICANN. The body of the paper is a chronological analysis of ICANN's history that accumulates evidence for each of the hypotheses. The next section summarizes the findings of this analysis and makes concluding remarks.

WHY ICANN?

This paper is an in-depth analysis of a single example of institutional creation and change. The fact that ICANN has not been deeply examined in the field of political science does not necessarily justify this effort. Here, I argue for the utility and necessity of a case study of ICANN.

The Internet is a global resource that is continuously growing in scope and significance. It enables fast, widespread exchange of information and goods across international borders. As of 2016, the International Telecommunications Union reported

that nearly half of the world's population uses the Internet.² In policy and politics, the Internet is no longer a niche topic or simply a means of communication, but an increasingly central target of political action in itself that is worthy of analysis.

ICANN is one of the few internationally centralized points of control over this new and explosive technological advancement (Mueller 2010: 61, Kaplan 1998). Because there are few alternatives for states and stakeholder groups to use to collectively make decisions about Internet topics, ICANN has become the center of discussion for an assortment of tangential issues such as human rights and censorship, despite such topics being entirely unrelated to ICANN's actual jurisdiction.³ Additionally, though ICANN's actual functions (assigning and maintaining domain names), which I will describe in more detail below, are not enormous or complicated, the Internet's key benefits of openness and interoperability could not be realized without them. ICANN is an institution that plays a crucial role for the existence of an important global resource.

Existing scholarship does not sufficiently explain the institutional history of Internet governance. Why was a single country, the United States, able to unilaterally create an institution with global functions and implications? What motivated the choice of a private, multistakeholder model, a divergence from other international telecommunications arrangements? Why, after 18 years of maintaining its control, did the U.S. relinquish its oversight of ICANN in 2016? This is a rich puzzle that demands a systematic, theory-driven exploration of the influences on institutional creation and evolution.

² International Telecommunications Union, "Measuring the Information Society Report," 2016, <http://www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2016/MISR2016-w4.pdf>.

³ See, for example, Republican Senator Chuck Grassley's 2016 statement in which he relates issues of human rights, free speech, and intellectual property to ICANN (Grassley, 2016).

This evidence-based investigation of ICANN's history will begin the process of confirming or denying ICANN's claims that it has pioneered an "unprecedented multistakeholder effort" in its recent transition process.⁴ By shedding light on who has actually participated in decision-making and the balance of power among them, it will show how inclusive ICANN actually has been.

Lastly, as traditional concepts of state-centric governance break down with the global rise of non-state actors and as governments experiment more often with public-private partnerships and multistakeholder governance, a study of ICANN, a multistakeholder institution organized around a revolutionary, widely-used technology, has potential to generate broader insights about the direction of global governance in unrelated policy and issue domains. To what extent does the experience of ICANN indicate the possibilities for global governance to become more distributed in other arenas? Though my work is not a normative evaluation of whether ICANN is the best institution or whether it is doing its job well, it does provide evidence of the durability of its multistakeholder principles and structure, and identifies key drivers of this particular trajectory.

THE POLITICS OF NAMING

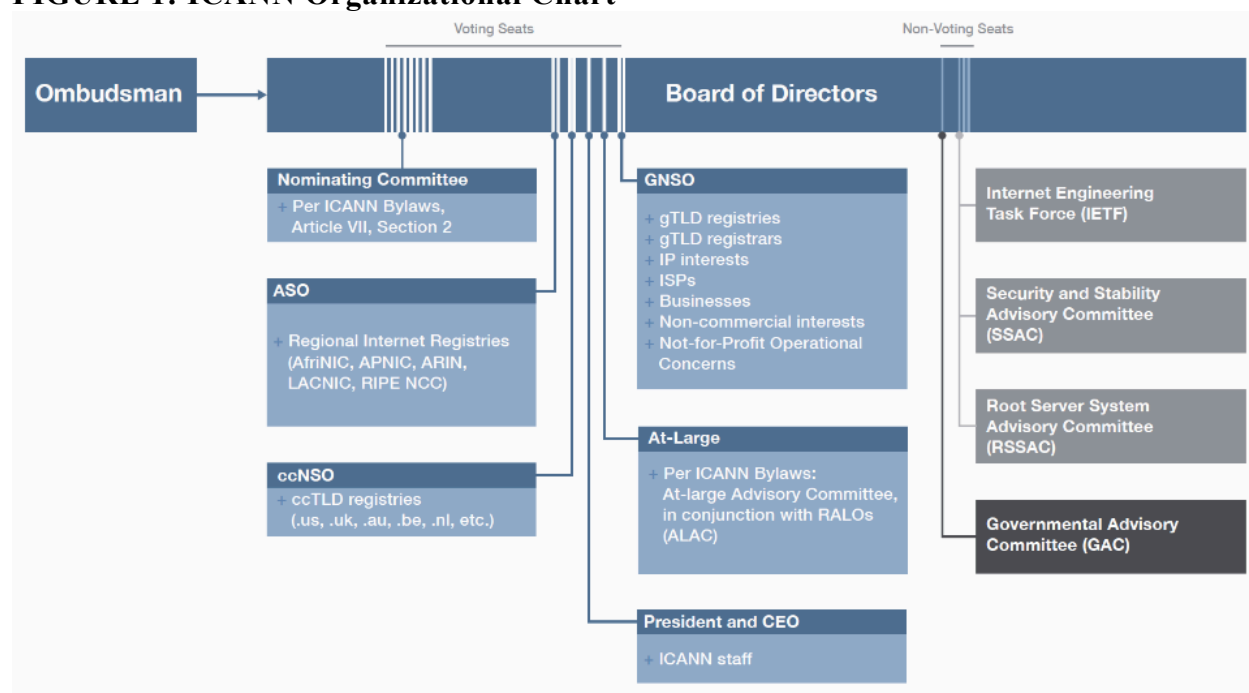
The term "Internet governance" has been widely debated and differently interpreted. Issue creep and lack of technical understanding have contributed to this, as issues of cybersecurity, human rights, and censorship, which are not directly related to technical Internet governance, have sometimes been included in the discussion, thereby diluting its definition. For the purposes of this paper, I draw from descriptions by Internet policy expert Laura DeNardis (2010), narrowly defining Internet governance as the policy and

⁴ ICANN, "Inclusive Multistakeholder Internet Governance," 2016, <http://www.cto.int/media/events/pst-ev/2016/ctoforum2016/SavenacaVocea.pdf>.

technical coordination of the allocation and management of the critical Internet resources of protocols, names, and numbers performed by ICANN. In the words of former ICANN Board Member Karl Auerbach, “ICANN *is* Internet governance.”⁵

ICANN is a complex, multi-layered organization. Its structure has changed over time, but its general form is that of a private, non-profit corporation with a Board of Directors that has ultimate decision-making authority. Figure 1⁶ illustrates ICANN’s structure in 2012. Though ICANN changed leading up to this point and has changed since, this depiction is useful to show the relationships among some of its basic features that have existed since its creation.

FIGURE 1: ICANN Organizational Chart



⁵ Congressional testimony of Karl Auerbach before the Senate Committee on Commerce, Science, and Transportation Subcommittee on Communications hearing, February 14, 2001.

⁶ ICANN, “ICANN Organizational Chart,” 2012, <https://www.icann.org/resources/pages/chart-2012-02-11-en>.

ICANN's Board is composed of the President and CEO, a Chairman, a Vice-Chairman, and multiple voting Directors and Non-Voting Liaisons. ICANN's Supporting Organizations and Advisory Committees nominate candidates to become Directors and Non-Voting Liaisons. The existing Board members ultimately confirm these nominations.

Supporting Organizations are self-organized groups of participants in ICANN that are formed around technical issues of Internet governance such as Internet Protocol (IP) addresses or domain names. They are responsible for nominating Board Directors, as well as developing and recommending policies within their scope. Advisory Committees are subgroups formed around particular governance issues or types of stakeholders. Advisory Committees are responsible for reporting to the Board their findings and recommendations related to their purpose, and for nominating Non-Voting Liaisons to the Board. Since its creation, ICANN has always included a Government Advisory Committee (GAC) composed of representatives of national governments, multinational organizations, and treaty organizations. Through its supporting structures, ICANN attempts to represent and include all parties that are interested in or affected by its policies. These stakeholders have traditionally included national governments, Internet companies such as Internet service providers (ISPs), registrars, registries, academics, civil society individuals and organizations, groups of Internet technical experts such as the Internet Engineering Task Force (IETF), and trademark and intellectual property interests.

ICANN's policy development and implementation happens in a distributed way, in which the Board may determine its interest in a potential policy and delegate its development to the proper subgroup, or where a Supporting Organization may propose a policy or rules change to be considered by the Board and other Supporting Organizations.

Every ICANN policy must be posted online for public comment in advance of the Board voting on it. Through this process, ICANN guarantees that relevant stakeholders have reviewed each decision it makes before implementation.

ICANN's work involves the maintenance of global Internet architecture, including the operation of the DNS, the allocation of IP addresses and other unique identifiers, and the accreditation of generic Top Level Domain (gTLD) registrars. This paper will focus on one of these Internet governance functions: naming. The task of naming in Internet governance involves the global coordination of the DNS Root, a file that contains all assignments of country-code Top Level Domains (ccTLDs) and gTLDs. When ICANN was founded, the naming task was formally called the Internet Assigned Numbers Authority (IANA), and a department of ICANN with the same name was created to perform it. The name IANA has been used, therefore, to refer to the department of ICANN that handles naming, as well as the job of naming itself. Assigning and maintaining domain names is essential to ensure that, when users type addresses on the Internet such as "google.com," they will be directed to the correct destination. With the goal of technical consistency and total connectivity for the global Internet, the DNS was designed to have only one root zone file (Mueller 2002: 50). The root zone file is a simple, single document, but it is the physical embodiment of the central point of management of the DNS. It is a list of all of the Internet's domain names and associated IP addresses that allows Internet service providers and users around the world to operate on the same network.

The Internet is only as good as the interconnectivity it provides. Its value as a resource is defined by its ability to connect users and information sources across the world. In order for users in France and users in Brazil to access information of their choice on a

global network, the websites they use must be registered under a shared naming system in a single root zone file. With the necessity of a single point of management for all participants' domain names, the question arises about who should have control.

Arriving at a single solution for the management of the root is a coordination problem, where international actors benefit from a shared course of action, but differences arise over what specific arrangement should be used. Those differences spring from questions of whose preferences are most accommodated in the outcome and who retains power under the arrangement. All stakeholders gain access to the very exciting and lucrative globally interconnected web when it is managed from a single root connecting all users, but disputes form around questions of who should physically have access to and editing power over the root file. The Internet was created in the United States, so should the U.S. government have the sole right to control the root file? Before ICANN was created, the Clinton administration's answer to this question was "yes," a claim that led to international outrage and an abundance of proposed alternatives (Mueller 2002: 137). Alternatively, the Internet can be framed as a global public good, so should a more internationally balanced body such as the United Nations assume central management of the DNS? As I discuss in detail in the analysis section, at multiple points in ICANN's history the International Telecommunications Union (ITU), an agency of the UN, tried to frame the debate in this way and to take control of the root, to which the U.S. repeatedly responded by restating its property rights. These conflicts did not arise from technical issues, but rather political questions of control, globalization, and national power. It is therefore a worthy pursuit to investigate the *political* influences on the creation of ICANN's structures and the *political* conditions that led to their evolution.

THEORY, LITERATURE REVIEW, AND HYPOTHESES

My analysis of ICANN positions it within political science theory regarding institutional form. Because ICANN has not yet been structurally and historically analyzed in this way, multiple competing theories appear to be relevant from the outset. For reasons mentioned previously, this paper has chosen to evaluate explanations involving the influence of states, corporations, civil society, and path dependence. This section reviews these different perspectives to form four hypotheses concerning the causal mechanisms underpinning the institutional evolution of Internet governance in the case of ICANN.

STATES

Examining the role of nation-states in shaping international relations is a traditional centerpiece of theories of international relations and remains central when assessing current events. Scholars of this perspective argue that the structures of international institutions reflect the relative power of participating states (Krasner 1976, Keohane 1988). A state's power is often a function of its size and relative level of development (Krasner 1976: 318). A state with a distinctly large size and level of development is a dominant power or hegemon. Hegemonic stability theory has been applied—with varying degrees of success—to the understanding of an array of political problems (Snidal 1985). It is useful, though, in understanding how certain kinds of institutions might come into existence. With regards to institutional creation and stability, proponents of hegemonic stability theory contend that, when a hegemon is present, it facilitates the coordination of a common solution by providing stability and decreasing transaction costs (Keohane 1988: 387, Snidal 1985). Because of their power, hegemons may act in their own self-interest, but they may also act to provide global public goods, which can be underprovided in the

absence of such an actor (Stone et al. 2008). This option may enhance support for the hegemon as other states and stakeholders enjoy the benefits of a well-managed public resource.

If state power determines institutional rules, then we would expect a shift in the balance of power among states to precipitate institutional change. Specifically, if power diffuses away from a hegemon that sponsored a particular institution, this perspective predicts that pressure will build on the institution and potentially weaken its rules and cause change (Keohane 1988: 388).

Krasner's work on global communications outlines situations that give rise to international regimes (Krasner 1991). He introduces the helpful concept of a "dilemma of common aversion," a kind of coordination problem in which actors are incentivized to arrive at coordinated solutions because they share an interest in avoiding certain undesirable outcomes (Krasner 1991: 338). With this situation, once actors agree upon an initial set of rules, defection is not a concern because an actor who cheats on or abandons an agreement will only hurt itself (Stein 1982: 314). Krasner acknowledges, though, that this does not always work flawlessly because of distributional conflicts, meaning disagreement between states over what the equilibrium solution should be. Despite the fact that they would suffer from the actual act of defecting, states may threaten to defect from shared arrangements to express unhappiness with the current coordination outcome and to attempt to change the equilibrium (Stein 1982). Krasner says that it is the exercise of state power that can resolve these distributional conflicts, allowing powerful states to secure the equilibrium outcomes they prefer. Power translates into preferred outcomes when states exercise it to decide which other states are allowed a place at the decision-making table, to dictate rules by acting preemptively, or to change the payoff matrix (Krasner 1991: 340).

Arguments by state centrists presume an international environment of complete information in which each state has a deep enough understanding of the issue area to know its own preferences, and where states know enough about each other's preferences to see that coordination would be mutually beneficial.⁷ With a dense, complicated issue area, states may need to seek outside expertise from civil society or the private sector before they can begin to determine their preferences for governance structures. It is therefore important to acknowledge that these other actors have their own preferences, and that they may enter into discussions with state entities with ulterior motives that impact institutional form in ways that are separate from state interests. The incompleteness of the state power perspective in addressing the political environment surrounding institutional creation motivates my inclusion of two additional actor-centric hypotheses.

The response of state centrists to explanations highlighting the importance of other actors is that, though new kinds of actors are becoming involved in shaping international institutions, their involvement ultimately serves the interest of nation-states and that it is nation-states that wield ultimate influence (Raustiala 1997).

Hypothesis 1: The form that international institutions take will reflect the preferences of the most dominant states.

Specifically with regards to ICANN, this perspective hypothesizes that ICANN's creation served U.S. hegemonic national interests, and that any changes to its institutional structure throughout its history can be attributed to changes in the balance of power among nation-states. This is plausible, given that a cursory examination of ICANN's history reveals that the change to

⁷ Walsh (2001), similarly to Krasner, asserts that creating international institutions is a way for nation-states to realize mutual gains and to minimize defection. This reality would seem to depend on states having very clear foresight.

its form in 2016 from U.S. oversight to a global multistakeholder model appears to have been preceded by strong pressure from an increasingly powerful group of other countries on the U.S. to cede control. Here, this paper modifies Krasner's version of state power, defining power in the context of Internet governance as the relative size of a state's Internet-active population compared to the global Internet-using population. The above theories suggest that, though the U.S. may act in its own domestic interests, its role as a hegemon may lead to it becoming interested in and taking responsibility for the provision of a global public good such as the Internet, an action that benefits other states as well as itself. This kind of stability and creation of global benefits may contribute to other actors' acceptance of the role of the hegemon.

The problem of maintaining a global DNS is framed here as a dilemma of common aversion, which intuitively makes sense given the nature of the Internet. The Internet functions as a global public good only as long as it maintains its core quality of interoperability; it is a network of networks that allows everyone to connect to everyone. In arriving at a coordination outcome for Internet governance, the details of the equilibrium solution—how the DNS is administered and who is in control—arguably matters less than the fact that a solution exists at all. Following Krasner's reasoning, the distributional conflicts that arise over who gets to be in charge of Internet governance are resolved through the exercise of state power, where powerful states influence institutional form by setting the rules through preemptive action (e.g. going ahead and creating an institution in the desired form, which the U.S. did in 1998).

CORPORATIONS

Some alternatives to the state power perspective involve the influence of other kinds of actors. The clearest candidate for a set of actors that influences international arrangements other than states is that of for-profit, private sector business actors, or

corporations. Private stakeholders have become more influential in recent years because of institutionalized influence; more kinds of international decision-making processes are legitimizing corporate participation by giving them a seat at the table, and a widening concept of sovereignty has led to transfers of power from the public to the private sector (Bengtsson 2015, Tienhaara 2012, Valaskakis 2007).

Corporations are often active participants in policymaking because of their relatively strong ability to engage in collective action and their ability to understand and participate in decision-making through benefit of their possession of technical knowledge and financial resources (Bengtsson 2015). For example, when policy processes call for public participation through such mechanisms as notice-and-comment periods, corporations are often the most mobilized to submit feedback (Mattli, Buthe 2005). Some argue that, because of corporations' wealth and access to technology, their acceptance of a regime is crucial to its success (Tienhaara 2012). This is because of market power, but also because states often require the expertise of corporate actors to build issue- or industry-specific regimes. States may recognize this, and may grant corporations a seat at the table in hopes that they will contribute resources and support to the arrived-at arrangements.

With regards to institutional creation and evolution, corporations achieve influence by mobilizing resources of expertise and wealth to understand decision-making processes, to voice their preferences and intentions, and to gain a seat at the table.

Hypothesis 2: The form that an institution takes at any given time will reflect the interests of corporations that are impacted by its operation.

If this hypothesis is true, we would expect for there to exist corporations interested in and affected by ICANN's activities and for those corporations to have at their disposal sufficient

time, expertise, and financial resources to understand and participate in the institution's proceedings. Outcomes will suit their preferences by formally including them in decision-making processes and creating policies that benefit them. Given that ICANN is a private entity designed by the private sector, it is reasonable to predict that there will be some evidence to support this hypothesis.

In addition to this private sector leadership, ICANN appears to invite corporate participation for a number of reasons. With the global expansion of the Internet, the sale of domain names has become a lucrative business conducted by special companies known as registries and registrars. This leads to corporations having a financial stake in ICANN's activities administering the DNS. Further, corporations have an informational advantage. When trying to get involved in ICANN, potential participants face a complex network of actors, many of whom have been involved since the institution's creation and who are intimately familiar with the organization's dozens of acronyms.⁸ ICANN has supporting organizations with names such as the Domain Name System Root Server System Advisory Committee (DRSSAC), and involves layered levels of participation by groups such as the Internet Architecture Board (IAB), which is a committee of the Internet Engineering Task Force (IETF), which is advised by the Internet Society (ISOC). These kinds of qualities do not exactly invite participation by the layman. Corporations, however, are primed to navigate this technical labyrinth. They employ many of the Internet architects who participate in structures like ISOC. Because of ICANN's private sector-led approach, it is corporations that are in charge of the root servers discussed by the DRSSAC. Corporations have an edge here because they have the financial incentives and the informational

⁸ ICANN, "Glossary," 2014, <https://www.icann.org/resources/pages/glossary-2014-02-03-en>.

resources to master ICANN participation in ways that others, such as general Internet users or non-expert civil society groups, may fall short.

CIVIL SOCIETY

The role of civil society in international decision-making is the participation of academics, experts, human rights groups, non-governmental organizations (NGOs), and other non-state, non-commercial interests. Their formal inclusion is related to increasing international experimentation with formal multistakeholder arrangements where institutions attempt to include every party affected by their decisions in the decision-making process.

Experts, including academics and issue-specific technical professionals, make up one portion of what is known as civil society at large. Groups of experts organized around specific issue areas are known as epistemic communities whose members are “united by a belief in the truth of their model and by a commitment to translate this truth into public policy, in the conviction that human welfare will be enhanced as a result” (Haas 1990: 41). This is the idea that experts in epistemic communities spend a great deal of time and effort understanding their field and refining their beliefs individually and as communities, and that they therefore feel that they know what is best for the public governance of that field. When governments are engaging in decision-making surrounding a particularly technical or obscure issue, they are likely to ask for input from experts. Once their presence is requested, epistemic communities can fit into and influence international organizations by allying with the “dominant coalition” by promoting policies and values that appeal to its members (Haas 1990: 42).

Another kind of expert whose presence may be requested in international organization is the bureaucrat. These are individuals who already work in international

intergovernmental organizations (IGOs) such as the United Nations and who therefore are knowledgeable about the workings of global institutions. They are often called upon to assist states in designing new international institutions (Johnson et al. 2014: 177). As part of these organizations, career bureaucrats may develop a worldview that is partial to IGO-led outcomes, and may promote IGO involvement and control when incorporated in discussion of new regimes.

The perspective involving civil society's role shaping international institutions can be summarized as the argument that "control over knowledge and information is an important dimension of power" (Haas 1992: 2). Epistemic communities and bureaucrats are called into decision-making around institutions when the actors who are already involved, such as states and corporations, require additional information that can only be supplied by experts. With control over this informational resource, civil society participants can frame the issues in ways that advance their own agendas, and can propose their own preferred policy outcomes that may be heeded due to their status as experts. In addition, states may be motivated to include civil society participants in decision-making processes as a way to make the negotiations and arrived-at solutions appear to be more democratic and inclusive (Scholte 2001). By institutionalizing the influence of non-state stakeholders, a regime's legitimacy may increase.

Hypothesis 3: The form that an international issue-specific institution takes at any given time will reflect the consensus of civil society experts.

If this hypothesis explains institutional change, we should expect for the issue subject to institutional governance to be esoteric and technical, and for there to be a community of experts on that issue with cohesive values and policy goals. The hypothesis

predicts that formal authorities such as states will seek expert input from these communities, and for the experts to see and treat this as an opportunity to advance their vision for issue-area governance. Through the contribution of their time and expertise, civil society members will achieve their preferred institutional outcomes.

This perspective also predicts that, when designing new institutions, states will seek the input of IGO bureaucrats with institutional expertise, and that the bureaucrats will prefer and suggest IGO-led solutions.

Internet governance is a clear case to examine the role of civil society, as it was an epistemic community of Internet architects who originally performed the maintenance of the DNS, and who have continued to participate throughout ICANN's history.

Interestingly, the International Telecommunications Union, a United Nations agency, appears to have been involved in Internet governance debates, but institutional outcomes have not preferred IGO control. Analysis will reveal the cause of this.

PATH DEPENDENCE

Institutional theory has expanded to include explanations that are not actor-centric. Much work has been dedicated to studying how present choices depend on past decisions and how rules constrain actors and shape outcomes. This concept of path dependence is based on increasing returns; with each step down a path, the probability of continuing on the same trajectory grows (Pierson 2000: 252). In short, "history matters" (Jackson et al. 2012). When an institution is created, there are sunk costs. Actors must invest time and resources into arriving at agreements, formalizing rules, and allocating resources. Once this initial set-up occurs, benefits accumulate as it becomes easier to use the institution and the relative weight of the one-time

initial costs decreases. Because of this ratio of initial costs to accumulating benefits, existing institutions are likely to perpetuate (Keohane 1988: 387).

Path dependence introduces the notion that, when considering the impact of various kinds of actors on institutional change, it is also important to consider the environment within which they are acting. This is the idea that the institutional rules themselves influence outcomes by determining the degree to which different actors derive power from different resources (Mattli et al. 2005). It is not simply the actors, but also the institutional environment within which they act, that are the source of change. Path dependence is the notion that the original form of an institution determines how it will behave and evolve later on. By allowing for participation, granting power, and constraining and creating opportunities, the rules affect how interests will be represented in outcomes.

Hypothesis 4: By requiring sunk investments and by constraining and creating opportunities for future action, the original rules of an institution will shape any future changes to its form.

This hypothesis will apply to institutional changes to ICANN after its creation. Evidence in support of this hypothesis will show that, at points of potential change, actors chose to keep or slightly amend existing structures rather than abandoning them in favor of new arrangements. Remnants of ICANN's original form should still be evident today, despite multiple shocks to the system. Institutional fixedness is not arbitrary when external pressures and viable alternatives exist, and path dependence is a key explanation for this kind of outcome. This appears to be a promising line of investigation, as ICANN has never significantly shifted from its original structure as a private, nonprofit corporation with multistakeholder participation.

DATA AND METHODS

With an untested institution involving a complex web of actors and a potentially tangled causal network, qualitative within-case analysis can yield very meaningful results (Bennett 2006: 251). This is achieved by collecting a wide array of relevant data for each point of analysis, including bylaws, policy changes, news articles, first-hand accounts, secondary sources, participation data, government papers and announcements, and Internet statistics. These sources are used to piece together ICANN's entire history from multiple perspectives. Consequently, the predictions of each different hypothesis can be meaningfully compared to the historical record at each point of analysis. The units of analysis are turning points in ICANN's evolution: its formation, its involvement with the United Nations and other organizations during the World Summit for the Information Society, and its shift from U.S. oversight to an international multistakeholder model of governance.

The independent variables for this study vary for each hypothesis. For Hypothesis 1, the independent variables are the power and preferences of states. For Hypothesis 2, the independent variables are the power and preferences of corporations. For Hypothesis 3, the independent variables are the power and preferences of individuals and groups in civil society. For Hypothesis 4, the independent variable is past institutional rules. The dependent variable for all hypotheses is institutional form. Because this is not a quantitative analysis, these hypotheses are not proven with statistical significance. The in-depth, theory-driven historical evaluation of each hypothesis does, however, provide strong indicators in support or refutation of each perspective, and is a solid foundation for future quantitative work.

Here, I describe the different sources of evidence and how they are used in my analysis.

INTERVIEW AND OBSERVATION

Much of my initial work was guided by anecdotal evidence derived from observation of and conversations with ICANN participants. On July 8, 2015 I observed and wrote a record of the hearing titled “Internet Governance Progress After 53” in which Fadi Chehade, ICANN’s CEO at the time, and NTIA Administrator Lawrence Strickling testified before the House Committee on Energy and Commerce Subcommittee on Communications and Technology about ICANN’s progress transitioning IANA authority away from U.S. oversight. I was struck by the intensity of the politics surrounding such a seemingly technical and remote institution.

On July 14, 2016, I attended the Internet Governance Forum-USA annual meeting in Washington, D.C. where I noted the remarkably broad range of issues that were being tied to what I had understood as the narrow term “Internet governance,” including big data, barriers to global Internet access, and digital privacy and security.

On October 7, 2016, I had a phone conversation with Dr. Milton Mueller, an Internet governance scholar at Georgia Tech and long-time participant and leader in ICANN’s non-commercial constituencies, whose writings I draw from extensively in this paper. The conversation helped me to identify key historical points and axes of conflict related to ICANN, namely the importance of the World Summit for the Information Society (WSIS), the reactions by other governments following the Edward Snowden revelations that led to the U.S. approving the IANA transition, and the general tension between proponents of multilateral, state-centered Internet governance and proponents of the multistakeholder approach.

On October 26, 2016, at the invitation of Dr. Mueller, I attended an event at Georgia Tech titled “The Self-Governing Internet” where the NTIA’s Lawrence Strickling was honored for “his leadership in bringing about the privatization of ICANN.” Dr. Mueller spoke as part of a panel, which included Internet Architecture Board Chair Andrew Sullivan, Georgia Tech Professor Peter Swire, and the Internet Society’s Senior Policy Advisor Konstantinos Komaitis. At this event, Strickling emphasized the crucial role played by the Internet expert community—the “techies” as he called them—in governing the Internet, saying that it would not have worked if Internet governance had been handed over to traditional governance mechanisms.

From March 11 to March 16, 2017, I attended the ICANN 58 meeting in Copenhagen, Denmark, where I observed sessions held between ICANN’s Board and its Supporting Organizations and Advisory Committees, as well as other public sessions. I found particularly revealing material at the Joint Meeting between the ICANN Board and the At-Large Advisory Committee on March 14, where Board Members still struggled to define the nature and role of ICANN’s at-large community and, in turn, the at-large community struggled to cohesively define its policy goals.

Ideally, I would have liked to conduct interviews with multiple representatives of each of ICANN’s various stakeholder groups to understand how and why they participate and how they each view their institution’s history and the influences upon it. This would have allowed me to fill in more details in ICANN’s history, and to more intimately understand the power dynamics at play between the various groups. I drafted a general interview template and began to identify potential subjects. However, during the key development stages of the project, I became focused on analyzing the existing written record. Additionally, it became clear that I did not possess the time or resources to conduct the number of interviews necessary to reflect the breadth of

ICANN's multistakeholder community. Given sufficient time and resources, it would be informative to conduct this kind of study of ICANN multistakeholder participation.

BYLAWS

The key measure of the dependent variable institutional form is ICANN's formal rules, namely its Bylaws. I downloaded each of the 39 versions of ICANN's Bylaws from its website on January 19, 2017.⁹ I read and took notes on the original Bylaws from November 21, 1998, the Bylaws as revised on February 12, 2002, April 8, 2005, and July 30, 2014, and the post-transition Bylaws from October 1, 2016, taking note of sections providing formal representation or benefits to different stakeholder groups. I also used ICANN's archive of Board activity to record all Board actions regarding ICANN's Bylaws, which provided a complete overview of the institution's formal change over time. A full record of these actions can be found in Appendix A.

INTERNET GOVERNANCE EXPERT WORKS

Scholars of Internet governance, many of whom have participated extensively themselves in ICANN proceedings, have written detailed accounts of the history of ICANN and the debates surrounding Internet governance. These works are at the center of my analysis, providing a foundation from which to pull out political developments to be analyzed in my own political science framework. I used book length treatments by DeNardis (2009, 2014), Goldsmith et al. (2006), and Mueller (2002, 2010), and articles by Baird (2002), Brousseau et al. (2012), Cukier (2005), DeNardis (2010), Kaplan (1998), Kwalwasser (2009), McLaughlin (2005), Palfrey (2004), Raustiala (2016), Thompson (2004), Trinkunas et al. (2015), and Zittrain (1999).

⁹ ICANN, "Bylaws Archives," 2016, <https://www.icann.org/resources/pages/governance/bylaws-archive-en>.

OFFICIAL DOCUMENTS

I formed my record and understanding of official government and organizational activities through an analysis of public documents posted by ICANN on its website (www.icann.org), documents and press releases posted by the U.S. Department of Commerce National Telecommunications and Information Administration on its website (www.ntia.doc.gov), documents and decisions of the International Telecommunications Union found on its website (www.itu.int), laws and resolutions proposed by the U.S. Congress recorded on its website (www.congress.gov), press releases and official documents published by the White House during the Clinton, Bush, and Obama administrations (<https://clinton5.nara.gov/>, <https://georgewbush-whitehouse.archives.gov/>, and <https://obamawhitehouse.archives.gov/> respectively).

DATA

To quantify certain elements of my analysis, I used publicly available data sets. I define countries' power in terms of the Internet as the percentage of the number of global Internet users constituted by their domestic Internet-using population. The Real Time Statistics Project has created a database of Internet Live Stats drawing data from the ITU, the World Bank Group, the U.S. Central Intelligence Agency, and the U.N. Department of Economic and Social Affairs (<http://www.internetlivestats.com/internet-users/> accessed January 19, 2017). I downloaded their data from 2000 (the earliest year available) to 2015 on the number of global Internet users and the number of Internet users and the Internet penetration rates in each country. Using this data, I calculated the share of the global Internet population for the United States, China, India, Japan, Germany, Australia, Russia, and Brazil for each year from 2000 to 2015. I chose to include the U.S. because of its

centrality to the Internet governance story. I chose Japan, Germany, Brazil, and Australia because of their involvement in ICANN over time (representation on the Board, for example) combined with their consistently large Internet populations. These were potential indicators of power in terms of Internet governance. I chose to include China and India because of their explosive Internet growth that has made them the countries with the two largest Internet-using populations today. Russia is included for political reasons because it, along with China, has been one of the main proponents of multilateral management of the DNS in opposition to the U.S. and its allies.

Another indicator that I would have liked to use to measure countries' power with regards to the Internet is the number of top Internet companies in the world based in each country over time. My intuition was that, in 1998, all of the top Internet companies were located in the U.S., giving it a significant amount of power, but that power diffusion occurred as more and more countries developed their own large Internet companies such as Alibaba in China, Zalando in Germany, and Rakuten in Japan. I searched for the top global Internet companies over time in the World Bank Data Catalog, the Inter-University Consortium for Political and Social Research, the National Bureau of Economic Research, and the Harvard Dataverse, but did not find any data sets matching my inquiry. The closest thing to this information is available through Forbes, which releases a list of the top "Global 500" companies each year. However, Forbes does not provide a description or classification of these companies, and extensive additional research would need to be conducted to look up each of the thousands of companies, to classify them to determine which are Internet companies, then to tally the number of Internet companies for each

country over time. This is a question for future research that can be done given the proper time and resources.

One gauge of corporate influence is corporations' mobilization to attend ICANN public meetings. ICANN has made publicly available its participants lists from 2012 to 2016. Ideally, lists would be available for all of ICANN's public meetings dating back to 1998. I emailed ICANN multiple times to try to acquire this data, but did not receive a response. Further, the 2012-2016 data is not standardized to categorize participants as members of corporations, civil society, or governments. As such, this data set is not useful in providing an overview of stakeholders' participation in ICANN over time. However, I was able to query it for the names of specific corporations such as Verisign and IBM that I know have historically been involved with ICANN to get a sense of their continuing participation.

NEWS ARTICLES

To corroborate developments introduced by the Internet governance literature, I found and used information from news articles published during ICANN's history from a variety of sources. I used Google's news archive to search for articles related to "ICANN," "Internet governance," "the World Summit for the Information Society," and "IANA transition" from 1998 to 2016. All articles used in this paper are included in the list of references, and individual citations are provided for direct references to single articles. Using news articles as evidence not only allows for verification of the timeline, but also gives a sense of how Internet governance issues have been publicly framed by the media over time, which can provide insight as to the political environment within which actors have made decisions.

TABLE 1: Key Periods and Hypotheses
 Darker Shade = Stronger Fit Between Evidence and Theory

	Key Issues	Outcome	States	Corporations	Civil Society	Path Dependence
1997-1999: The Creation of ICANN	Institutionalizing the DNS – who should have central control? Potential models: UN multilateralism, U.S. direct state control, or private sector	U.S. created a private, non-profit, multi-stakeholder institution with oversight by U.S. government, minimal role for other states	U.S. as hegemon driven by economic self-interest, influenced by its corporate and civil society experts Other states wanted DNS control but lacked power	Businesses beginning to profit from domain names Robust American Internet community with ties to government and civil society	Strong community of U.S. Internet experts who believe in multistakeholder governance and have established links to government and private sector	N/A
2002-2005: The WSIS	Multilateralism vs. multistakeholderism Challenges to U.S. control UN forum invites participation by non-experts in Internet governance	States like the UK complained about U.S. control and created forum for dialogue in IGF, but the U.S.-led ICANN did not change structure	U.S. continuing power as largest Internet-using population and industry, though others growing	Still powerful through formal and informal participation, but not driving change because satisfied with status quo	Still powerful through institutionalized influence, but not driving change because satisfied with status quo	Despite states demanding change to ICANN's structure at a large UN Summit, it remains the same
2013-2016: The Transition	Edward Snowden leaks decreasing trust in U.S. role Removing U.S. special role “New” model for global governance	Changed ICANN from U.S. oversight to international multistakeholder model while keeping many existing elements of ICANN like its private-sector leadership	U.S. no longer dominates global Internet use Rise of China Moderately powerful states like Brazil, UK demand change	Private-sector-led model continues, businesses have formal participation Verisign (owner of Network Solutions) continues contract with ICANN to operate the root	Continued strong presence in ICANN structures Participated in transition process and achieved greater representation in Empowered Community	Even with a shift in the balance of power among states causing the U.S. to accept change, all of ICANN's core structures stay intact

ANALYSIS

The structure of this paper's analysis follows ICANN's history, focusing on three key periods: the time surrounding ICANN's creation in the late 1990s, the period of the World Summit for the Information Society in the early 2000s, and the period beginning with the 2013 Edward Snowden leaks that culminated in the 2016 transition. Table 1 contains an overview of this analysis, including the main issues and outcomes for each historical period, as well as the values for each independent variable. For each period, I describe the value of states, corporations, civil society, and path dependence. I use shading to indicate the degree to which the evidence evaluated in the analysis suggests that the particular factor was significant to institutional form at that point. Appendix B contains a more detailed timeline of ICANN's history. The following detailed analysis includes an evaluation of the evidence relevant to each of the four hypotheses during each of the historical periods highlighted.

THE CREATION OF ICANN

UCLA researcher Jon Postel was one of the co-creators of the ARPANET, the network that eventually became what we know as the Internet. From the beginning of the Internet, Postel volunteered to perform the IANA functions of maintaining the network's root zone of top-level domains in contract with the U.S. government. By the mid-1990s, however, the Internet was rapidly growing and becoming global in scope, and the domestic and international communities, including Postel himself, began to recognize that the DNS could not continue to be managed by a single person. Additionally, as a commercial market for domain names emerged, the stakes grew higher and new kinds of actors became interested in the problem of DNS management (Mueller 2002: 67, Raustiala 2016: 4).

Throughout the early 1990s, competing proposals for governance were put forth by the U.S. government, alternative root servers, and the Internet Society, a loose organization of corporate and technical entities that included subgroups of Internet experts called the Internet Engineering Task Force (IETF), the IANA committee, and the Internet Architecture Board (IAB), which were at the time involved in performing Internet governance functions involving numbers, names, and protocols, respectively. Debate between these groups did not result in policy, but drew additional attention to the Internet governance question.

Realizing that it needed new ideas to move forward with an institutional solution, in 1996 the Internet Society convened an 11-member panel of representatives of trademark and intellectual property interests, academia, and IBM called the International Ad Hoc Committee (IAHC) aimed at developing a plan for global governance of the DNS (Mueller 2002: 142). The resulting plan formulated by the IAHC was called the Generic Top-Level Domain Memorandum of Understanding (gTLD-MoU) and it involved the international management of the DNS by a committee comprised of representatives of the Internet Society, a Council of Registrars (CORE), and the United Nations' World Intellectual Property Organization (WIPO) and International Telecommunications Union (ITU). The gTLD-MoU involved taking away the American company Network Solutions' control of the .com, .net, and .org registries. Understandably, the ITU's Secretary-General, Dr. Pekka Tarjanne, praised the IAHC's plan for Internet governance, calling it "voluntary multilateralism" and moving forward by circulating it within the telecommunications industry¹⁰. The ITU arranged for a signing ceremony in Geneva,

¹⁰ ITU, "Internet Governance: Towards Voluntary Multilateralism," 1997, <http://www.itu.int/newsarchive/projects/dns-meet/KeynoteAddress.html>.

Switzerland in April 1997 that drew support from 80 different organizations.¹¹ It did not invite the U.S. or any national governments (Goldsmith et al. 2006: 40). Confident in its new arrangement, the ITU began moving forward with plans for implementation.

The U.S. was not content to sit back while an IGO seized control of Internet governance, however. Clinton Internet policy advisor Ira Magaziner had for several years been interested in commercializing the Internet for the benefit of the U.S. economy and government (Goldsmith et al. 2006: 40), and he explicitly focused on private sector leadership as a guiding principle (Mueller 2002: 156). He took the lead for the U.S., putting together his own working group of government employees in response to the gTLD-MoU. Network Solutions, the key private sector target of the MoU, which was just beginning to reap large financial rewards from its control of the .com domain, decided to align itself with the U.S. government to support its claim for the root along with other major Internet companies including MCI Telecommunications, IBM, PSINet, and AT&T who appreciated Magaziner's support for the private sector (Mueller 2002: 148, 156). Further, U.S. civil society groups representing non-commercial Internet issues such as civil liberties were concerned by the lack of representation afforded by the gTLD-MoU to civil society, and they, too, decided to support the U.S. position.

The gTLD-MoU coalition, though threatened by this growing U.S. response, continued moving forward with its implementation, rallying support from European and Asian companies and hoping that it would gain enough buy-in and legitimacy to automatically gain control of the DNS. On January 28, 1998, however, the NTIA, the branch of the U.S. Commerce Department tasked with acting on the working group's recommendations, published a Notice of Proposed Rulemaking known as the "Green Paper" explicitly stating the U.S. government's intention to

¹¹ ITU, "80 Organizations Sign MoU to Restructure the Internet," 1997, http://www.itu.int/newsroom/press_releases/1997/itu-08.html.

assume authority in Internet governance while also emphasizing the role to be played by the international stakeholder community and the private sector.¹²

Following this action, Magaziner met with Postel, who had signed the gTLD-MoU, to reinforce the reality that the U.S. government would be involved in Internet governance. In response to this, Postel, intent on proving that true power did and should reside with Internet engineers and experts, took action to shift parts of the root zone away from Network Solutions to IANA (Goldsmith et al. 2006: 44). When the U.S. government heard of this attempted subversion, it ordered Postel to return the root to its original state, threatening legal action, and Postel complied.

During the spring of 1998 following the release of the Green Paper, American business lobbying groups led by IBM and MCI successfully formed a “dominant coalition” in support of U.S. control (Mueller 2002: 168). These business leaders had close ties to the Clinton administration, speaking on a personal basis with Magaziner and hiring former administration employees to join their lobbying efforts (Mueller 2002: 169). They actively encouraged Magaziner to support private sector-led solutions. Domestic members of the dominant coalition were businesses and technical experts who had worked closely with the U.S. government in the 1980s on the Internet’s architecture who had thereby established lasting professional connections there.

While the U.S. government received public input on its Green Paper proposal, Postel formed his own IANA Transition Advisors Group (ITAG) to help him plan to transition the IANA functions to a new international nonprofit corporation.

¹² U.S. NTIA, “Proposed Rule on the Improvement of Technical Management of Internet Names and Addresses,” 1998, <https://www.ntia.doc.gov/federal-register-notice/1998/improvement-technical-management-internet-names-and-addresses-proposed->.

On June 3, 1998, after receiving input on the Green Paper, the U.S. government released a new statement of policy known as the “White Paper” stating that the government would recognize a new not-for-profit corporation for Internet governance created by the private sector, requiring only that it be headquartered in the United States, that its board of directors reflect international and multistakeholder diversity, that government entities not be allowed on its board, and that it operate through open and transparent processes.¹³ It stated that it needed a solution by September 30, when the current IANA contract would expire.

Following this publication, civil society organizations, other countries, and some businesses organized into the International Forum on the White Paper (IFWP) in an effort to build consensus on the rules for a new corporation for Internet governance. Concurrently, refusing to participate in this public process, Postel began working with his lawyer to write articles of incorporation and bylaws for the new corporation, intending to act on his own with input from the dominant coalition of Internet elites (Mueller 2002: 176-177). Though, publicly, an open process occurred to develop new rules, the bylaws for ICANN actually emerged from last-minute negotiations encouraged by Magaziner between IANA (Postel and his people) and Network Solutions (Mueller 2002: 179). Postel unilaterally selected a list of nine initial board members, four of whom were from U.S. academia or corporations, the rest from the Netherlands, Australia, France, Spain, and Japan (see Appendix C).

The U.S. government approved these bylaws, with the stipulation that the initial board must create a membership structure to directly elect nine additional At-Large Board Directors.

¹³ U.S. NTIA, “Statement of Policy on the Management of Internet Names and Addresses,” 1998, <https://www.ntia.doc.gov/federal-register-notice/1998/statement-policy-management-internet-names-and-addresses>.

This was a response to the IFWP and other civil society demands for more accountability and openness.

The Bylaws for ICANN that were effective as of November 21, 1998 governed a nonprofit public-benefit corporation with its primary office in Los Angeles, California. In general, they stated that ICANN must operate under principles of openness, transparency, and fairness. This included providing public notice and comment periods and holding public forums to discuss all policies being considered. Any person or entity affected by ICANN's activities could request review or reconsideration of any action taken by the Board. ICANN's officers would be elected annually, including a President/Chief Executive Officer, a Secretary, a Treasurer/Chief Financial Officer, and a Chief Technology Officer.

The Board of Directors was entitled to exercise powers, control property, and conduct business for ICANN, acting by a majority vote of those present at meetings. It could set fees and charges for ICANN's services to reasonably recover its costs of operation, and could alter, amend, repeal, or adopt Bylaws for ICANN by a 2/3 vote of all its members.

The Initial Board consisted of nine unpaid At-Large members (the ones selected by Postel), serving until September 30, 1999 unless extended to serve until 2000 by a majority vote of the Board. No At-Large member could serve another term until two years had elapsed after the conclusion of his or her initial term. The Board was required to conduct its business at annual meetings open to the public and regularly held at locations around the world. After the Initial Board, Board Directors would be elected at the Board's annual meetings to serve a regular term of three years with no more than two terms for any given Director. The Board would consist of no fewer than nine and no more than 19 members. Its membership was to consist of three Directors nominated by the Address Supporting Organization (ASO), three Directors nominated

by the Domain Names Supporting Organization (DNSO), three Directors nominated by the Protocol Supporting Organization (PSO), nine At-Large Directors to be selected through a process to be established by the Initial Board, and the President/CEO of ICANN. The Board would elect a Chairman from among its members, excluding ICANN's President. No person who was an official of a national government or a multinational entity between governments could serve as a Director. There always had to be at least one citizen of a country from each of the following five geographic regions: Europe; Asia/Australia/Pacific; Latin America/Caribbean Islands; Africa; and North America. At any given time, no more than half of the At-Large Directors or the Board as a whole could be from the same geographic region.

ICANN's SOs were defined as advisory bodies to the Board. The SOs' first responsibility would be to nominate Board Directors. They were also delegated the responsibility of developing and recommending policies and procedures related to their scope. The Board would accept a policy proposal from an SO if it was deemed to further the purposes of ICANN, to comply with the Bylaws, to have been decided fairly and openly, and to not have been reasonably opposed by other SOs. When an SO submitted a proposal to the Board, it would also be transmitted to all other SOs for their input. If the Board rejected a recommendation from an SO, it would return the policy to the SO for consideration with an attached explanation of the rejection. Though the Board could create any new SOs it saw fit, the initial required SOs were the ASO, the DNSO, and the PSO. The ASO would include representatives from regional Internet address registries and other legitimate interests and would create an Address Council to make recommendations to the Board. The DNSO would include representatives from name registries and registrars of TLDs, businesses, and other entities that use the Internet and would create a Names Council to make recommendations to the Board about TLDs and the DNS. The PSO would include

representatives from Internet protocol organizations and others with legitimate interests and would create a Protocol Council to make recommendations to the Board. To gain approval as a new SO, a group needed to submit to the Board an application including its membership or participation criteria, the methods for developing its policies, its assurances of open, transparent, fair, and non-discriminatory processes, and its methods for funding itself and ICANN.

The Board could also establish any committees it saw fit. There were two kinds of committees: Committees of the Board composed of Board members with legal authority to act on behalf of ICANN, and those without legal authority, called Advisory Committees (ACs), whose membership was more flexible. The Board was to appoint all committee members, and could remove them by a 2/3 vote. The Board could delegate any business to committees except for decisions to fill vacancies on the Board, to amend, repeal, or adopt Bylaws or Articles of Incorporation, to approve the annual budget, or to compensate an ICANN officer. Though the Board could create any ACs it saw fit, the Bylaws required the creation of four initial ACs. The Government Advisory Committee (GAC) would consist of representatives of national governments, multinational government organizations, and treaty organizations and would provide advice on ICANN activities related to government concerns. The DNS Root Server System Advisory Committee (DRSSAC) would advise the Board about the operation of the root name servers of the DNS. The Advisory Committee on Membership would advise the Board on the creation of a membership structure, and would exist until it determined a process to elect ICANN's At-Large Directors. It would consist of Board Directors and other members appointed by the Board. Its Chairman would be a Board Director appointed by the Board. The Advisory Committee on Independent Review would advise the Board on the creation of an independent review process for ICANN, and would exist until the Board adopted such a process. It would

consist of Board Directors and other members appointed by the Board. Its Chairman will be a Board Director appointed by the Board.

The initial phase of ICANN's history surrounding its creation supplies strong evidence for the influence of states, corporations, and civil society. The U.S. acted as a hegemon, powerful with regards to the Internet through its possession of the experts who created the Internet, the world's leading Internet companies, and the largest population of Internet users of any country at the time.¹⁴ International disagreement existed over Internet governance, and multiple competing solutions were proposed, but the U.S.'s ability to provide stable, informed oversight led to the formation of a dominant coalition around its interests. As acknowledged by Magaziner, U.S. state interests on this issue were to advance the American economy by supporting private sector-led solutions that would inevitably be dominated by American Internet companies (Goldsmith et al. 2006: 40-42, Mueller 2002: 148, 156). Hypothesis 1 also explains why the IGO bureaucrats at the ITU were not ultimately influential in decision-making. With the guidance of its own robust private sector and civil society expertise, the U.S. saw and seized an opportunity to create institutional arrangements that would satisfy its domestic interests and give itself a special role in relation to the Internet, avoiding the multilateral outcomes that would have resulted from ITU leadership that would have relegated the U.S. to one voice among many nations. By acting as a hegemonic first-mover, the U.S. was able to minimize other countries' interests to their representation on a purely advisory body, the Government Advisory Committee.

Hypothesis 2 predicts that corporations would influence institutional arrangements by mobilizing their significant resources to meaningfully participate and to gain institutionalized authority. Because of the American Internet private sector's close ties to government officials

¹⁴ The World Bank, "Internet Users (Per 100 People): 1998," 2016, <http://data.worldbank.org/indicator/IT.NET.USER.P2?view=map&year=1998>.

that resulted from the original private-public partnership to create the Internet in the 1980s, corporations could take advantage of professional linkages to gain this kind of informal and formal influence. This is reflected in the fact that ICANN's Bylaws were ultimately decided in a back-channel dialogue between the most powerful DNS company, Network Solutions, and government and technical experts. As a result, the Bylaws did not create opportunities for other registries to compete with American dominance of the TLD space, and the institutional structure provided representation for corporations through Board seats and membership in Supporting Organizations.

At this stage, American civil society won a large victory. As predicted by Hypothesis 3, the issue of the Domain Name System was technical and not easily understood or managed through traditional government avenues. Not only did a strong epistemic community of Internet engineers exist for Internet governance, but this community was the entity that controlled the DNS before ICANN. As the DNS maintainer with significant expertise and ties to the entire Internet architecture community, Jon Postel wielded heavy authority in the creation of ICANN, as evidenced by the fact that the U.S. government accepted (almost fully intact) his proposed Bylaws for a new corporation. Postel believed, as did the Internet technical community, that Internet governance would be best administered with strong leadership from the private sector and Internet expert community. The Internet, experts said, was distributed and open in nature, and therefore necessitated non-traditional open, multistakeholder mechanisms to govern it. By permeating government and private sector decision-making with this worldview, and by possessing existing control over Internet architecture, these experts got their way.

This point of analysis sets the stage for future analysis of Hypothesis 4 about path dependence. ICANN's original Bylaws gave formal avenues for participation from the private

sector and civil society, as well as members of a to-be-determined at-large community. The U.S. government occupied a special role as the oversight entity for ICANN, and the initial Board was halfway comprised of Americans. This initial Board was granted significant authority over the future of the institution, with the ability to approve of voting procedures, policy precedents, membership statuses, the appointment of future Board members, and the filling of committees. All of these decisions would be made by the group of initial Board members hand-selected by Jon Postel. Additionally, the creation of ICANN was the result of a long and painful debate over how to institutionalize Internet governance. Sunk costs had been paid with the understanding that these new principles of private sector and civil society leadership and global multistakeholderism were there to stay, at least for a while.

THE WORLD SUMMIT ON THE INFORMATION SOCIETY

In 2001, the UN General Assembly passed a resolution putting the ITU in charge of convening a World Summit on the Information Society (WSIS) to address global issues of connectivity and information technology.¹⁵ The Summit took the form of two phases of multilateral conferences, played out between 2002 and 2005, the first held in Geneva, Switzerland and the second in Tunis, Tunisia. The WSIS was the first opportunity since ICANN's creation for the international community to address American dominance of Internet governance (Mueller 2010: 60). Again, it created conflict between ideas of multistakeholderism and multilateralism, with the ITU making a renewed effort to capture control of the DNS (Mueller 2010: 58). Though this tension between U.S.-led multistakeholder governance and multilateral governance had existed since the early 1990s, Mueller notes that, at this particular

¹⁵ United Nations, "Resolution Adopted by the General Assembly 56/183: World Summit on the Information Society," 2001, http://www.itu.int/net/wsis/docs/background/resolutions/56_183_unga_2002.pdf.

moment, the U.S. invasion of Iraq had served to further aggravate the international community, decreasing other nations' trust in America's ability to make responsible decisions affecting the global community (Mueller 2010: 69).

The first phase of the WSIS produced the "Geneva principles," which called for the multilateralization of Internet governance where decision-making would be conducted primarily between sovereign states.¹⁶ Naturally, the ITU would like to lead this new arrangement. The Geneva principles were not a charter for a new institution, but simply a statement of ideas. The UN was too broad a forum for specific policy recommendations to emerge quickly. It conflated with technical Internet governance topics ideas of global connectivity, the "digital divide," and human rights issues, which in general served to expand and confuse the public's understanding of "Internet governance."

The main substantive outcome of the Geneva phase was to create the UN-led Working Group on Internet Governance (WGIG) to further discuss options for the future of Internet governance. Throughout the early 2000s, this group convened to work on a proposal. However, in 2005, just before the WGIG was set to publish its recommendations, the U.S. NTIA released a statement titled "U.S. Principles on the Internet's Domain Name and Addressing System" reaffirming its "historic role" with respect to the root.¹⁷ In short, the U.S. would not budge. In recognition of international frustration, it granted the minor concession of agreeing to address concerns about country code Top-Level Domains (ccTLDs) that had been expressed at the WSIS. Following this statement, the European Union, led by Great Britain, publicly broke with

¹⁶ International Telecommunications Union, "Declaration of Principles: Building the Information Society: a global challenge in the new Millennium," 2003, <http://www.itu.int/net/wsis/docs/geneva/official/dop.html>.

¹⁷ U.S. NTIA, "U.S. Principles on the Internet's Domain Name and Addressing System," 2005, <https://www.ntia.doc.gov/other-publication/2005/us-principles-internets-domain-name-and-addressing-system>.

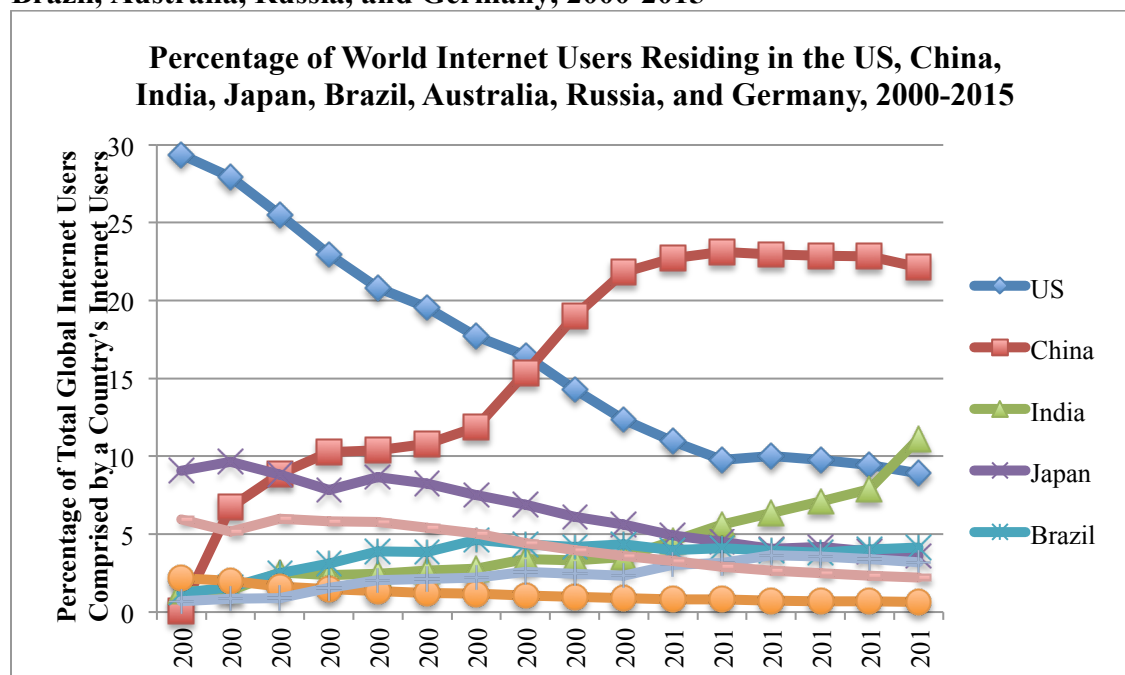
the U.S. by demanding the internationalization of the DNS (Mueller 2010: 74). Again, however, this did not result in substantive policy change (Brousseau et al.: 380-381). With the understanding that institutional arrangements were not shifting, the outcome of the second phase of the WSIS, called the “Tunis Agenda,” settled for the creation of the Internet Governance Forum (IGF) to hold additional multistakeholder discussions of Internet governance around the world (DeNardis 2014: 229). The IGF provided a way for critics of the status quo to continue to have a voice, but did not have any policy authority.

Following the WSIS, ICANN’s Bylaws did not substantively change. On February 28, 2006, it made one adjustment in accordance with ccNSO recommendations to adopt processes to make it easier for ccTLD managers participate in ICANN, an apparent attempt to address international concerns. However, a month later it rejected a proposed bylaws change that would give the ccNSO more power (see Appendix A)..

Institutional change—or lack thereof—during the WSIS period is best explained by Hypothesis 1 and Hypothesis 4. During this time, other nations under the multilateral structure of the United Nations denounced existing institutional arrangements and called for a complete overhaul, putting processes in place to construct a new UN-led solution for global Internet governance. The U.S., recognizing its continued dominance, did not respond with institutional changes, but rather a statement affirming its intentions to maintain control of the DNS. In the early 2000s, the U.S. far outweighed all other countries in terms of its representation in the number of global Internet users. Figure 2¹⁸ shows the U.S. percentage compared to those of the other leading countries.

¹⁸ Calculations involving data from Internet Live Stats (<http://www.internetlivestats.com/internet-users/>, accessed March 6, 2017), an elaboration of data from the ITU, the World Bank, and the UN Population Division.

FIGURE 2: Percentage of World Internet Users Residing in the US, China, India, Japan, Brazil, Australia, Russia, and Germany, 2000-2015



Though in the early 2000s the U.S. share was steadily decreasing in relation to the global pool of Internet users, it still dominated the market. Additionally, though other countries were unsatisfied with the politics of it, the existing institutional arrangement was working. The global DNS was stable and operational, and stakeholders had the opportunity to voice their opinions and policy goals. Other countries could complain, but did not exert legitimate pressure on the U.S. that was strong enough for it to break from its comfortable present state.

Corporations did not play a major role during this phase, as the main conflicts played out between national governments and IGOs, while the Bylaws affecting corporations remained the same. ICANN's Board continued to represent U.S. corporations and technical experts more than any other country, though participation by new countries began to rise. Appendix C contains a breakdown of the background of ICANN Board members from 1998 to 2007.

THE TRANSITION

In 2013, a major shock to the system of Internet policy occurred. Former government contractor Edward Snowden publicly leaked classified government documents revealing that the U.S. government had been engaged in mass digital surveillance of its citizens and the citizens of other countries. Like with the earlier U.S. invasion of Iraq, this event drew widespread criticism of the American government that pervaded different policy spheres such as Internet governance, again reigniting other states' discomfort with the U.S.'s authority. The Snowden revelations were newly impactful in this regard, though, because not only did they weaken general trust in the U.S., but they were also directly related to Internet issues. This event revived and enflamed the international community's long-standing discontent with American dominance of ICANN and reinvigorated efforts to change the status quo (Raustiala 2016: 12).

On October 7, 2013, the leaders of global Internet infrastructure organizations met in Montevideo, Uruguay and released the "Montevideo statement" calling for the acceleration of the globalization of ICANN and the IANA functions, and warning about the alternative of the Internet fragmenting along national boundaries.¹⁹ This statement was reminiscent of past international demands for globalization, but with a few key circumstantial differences.

This time around, the international community had a particularly strong grievance with the existing arrangement, accompanied by a new balance of power in the Internet space. Figure 2 illustrates a steady decline in the United States' share of the world's Internet population, declining from nearly a third of the world's user in 2000 to less than a tenth in 2013. Pressure on the U.S. did not come from European Union countries overtaking its share of the Internet population; these countries still lagged behind the U.S.'s Internet market. Instead, the U.S.

¹⁹ World Wide Web Consortium, "Montevideo Statement on the Future of Internet Cooperation," 2013, <https://www.w3.org/2013/10/montevideo.html.en>.

became genuinely concerned by requests to multilateralize Internet governance from authoritarian states including China, which had indeed overtaken the U.S. in terms of share of the global Internet market. To prevent what it viewed as a catastrophic result of Internet fragmentation and multilateral, state-led Internet governance, the U.S. finally agreed enter into meaningful conversation and action towards globalizing ICANN and removing its special oversight authority. Through the subsequent transition process, the U.S. avoided its least preferred outcome by allying with states who had come to believe in the multistakeholder model, and achieved the best possible outcome for itself given the pressures to change, namely the continuance of ICANN's existing structures that privileged U.S. corporations and civil society with relatively minor revisions.

On March 14, 2014 in response to the Montevideo statement, the Obama administration announced its plan to transition ICANN to full autonomy, emphasizing that it would not support a government-led, multilateral solution and that the security, stability, and resiliency of the DNS should be of the utmost importance.²⁰ The next month, Brazil, a country whose leader, Dilma Rousseff, had been revealed to have been spied on by the U.S. NSA, succeeded in bringing the U.S. into discussion of Internet governance. During the NetMundial meeting in Brazil from April 23-24, countries including China, Russia, Tajikistan, and Uzbekistan proposed a UN framework for Internet governance (Kelion 2014). The U.S. successfully allied with Australia and some European countries to express support for the continuance of the multistakeholder model. One official from the United Kingdom was quoted as saying, "It is much more difficult to develop a new and better model than the one which we have now" (Kelion 2014). The "roadmap" that

²⁰ U.S. NTIA, "NTIA Announces Intent to Transfer Key Internet Domain Name Functions," 2014, <https://www.ntia.doc.gov/press-release/2014/ntia-announces-intent-transition-key-internet-domain-name-functions>.

emerged from the NetMundial meeting, in line with the U.S. coalition, called for a global multistakeholder model to take over management of the DNS.²¹ This is the clearest indicator of path dependent mechanisms at work. Even though other countries had expressed continuous discontent with the existing institutional arrangement, at the key moment of upheaval, they agreed to keep as much of the existing institution as possible in the interest of stability and ease. The principles established at the creation of ICANN of private sector leadership and multistakeholderism had perpetuated and cemented themselves as the preferences of a variety of actors, even those who had originally opposed them.

During this time, the NTIA called upon ICANN to gather the input of the global multistakeholder community, including “private-sector representatives, technical experts, academics, civil society, governments and individual Internet end users,” to come up with proposals to replace the NTIA’s oversight role.²² The NTIA set the requirements for the transition plan, saying that any replacement of the U.S. role must uphold the multistakeholder model and maintain the security, stability, and resiliency of the DNS and the openness of the Internet.²³ ICANN convened working groups on all of the elements of the transition plan through the use of its existing structures, and formulated a plan.

The resulting Bylaws, adopted on October 1, 2016, outlined the same essential multistakeholder structure as ICANN had always had, with an Address Supporting Organization (ASO), a Country-code Names Supporting Organization (ccNSO), a Generic Names Supporting

²¹ NETmundial, “NETmundial Multistakeholder Statement,” 2014, <http://netmundial.br/netmundial-multistakeholder-statement/>.

²² ICANN, “Stewardship of IANA Functions Transitions to Global Internet Community as Contract with U.S. Government Ends,” 2016, <https://www.icann.org/news/announcement-2016-10-01-en>.

²³ U.S. NTIA, “NTIA Finds IANA Stewardship Transition Proposal Meets Criteria to Complete Privatization,” 2016, <https://www.ntia.doc.gov/press-release/2016/iana-stewardship-transition-proposal-meets-criteria-complete-privatization>.

Organization (GNSO), a Government Advisory Committee (GAC), a Security and Stability Advisory Committee (SSAC), a Root Server System Advisory Committee (RSSAC), and an At-Large Advisory Committee (ALAC). All of these structures had existed in ICANN's Bylaws before the transition. To take over the IANA functions, ICANN created a new nonprofit corporation, incorporated in California, called Public Technical Identifiers (PTI). The Bylaws created multiple accountability mechanisms to oversee PTI's naming activities, as well as independent review mechanisms for ICANN as a whole by the Ombudsman and review powers for the Board to review any of its SOs or ACs.

The key change to ICANN's Bylaws, other than the removal of U.S. oversight powers, was to create an Empowered Community (EC) consisting of the ASO, the ccNSO, the GNSO, the ALAC, and the GAC with the power to appoint Directors, to recall the entire Board, to reject budgets and strategic plans, to reject and approve Bylaw amendments, and to reject actions by PTI. This represents an enhancement to the multistakeholder model, with direct avenues for the multistakeholder community to affect and even to reject Board actions rather than simply participating in development processes. The GAC maintained its status as an advisory body, having the authority to appoint Non-Voting Liaisons to the Board, not voting Directors. However, the GAC's inclusion in the EC represents an increase in the decision-making authority given to it because the EC as a whole can impact ICANN policies in a way that the GAC never could in the past.

This development reflects the continuing significance of states. An increasingly powerful international community of governments gained greater formal influence through the elevation of the GAC and the removal of the United States' hegemonic role to reflect the new, more even distribution of power. Mainly, though, ICANN's evolved Bylaws were a natural extension of the

multistakeholder process established at the institution's creation, suggesting again the importance of path dependence to explaining ICANN's history. Despite the fact that the change to ICANN's structure came from demands for overturn of the U.S. system, the new Bylaws are, at their core, a strengthening of the principles laid out by Jon Postel and the U.S. private sector in 1998. Path dependence has sustained and solidified the centrality of the Internet technical community in ICANN's operations and values. Technical experts holding the community's long-existing belief in the value of multistakeholder governance took the lead in the transition process, and acquired for themselves increased influence through the powers of the EC.

Concerning corporate interests, ICANN continues to be dominated by the private sector of highly mobilized, informed Internet companies that are well-represented in ICANN's SOs and Board seats. As Internet populations have grown outside the U.S., so have Internet businesses. These new corporate actors are participating in ICANN. For example, Australian registry interests have captured multiple seats on ICANN's current Board of Directors. The corporate playing field is not level, though, even in ICANN's post-transition environment. Verisign, the company that purchased Network Solutions in 2000, continues to be heavily represented at ICANN public proceedings, and, most importantly, continues to operate the maintenance of the root zone file in contract with ICANN. Because of its proven expertise performing this function, as well as its long-established channels of influence and participation, Verisign continues the legacy of American corporate influence in ICANN even as the U.S. has formally vacated its special role.

FINDINGS AND CONCLUDING REMARKS

ICANN's rich and complex history lends substance to each of the hypotheses chosen for this paper. In determining who and what influenced institutional arrangements, states,

corporations, and civil society all played a role. In this way, ICANN is truly an experiment in multistakeholder governance. However, opportunities to participate, though they may appear to be open to non-experts and general Internet users, do not treat all actors equally. Those who have been able to influence ICANN's structure, namely the U.S. government and other national governments, large Internet corporations, and the Internet technical community, have all possessed substantial resources of wealth and/or information to enhance the value of their participation. Through its hegemonic power, the U.S. was able to sidestep attempts by international bureaucracies to seize control of Internet governance, and continued to avoid multilateralization through its power and through path dependence, which meant that the original institution created by the U.S. became more and more appealing to a variety of actors as they became familiar with its processes, resulting in minimal changes to institutional form even when power dynamics shifted.

Corporations and epistemic communities were able to wield power around and within ICANN because of their experience, expertise, and incentive to participate. From these resources, these actors were able to achieve institutionalized influence at ICANN's foundation through the creation of a private, multistakeholder model. This influence was only magnified as ICANN reaffirmed its commitment to this model in the face of alternative arrangements proposed by the ITU and by authoritarian states.

Though I tested three different hypotheses for three different types of actors, it was often difficult to separate them in an analysis of ICANN's history. The public good of the Internet was created in the U.S. as a collaboration between the government, private sector, and expert civil society. During this time, actors from each group influenced each others' worldview about the Internet, and established linkages for future interaction. When ICANN was formed by the U.S.

government, it was in close consultation with American corporations and technical experts, and it is therefore difficult to untangle whether any actors exerted unilateral influence on institutional form and which actors were the most influential over all. It is clear, though, that none of the actor-centered hypotheses on its own can explain ICANN's history.

THEORETICAL IMPLICATIONS

The finding that there is significant overlap between hypotheses about the role of states, corporations, and civil society in shaping institutions has broader implications for international politics. When state power and preferences are so closely linked to those of the private sector and of civil society, who is really controlling outcomes? This paper contributes to theories advancing the notion that analysis of international decision-making must be widened to consider the role of new kinds of actors. It also suggests that future analyses along these lines should dig deeper to attempt to establish directionality of influence among actors.

That corporations and civil society experts are able to influence outcomes in the case of ICANN also sheds light on general questions about how various actors can acquire power. I have found that, in Internet governance, conditions of issue-area expertise, financial resources, and strong incentives to participate are what allow actors to influence outcomes. By showing up, knowing the ropes, and productively expressing their preferences, businesses and experts become a meaningful voice within and surrounding international institutions. This is generalizable to the understanding of why, in any international multistakeholder decision-making setting, many actors come to the table but only some achieve their goals.

This paper has not definitively determined whether ICANN is truly a revolutionary model for global governance. It has, however, generated a description of the conditions that led to the private sector-led international multistakeholder model that can be utilized in comparative

settings to see if any other issues have or have potential to generate similar institutions. I have found the most compelling and distinctive fact about conditions leading to ICANN's particular form to be the existence of a strong epistemic community around Internet governance that had developed its own worldview well before Internet governance became a topic of formal state action. The Internet community, led by Jon Postel, fervently believed in the importance of the Internet's character as a global public good arising from bottom-up, distributed systems and the subsequent necessity of innovative, bottom-up, multistakeholder governance mechanisms to suit it. It did not matter whether the Internet truly was revolutionary in a way that demanded change, but rather that its architects believed this and pushed for such innovations. Looking at other cases of the international spread of connected technologies, it would be useful to examine whether the presence of preformed epistemic communities with cohesive beliefs about interoperability are necessary and/or sufficient to cause the creation of "new" kinds of institutions like ICANN.

FURTHER STUDY

The intent of this paper has been to provide a foundation for future work on Internet governance and on international relations in general. There is ample opportunity for quantitative analysis to more robustly support the findings of this paper. ICANN publishes most of its activities on its website, including email exchanges, proposed rulemakings, and meeting notes. Additionally, new kinds of algorithmic language analysis could be used to compare language used by different stakeholder groups during policy development (as evidenced by proposed rulemaking documents) to language used in final policies, thereby illustrating in more detail whose preferences are reflected in outcomes. Finally, as mentioned in other sections, work comparing ICANN to other international institutions will shed light on whether something new

has really happened with Internet governance, or whether conditions of pre-existing epistemic communities have given rise to other similar multistakeholder arrangements.

COMPARISON TO ALTERNATIVE SYSTEMS

At each of the turning points in ICANN's history, multiple dramatically different outcomes could have occurred. Without the presence of a cohesive technical expert community in the United States with well-established beliefs about Internet governance, it is not likely that ICANN would have been the experiment in multistakeholderism that it turned out to be. Before this community's involvement, the contending proposals were for complete corporate management without outside participation, top-down U.S. government control, and multilateral management by the United Nations. Any of these outcomes could reasonably have come to fruition if not for the particular collaborative efforts engaged in by Jon Postel, the NTIA, and U.S. Internet companies with input from the international community. Specifically, the belief by technical experts that the Internet required new, innovative, distributed governance mechanisms guided the particular features of ICANN. After its creation, the ITU and other countries made multiple efforts to regain control from ICANN and to change the methods of Internet governance. Path dependence and continuing U.S. government, corporate, and expert power best explain ICANN's resistance to these attempts.

It is important to the nature of today's Internet that ICANN was originally structured the way that it was. Adopting a single institutional point of control for a global public resource such as the Internet and including multistakeholder participation mechanisms was not the only or the most obvious potential governance outcome. It is interesting to speculate how the Internet might look today if, for example, it took the path of the telephone system, which has fragmented communication networks to a national level. Each country has its own code and has national or

regional companies that provide service. Special coordination must occur for international calls to be made across these different codes. An Internet governed in this way would involve multiple points of control for a series of national and regional networks, each with their own systems for managing domain names. Information would not flow freely across borders as it does in most cases under today's system.²⁴ There is ample opportunity for comparative work to focus on the conditions that give rise to fragmented versus interoperable global technology management regimes. I have not engaged in comparative work in this paper, but my analysis suggests that the presence of an epistemic community that believed in global interoperability, which had formed *before* the Internet was subject to government control, contributed greatly to the global, multistakeholder solution that was eventually implemented.

IMPLICATIONS FOR ICANN

This analysis is a crucial first step towards revealing ICANN's nature and its importance in the world of international politics. I have centered the role of powerful states and corporations in the history of an institution that constantly tries to maintain a public image of equality and inclusion for all participants and to downplay the dominance of these privileged actors. For ICANN to truly operate with multistakeholderism, it should more directly address the clear history of U.S. dominance, a story that it often downplays. This would include assessing whether ICANN's policies are designed to privilege American businesses, whether Americans are overrepresented in its leadership structures, and whether ICANN's core values are American or global at heart.

Another part of this self-awareness is for ICANN to address the gap between how it talks about non-expert participants such as human rights groups and Internet end-users and how it

²⁴ This is excluding cases such as China, Russia, and North Korea, which exercise significant controls over domestic data flows through censorship and nationally controlled infrastructure.

actually incorporates their input into decision-making. At this critical juncture of the 2016 transition, inclusivity and transparency are at the forefront of ICANN conversations. From here, several branching possibilities arise. ICANN could continue to claim widespread inclusivity of non-experts while in reality relegating their role to discussion-only without any real policy influence. Alternatively, it could take new stakeholder input more seriously. This would likely involve granting even more power to the At-Large community, continuing to make processes more transparent and accessible, and broadening ICANN's jurisdiction to make decisions on less technical topics such as cybersecurity, censorship, and human rights. This paper does not determine which of these paths will be better for Internet governance. The outcome will depend on the wideness or narrowness of the worldview adopted by the dominant players in this new iteration of ICANN.

As ICANN continues to implement its transition and its structures allow for increased international participation and influence, the power distribution must be reassessed. The world order that gave rise to a U.S.-led Internet governance solution still resonates in ICANN's structures, but is disappearing with the rise of China and India in the world economy. China has historically argued for multilateral Internet governance, but has historically lost. ICANN has so far remained stable with its U.S.-created multistakeholder structures through multiple points of disruption. The kind of analysis that I have done in this paper should be revisited in coming years, though, if China continues to accumulate power, or if the state power distribution changes in other meaningful ways. Is path dependence strong enough in this case for ICANN to continue as-is for another 20 years, or will the status quo finally be disrupted powerfully enough for the institution to be radically altered or abandoned? Only time will tell.

APPENDIX A

ICANN Board Activity, 1998-2016

Date	Board Action
Mar. 6, 2004	Created the Country Code Names Supporting Organization (ccNSO)
Jul. 23, 2004	Agreed to support the WSIS by contributing any relevant information about ICANN processes
Dec. 20, 2004	Agreed to give \$100,000 to the UN Global Information and Communication Technology Project to support the WSIS
Apr. 8, 2005	Amended the Bylaws to allow GNSO constituencies to each have three rather than two representatives on GNSO Council
Nov. 8, 2005	Posted for public comment a proposed Bylaws amendment to reduce the number of votes required to approve the creation of an At-Large structure
Dec 4, 2005	Amended the Bylaws to allow the ALAC not to use supermajority when approving the creation of new At-Large structures
Dec. 4, 2005	Stated that ICANN welcomes the outcome of the WSIS and its recognition of the preservation of the multistakeholder model
Feb. 28, 2006	Approved a settlement with Verisign about .com to ensure competition
Mar. 31, 2006	Rejected a proposed Bylaws amendment by the ccNSO to require ccNSO input on certain Bylaws changes on the grounds that it would raise issues for organizational structure
Mar. 31, 2006	Stated notice of intent to advance a new gTLD process to promote competition
Nov. 22, 2006	Approved an updated MoU in support of the IETF performing IANA functions
Mar. 30, 2007	Ratified MoU with European At-Large structure, gave final approval of MoUs with Latin America/Caribbean Region, African Region, and Asia/Australia/Pacific Region At-Large structures
Jun. 29, 2007	Ratified MoU with North American At-Large structure
Feb. 15, 2008	Amended the Bylaws to revise the review process for At-Large structure applications to give a role to Regional At-Large Organizations and to be more transparent
Jun. 26, 2008	Adopted a GNSO recommendation to open a process to create new gTLDs
Jun. 26, 2009	Posted for public comment a proposed Bylaws change to charter four new GNSO stakeholder groups
Jun. 26, 2009	Posted for public comment proposals from a President's strategy committee to allow the community to require the Board to review decisions and to establish a new independent review body
Jun. 26, 2009	Posted for public comment a proposed Bylaws change to make the cycle for structural reviews five years instead of three
Aug. 5, 2010	Amended the Bylaws to pay the Board Chairman \$75,000 per year
Oct. 28, 2010	Amended the Bylaws to replace the At-Large Liaison on the Board with a voting Board Member representing the At-Large community
Oct. 28, 2010	Posted for public comment a Bylaws change about the security and stability committee
Oct. 28, 2010	Posted for public comment a Bylaws change to have the Nominating Committee chair elected one year in advance
Jan. 25, 2011	Changed the Bylaws to elect the non-voting chair of the Nominating

	Committee one year in advance
Jan. 25, 2011	Changed the Bylaws to allow for more immediate seating of SO- and At-Large-selected Board members
Jan. 25, 2011	Moved forward with a new gTLD program that was not consistent in some ways with GAC recommendations. Agreed to hold a meeting with the GAC about them, but moved forward anyway
Mar. 18, 2011	Changed the Bylaws to change the task areas of the SSAC and to allow the Board to remove SSAC members
Mar. 18, 2011	Approved the 2011-2014 strategic plan to focus on multistakeholderism, collaboration, and being international, transparent, and accountable
Mar. 18, 2011	Posted for public comment a Bylaws change to clarify the purpose of the ALAC. The ALAC has purpose to provide advice on policy, to provide input into ICANN operations and structure, to be part of accountability mechanisms, and to be the organizing mechanism for ICANN outreach. The ALAC should be the “primary organizational home for individual Internet users.” ICANN should develop a mechanism to allow consumer interests to be heard
Jun. 20, 2011	Approved the new gTLD program, upheld the disagreement with the GAC
Jun. 24, 2011	Changed the Bylaws to reflect the purpose of the ALAC
Jun. 24, 2011	Approved the permanent charter of the GNSO Commercial Stakeholder Group to expand participation in the GNSO
Jun. 24, 2011	Approved a proposal for a Not-For-Profit Operational Concerns Constituency in the GNSO
Jun. 24, 2011	Approved a permanent charter of the GNSO Non-Commercial Stakeholders Group
Jun. 24, 2011	Changed the Bylaws to delete the section requiring the Nominating Committee to include a voting member selected by an entity representing academia
Aug. 25, 2011	Posted for public comment a Bylaws change to accommodate paying additional Board members other than the Director
Dec. 8, 2011	Added a new Annex A to the Bylaws revising the GNSO Policy Development Process (PDP) to have mandatory public comment and more structure
Dec. 8, 2011	Changed the Bylaws to allow all voting Board members to be paid \$35,000
Feb. 7, 2012	Posted for public comment a Bylaws change to fully implement a new GNSO PDP
Mar. 16, 2012	Changed the Bylaws to fully implement a new GNSO PDP
May 6, 2012	Approved the 2012-2015 strategic plan
Sep. 13, 2012	Recommended that the CEO work with Verisign and the NTIA on gTLD issues
Sep. 13, 2012	Posted for public comment a Bylaws change to improve the efficiency of the Board induction process so all members selected in a year start their term at the same time
Dec. 20, 2012	Changed the Bylaws to clarify the purpose of the Root Server Advisory Committee (RSSAC)
Dec. 20, 2012	Approved a Bylaws change to improve the efficiency of Board induction
Dec. 20, 2012	Changed the Bylaws to account for Accountability Structures Expert Panel (ASEP) recommendations
Feb. 2, 2013	Approved the creation of a Meetings Strategy Working Group (MSWG) to

	address meeting location strategy
Mar. 26, 2013	Entered into a \$4 million agreement with IBM for trademark clearinghouse
Apr. 11, 2013	Changed the Bylaws to clarify the purpose of the RSSAC
Apr. 11, 2013	Changed the Bylaws provide flexibility in the composition of a standing panel for the Independent Review process (IRP)
Apr. 11, 2013	Denied the application of the Cybercafe Association of India (CCAOI) to create a new GNSO Constituency called the Public Internet Access/Cybercafe Ecosystem (PIA/CC)
Sep. 28, 2013	Posted for public comment a Bylaws change to remove the Technical Liaison Group (TLG) liaison to the Board and its voting member of the Nominating Committee
Nov. 17, 2013	Issued a resolution re: multi-stakeholder internet governance: On September 28, the Board had authorized the CEO to work with key organizations to “address increasing concerns regarding the effectiveness of a ‘global, open, multi-stakeholder Internet governance system.’” The Board welcomes collaboration with the organizations that led to the Montevideo Statement on the Future of Internet Cooperation. Resolves to support the ongoing work, including the meeting on multi-stakeholder Internet governance likely to take place in Brazil in April 2014.
Feb. 7, 2014	Changed the Bylaws to remove the TLG Board liaison and the Nominating Committee member to allow it to focus on technical advisory functions
Feb. 17, 2014	Stated that ICANN must “evolve and grow” in response to the growth of the Internet. The globalization needs to include: partnerships in broader Internet ecosystem, the strengthening ICANN itself, the evolution of policy structures, and the identification of future legal structures. Created President’s Globalization Advisory Groups of Board members to deal with the Affirmation of Commitments, policy structures, legal structure, root server system, IANA multistakeholder accountability, and Internet governance
Mar. 27, 2014	Dissolved the Board Globalization Advisory Groups in response to the Mar 14, 2014 U.S. NTIA announcement of intent to transition stewardship to global multistakeholder community, which asked ICANN to convene global stakeholders to develop a transition proposal
Jul. 30, 2014	Posted for public comment a Bylaws change to make a Board vote of 2/3 necessary to go against GAC advice
Jul. 30, 2014	Issued a statement: On April 23-24, 2014 the NetMundial meeting convened in Sao Paolo, Brazil as the Global Multistakeholder Meeting on the Future of Internet Governance to establish a roadmap for the future. The Board congratulates the Brazilian government and the World Economic Forum on the meeting and directs the CEO to continue to support emerging initiatives addressing the outcomes of NetMundial
Jul. 28, 2015	Posted for public comment a Bylaws change to add a GNSO Guidance Process and a GNSO Expedited Policy Development Process
Sep. 28, 2015	Released money from the reserve to cover the IANA Stewardship Transition initiative
Sep. 28, 2015	Changed the Bylaws to implement the GNSO Guidance Process and the GNSO Expedited PDP

Feb. 3, 2016	Approved funds up to \$11.5 million in total for IANA transition. The total was projected to cost \$24.7 million
Mar. 10, 2016	Approved another \$1.5 million to hold IANA transition over until next reserve fund release
Mar. 10, 2016	IANA Stewardship Transition: On Mar 14 2014, the NTIA announced the transition under principles of a multistakeholder model, the security, stability, and resiliency of the DNS, meeting the needs of global customers and partners of IANA services, and maintaining Internet openness, would not accept government-led solution. ICANN formed the IANA Stewardship Transition Coordination Group (ICG) with 30 members representing 13 communities: ALAC, ASO, ccNSO, GAC, GNSO, gTLD registries, International Chamber of Commerce/Business Action to Support the Information Society, Internet Architecture Board, IETF, Internet Society, Number Resource Org, RSSAC, SSAC. These groups organized into development groups and made three plans on names, numbers, and protocols. The ICG determined that the proposals met the criteria and posted them for comment from August to September 2015
Mar. 10, 2016	The ICG formally transmitted the plan to the ICANN Board for consideration. ICANN accepted it and transmitted it to the NTIA. Cross-Community Working Group on Enhancing ICANN Accountability: created Workstream 1 to address accountability mechanisms that must happen within transition. Its recommendations include: revise mission statement to clarify what ICANN does, broaden the IRP, enhance the reconsideration request process, give new powers to ICANN community (reject budgets, bylaws changes, directors, board, decisions, power to inspect books)
Apr. 19, 2016	Posted for public comment the new ICANN Bylaws sufficient for the transition
May 15, 2016	Established the Board Working Group on Internet Governance
May 15, 2016	Approved the release of \$5.4 million for the IANA transition
May 15, 2016	Adopted new Bylaws consistent with the transition plan, deemed effective on the expiration of the IANA contract between ICANN and the NTIA
May 27, 2016	Posted for public comment ICANN Articles of Incorporation consistent with the transition
May 27, 2016	The transition proposal called for ICANN to maintain the existing MoU with the IETF for protocols. Approved new MoU
Aug. 9, 2016	Approved the charter of the Root Zone Evolution Review Committee (RZERC) consistent with the transition with one Board member
Aug. 9, 2016	The ICG proposal required ICANN to develop an affiliate to perform the IANA naming functions under contract with ICANN. Created one called Public Technical Identifiers PTI. It was required to be a California nonprofit public benefit organization with ICANN as the sole member
Aug. 9, 2016	The NTIA requested that Verisign and ICANN work together on how to transition the NTIA's administrative role with the root zone. Approved the Root Zone Maintainer Agreement (RMZA) where Verisign continued providing root zone maintenance and distribution
Aug. 9, 2016	Approved changes to the Articles of Incorporation consistent with the transition

Sep. 15, 2016	Approved the Naming Function Contract between ICANN and PTI
Sep. 15, 2016	Approved the Services Agreement saying PTI is fully and solely funded by ICANN, estimated at \$9 million per year
Sep. 15, 2016	Posted for public comment a proposal to extend Verisign's operation of the .com TLD to 2024, a result of bilateral negotiations between ICANN and Verisign
Sep. 15, 2016	Approved new PTI Bylaws
Sep. 30, 2016	Approved ICANN entering into Assignment Agreement between ICANN and the IETF Trust to assign IANA intellectual property

APPENDIX B

History of ICANN

Date	Event
Feb. 28, 1997	The ITU circulated the gTLD-MoU calling for international management of the DNS
Feb. 20, 1998	The Clinton administration released the “Green Paper,” a proposed rulemaking calling for the privatization of the DNS under a U.S. institutional framework
Jun. 2, 1998	The Clinton administration released the “White Paper” stating that the U.S. government would recognize a new not-for-profit corporation for Internet governance created by the private sector
Sep. 18, 1998	The U.S. government created ICANN
Oct. 5, 1998	Jon Postel and his lawyer, Joe Sims, released a fixed list of nine interim board members
Oct. 18, 1998	Jon Postel died
Dec. 21, 2001	A resolution by the UN General Assembly put the ITU in charge of convening a World Summit for the Information Society
Dec. 10, 2003	The first phase of the WSIS began in Geneva
Dec. 20, 2004	ICANN agreed to give \$100,000 to the UN Global Information and Communication Technology Project to support the WSIS
Jun. 2, 2005	ICANN approved a proposal to create a .xxx TLD.
Jun. 30, 2005	The U.S. Department of Commerce NTIA released a statement reaffirming its historic role regarding the root
Aug. 11, 2005	U.S. Department of Commerce sent a letter to ICANN expressing concern over .xxx TLD, asking for a delay in its creation, and ICANN reversed its decision
Nov. 2005	The Tunis Summit phase of the WSIS
Dec. 4, 2005	ICANN Board states that it “welcomes” the outcome of the WSIS and recognizes the continuation of the multistakeholder model
Sep. 30, 2009	The Obama administration issued an Affirmation of Commitments loosely agreeing to keep ICANN committed to international goals without changing the U.S.’s legal status with regards to the institution
Oct. 28, 2010	ICANN Board changed the Bylaws to replace the At-Large Advisory Committee’s (ALAC) Board Liaison with a Voting Member on the Board
Jun. 24, 2011	ICANN Board voted to approve language refining the purpose of the ALAC, calling it the “primary organizational home for individual Internet users”
Dec. 8, 2011	ICANN Board changed the Bylaws to pay voting members \$35,000 per year
Sep. 13, 2012	ICANN Board recommended that its CEO work with Verisign and the U.S. NTIA on gTLD issues
Dec. 2012	The ITU convened the World Conference on International Telecommunications in Dubai, where countries like Russia, China, and the Gulf States called for multilateral Internet governance
Dec. 2012	The U.S. and 54 other countries refused to sign the accord produced at the Dubai conference
Jun. 2013	Edward Snowden leaked information about U.S. NSA surveillance programs
Oct. 7, 2013	The leaders of global Internet infrastructure organizations met in Montevideo, Uruguay and released the “Montevideo statement” calling for the acceleration

	of the globalization of ICANN and the IANA functions, warning about fragmentation
Feb. 17, 2014	ICANN's Board issued a statement supporting the globalization of ICANN, creating multiple President's Globalization Advisory Groups to discuss steps to move forward
Mar. 14, 2014	The Obama administration announced its plan to relinquish U.S. oversight and transition ICANN to full autonomy, emphasizing the need for security, stability, and resiliency for the DNS and that it would not support a government-led solution
Mar. 10, 2016	ICANN formed the IANA Stewardship Transition Coordination Group (ICG) with 30 members representing ICANN's ALAC, ASO and its Number Resource Organization, ccNSO, GAC, GNSO, SSAC, and RSSAC, gTLD registries, the International Chamber of Commerce, the IETF and its Internet Architecture Board, and the Internet Society
Apr. 23-24, 2014	In response to the Snowden leaks, Brazil held the NETMundial meeting with U.S. participation to set a "roadmap" for the future of Internet governance which ended up supporting a global multistakeholder model
May 15, 2016	ICANN adopted new Bylaws consistent with transition plan to enter into effect upon the expiration of the IANA contract between ICANN and the U.S. NTIA on September 30
Jun. 9, 2016	The U.S. Department of Commerce approved the transition proposal
Aug. 9, 2016	ICANN's Board approved an agreement requested by the U.S. NTIA for Verisign to continue providing maintenance of the root zone
Sep. 15, 2016	ICANN's Board posted for public comment a proposal to extend Verisign's operation of the .com TLD to 2024, a result of bilateral negotiations between ICANN and Verisign
Oct. 1, 2016	The U.S. NTIA contract with ICANN expired, allowing ICANN to formally transition to global multistakeholder oversight

APPENDIX C

Name	Country	Term	Position	Background
Geraldine Capdeboscq	France	1998-2000	Initial Board Member	IT industry
George Conrades	US	1998-2000	Initial Board Member	BBN – tech research industry
Greg Crew	Australia	1998-2000	Initial Board Member	Telecoms industry
Esther Dyson	US	1998-2000	Initial Board Chairman	EDventure – IT industry – recruited by IBM
Eugenio Triana	Spain	1998-2000	Initial Board Member	European Commission
Michael Roberts	US	1998-2001	Initial Board President/CEO	Silicon Valley IT consultant
Frank Fitzsimmons	US	1998-2002	Initial Board Member	Iridian Technologies - industry
Hans Kraaijenbrink	Netherlands	1998-2003	Initial Board Member	Government telecoms
Jun Murai	Japan	1998-2003	Initial Board Member	Internet Society
Linda Wilson	US	1998-2003	Initial Board Member	Academia
Jean-François Abramatic	France	1999-2000	Board Member, nominated by PSO	Software industry
Pindar Wong	Hong Kong	1999-2000	Board Member, nominated by ASO	Internet infrastructure industry
Ken Fockler	Canada	1999-2001	Board Member	World Intellectual Property Organization (WIPO)
Robert Blokzijl	Netherlands	1999-2002	Board Member	European registries
Philip Davidson	UK	1999-2002	Board Member	ITU
Amadeu Abril i Abril	Spain	1999-2003	Board Member, nominated by DNSO	European Commission, academia
Jonathan Cohen	Canada	1999-2003	Board Member, nominated by DNSO	Intellectual property law
Vint Cerf	US	1999-2007	Chairman	Internet architecture, MCI
Alejandro Pisanty	Mexico	1999-2007	Board Member, nominated in 2003 by DNSO	Academia
Masanobu Katoh	Japan	2000-2003	Board Member	International Internet law
Andy Muller-Maguhn	Germany	2000-2003	Board Member, elected	Journalism, hacking
Nii Quaynor	Ghana	2000-2003	Board Member, elected	Academia, Internet industry
Karl Auerbach	US	2000-2003	Board Member, elected	Internet Engineering Task Force (IETF)

Sang-Hyon Kyong	South Korea	2000-2003	Board Member, nominated by ASO	Korean telecoms, government
Helmut Schink	Germany	2000-2003	Board Member	ITU, Siemens
Ivan Moura Campos	Brazil	2000-2003	Board Member	Academia, IT industry
M. Stuart Lynn	US	2001-2003	President/CEO	Academia, UC System
Lyman Chapin	US	2001-2004	Board Member	Software industry
Mouhamet Diop	Senegal	2002-2006	Board Member, nominated by ASO	Telecoms industry
Francisco da Silva	Portugal	2002-2007	Board Member nominated by PSO until 2003, TLG Non-Voting Liaison until 2007	Telecoms industry
Tricia Drakes	UK	2003-2004	Board Member	Global financial services
Thomas Niles	US	2003-2005	Board Member	US Foreign Service
John Klensin	US	2003-2005	IETF Non-Voting Liaison	Internet Architecture Board (IAB), IETF
Veni Markovski	Bulgaria	2003-2006	Board Member	Internet Society, Internet consulting
Hagen Hultsch	Germany	2003-2006	Board Member	Financial industry
Michael Palage	US	2003-2006	Board Member, Nominated by GNSO	Intellectual property law, IT consulting
Hualin Qian	China	2003-2006	Board Member	Computing industry
Joichi Ito	Japan	2004-2007	Board Member	ICT industry
Vanda Scartezini	Brazil	2004-2007	Board Member, ALAC Non-Voting Liaison	IT industry
Mohamed Sharil Tarmizi	Malaysia	2004-2007	GAC Non-Voting Liaison	Government telecoms
Richard Thwaites	Australia	2005	ITU Non-Voting Liaison	Government telecoms, ITU
Daniel Dardailler	France	2006	W3C Non-Voting Liaison	European Commission, software industry
Vittorio Bertola	Italy	2006-2007	ALAC Non-Voting Liaison	Government Internet policy

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