



August 2015

INTERNET MANAGEMENT

Structured Evaluation Could Help Assess Proposed Transition of Key Domain Name and Other Technical Functions

GAO Highlights

Highlights of [GAO-15-642](#), a report to congressional requesters

Why GAO Did This Study

The U.S. government helped to fund the development of the Internet but since 1997 has envisioned that the coordination of certain Internet technical functions would be managed completely by the private sector. As the Internet has grown, the Department of Commerce's NTIA has contracted with a nonprofit corporation, ICANN, for the operation of these technical functions. In March 2014, NTIA established core goals for a transition proposal and announced that if a suitable proposal could be developed, NTIA would let the technical functions contract expire and transition its oversight role to a global multistakeholder community.

GAO was asked to review implications of NTIA's proposed transition. This report examines: (1) the process of developing a transition proposal and addressing identified transition risks, and (2) NTIA's plans to evaluate a proposal. GAO reviewed NTIA's evaluation plans and identified frameworks for NTIA to use in its evaluation; reviewed transition documents; and interviewed officials from NTIA, other federal agencies assisting NTIA with the proposed transition, and ICANN, as well as stakeholders selected based on their technical, commercial, and academic backgrounds.

What GAO Recommends

GAO recommends that NTIA review relevant frameworks for evaluation and use applicable portions to help evaluate the transition proposal. The Department of Commerce concurred with the recommendation.

View [GAO-15-642](#). For more information, contact Mark Goldstein at (202) 512-2834 or goldsteinm@gao.gov.

August 2015

INTERNET MANAGEMENT

Structured Evaluation Could Help Assess Proposed Transition of Key Domain Name and Other Technical Functions

What GAO Found

The National Telecommunications and Information Administration (NTIA) announced that it would transition its oversight of the coordination of certain key Internet technical functions (such as the domain name system) to the global multistakeholder community if a suitable transition proposal were developed. In response, several steps were taken to develop a proposal and address identified risks. The Internet Corporation for Assigned Names and Numbers (ICANN), which operates these technical functions under contract with NTIA, convened stakeholders from technical, government, business, and public interest organizations, among others. These stakeholders formed working groups with the goal to develop a consensus-based proposal they plan to provide to the ICANN board by late fall 2015. The board will then provide the proposal to NTIA. In draft proposals, working groups have proposed new post-transition arrangements to manage identified risks and hold ICANN accountable to the multistakeholder community. For example, stakeholders identified a risk that ICANN could be captured by a particular interest. To address this risk, stakeholders proposed changes that would empower the multistakeholder community to veto board decisions related to ICANN's plans and budget and to remove board members, among other things.

NTIA plans to evaluate the proposal against core goals, such as maintaining the security and stability of the Internet domain name system and the openness of the Internet. However, NTIA has not yet determined how it will evaluate the proposal against the goals. The changes the working groups are considering could create a new organizational environment for the operation of the technical functions, such as new structures, contractual obligations, and governance models for ICANN. Given the extent of these potential changes, GAO identified frameworks for evaluation that could provide tools to guide NTIA's evaluation.

- These frameworks incorporate leading practices to help organizations obtain reasonable assurance that their goals and objectives will be met or that they will meet certain requirements. For example, key components of one framework include the organizational environment, risk assessment, and monitoring.
- In prior work, GAO has considered such frameworks in relationship to accountability challenges at a variety of organizations. These types of frameworks could help NTIA evaluate whether the transition proposal meets its core goals, and could also be helpful in considering accountability mechanisms that are included in the proposal. For example, one framework's risk assessment component could help NTIA consider the multistakeholder community's efforts to identify and manage risks.
- These frameworks are intentionally flexible, so that NTIA could select elements that are applicable to the scope of the proposed transition.

Without a framework as a tool to systematically review the proposal and its various new structures and processes, NTIA may not be assured that its goals for the transition have been fully addressed and embedded over the long term.

Contents

Letter		1
	Background	4
	Working Groups Are Using a Multistakeholder Process to Develop a Transition Proposal and Help Manage Identified Risks	18
	NTIA Has Not Determined How It Will Evaluate the Transition Proposal, but Using a Framework Could Help	35
	Conclusions	46
	Recommendation for Executive Action	47
	Agency Comments	47
Appendix I	Scope and Methodology	50
Appendix II	Internet Corporation for Assigned Names and Numbers' (ICANN) Board, Current Accountability Structures, and Contracts	55
Appendix III	Comments from the Department of Commerce	58
Appendix IV	GAO Contact and Staff Acknowledgments	59
Tables		
	Table 1: Comparison of General Risk Management Principles with Working Groups' Approaches to Considering and Addressing Risks to Transition of National Telecommunications and Information Administration's (NTIA) Role in the Internet Technical Functions	27
	Table 2: National Telecommunications and Information Administration (NTIA) Examples Describing Core Goals for the Final Transition Proposal of Internet Technical Functions	37
	Table 3: Key Components of the Framework Developed by the Committee of Sponsoring Organizations of the Treadway Commission	44

Figures

Figure 1: Illustration of How Certain Technical Functions Are Important to the Operation of the Internet	5
Figure 2: The Hierarchical Organization of Internet Domain Names	6
Figure 3: How the Domain Name System Uses the Authoritative Root Zone File to Direct an Internet Query	7
Figure 4: Internet Protocol Parameter Development, Publishing, and Access and Use	9
Figure 5: Allocation and Assignment of Internet Protocol (IP) Addresses	10
Figure 6: Multistakeholder Structure of the Internet Corporation for Assigned Names and Numbers (ICANN)	15
Figure 7: Summary of Parallel Processes to Develop the Transition Proposal	21
Figure 8: Planned Time Frame for the Multistakeholder Community to Deliver a Proposal to Transition from National Telecommunications and Information Administration's Internet Technical Functions Contract, as of July 6, 2015	24
Figure 9: Board of Directors of the Internet Corporation for Assigned Names and Numbers (ICANN)	55
Figure 10: Business Relationships among the Internet Corporation for Assigned Names and Numbers (ICANN) and Other Parties in the Generic Domain Name Industry	56

Abbreviations

COSO	Committee of Sponsoring Organizations of the Treadway Commission
COSO framework	Committee of Sponsoring Organizations of the Treadway Commission Internal Control—Integrated Framework
FirstNet	First Responder Network Authority
IANA	Internet Assigned Numbers Authority
ICANN	Internet Corporation for Assigned Names and Numbers
IETF	Internet Engineering Task Force
IP	Internet Protocol
ISO	International Organization for Standardization
ITU	International Telecommunication Union
NIST	National Institute of Standards and Technology
NTIA	National Telecommunications and Information Administration
RFC	request for comment
RIR	regional Internet registries

This is a work of the U.S. government and is not subject to copyright protection in the United States. The published product may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.



August 19, 2015

Congressional Requesters

The Internet has evolved from a research project involving four host computers in the 1960s to a vast global system of interconnected networks used by billions of people across the world to perform personal, educational, commercial, and governmental tasks.¹ The central coordination of certain technical functions related to maintaining unique identifiers (such as the domain name system) helps computers communicate over the Internet.² For example, each device that connects to the Internet has a unique identifying number—an Internet Protocol (IP) address—so that information can be sent to or received from a specific device. Use of the Internet has expanded so rapidly that one set of IP addresses, which was developed in the early 1980s and which provided approximately 4 billion addresses, was not sufficient to accommodate the growing number of users and devices.³ To accommodate the expected continued expansion of the Internet, the next generation of IP addresses was developed to include up to 340 undecillion (340×10^{36}) addresses—more than a trillion IP addresses for each person in the world.

The U.S. government played a role in funding the development of the early Internet.⁴ In 1997, the President directed the Secretary of Commerce to move the governance of the domain name system into the private sector to increase competition and promote international participation.⁵ After the Department of Commerce's National

¹The International Telecommunication Union (ITU) estimates that by the end of 2014, there were about 3 billion Internet users around the world.

²These functions are often grouped into three categories: protocol parameters, numbers, and names (the domain name system). We will explain these more fully later in the report.

³Some IP addresses have been reserved for technical or other purposes.

⁴The Advanced Research Projects Agency provided funding to establish a research network beginning in the 1960s. Since then, it changed its name to Defense Advanced Research Projects Agency.

⁵The White House, *Memorandum on Electronic Commerce* (July 1, 1997); see also Management of Internet Names and Addresses, 63 Fed. Reg. 31741, 31741 (June 10, 1998) (summarizing the White House Memorandum).

Telecommunications and Information Administration (NTIA)⁶ issued a 1998 policy statement,⁷ the Internet Corporation for Assigned Names and Numbers (ICANN) was formed as a nonprofit to manage these technical functions for the benefit of the Internet community as a whole. The Department of Commerce subsequently entered into an agreement with ICANN to carry out these functions.⁸ ICANN—a California-based, nonprofit corporation—currently operates these technical functions under a no-cost contract with NTIA.⁹ ICANN has managed these technical functions through a governance model in which a multistakeholder community—interested parties from all over the world and from multiple sectors and industries, including technical, government, business, and public-interest organizations—develop policies that support how the Internet domain name system is operated. This model of Internet governance—referred to as the “multistakeholder model”—is a system of open, bottom-up, and participatory self-governance. NTIA has supported this type of bottom-up, private sector coordination since its 1998 policy statement.

In March 2014, NTIA announced that if a suitable plan could be formed, it would finalize the transition of these Internet technical functions to the multistakeholder community by letting its contract with ICANN expire, thus ending the U.S. government’s role. In the announcement, NTIA included a list of core goals for the transition and asked ICANN to convene global

⁶NTIA is the executive branch agency located within the Department of Commerce that is principally responsible for advising the President on telecommunications and information policy issues.

⁷This document is known as the domain name system “*White Paper*.” See Management of Internet Names and Addresses, 63 Fed. Reg. 31741 (June 10, 1998). Prior to that, NTIA proposed that a private nonprofit entity, operated for the benefit of the Internet as a whole, could coordinate the Internet’s technical functions, in a proposal known as the “*Green Paper*.” See Improvement of Internet Names and Address, 63 Fed. Reg. 8826, 8826 (Feb. 20, 1998).

⁸In 1998, the Department of Commerce’s NTIA entered into a memorandum of understanding with ICANN to develop and test the methods for transitioning certain Internet technical functions to the private sector. According to a 1998 policy statement, NTIA intended to remain involved until the new nonprofit was established and stable, and then phase out U.S. government participation within 2 years.

⁹In 2000, NTIA entered into a no-cost-to-the-government contract with ICANN for the performance of these functions. NTIA entered into several subsequent contracts with ICANN, including the current contract, which was awarded through a competitive procurement process in July 2012.

stakeholders to develop a transition proposal. NTIA has stated that this proposal must meet its core goals and have the broad support of the multistakeholder community for NTIA to allow the contract to expire. The target date for the transition is September 2015, when the current contract expires, but NTIA may extend the contract for up to 4 years.¹⁰

NTIA and some stakeholders view the transition as an important sign of the U.S. government's following through on its endorsement of the multistakeholder model of Internet governance. Some stakeholders, however, have expressed concerns about potential risks related to the transition. You asked us to review the implications of the proposed transition. This report examines: (1) the process being used to develop a transition proposal and address risks related to the transition, as identified by stakeholders, and (2) NTIA's plans to evaluate a transition proposal against its core goals for the transition and additional tools for evaluation that could help NTIA with its assessment.

To respond to these objectives, we reviewed documents related to the Internet technical functions, NTIA, and ICANN. We interviewed technical experts from, among other organizations, the National Institute of Standards and Technology (NIST). We followed transition efforts, including observing multiple sessions at an ICANN meeting, listening to multistakeholder working group meetings, and reviewing relevant documents and draft proposals from transition working groups. We also compared the process used to develop the transition proposal to risk management principles. We reviewed NTIA's plans for evaluating the transition proposal and identified potential tools, including frameworks for evaluation, for NTIA to use in its evaluation. We selected these principles and frameworks based in part on our prior work. In addition to our risk management and internal controls frameworks, the other principles and frameworks we considered were designed by nongovernmental organizations—the Committee of Sponsoring Organizations of the Treadway Commission and the International Organization for Standardization—with the goal of improving risk management and organizational performance in a broad range of organizations. We interviewed and/or received written responses from stakeholders from NTIA and 10 other federal entities that play a role in Internet-related

¹⁰Although the contract expires on September 30, 2015, it contains two option periods that can extend it through September 30, 2019.

issues, including entities within the Departments of Defense, Homeland Security, Justice, and State; the General Services Administration; and the Federal Communications Commission. The majority of these entities were involved in an NTIA-convened interagency working group, according to NTIA. We also interviewed 31 nonfederal stakeholders, including ICANN's management, board chair, and one board member; chairs, members, or participants in ICANN's multistakeholder working groups for the transition; economists with knowledge about ICANN, and officials from industry groups and associations, Internet freedom organizations, businesses, telecommunications companies, think tanks, and academic institutions with a focus on Internet governance issues. The information from these interviews is not generalizable but provided us with a broad perspective from knowledgeable stakeholders on potential risks related to the transition and the multistakeholder community's approach to developing a transition proposal to address potential risks and meet NTIA's core goals. See appendix I for a more detailed description of our scope and methodology.

We conducted this performance audit from September 2014 to August 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Internet Technical Functions

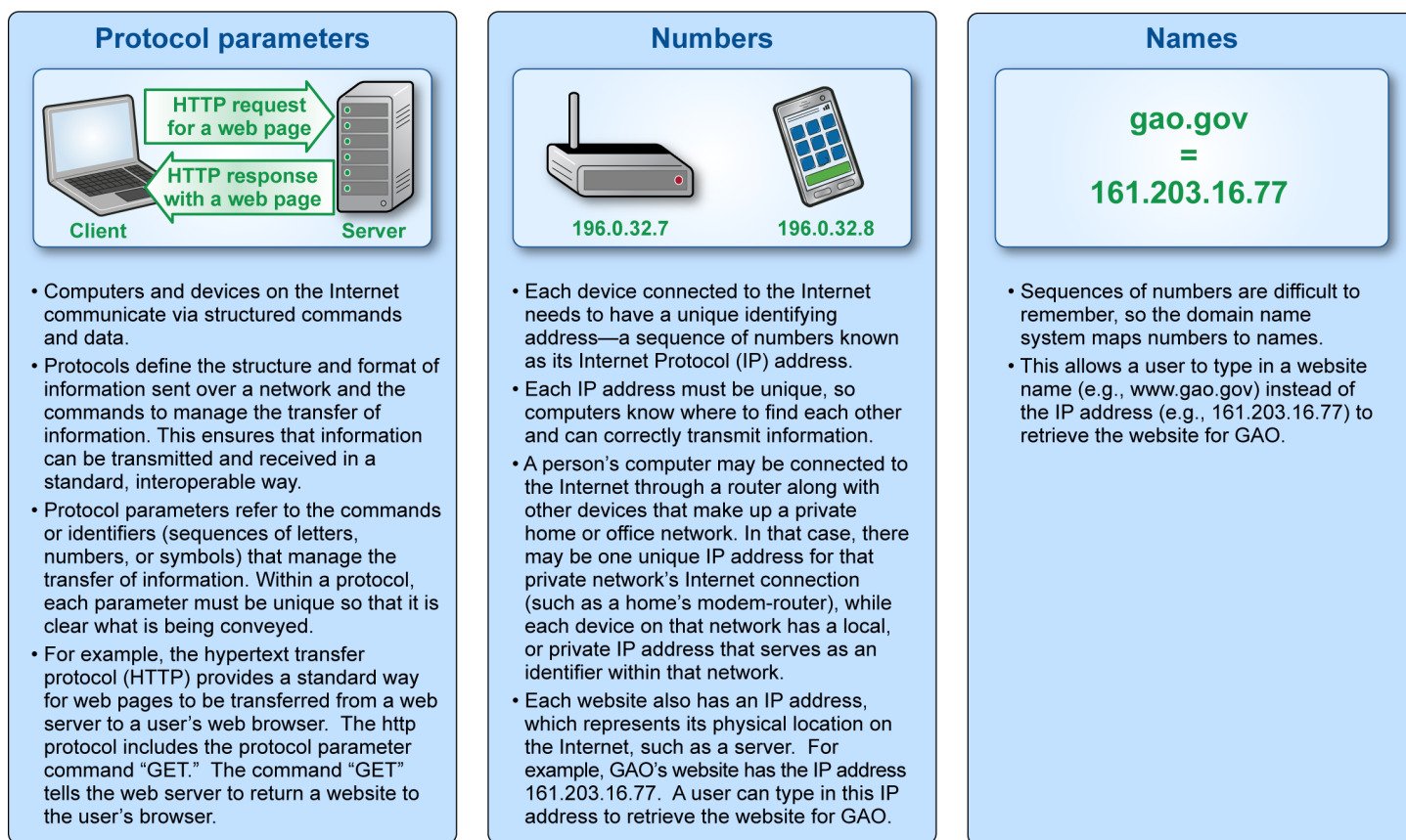
Certain technical functions make it possible for computers and other devices to share information across the Internet, as shown in figure 1.¹¹ The developers of the Internet determined that centrally coordinating these technical functions would be the most efficient way to allow every device that is connected to the Internet to communicate with other devices—whether the network consisted of just a few computers as in the

¹¹Increasingly, devices other than computers are connecting to the Internet. These devices can include cell phones, tablets, vehicles, and home appliances, among many others.

beginning—or the billions of devices that access the Internet today. These technical functions fall into three categories (see fig. 1):

- protocol parameters—unique values used in standards for formatting data so that information can be sent and received over a network,
- numbers—unique identifiers known as IP addresses that are assigned to each device on the Internet, and
- names—strings of text separated by dots, such as www.gao.gov. Domain names are mapped into IP addresses using a global domain name system.

Figure 1: Illustration of How Certain Technical Functions Are Important to the Operation of the Internet



Source: GAO. | GAO-15-642

Collectively, these functions became known as the Internet Assigned Numbers Authority (IANA) functions. Originally, the functions were provided by one person. Currently a department within ICANN operates

these functions. ICANN's role in coordinating these functions involves maintaining lists of these protocol parameters, IP addresses, and top-level domains (such as .gov). NTIA has proposed transitioning its role related to these functions.

These technical functions are interdependent and support efficient communication among devices that connect to the Internet. Protocols define the format of information exchanged through the Internet and the commands to manage how devices send and receive that information. Using a common set of protocol parameters allows devices to communicate. Unique identifying numbers (IP addresses) are necessary to send that information from one device to another. Domain names equate to IP addresses and are used because it is easier for people to remember names than long strings of identifying numbers. Thus, the domain name system makes it easier for humans to navigate the Internet. This system maps domain names into IP addresses, allowing an Internet user to access a website by typing a domain name (www.gao.gov) into a browser rather than the IP address (161.203.16.77). The domain name system is constructed as a hierarchy. In left-to-right languages like English, the top level is what appears at the far right of the domain name, after the last dot, as shown in figure 2.

Figure 2: The Hierarchical Organization of Internet Domain Names

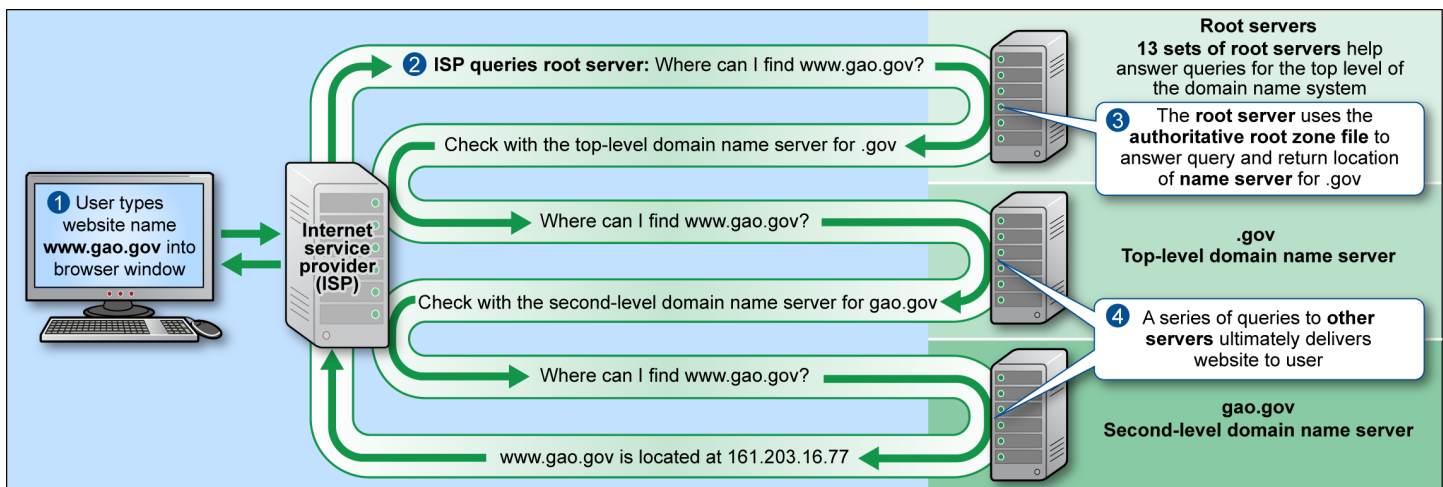


Source: GAO. | GAO-15-642

Across the world, the domain name system has 13 sets of root servers, which form a network of hundreds of servers that play a central role in the Internet's system for finding a particular website. Each of these servers has a copy of a file called the authoritative root zone file, which is a type of "address book" for the top level (and only the top level) of the domain name system—listing, among other things, the IP addresses of all top-level domains' name servers. Generally, as shown in figure 3, when a

person using the Internet types a website (such as www.gao.gov) into his or her browser, this begins with a query to the person's Internet service provider for the IP address of that website. The Internet service provider then queries the domain name system for the IP address, as shown in figure 3. This process can all take place within fractions of a second.

Figure 3: How the Domain Name System Uses the Authoritative Root Zone File to Direct an Internet Query



Source: GAO. | GAO-15-642

No formal institutional or governmental mechanism enforces the way the system works. Technical experts have explained that Internet users have adhered to the system of technical functions because it works for them, with the more people using the same system increasing the value for all those using the system. For example, while nothing stops any user from opting out of using the standard protocols, a computer that deviates from the standards risks losing the ability to communicate with other computers that do follow the standards. A user is also not required to use a uniquely assigned IP address, but using a unique address is necessary to enable other systems to send information to the appropriate recipient over the Internet. In addition, the entire system is distributed. That is, the Internet is a broad network of smaller networks operated by entities such as companies or universities. Technical structures that support the system are also distributed, such as the 13 sets of root zone servers that have copies of the authoritative root zone file.

ICANN's Duties as Technical Functions Operator: Protocol Parameters, Numbers, and Names

Under the terms of its contract with NTIA and a related agreement with another entity, ICANN performs certain Internet technical functions. ICANN's operation of these technical functions does not involve the content that appears on the Internet or who can connect to the Internet, according to ICANN. ICANN also has a role in coordinating Internet policy making, a role that we discuss later. According to ICANN, this policy-making role is not governed by ICANN's contract with NTIA.¹²

Protocol Parameters: ICANN maintains a complete and public database of protocol parameters—the unique identifiers for commands or types of data used in established protocols.¹³ For example, while “GET” is a command in the HTTP protocol, as described in figure 1, “TEXT” indicates that the type of data being transmitted is text. ICANN maintains the database of protocol parameters under a separate memorandum of understanding between ICANN and the Internet Engineering Task Force (IETF).¹⁴ When a new protocol is established, such as a protocol for sending and receiving a new type of video file, ICANN adds the protocol parameters to the public database so that all software developers can easily access those parameters. According to this memorandum of understanding, ICANN's technical functions staff will generally assign and register protocol parameters as directed by criteria and procedures specified in request-for-comments documentation.¹⁵ According to ICANN, its technical functions staff process more than 300 requests per month to

¹²The contract specifies that designated IANA functions staff members will not initiate, advance, or advocate any policy development related to the IANA functions.

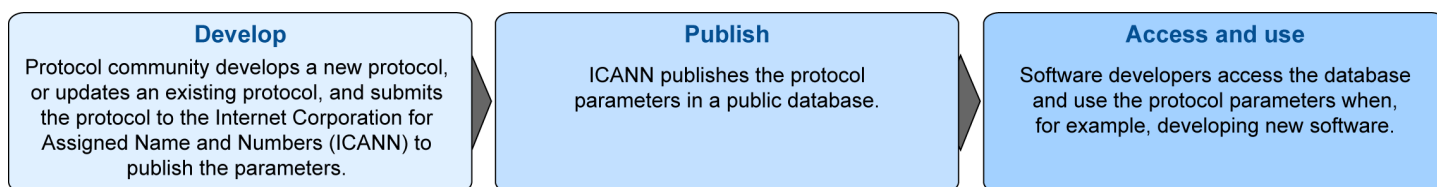
¹³The entries in this protocol parameters database are called registries. The registries contain various codes and numbers that describe the possible values for each protocol. According to the IANA department of ICANN, this database contains over 2,800 registries and sub-registries.

¹⁴The IETF is a large, open international community dedicated to making the Internet work better from a technical standpoint and is the principal body engaged in the development of Internet standards, such as protocols.

¹⁵Memos in the requests-for-comments (RFC) document series contain technical and organizational notes about the Internet. They cover many aspects of computer networking, including protocols. RFCs for new or revised protocols contain an “IANA consideration” section to specify actions for the technical functions operator in updating the protocol parameters database.

add to or update the protocol parameter database.¹⁶ Figure 4 shows how protocol parameters are developed, published, and accessed and used.

Figure 4: Internet Protocol Parameter Development, Publishing, and Access and Use



Source: GAO. | GAO-15-642

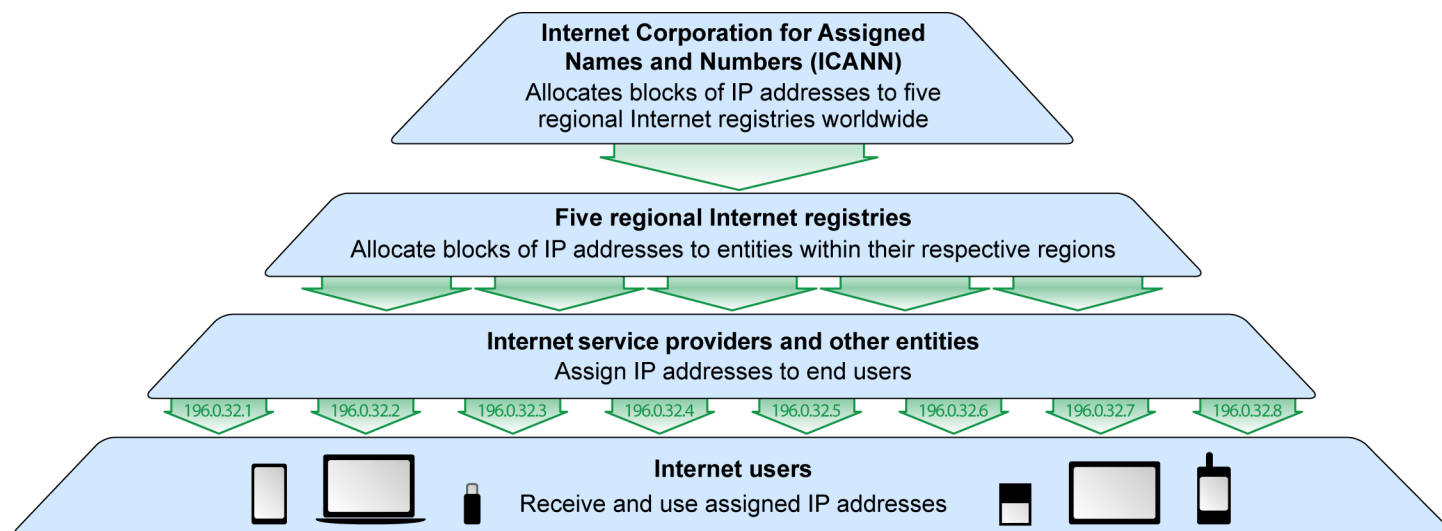
Numbers: ICANN allocates large blocks of IP addresses and other numbers to the five regional Internet registries world-wide, according to globally developed policies.¹⁷ This responsibility is defined by ICANN's contract with NTIA. (A separate memorandum of understanding between ICANN and the five regional Internet registries documents the global policy development process for the numbers community). Each regional Internet registry further allocates blocks of IP addresses in its particular region of the world.¹⁸ These IP addresses eventually reach Internet service providers and end users. Figure 5 provides more detail about how these numbers are allocated and assigned.

¹⁶An additional part of the protocol parameters function involves maintaining the top-level domain Address and Routing Parameter Area (ARPA), which is designated for Internet infrastructure purposes, such as reverse mapping of some IP addresses to Internet domain names.

¹⁷Allocation refers to the distribution of IP address blocks to the regional Internet registries or other organizations for the purpose of further distribution. In addition to IP addresses, ICANN allocates autonomous system numbers to identify networks of computers. These autonomous system numbers are the mechanism to aggregate large groups of computers into single networks, such as that of a specific Internet service provider or organization. In this report, we refer to numbering resources generally as IP addresses.

¹⁸Regional Internet registries allocate blocks of IP addresses according to policies and procedures developed within their region. As an example, this process may involve allocating blocks of IP addresses to national or local Internet registries, which then assign the address space to Internet service providers. (Assignment refers to the delegation of IP address space to a particular Internet service provider or end user.) An Internet service provider then may assign an IP address to an end user.

Figure 5: Allocation and Assignment of Internet Protocol (IP) Addresses



Source: GAO. | GAO-15-642

Names: In concert with NTIA and a company called Verisign, with which NTIA has a separate cooperative agreement, ICANN processes changes to the top level of the domain name system (e.g., changes to the authoritative root zone file).¹⁹ ICANN receives these change requests, checks that appropriate technical and policy requirements were followed, and then sends the request in parallel to NTIA for verification and authorization and to Verisign for implementation. (Verisign will not implement the request until authorized by NTIA.) After Verisign implements the change, it distributes the updated authoritative root zone file to the 13 sets of root servers. ICANN also maintains the root zone database, which lists the operators of all the top-level domains and their contact information.²⁰ Two examples of changes that ICANN processes as part of the names function include:

¹⁹In addition, ICANN manages the top-level domain INT, which is used exclusively for cross-national organizations such as the United Nations.

²⁰The root zone database is distinct from the authoritative root zone file. According to the IANA functions contract, ICANN shall maintain, update, and make publicly accessible a database with current and verified contact information for all top-level domain registry operators.

-
- Adding a new generic top-level domain.²¹ Once a new top-level domain has been approved in a separate multistakeholder process, ICANN receives the request to add the associated information to the authoritative root zone file. As described above, ICANN checks that appropriate requirements were followed and then sends the proposed change to NTIA and Verisign. Processing these types of changes to the root zone file ensures that computers can look up information from the domain name system (e.g., IP addresses) for websites under that new generic top-level domain. (For example, on May 6, 2015, the new top level domain .theater was added to the authoritative root zone file.)
 - Changing the IP address of a name server for a top-level domain, at the request of the registry (the company or organization that operates the top-level domain). For example, top-level domain registries may contract with other companies to host their name servers. If the registry changes contractors, the IP addresses of its name servers may change as well. Keeping this information in the authoritative root zone file up to date is important so that queries using the top level of the domain name system can be directed properly.

NTIA's Role in the Technical Functions and Transition Announcement

NTIA has a contractual relationship with ICANN in which the parties have agreed that ICANN will carry out the IANA technical functions. The terms of the contract, as agreed to by NTIA and ICANN, specify the roles of ICANN related to the protocol parameters, numbers, and names functions. For example, the current contract specifies how ICANN should receive and process changes to the authoritative root zone file for the names function. At the expiration of the contract with ICANN, NTIA may decide whether it wishes to renew the contract with ICANN. When issuing a new solicitation for the technical functions, NTIA has exercised some discretion in deciding how the new IANA functions contract would be ultimately awarded. For example, based on the input received from stakeholders around the world, NTIA added new requirements to the contract's statement of work for the competitive-bidding process in 2011. NTIA noted in a public notice in 2012 that these new requirements

²¹ICANN also adds new country-code top-level domains. Eligible country-code top-level domains include those internationally recognized country codes listed in the International Organization for Standardization (ISO) 3166-1. The only exceptions include country codes that have been grandfathered prior to 2000 or those eligible under ICANN Board Resolution 00.74, which includes the code for the European Union.

included the need for a separation of policy making from implementation, a robust company-wide conflict-of-interest policy, provisions reflecting heightened respect for local country laws, and consultation and reporting to increase transparency and accountability to the international community. Initially, NTIA determined that no bid submitted met the requirements and canceled the bidding process, temporarily extending the contract with ICANN and deciding to reissue the request for proposal at a later date. After a new bidding process and submission by ICANN, NTIA awarded the most recent contract to ICANN in July 2012.

Under the contract, NTIA also has an operational role related to the names function in which it verifies and authorizes changes made to the top level of the domain name system.²² NTIA verifies that ICANN followed established processes and procedures when submitting the proposed change to the authoritative root zone file, then authorizes Verisign to implement the change.²³

On March 14, 2014, NTIA announced its intent to transition its role related to the Internet technical functions to the global multistakeholder community. As the first step, NTIA asked ICANN to convene global stakeholders to develop a proposal to transition the current role played by NTIA in the coordination of these functions. NTIA communicated to ICANN that it would only accept a transition proposal that has broad multistakeholder community support and addresses the following five core goals:

- support and enhance the multistakeholder model;
- maintain the security, stability, and resiliency of the Internet domain name system;
- meet the needs and expectations of the global customers and partners of the IANA services;
- maintain the openness of the Internet; and
- not replace NTIA's role with a government-led or an inter-governmental organization solution.

²²NTIA does not have an operational role related to the protocol parameters or numbers functions.

²³Verisign has a separate cooperative agreement with NTIA related to its role as maintainer of the authoritative root zone file.

NTIA sees this transition as the final step of a process envisioned by the U.S. government since 1997, when a presidential memorandum directed the Secretary of Commerce to move the coordination of the technical functions out of the government sector, recognizing the importance of a market-oriented, global, and transparent approach to supporting the Internet's growth and increasingly commercial nature.²⁴

ICANN's Governance and Policy Development

ICANN's mission, according to its bylaws, is to coordinate and ensure the stable and secure operation of the global Internet's systems of unique identifiers (the protocol parameters, numbers, and names functions, as described above). Its mission also includes coordinating policy development "reasonably and appropriately" related to these technical functions. For example, a major policy undertaking in recent years has been the consideration and establishment of the new generic top-level domain program, which ICANN launched in June 2011. While prior to the program, there were 22 generic top-level domains, as of April 3, 2015, 583 additional top-level domains had been introduced into the domain name system, with about 1,000 more in the process, according to ICANN officials.

ICANN is generally governed by a board of directors, which has final authority over policy decisions. The board consists of 16 voting members who, with the exception of the president of ICANN, are selected either by a nominating committee or the stakeholder groups described below. (For more detail about the board, see app. II). In line with its core value of seeking and supporting broad, informed participation reflecting the functional, geographic, and cultural diversity of the Internet at all levels of policy development and decision making, ICANN's bylaws specify a number of supporting organizations and advisory committees (see fig. 6). These supporting organizations and advisory committees provide the organizational structure through which those with interests and concerns related to Internet governance can interact with ICANN to develop policies related to the domain name system. Collectively, these individuals and organizations are a subset of the multistakeholder community that is involved in ICANN-related policy development and other activities. According to ICANN officials, the three supporting organizations each represent a particular area of ICANN's policy efforts

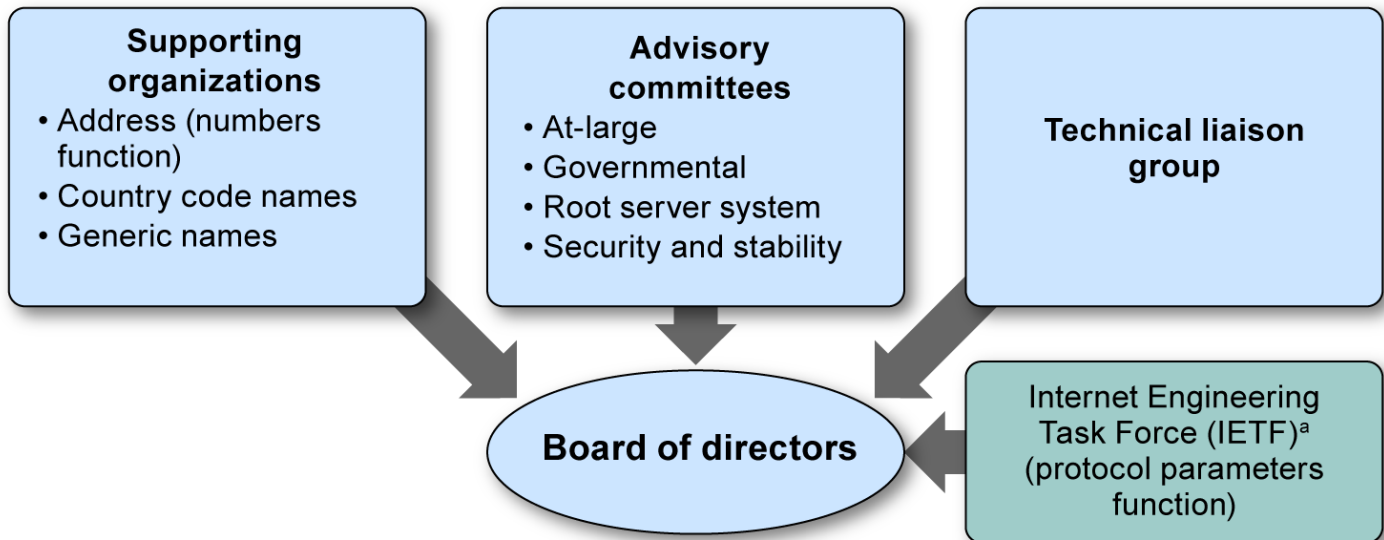
²⁴The White House, *Memorandum on Electronic Commerce* (July 1, 1997).

and are responsible for presenting policy proposals to the board that have been developed through a bottom-up, consensus process. This process involves, among other things, various regional organizations and constituency groups that develop relevant policy initiatives.²⁵ The advisory committees provide advice and input to ICANN's board and the ICANN community as applicable to their expertise, and certain other technical bodies also provide advice.²⁶

²⁵Two of the supporting organizations are related to the names function—the Generic Names Supporting Organization, which presents policies to the ICANN board related to generic top-level domain names, and the Country-Code Supporting Organization, which presents policies to the ICANN board related to country-code top-level domains. The third is related to the numbers function—the Address Supporting Organization. The supporting organizations have somewhat different roles in part because while names-related policies are developed within the ICANN community, numbers-related policies are developed largely through forums facilitated by the regional Internet registries, which are outside of ICANN, and then, in the case of global policies, brought to the ICANN community through the Address Supporting Organization. The protocol parameters function does not have a supporting organization. Related policy is developed outside of ICANN through the IETF.

²⁶The ICANN bylaws proscribe the particular membership for each advisory committee or supporting organization and the various ways in which members are selected. Each supporting organization and each advisory committee has elected or appointed members and leaders, except the Governmental Advisory Committee. For the Governmental Advisory Committee, membership is open to all national governments, and each government that becomes a member may appoint one representative to the committee.

Figure 6: Multistakeholder Structure of the Internet Corporation for Assigned Names and Numbers (ICANN)



Source: GAO analysis of ICANN information. | GAO-15-642

^aThe relationship between ICANN and IETF is established through a memorandum of understanding and associated supplemental agreements. The relationship between ICANN's board and the other groups in this figure is established in ICANN's bylaws.

The policy development process is highly structured. First, a policy is developed according to the structured process defined for its relevant area. Once stakeholders in the relevant area reach a consensus proposal, the supporting organization presents the proposal to the board. Then the board must follow certain measures for considering the policy and has the final say in whether the policy is approved. ICANN officials told us that, combined, the supporting organizations and advisory committees are meant to ensure that the following groups of stakeholders, among others, are involved in developing ICANN's policies:

- the five regional Internet registries, which are responsible for allocating IP addresses within their global regions;
- country code top-level domain managers (i.e., companies or organizations that operate country-code top-level domains, such as .us, the top-level domain for the United States);
- generic top-level domain registries (companies or organizations that operate top-level domain names—such as .com and .org—that are not specified as country-codes);
- registrars, the companies that register domain names (frequently websites, such as www.example.com) to users;

-
- other commercial stakeholders, which include, for example, Internet-based companies (e.g., Google or Facebook), large and small businesses that use the Internet to sell products, Internet service providers, and various stakeholders concerned with intellectual property;
 - noncommercial stakeholders, such as individuals and nonprofit organizations involved in research and education, or those that are concerned with human rights, consumer protection, and public interest aspects of domain name policy;
 - governments (through the Governmental Advisory Committee);
 - technical experts on specific Internet-related considerations (through the Root Server System Advisory Committee and the Security and Stability Advisory Committee); and
 - individual Internet users (through the At-Large Advisory Committee).

From early on, ensuring ICANN's accountability to the multistakeholder community has been a key objective. In 2002, we testified that progress had been slow in creating sufficient processes to represent the functional and geographic diversity of the Internet, and for the use of private, bottom-up coordination rather than government control.²⁷ Since that time, ICANN has made a number of changes to its bylaws—including changes that affect the composition and selection of its board, to address these issues and enhance accountability. (For more on measures in ICANN's bylaws related to transparency and accountability and on the composition of its board, see app. II). In addition, in 2009, ICANN and NTIA, through the Department of Commerce, signed an affirmation of commitments to further enhance ICANN's accountability. Under this affirmation of commitments, ICANN will facilitate a series of community-led reviews of ICANN as an organization.²⁸ To date, two sets of accountability and transparency reviews have been undertaken and have covered topics such as ICANN's public comment process and the ICANN board's governance and performance. The ICANN board has accepted all of the recommendations from these reviews and is in the process of

²⁷We testified about transition progress at that time. GAO, *Internet Management: Limited Progress on Privatization Project Makes Outcome Uncertain* [GAO-02-805T](#) (Washington, D.C.: June 12, 2002).

²⁸These reviews are to cover: (1) ensuring accountability, transparency, and the interests of global Internet users; (2) preserving security, stability, and resiliency of the domain name system; (3) promoting competition, consumer trust, and consumer choice; and (4) ICANN policies regarding the recording of contact information for all registered websites (known as the Whois service).

implementing them, with regular updates provided to the multistakeholder community on ICANN's public website. The affirmation of commitments, which is separate from NTIA's contract with ICANN, can be canceled by either party with 120 days' notice.²⁹

In addition to operating these Internet technical functions and facilitating reasonably related policy development, ICANN holds contracts with and receives most of its revenue from:

- generic top-level domain registries (such as the company Verisign, which operates the top-level domains .com, .net, and .name), and
- registrars for generic top-level domains (such as the company GoDaddy, with whom a company or individual can go to register a new domain name, such as [example.com](#)).

ICANN also has agreements with some, but not all, country-code top-level domain managers.³⁰ According to ICANN, its arrangements with these country-code top-level domain managers are not as formalized and consistent as those with generic top-level domain registries. ICANN officials said that while some country-code top-level domain managers make payments to ICANN, these are considered voluntary contributions, in contrast to standard fees paid to ICANN by generic top-level domain registries. See appendix II for more information about the contractual relationships among parties in the generic domain name industry, along with fees paid to ICANN. Under their contracts with ICANN, top-level domain registries and domain name registrars must perform certain required functions or they can lose their accreditation, which would prevent them from doing business as a top-level domain registry or

²⁹The first accountability and transparency review, completed in 2010, contained 27 recommendations to enhance activities throughout ICANN, including the governance and performance of the board, the role and effectiveness of the Governmental Advisory Committee, public input and public policy processes, and review mechanisms for board decisions. All recommendations were accepted by the ICANN board and directed to be implemented. The second review, completed in January 2014, determined that ICANN had made good progress in implementing these recommendations but that more remained to be done. This review also made 12 new recommendations related to the same areas. Reviews of security and stability and Whois have also been completed. Community work to support the competition, consumer choice and consumer trust review, to be formally launched this fall, is also under way.

³⁰ICANN officials told us that some of these managers are government entities that are not permitted to contract with ICANN, and so this is not a requirement for country-code top-level domain managers.

registrar. For example, registrars must record contact information for every entity that registers a domain name through them in what is known as the Whois service. Relevant policies developed through ICANN's multistakeholder policy development process and approved by ICANN's board automatically become incorporated into these contracts, so long as these changes do not constitute "restricted amendments" under the registrar agreements.

Working Groups Are Using a Multistakeholder Process to Develop a Transition Proposal and Help Manage Identified Risks

ICANN Convened Multistakeholder Working Groups to Develop a Transition Proposal

In response to NTIA's announcement asking ICANN to convene global stakeholders to develop a transition proposal that would meet NTIA's core goals, ICANN convened the multistakeholder community at its March 2014 public meeting in Singapore³¹ to join ICANN in developing the transition process. Representatives from governments, the private sector, Internet organizations, and Internet users from around the world were invited to participate in meetings, either in-person or remotely, via streaming live audio and video, chatrooms, online question boxes, and e-mail—to provide input into the process to develop the transition proposal. This information was later compiled and incorporated into materials posted to ICANN's website on April 8, 2014, for a one-month public comment period.

³¹ICANN holds three public meetings a year in different locations around the world. At these meetings, stakeholders, supporting organizations, and advisory committees come together to discuss policy issues. Interested parties are invited to observe these discussions in-person or via remote participation.

On June 6, 2014, ICANN posted the process to develop the proposal and next steps.³² ICANN envisioned that the process would be inclusive, consensus-based, transparent, and focused in scope, among other key principles. ICANN, based on input from the multistakeholder community, proposed using existing information and processes, multi-lingual support, and web-based platforms, among other mechanisms, to ensure an open, inclusive, transparent, and accountable process. At the multistakeholder community's request, a coordination group to oversee the transition proposal process was established.³³ In September 2014, the coordination group issued a request for proposals that asked each of the three communities with a direct operational relationship with ICANN in its role as operator of these technical functions—the protocol parameters, numbers, and names communities—to develop a transition proposal through a transparent process that is open to and inclusive of all interested stakeholders. In response, each of these three communities established a working group to develop a transition proposal. Initially, the coordination group developed a timeline that called for the final proposal to be submitted to NTIA before the expiration of the contract for these Internet technical functions on September 30, 2015; however, as explained below, this time frame was amended in July 2015.

The coordination group's request for proposals specified that the proposal from each of the three technical function communities—the protocol parameters, numbers, and names communities—should describe:

- The technical function involved.
- How current policies, oversight, and accountability are established under the existing arrangement, which includes the IANA functions contract between NTIA and ICANN.

³²See: ICANN. *Transition of NTIA's Stewardship of the IANA Functions: Process to Develop the Proposal and Next Steps*, accessed May 4, 2015, <https://www.icann.org/resources/pages/process-next-steps-2014-06-06-en>.

³³The coordination group, formally called the IANA Stewardship Transition Coordination Group, is comprised of 30 individuals representing 13 communities of stakeholders, including communities with direct operational or service relationships with ICANN (as IANA functions operator) and other stakeholders from governments, Internet users and businesses. A full list of members has been published on ICANN's website: <https://www.icann.org/resources/pages/coordination-group-2014-06-17-en>

-
- Any proposed changes to how policies, oversight, and accountability would be established in the absence of a contract between NTIA and ICANN.
 - Transition implications, including risks to operational continuity and how they will be addressed.
 - How the proposal meets NTIA's published core goals for the transition.
 - How the process used to develop the proposal incorporates principles of community involvement, openness, and transparency, including the level of consensus achieved.

The coordination group stated that it would assess the proposals from the three technical function communities for compatibility and interoperability and assemble them into one complete proposal for the transition.

During discussions regarding how the three technical function working groups would develop the transition proposal, the multistakeholder community raised the broader topic of the effect of the transition on ICANN's accountability generally. At the request of participants of the multistakeholder community, an accountability working group was created to focus on ensuring that ICANN remains accountable in the absence of its historical contractual relationship with the U.S. government.³⁴

According to the accountability working group, this contractual relationship with the U.S. government has been perceived as a backstop with regard to ICANN's organization-wide accountability since 1998.

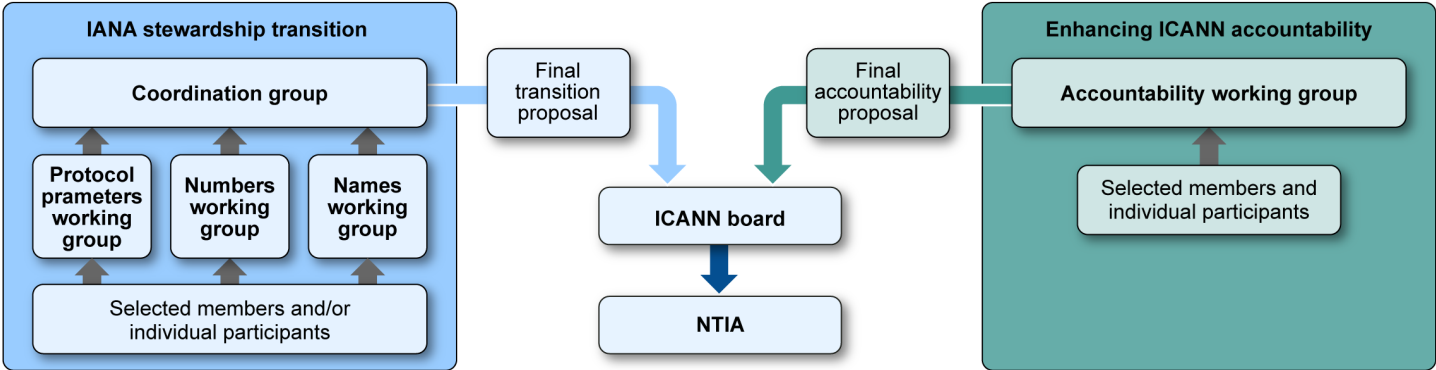
Each technical function working group³⁵ and the accountability working group created a charter that helped to guide its work. Each working group

³⁴Officially called the Cross Community Working Group on Enhancing ICANN Accountability, the accountability working group consists of 26 members, including 24 members selected by the group's chartering organizations, an ICANN staff representative, and an ICANN board liaison. The accountability working group's charter was adopted by the Generic Names Supporting Organization, the Country-Code Names Supporting Organization, the Address Supporting Organization, the At-Large Advisory Committee, and the Governmental Advisory Committee.

³⁵The three technical function working groups include (1) the protocol parameters working group, officially called the Planning for the IANA/NTIA Transition working group; (2) the numbers working group, officially called the Consolidated RIR IANA Stewardship Proposal Team (RIR refers to regional Internet registry); and (3) the names working group, officially called the Cross Community Working Group to Develop an IANA Stewardship Transition Proposal on Naming Related Functions.

consists of chairs and members or participants from relevant parts of the multistakeholder community,³⁶ but any interested individual may observe meetings and contribute to discussions. The three technical working groups developed their proposals in line with the requirements laid out by the coordination group. The accountability working group followed a separate and parallel process to develop its draft proposal with the goal of identifying a broader set of reforms necessary to enhance ICANN's accountability towards the global multistakeholder community (see fig. 7).

Figure 7: Summary of Parallel Processes to Develop the Transition Proposal



Abbreviations and definitions:

IANA: Internet Assigned Numbers Authority
NTIA: National Telecommunications and Information Administration
ICANN: The Internet Corporation for Assigned Names and Numbers
Accountability working group: Cross Community Working Group on Enhancing ICANN Accountability
Coordination group: The IANA Stewardship Transition Coordination Group

Protocol parameters working group: Planning for the IANA/NTIA Transition
Numbers working group: The Consolidated RIR IANA Stewardship Proposal Team. RIR refers to Regional Internet Registries
Names working group: The Cross Community Working Group to Develop an IANA Stewardship Transition Proposal on Naming Related Functions

Source: GAO analysis of NTIA, ICANN, and working group documents. | GAO-15-642

Each group's process was intended to be open and inclusive, supported by stakeholders participating through face-to-face and virtual meetings

³⁶The protocol parameters working group consists of participants in IETF. The numbers working group's members were selected by the five regional Internet registries. The names working group's members were selected by the group's chartering organizations. The membership includes representatives from the At-Large Advisory Committee, the Country Code Names Supporting Organization, the Governmental Advisory Committee, the Generic Names Supporting Organization, and the Security and Stability Advisory Committee. In addition to members, interested parties may participate in or observe the process of developing the transition proposal.

open to the public in which elements of the draft proposals were discussed and revised, and public mailing lists were created to allow interested parties or individuals to participate in discussions and observe the process with the goal of developing a consensus proposal. The working groups' activities—including meeting proceedings and e-mail discussions, for example—were archived and have been made publicly available along with relevant documents.³⁷

By the end of June 2015, all three technical function working groups had completed their draft proposals and submitted them to the coordination group for its review and comment. While the protocol parameters and numbers groups had completed their proposals earlier in 2015, the names working group submitted its proposal on June 25, 2015, after getting approval from all chartering organizations during ICANN's 53rd meeting in Buenos Aires. The coordination group then assembled the proposals into one complete draft proposal, which it posted on its website for a public comment period from July 31 through September 8, 2015. Once the public comments, if any, have been addressed, the coordination group plans to submit the final proposal to the ICANN board to transmit to NTIA within 14 days.

The accountability working group published its draft proposal on May 4, 2015, (the recommendations in the draft proposal were not presented as the consensus of the group) for a public comment period that ran until June 12, 2015. After addressing the first round of public comments on the proposal, the accountability working group posted its revised proposal for a second round of public comments from August 3 through September 12, 2015, with the hope of getting the final proposal approved by the group's chartering organizations by the conclusion of the next ICANN meeting in Dublin, Ireland in late October 2015, and submitting the proposal to the ICANN board in November 2015.

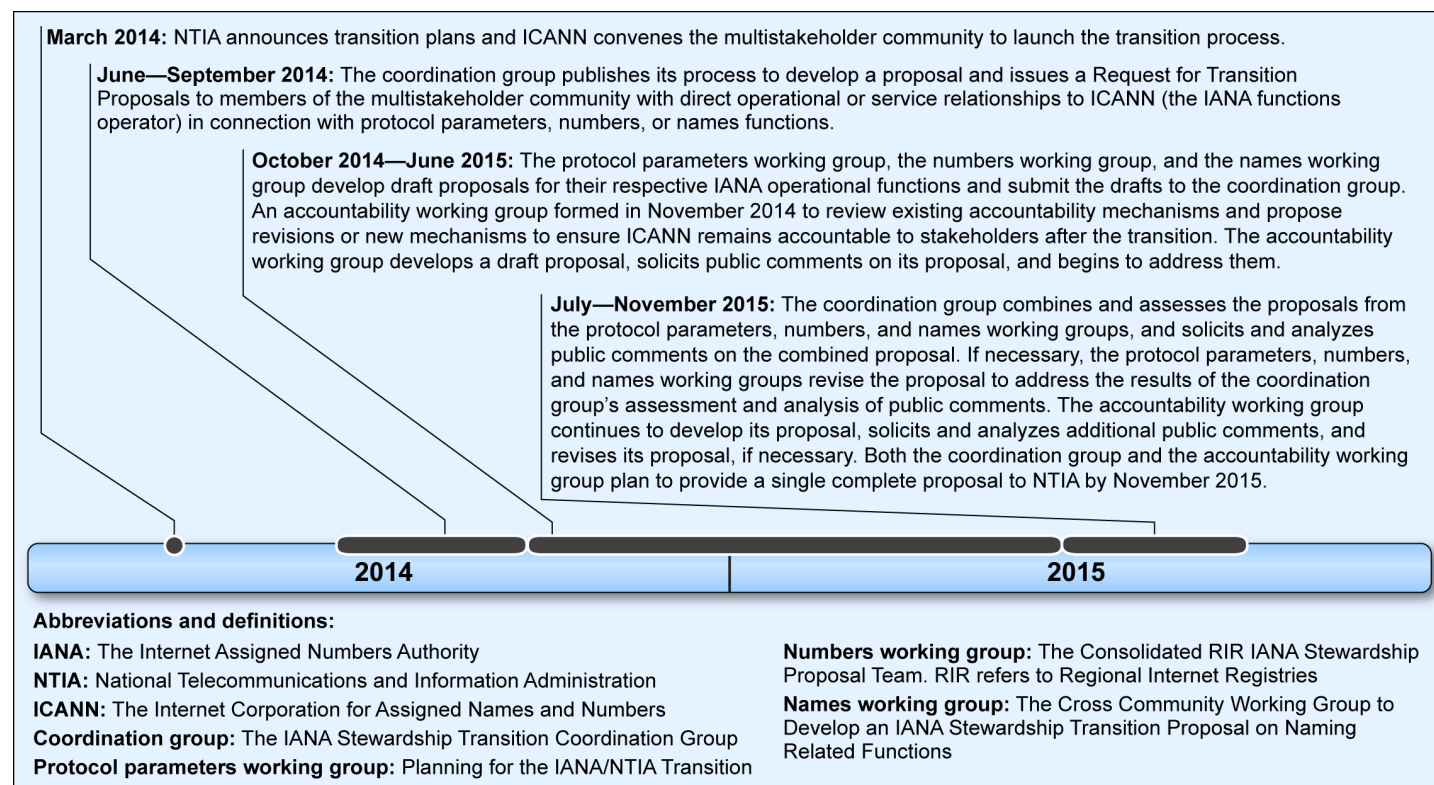
³⁷For coordination group archives, see: <https://www.icann.org/resources/pages/icg-archives-2014-07-31-en>; for the protocol parameters community archives, see: <http://www.ietf.org/mail-archive/web/ianaplan/current/maillist.html>; for the numbers community archives, see: <https://www.nro.net/nro-and-internet-governance/iana-oversight/consolidated-rir-iana-stewardship-proposal-team-crisp-team>; for the names community archives, see: <https://community.icann.org/display/gnsocwgdtstwrdsdp/Meetings>; and, for the accountability working group, see: <https://community.icann.org/display/acctcrosscomm/Meetings>.

Current Time Frame Envisions Proposal Will Be Provided to NTIA by November 2015

Although the coordination group had originally planned for its work to be completed in time to allow the transition to take place before September 30, 2015, when the current contract between NTIA and ICANN expires, NTIA has not viewed this date as a deadline. The NTIA Administrator has indicated on various occasions that it is more important to get the proposal right than to hit a particular target time frame. If necessary, the current contract may be extended for up to 4 years. In recognition of further work to be done and concerns raised by some members of the multistakeholder community regarding whether all necessary tasks can be completed by September 30, 2015, NTIA wrote a letter to the chairs of the coordination group and accountability working group on May 6, 2015. In the letter, NTIA asked for an update on the status of the transition planning, including each community's views regarding how long it will take to finalize the transition plan and implement it after it is approved. Subsequently, at the ICANN meeting in Buenos Aires, the NTIA Administrator estimated that the total time of U.S. government review, including NTIA and potentially congressional review, could be 4-to-5 months.

On July 6, 2015, the chairs of the coordination group and the chairs of the accountability working group responded to NTIA under separate letters. The coordination group's chairs estimated that the coordination group could provide a proposal to NTIA via the ICANN board at the ICANN meeting in Dublin, Ireland, in late October 2015; or in early November 2015. The accountability working group's chairs estimated that the group could provide a proposal to the ICANN board by November 2015, a proposal that they anticipated would be forwarded to NTIA in that same month. Both letters stated that the transition could be completed in the July 2016 time frame. Their estimates included consideration of the 4-to-5-month review period that NTIA had suggested would likely be needed by NTIA and Congress. In their letters, the coordination group chairs stated that they considered their timeline to be optimistic, and the accountability working group chairs suggested that it might be prudent to anticipate the potential need for additional time, such as until September 2016. For more details on the time frame described in these July 6 letters, see figure 8.

Figure 8: Planned Time Frame for the Multistakeholder Community to Deliver a Proposal to Transition from National Telecommunications and Information Administration's Internet Technical Functions Contract, as of July 6, 2015



Source: GAO analysis of NTIA, ICANN and community working group documents. | GAO-15-642

Working Groups' Approaches for Developing Draft Proposals Generally Incorporated Risk Management Principles

While the accountability working group has a broad focus on accountability, ICANN's accountability as it relates to its role for each technical function is also central to the scope of the technical function working groups' proposals, as described in the request for proposals outlined above. As a result, all four working groups discussed ICANN's accountability to their respective community in developing their proposals. In doing so, their efforts all encompassed a consideration of risks related to the proposed transition. In order to consider what, if any, new mechanisms needed to be established to preserve ICANN's accountability without the NTIA contract, the technical function working groups and the accountability working group each held a series of meetings during which they identified and discussed any risks to accountability raised by the transition and, if any risks were identified,

considered various new mechanism(s) to address these risks. Their draft proposals include the mechanisms selected through this process.³⁸

Neither the coordination working group's request for proposals nor the accountability working group's charter specified that the working groups should use a risk management framework to assess risks. Nevertheless, we found that the working groups' approaches to considering and addressing risks are consistent with general risk-management principles, which help guide a risk management framework. The purpose of a risk management framework is to provide a systematic process to assess threats and take appropriate steps to deal with them. Our risk management framework³⁹ and others developed by the Committee of Sponsoring Organizations of the Treadway Commission (COSO)⁴⁰ and

³⁸The protocol parameters working group established that under the current arrangement, oversight and accountability for the protocol parameters functions is carried out by the Internet Architecture Board and IETF. It determined that because the current system works well with no operational involvement from NTIA, no new structures or organizations are required.

³⁹GAO, *Risk Management: Further Refinements Needed to Assess Risks and Prioritize Protective Measures at Ports and Other Critical Infrastructure*, [GAO-06-91](#) (Washington, D.C.: Dec. 15, 2005). We developed a risk management framework by reviewing risk literature and previous GAO reports and testimonies. We also consulted, among other things, the Government Performance and Results Act of 1993; the *Government Auditing Standards*, 2003 Revision; GAO's *Standards for Internal Control in the Federal Government* (November 1999); the work of the President's Commission on Risk Management; and the enterprise risk-management approach of COSO. In addition, we consulted with experts in the fields of risk management, risk modeling, and terrorism; and reviewed numerous frameworks from industry, government, and academic sources. The framework was field tested on several GAO reviews and reviewed by three academic experts in risk management.

⁴⁰Committee of Sponsoring Organizations of the Treadway Commission, *Enterprise Risk Management—Integrated Framework* (2004). COSO is a voluntary private-sector organization dedicated to improving organizational performance and governance through effective enterprise risk management, among other things. According to COSO, a key objective of this framework—which has become widely accepted—is to help managements of businesses and other entities better deal with risk in achieving an entity's objectives.

the International Organization for Standardization (ISO)⁴¹ contain similar principles to guide a risk assessment process. We compared the four working groups' approaches to these principles and found that the approaches generally aligned with the principles, as shown in table 1.

⁴¹International Organization for Standardization, *ISO 31000 Risk Management—Principles and Guidelines* (2009). ISO is intended to be a family of standards relating to risk management codified by the International Organization for Standardization, an independent, nongovernmental organization that develops and publishes voluntary international standards. The purpose of *ISO 31000 Risk Management—Principles and Guidelines* is to provide principles and generic guidelines on risk management. *ISO 31000* seeks to provide a universally recognized paradigm for practitioners and companies employing risk management processes to replace the myriad of existing standards, methodologies, and paradigms that differed between industries, subject matters, and regions.

Table 1: Comparison of General Risk Management Principles with Working Groups’ Approaches to Considering and Addressing Risks to Transition of National Telecommunications and Information Administration’s (NTIA) Role in the Internet Technical Functions

General risk management principles ^a	Working groups’ approaches to considering and addressing risks
Define objectives.	<p>The objective of the technical function working groups, as defined in the coordination group’s charter, is to propose the arrangements required for the continuance of the Internet technical functions in an accountable and widely accepted manner after the expiration of the contract between the National Telecommunications and Information Administration (NTIA) and the Internet Corporation for Assigned Names and Numbers (ICANN).</p> <p>The accountability working group defined its objective as ensuring that ICANN remains accountable to the needs and expectations of the multistakeholder community after the transition.</p>
Identify and assess risks.	<p>The 3 technical functions working groups identified and assessed risks to ICANN’s accountability as operator of the related technical functions in a series of meetings.</p> <p>The accountability working group identified and assessed 37 risks that could threaten ICANN’s accountability in a series of meetings and through draft documents that were circulated among the community for review and comment.</p>
Evaluate alternatives, or strategies, for addressing these risks.	<p>For the technical functions working groups, the level of risk to accountability identified determined the extent to which alternatives were evaluated. For example, because the protocol parameters working group determined that NTIA’s contract was not key to oversight and accountability, it proposed no new accountability arrangements. In contrast, the numbers and names working groups, which determined that the NTIA contract was an important accountability mechanism related to ICANN’s operation of the relevant technical functions, each considered alternative structures in working group meetings or draft proposals. In addition, the names working group engaged outside legal counsel to help it evaluate these alternatives.</p> <p>The accountability working group evaluated alternatives for addressing identified risks in draft documents that were discussed by the group. It also engaged outside legal counsel to assist it in evaluating these alternatives.</p>
Select the appropriate alternative(s).	<p>After considering alternative strategies, if applicable, the three technical functions working groups and the accountability working group selected strategies to address identified accountability risks and included them in their draft proposals.</p>
Implement the alternative(s) and monitor the progress made and results achieved.	<p>The accountability working group’s draft proposal specifies that certain proposed accountability changes must be in place or committed to before the transition from the NTIA contract can occur. The draft proposal also includes ongoing monitoring and review processes.</p>

Source: GAO analysis of GAO’s risk management framework as described in [GAO-06-91](#); the Committee of Sponsoring Organizations of the Treadway Commission, Enterprise Risk Management—Integrated Framework (2004); International Organization for Standardization, ISO 31000 Risk Management—Principles and Guidelines (2009) and ICANN transition working groups’ meetings and documents. | GAO-15-642.

^aThe principles identified in this table are covered by all three frameworks, although the frameworks are organized using slightly different terms and activities.

The accountability working group, in particular, performed an extensive and documented identification and assessment of risks related to the proposed transition. To do this, the group used what it referred to as a “stress test” methodology, or a series of exercises used to conduct a forward-looking assessment of the potential impact of certain plausible events or scenarios on ICANN’s stability and to assess the adequacy of existing and proposed accountability mechanisms available to the multistakeholder community. Specifically, the group identified 37 risks that

could threaten ICANN's accountability post-transition and assessed whether existing or proposed mechanisms (accountability measures) in the transition proposal will help to ensure ICANN remains accountable to the multistakeholder community.

The accountability working group gathered and analyzed an inventory of relevant and plausible risks, as identified through public comments. The risks evaluated by the accountability working group's stress test process can be generally categorized as: (1) risks associated with the potential that ICANN could fail to meet operational obligations, such as if ICANN attempts to add a new top-level domain in spite of security and stability concerns expressed by the technical community or other stakeholder groups; (2) risks associated with the potential that ICANN could fail to remain accountable to the multistakeholder community, such as by allowing one stakeholder segment, whether governmental or commercial, to drive its agenda on all other stakeholders or prevent all other stakeholders from advancing their interests; and (3) risks that could threaten ICANN's existence, such as a general financial downturn in the domain name industry, major corruption or fraud at ICANN, or legal or legislative action arising from existing public policy (such as an antitrust suit) which could lead to ICANN's insolvency. The following examples provide a selection of risks that were included in the accountability working group's stress tests, the accountability working group's assessment of the extent to which ICANN would be accountable to the community when facing that risk, and the relevant changes included in the draft proposal and being tested by the accountability working group to support enhanced accountability:

- *ICANN becomes less transparent and accountable in its decision making:* Officials told us that the current affirmation of commitments between NTIA and ICANN is aimed at promoting transparent and accountable budgeting processes, fact-based policy development, and decisions to protect the public interest. Some stakeholders, however, are concerned that absent a contract with NTIA, ICANN may discontinue key commitments and review processes which stakeholders believe help to hold ICANN accountable to the multistakeholder community. For example, ICANN currently has a commitment to undertake community-led reviews relating to accountability and transparency. To address this risk, the accountability working group has proposed changes to ICANN's bylaws that would require ICANN to continue its periodic reviews (at least every 3 years) of: (1) its accountability and transparency; (2) its ability to maintain the security, stability and resiliency of the domain

name system; (3) the extent to which new top-level domains promote competition, consumer trust, and consumer choice; and, (4) the effectiveness of its Whois services policy, which, as previously described, requires registrars to document contact information for the registrant of each domain name.

- *ICANN is 'captured' by one or several stakeholder groups:* The multistakeholder model of governance invites participants throughout the world to create shared policies and standards on how the Internet is run. The accountability working group evaluated whether existing or proposed mechanisms would help to manage the risk that ICANN may be 'captured' by one or several groups of stakeholders representing specific sectors. According to some stakeholders we interviewed, this could empower one group of stakeholders to drive an agenda that is not in the interest of global stakeholders—such as governments in the Governmental Advisory Committee seeking to influence policies that would restrict free expression on the Internet at a global level, for example.⁴² According to the accountability working group, this risk exists under ICANN's current bylaws. That is, for example, the ICANN board must consider and respond to advice from the Governmental Advisory Committee on the formulation and adoption of public policies—especially where there may be an interaction between ICANN's policies and national laws or international agreements—and must try to find a mutually acceptable solution if the board decides to take an action that is not consistent with the Governmental Advisory Committee's advice. If a mutually acceptable solution cannot be found, the ICANN board must state in its final decision the reasons why it did not follow the advice provided by the Governmental Advisory Committee. Although the Governmental Advisory Committee currently seeks consensus among its membership⁴³ before providing advice to the ICANN board,

⁴²Some countries currently establish policies to restrict Internet content within their national borders.

⁴³Membership of the Governmental Advisory Committee is open to all national governments and to distinct economies as recognized in international fora. Multinational governmental organizations and treaty organizations may also participate as observers, on the invitation of the Governmental Advisory Committee through the Chair. As of August 3, 2015, ICANN's website states that the Governmental Advisory Committee has 150 Members, including a Chair and five Vice Chairs, and 32 Observers. According to the Governmental Advisory Committee's Operating Principles, consensus is understood to mean the practice of adopting decisions by general agreement in the absence of any formal objection.

according to its operating principles, it may decide at any time to revise its operating procedures.⁴⁴ The accountability working group administered a stress test which considered the consequences if the Governmental Advisory Committee were to lower the threshold of agreement required to provide advice to the ICANN board from consensus decisions to a simple majority vote. This would make it easier for one segment of the Governmental Advisory Committee to pass policy recommendations and influence ICANN policies. The accountability working group has proposed changing ICANN's bylaws to make it clear that only consensus advice from the Governmental Advisory Committee would trigger a bylaw-required consultation. According to an NTIA senior policy advisor, NTIA supports this clarification to the bylaws and considers the revision both appropriate and necessary to meet the goal that the transition not yield a government-led or intergovernmental replacement for NTIA's current stewardship role.

- *ICANN relocates to another legal jurisdiction:* The accountability working group views the question of jurisdiction as relevant because it holds ICANN accountable to comply with relevant laws under which ICANN is incorporated. For example, California's Attorney General currently has jurisdiction over California nonprofit entities acting outside the scope of their articles of incorporation.⁴⁵ ICANN's current bylaws require ICANN's principal office for conducting business to reside in the State of California. However, the accountability working group determined that, without the NTIA IANA functions contract, existing measures would be inadequate to prevent ICANN's board from amending this bylaw provision and moving, potentially outside the United States. According to the accountability working group, such a change could reduce the ability of third parties—such as Internet users or people with registered websites—to seek legal redress for ICANN's failure to enforce contracts or other actions. The accountability working group determined that one of its proposed measures would help to manage this risk by empowering the community to veto a proposed change to the bylaws.

⁴⁴This policy is in the Committee's operating principles, which can be revised at any time.

⁴⁵ICANN is a nonprofit public benefit corporation in California. ICANN does not have shareholders but is governed by a board of directors, through its bylaws, articles of incorporation, and other relevant laws.

After taking an inventory of existing accountability mechanisms at ICANN, soliciting input from the community regarding ICANN's responsiveness to the community, and analyzing the results of its stress tests, the accountability working group in its draft proposal preliminarily recommended several changes to bolster the accountability mechanisms in place at ICANN. For example, in its draft proposal, the working group proposed revisions to the bylaws to clarify ICANN's mission, protect the public interest as ICANN carries out its mission, and empower the multistakeholder community in key areas, for example, by establishing a set of fundamental bylaws that could only be amended with prior approval from the community. Other proposed revisions include (1) a reform of existing independent review processes to review ICANN performance and provide redress, if necessary; and (2) enhanced community powers, including the ability of the community to reject ICANN board decisions related to ICANN's strategic plan and budget, approve or veto changes to the ICANN bylaws, and remove individual members or recall the entire ICANN board. The accountability working group stated after a face-to-face meeting at ICANN's 53rd meeting in Buenos Aires in June 2015 that in the comments received on its draft proposal, it had received broad support for the overall accountability architecture proposed. However, the accountability working group recognized that questions remained about a proposed model for community empowerment, and stated that it planned to continue to work to revise the proposal in this area.

Accountability Working Group's
Consideration of Risks
Generally Covered Risks
Identified by Stakeholders We
Interviewed

Most nonfederal stakeholders we interviewed were generally supportive of the transition. The risks identified by most stakeholders were consistent with those already identified and assessed by the accountability working group or other working groups. Some stakeholders we interviewed stated that generally, technical risks related to the proposed transition were low, and officials at federal agencies we spoke with at an unclassified level,⁴⁶ including several agencies with a national security mission, generally

⁴⁶Evaluating any security risks at a classified level was outside of the scope of our review. According to NTIA officials, NTIA has established a system whereby officials in the interagency working group, described later in this report, can bring to NTIA any classified concerns related to the proposed transition of the NTIA contract with ICANN. NTIA officials told us that no classified concerns have been brought to their attention through this system.

supported the transition and did not identify unmanageable national security risks related to the transition.⁴⁷

Officials from the National Institute of Standards and Technology explained that the specific and limited nature of the technical functions and the distributed and voluntary nature of the Internet, together, help to reduce technical risks. That is, they said that network operators and other customers of the technical functions monitor the performance of various systems supporting the Internet and would quickly identify and resolve problems associated with a malfunction at the top-level domain before an Internet user would notice the problem. They also explained that the Internet was designed to include multiple independent root server operators (13) and hundreds of replicated servers distributed throughout the world to help resolve Internet names to the IP addresses necessary for two devices to communicate. A malfunction of one root server may not have a broad impact because any of the other root servers can perform the same task. Lastly, individual computers store information from recent queries of the domain name system in a local cache file, including records of where to access recently-used top-level domains, which means that the Internet user's computer does not always need access to root servers when resolving an Internet name to an IP address in order, for example, to find a particular website. The protocol parameters, numbers, and names working groups included existing or new mechanisms in their draft proposals that would allow the multistakeholder community to appoint a new IANA functions operator if ICANN does not meet expected performance levels. The groups believe that the ability to separate the IANA functions from ICANN will provide sufficient protections to hold ICANN accountable regarding the IANA technical operations, as they believe it effectively replaces the perceived backstop role of NTIA's contract with ICANN.

⁴⁷ Officials at the Federal Communications Commission did not comment on this, as they viewed the topic as outside of the scope of their responsibilities. Officials from one federal agency with a national security mission added that due to the complexity and unprecedented nature of this issue, the agency was not able to assess any future impacts to national security. In a letter to congressional defense committees dated July 8, 2015, the Department of Defense stated that it has been and will remain engaged in the interagency group and that the interagency group, led by NTIA and the National Security Council, has been engaged in monitoring the progress of this transition and the related accountability enhancement initiatives.

Officials at one agency expressed concern that without NTIA's contract, ICANN might be less likely to enforce its contracts with registrars, and that this could reduce Internet reliability and transparency and diminish law enforcement's ability to tackle cybercrime. In particular, officials at this agency stated that the requirement that registrars record accurate contact information of each domain name holder is important to help law enforcement officials investigate and prosecute a range of crimes facilitated by the Internet, including for example, identity theft, credit card and bank fraud, child exploitation crimes, computer intrusions and damage (such as hacking and malware), and intellectual property misuse, among others. Registrar agreements with ICANN establish contractual obligations related to Whois, a system used to identify who is responsible for a website or an IP address. In 2013, ICANN revised its contract with Internet registrars to require that all new registered domain names comply with additional requirements of ICANN policies related to the Whois service, which matches websites to their owner or operator, in an effort to improve the accuracy and overall effectiveness of the Whois system.⁴⁸ In order to address this risk, the accountability working group has proposed changes to ICANN's bylaws, as discussed above, which would require periodic reviews to assess the effectiveness of ICANN's Whois services policy. Such a review would include an evaluation of the effectiveness of its implementation, and the extent to which its implementation meets the legitimate needs of law enforcement and promotes consumer trust.

Risks identified by most nonfederal stakeholders we interviewed were also generally consistent with those identified and assessed by the accountability working group. For example, some stakeholders with whom we spoke were concerned that a government or other entity may 'capture' ICANN to drive a political agenda or make decisions that are not in the best interests of the multistakeholder community. The proposed accountability measures to address this risk include empowering the multistakeholder community to veto ICANN budgets and strategic plans or to remove board members or directors in certain instances. Two stakeholders, however, said that this risk is low because of the voluntary

⁴⁸We previously reported concerns about the accuracy of contact information See [GAO-06-165 Internet Management: Prevalence of False Contact Information for Registered Domain Names](#) (Washington, D.C.: Nov. 4, 2005). One agency we spoke with expressed continued concerns about ICANN's contract compliance efforts related to the 2013 Internet registrar contract. While we include this information for contextual purposes, analyzing this issue was outside of the scope of our review.

nature of the system; stating that if ICANN moved away from core principles such as maintaining a secure and stable Internet, it would be possible for the Internet community to move the technical functions to a different operator.

Additionally, three stakeholders told us that there was a risk that without NTIA having the backstop of the contract, the multistakeholder community itself potentially could be captured by those with particular interests such as particular commercial interests. One stakeholder we spoke with stated that it will be important to consider how to ensure that the multistakeholder community is broad enough so that voices within the community can protect the public interest if and when it may be in conflict with certain commercial interests. According to a stakeholder involved with the accountability working group, the group has considered this risk and to address it has proposed establishing an independent panel. In the accountability working group's draft proposal, any group, person, or entity materially affected by an ICANN action or inaction in violation of ICANN's mission or bylaws would have standing to appeal to this independent panel, and the panel's decisions would be binding on the ICANN board. Officials from NTIA have also said that they intend to remain an active stakeholder, after the transition, though the Governmental Advisory Committee or through other means within the multistakeholder model—for example, by remaining engaged on policy issues related to new generic top-level domains or the Whois service.

Some Stakeholders Identified Risks If the Transition Does Not Occur

Some stakeholders we interviewed were concerned about risks if the transition does not occur. These stakeholders believed that if the transition does not happen this may weaken the credibility of the multistakeholder model of Internet governance and could lead to more pressure around the world for governmental or intergovernmental control over the Internet. Some stakeholders stated that greater governmental control over the Internet could potentially stall innovation, result in slower Internet policymaking, and could fragment the Internet, limiting the openness and interoperability we have today. Officials from the State Department and NTIA have said that while this concern has been relieved somewhat with NTIA's announcement of the proposed transition, international pressure may rise again if the transition does not proceed.

According to officials from NTIA and the U.S. Department of State, pressure from those in support of greater intergovernmental control over these Internet functions subsided after NTIA announced the proposed transition. For example, the April 2014 Global Multistakeholder Meeting

on the Future of Internet Governance, also known as NETmundial, convened thousands of stakeholders in São Paulo, Brazil, including government officials and representatives of academic, technical, private sector, and civil society organizations to discuss Internet governance principles. Conference participants recognized the Internet as a global resource that should be managed in the public interest and identified a set of principles that emphasized support for an open multistakeholder model of Internet governance, decision making, and policy formulation, among other principles.

NTIA Has Not Determined How It Will Evaluate the Transition Proposal, but Using a Framework Could Help

NTIA Has Not Determined How It Will Evaluate the Transition Proposal against Its Goals

In its transition announcement, NTIA set out several core goals for a successful transition proposal and subsequently told the multistakeholder community that it expects to receive a single proposal that covers the operation of the technical functions as well as community-identified ways to improve ICANN's accountability. NTIA has also said that all work items identified in the final proposal must be implemented before the contract can end. NTIA officials told us they have not identified a framework to guide their assessment of the final proposal against their core goals. According to NTIA officials, they are waiting to receive the final transition proposal before determining how to evaluate it. NTIA officials told us the contents of the final proposal and the quality of the multistakeholder community's effort to produce it, such as the extent of the stress testing conducted and the feedback from a community-led public comment period, will influence how NTIA evaluates the proposal. In addition, they noted that NTIA supports the bottom-up multistakeholder process for developing the proposal and wants to avoid being overly prescriptive in describing the proposal's requirements. NTIA officials have stated that the proposal and the process used to develop it should be driven by the multistakeholder community. NTIA officials told us they have observed the transition-planning process and participated in some of the working

groups' meetings, but officials said they have been careful not to provide specific feedback that could dramatically affect the proposal. At certain points, NTIA officials have commented on the overall direction of the transition process, such as by encouraging stakeholders to coordinate the proposals and offering questions about the complexity of an early proposal draft. In one instance, NTIA officials directly engaged with a working group to provide feedback about a specific proposal element.⁴⁹

NTIA will evaluate the transition proposal on behalf of the U.S. government and plans to involve other agencies in its evaluation, according to NTIA officials. In deciding whether or not to accept the proposal and let the technical functions contract with ICANN expire, NTIA plans to consult with an interagency working group that helped define the core goals for the proposal.⁵⁰ NTIA's core goals reflect a consensus view of the U.S. government agencies that participated in the interagency group discussion, according to NTIA officials. NTIA told us that several agencies participate in this group, including, among others, the National Institute of Standards and Technology, the Patent and Trademark Office, the Federal Trade Commission, General Services Administration, the Federal Bureau of Investigation; several components of the Departments of State, Defense, Homeland Security, Justice, and the Treasury; and White House offices, including the National Security Council, Office of Management and Budget, and Office of Science and Technology Policy.⁵¹

Although NTIA officials stated they have not yet determined how they will evaluate the final transition proposal against NTIA's stated goals, they told us the NTIA Administrator has described examples of what was intended by these goals, which are summarized in table 2.

⁴⁹In a posting on the accountability group's mailing list, an NTIA official provided the U.S. government's position that a particular stress test was both appropriate and necessary. The stress test considered the risk of a proposed bylaw change regarding how the ICANN board is required to consider advice from the Governmental Advisory Committee, in order that a lower voting threshold would be needed to provide advice.

⁵⁰NTIA regularly convenes an interagency working group that focuses on Internet domain name system topics.

⁵¹While NTIA plans to invite the interagency working group to comment on and help evaluate the final proposal, NTIA officials said they cannot require federal agencies to participate in this evaluation. Agencies participate in this group as they deem appropriate, depending on the particular topics discussed at each meeting.

Table 2: National Telecommunications and Information Administration (NTIA) Examples Describing Core Goals for the Final Transition Proposal of Internet Technical Functions

NTIA's core goal	Example(s) provided by NTIA
Support and enhance the multistakeholder model	<ul style="list-style-type: none"> Open, transparent, bottom-up process to develop proposal Assurance that any changes to how the Internet technical functions are performed (e.g., changes to the lists of protocol parameters, Internet Protocol (IP) addresses, and top-level domains) are consistent with documented procedures developed through the multistakeholder model
Maintain the security, stability, and resiliency of the Internet's domain name system	<ul style="list-style-type: none"> Decentralized, distributed authority structure of the system needs to be preserved so as to avoid single points of failure, manipulation, or capture Integrity, transparency, and accountability of IP addresses, protocol parameters, and domain names must be preserved Technical function services need to be resistant to attacks, be able to fully recover from degradation, and be operated in a stable legal environment
Meet the needs and expectations of the global customers and partners	<ul style="list-style-type: none"> Clear mechanisms for developing and adhering to customer service levels, including timeliness and reliability Processes for transparency, accountability, and auditability should be clear Continued separation of the operation of technical functions from Internet policy development
Maintain the openness of the Internet	<ul style="list-style-type: none"> Continued environment in which operation of the technical functions does not interfere with free expression or free flow of information Maintain global interoperability of the Internet
Not replace NTIA's role with government-led or inter-governmental organization solution	<ul style="list-style-type: none"> Support multistakeholder model of Internet governance

Source: GAO summary of NTIA public statements. | GAO-15-642.

NTIA has continued to engage with the multistakeholder community as the community works to finalize the components of the transition proposal, asking questions about the potential implications and indicating that the public record must demonstrate how the proposal meets NTIA's core goals. For example, before ICANN's June 2015 meeting in Buenos Aires, NTIA asked the multistakeholder community to consider several questions regarding the potential implications of certain elements contained in the working groups' draft proposals, such as new structures, committees, and a membership model for community empowerment. NTIA also asked about how the working groups planned to address the accountability of ICANN's independent review panel, management, and staff. In addition, during the ICANN public meeting in June 2015, the NTIA Administrator emphasized the importance of a community-validated proposal—such that the public record clearly demonstrates how the proposal satisfies NTIA's core goals and provides the basis for ultimately accepting it. The NTIA Administrator said the public record must reflect the community's understanding of the implications of its proposal, including the consequences of structural changes, and must indicate that

the community has considered alternatives and provided evidence for selecting the option in the final proposal.

Most of the nonfederal stakeholders we interviewed generally thought NTIA's core goals for the proposal were appropriate, though some said they were broadly-stated.⁵² One stakeholder thought the lack of detail about the core goals was beneficial because it gave the multistakeholder community enough latitude to develop a proposal. Most stakeholders thought that accountability was an important part of the transition, and some stakeholders told us that NTIA's core goals did not explicitly emphasize accountability or did not fully address risks related to external accountability. Some other stakeholders thought that accountability was implied in NTIA's goals. NTIA has stated that it considers accountability improvements to be a key part of the transition and has expressed confidence in the multistakeholder community's work to achieve ICANN's enhanced accountability to the multistakeholder community.

Evaluation Frameworks Could Provide Tools for NTIA's Evaluation of a Final Transition Proposal

Certain existing frameworks have been developed to help organizations meet their goals or requirements and could provide tools for NTIA's evaluation of a final transition proposal. NTIA officials told us they are waiting to receive the final proposal before determining how to evaluate it and have not identified a framework to guide their assessment of the final proposal against their core goals, as described above. While the working groups developing the proposals have coordinated their efforts, NTIA expects to receive a final proposal containing two distinct parts—one for operation of the technical functions and another for accountability.

The final proposal may contain several significant changes to the operation of the technical functions and ICANN's accountability structures, as described below.⁵³ These changes are likely to create a new organizational environment for the operation of the technical functions. When evaluating the final proposal against its core goals, NTIA

⁵²Regarding stakeholder views of NTIA's core goals, we report only on the perspectives of nonfederal stakeholders because most of the federal agencies we interviewed had participated in developing the core goals as part of NTIA's interagency working group.

⁵³The protocol parameters working group proposed no new structures in its transition proposal.

will most likely need to assess proposed new structures and processes.⁵⁴ As of August 3, 2015, some of the changes proposed by the working groups include:

- **New structures**—The names working group proposed that a separate legal entity be formed as an affiliate of ICANN to serve as the operator for the technical functions.⁵⁵ In addition, both the names and numbers working groups proposed a new committee to conduct reviews of the technical functions operator to help ensure performance of the agreed-upon levels of service.
- **New contractual obligations**—The numbers and names working groups have each proposed new contracts to ensure that the technical functions operator would continue to be held accountable to the multistakeholder community in these two technical areas.⁵⁶ The two working groups have also each proposed processes by which those contracts could be canceled and the technical functions removed from the technical functions operator in the case of unsatisfactory performance.
- **New governance model**—The accountability working group proposed a formal membership model to help ensure the board's accountability to the multistakeholder community. In this model, referred to as the "sole member model," ICANN's existing supporting organizations and advisory committees would jointly participate to exercise their rights as the single, legal member of ICANN. In meetings and a prior proposal draft, the accountability working group

⁵⁴NTIA officials told us they intend to consider the accountability part of the proposal as it affects the operation of the Internet technical functions going forward.

⁵⁵Relevant ICANN staff, resources, processes, and data would be transferred to the new entity.

⁵⁶The numbers working group proposed a new contract between ICANN and the five regional Internet registries, including an option to remove the numbers technical functions from ICANN and appoint a new numbers function operator if needed. The names working group proposed a contract between ICANN and the working group's proposed new entity for operating the technical functions. The names working group also proposed a process through which the technical functions could be removed from this new entity if reviews by committees made up of participants from the multistakeholder community found its performance unsatisfactory. Not yet determined is whether the other technical functions communities (protocol parameters and numbers) would contract directly with this new entity proposed by the names community or with ICANN, and how that might change the final proposal.

explored numerous other potential structures for exercising community powers to ensure accountability. For example, one alternative considered was a membership model in which ICANN's existing supporting organizations and advisory committees would each form unincorporated associations, and through these associations would exercise rights gained as "members" of ICANN. A "designator" model, in which ICANN's supporting organizations and advisory committees would each "designate" certain board members and have the power to remove such board members, was also considered as a way to potentially give the community comparable authority without adding new legal entities.

- **Changes to ICANN's bylaws**—The accountability working group proposed several bylaw changes, such as revisions to clarify ICANN's mission, protect the public interest as ICANN carries out its mission, and reform of ICANN's independent review processes. The proposed changes also aim to empower the multistakeholder community, such as by establishing a fundamental set of bylaws that could only be revised based on prior approval of the multistakeholder community. Further, the proposal would change the bylaws to require the reviews currently contained in the affirmation of commitments.

NTIA has stated that it intends to evaluate the final transition proposal against its core goals. NTIA has also acknowledged that the multistakeholder community via ICANN is planning to provide the final proposal in two distinct parts—one for the operation of the technical functions and one for accountability. NTIA's evaluation will therefore involve examining the proposed changes in both parts in order to determine the extent to which its core goals for the transition have been satisfied.

Certain frameworks have been developed as leading practices to help organizations obtain reasonable assurance that their goals and objectives will be met or that they will meet requirements.⁵⁷ We have noted that, in general, strengthened governance and accountability standards came about as a result of governance and accountability breakdowns in the nonprofit, federal government, and public company sectors, most notably in the public-company financial scandals that led to the enactment of the

⁵⁷These internal control frameworks provide a systematic way to evaluate the extent to which an organization has developed plans to achieve its goals or meet requirements.

Sarbanes-Oxley Act of 2002.⁵⁸ In recent years, we have considered certain frameworks in relationship to accountability breakdowns or challenges at a variety of organizations, including the Legal Services Corporation, Smithsonian Institution, the United Nation’s World Food Program, and, recently, in the First Responder Network Authority (FirstNet), an independent authority created within NTIA to establish a nationwide public-safety broadband network.⁵⁹ These types of frameworks could help NTIA evaluate whether the transition proposal meets its core goals, and could also be helpful in considering accountability mechanisms that are included in the proposal.

We identified two frameworks that NTIA could consider in its evaluation of the final proposal:

- The Committee of Sponsoring Organizations of the Treadway Commission *Internal Control—Integrated Framework* (COSO framework)⁶⁰ and the
- International Organization for Standardization’s quality management principles (ISO quality management principles).⁶¹

⁵⁸See GAO, *Legal Services Corporation: Governance and Accountability Practices Need to be Modernized and Strengthened*, [GAO-07-993](#) (Washington, D.C.: Aug. 15, 2007).

⁵⁹See [GAO-07-933](#); GAO, *World Food Program: Stronger Controls Needed in High-Risk Areas*, [GAO-12-790](#) (Washington, D.C.: Sept. 13, 2012), *Smithsonian Institution: Board of Regents Has Implemented Many Governance Reforms, but Ensuring Accountability and Oversight Will Require Ongoing Action*, [GAO-08-632](#) (Washington, D.C., May 15, 2008); and *Public-Safety Broadband Network: FirstNet Should Strengthen Internal Controls and Evaluate Lessons Learned*, [GAO-15-407](#) (Washington, D.C.: Apr. 28, 2015).

⁶⁰Committee of Sponsoring Organizations of the Treadway Commission, *Internal Control—Integrated Framework* (2013). COSO issued its original framework: “Internal Control—Integrated Framework” in 1992 to help businesses and other entities assess and enhance their internal control. Since that time, COSO’s internal control framework has been recognized by regulatory standards setters and others as a comprehensive framework for evaluating internal control.

⁶¹International Organization for Standardization, *ISO 9000 Quality Management Principles* (2012). ISO is an independent, nongovernmental organization that develops and publishes voluntary international standards. The *ISO 9000* series addresses various aspects of quality management. In particular, *ISO 9001* can be used by internal and external parties and sets the requirements of a quality management system that meets customer needs. It complements *ISO 9004*, which provides a wider focus on quality management, and addresses the needs and expectations of all interested parties by the systematic and continual improvement of the organization’s performance.

The COSO framework provides a tool to guide stakeholders in systematically assessing whether an organization has the necessary components in place to achieve its goals as the organization adapts to shifting environments, evolving demands, and new priorities. The ISO quality management principles are intended to guide organizations toward meeting customer requirements and improving their performance. Both frameworks are intentionally flexible so that they can be adapted to an entity's particular structure or purpose. In particular, the COSO framework states that stakeholders should use their judgment in applying the framework and that evaluators should tailor points of focus to fit each entity's facts and circumstances.

Applying a framework for evaluation in considering the final transition proposal could offer certain benefits.⁶² First, using a framework could bring a leading practices perspective to a proposal developed through the bottom-up multistakeholder process, helping to broaden confidence in the final proposal. NTIA has endorsed the multistakeholder model and its process of developing and testing the proposal through a bottom-up, community-driven, and iterative process, so applying a framework could demonstrate whether the proposal can withstand examination through a different lens of independently developed leading practices. Doing so could help provide assurance to NTIA and all interested stakeholders that the final proposal will meet NTIA's core goals. In addition, a framework that has been publicly recognized as a useful practice could provide a transparent benchmark. Applying a framework for evaluation may also help point to any gaps that the multistakeholder community could work to address before a decision to let the technical functions contract expire. While there is no external requirement governing how NTIA should approach this task, NTIA's lack of this type of framework to evaluate the proposal could make it difficult for NTIA to fully consider the extent to which the proposal is likely to achieve its goals. Without a framework as a tool to systematically review the proposal and its various new structures and processes, it is unclear how NTIA will determine the extent to which its core goals have been addressed. As a result, NTIA may not be assured that its goals for the transition have been fully addressed and embedded over the long term.

⁶²Evaluating the extent to which the final transition proposal achieves NTIA's core goals and contains measures to keep ICANN accountable to a broad multistakeholder community is beyond the scope of this report.

NTIA officials agreed that such frameworks could potentially provide a tool with which to evaluate the proposal. They also said these types of frameworks may be useful to the multistakeholder community as the working groups develop and test their proposals. However, NTIA officials stated that their knowledge of the frameworks was limited and that they had not yet determined what type of structured approach would best help NTIA and the interagency working group evaluate the proposal. They also stated that it was not clear to them whether a framework designed to consider an organization as a whole was an appropriate tool to use to consider the transition proposal, which would be focused on issues related to the transition of the technical functions and ICANN's accountability to the multistakeholder community but would likely not cover all of ICANN's activities. In this regard, we believe that the intentional flexibility built into these frameworks for evaluation would permit NTIA to select elements of the frameworks that are applicable to this circumstance. For example, when evaluating the final transition proposal, NTIA could consider applying relevant elements of the COSO framework and ISO quality management principles in some of the ways described below.

COSO Framework

The COSO framework was designed to be applied across various types of organizations, including nonprofits, and has been recognized as a leading evaluation framework. In prior work, we have used this framework to determine the extent to which various organizations have policies and procedures in place that provide reasonable assurance that the organization will meet its objectives.⁶³ In this work, we have applied COSO components and found that weaknesses in these areas limit assurance that the organization will achieve its goals. Table 3 describes the key components of the COSO framework. COSO suggests tailoring its framework to fit the entity's circumstances.

⁶³See, for example, [GAO-12-790](#) and GAO, *District of Columbia Opportunity Scholarship Program: Actions Needed to Address Weaknesses in Administration and Oversight*, [GAO-13-805](#) (Washington, D.C.: Sept. 30, 2013).

Table 3: Key Components of the Framework Developed by the Committee of Sponsoring Organizations of the Treadway Commission

Component	Description
Organizational environment	The processes and structures that help set the tone for the organization toward accountability, such as how the board of directors carries out its responsibilities and how the organization's structure helps it achieve its goals.
Risk assessment	The identification and analysis of relevant risks that may affect the organization's ability to achieve its objectives, and to manage these risks appropriately.
Accountability activities	The actions (e.g., policies or procedures) an organization puts into place to help achieve its objectives. These activities are particularly aligned with risk assessment and might include a separation of different types of duties.
Information and communication	The concept that relevant information must be identified, obtained, and communicated in a form and time frame in order that people can carry out their responsibilities in achieving the organization's objectives.
Monitoring	A process to assess organizational procedures to ensure their effectiveness. This step is accomplished through ongoing monitoring activities or separate reviews, or a combination of the two.

Source: GAO analysis of the Committee of Sponsoring Organizations of the Treadway Commission's Internal Control—Integrated Framework. | GAO-15-642.

When evaluating the final transition proposal NTIA could apply relevant components of the COSO framework in some of the ways described below.

- **Organizational environment:** NTIA could consider how the proposed changes—such as the potential new entity, committees, and membership structure—would modify the organizational environment for the technical functions going forward. Examining the overall environment created by such proposed structures could help NTIA determine the extent to which its core goals for the transition have been satisfied.
- **Risk assessment:** NTIA could use this component to evaluate the combined efforts of all four working groups related to risk. Working groups have proposed various accountability activities related to their own areas of concern—such as the contractual relationship between ICANN and a new entity proposed by the names working group, an entity that could be severed in the event of unsatisfactory service. Using a framework could help NTIA consider the extent to which the multistakeholder community identified risks to NTIA's core goals and the extent to which proposed mechanisms serve as appropriate accountability activities to manage those risks.
- **Monitoring:** NTIA could use this component to consider the various monitoring requirements proposed and determine the extent to which

ISO Quality Management Principles

the proposal incorporates sufficient monitoring requirements to help achieve NTIA's core goals over the longer term. For example, the draft accountability proposal contains changes to ICANN's bylaws that would incorporate the reviews that are currently required by the affirmation of commitments.

The ISO quality management principles provide a framework that can be used to guide organizations toward improved performance. These principles contain guidance and tools that can be used by any type of organization to help meet customer requirements.⁶⁴ According to ICANN's board and management, the ISO quality management principles are among the best practices for the management of nonprofit and corporate entities that they have considered in the management of ICANN.⁶⁵ These principles include a customer focus and a system approach to management, and may provide another tool that could help NTIA systematically consider the final transition plan against its core goals. For example, NTIA could apply certain ISO quality management principles in the ways described below.

- **Customer focus:** Applying this principle typically leads to ensuring that the organization's objectives are linked to customers' needs and expectations, according to ISO. In addition, a customer focus can help ensure a balanced approach between satisfying customers and other interested parties. One of NTIA's core goals is that the transition proposal meets the needs and expectations of the global customers of the Internet technical functions. NTIA could use the ISO principle of customer focus to ask questions and help determine the extent to which the final transition proposal has satisfied this core goal.
- **System approach to management:** Identifying, understanding, and managing interrelated processes as a system helps an organization achieve its objectives and is intended to provide confidence to interested parties about the approach, according to this ISO principle. The final transition proposal will likely introduce processes for managing the technical functions and ensuring accountability—some

⁶⁴The eight ISO quality management principles are: customer focus, leadership, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making, and mutually beneficial supplier relationships.

⁶⁵ICANN officials have not yet implemented these principles across the organization.

of which will apply to one particular community, but all of which must work together smoothly in a post-transition environment. NTIA could use this principle to help examine the extent to which the final transition proposal manages potentially interrelated processes and develops a coherent approach to meeting NTIA's core goals.

Conclusions

The U.S. government has long envisioned that the operation of the basic Internet technical functions known as the IANA functions would be managed by the private sector. At the heart of this vision is a global multistakeholder model of Internet governance. NTIA views the proposed transition of these technical functions as an important sign of the U.S. government following through on its endorsement of the multistakeholder model of Internet governance. Some stakeholders we spoke with echoed this idea, stating that a risk of the transition not moving forward would be renewed international pressure for more government involvement in broader aspects of Internet governance—a change that could potentially lead to a slower decision-making process that could interfere with innovation or a decrease in the Internet's openness and global interoperability.

The four working groups established to develop a transition proposal have worked to identify and assess risks and evaluate alternatives or strategies for addressing these risks. In particular, the accountability working group was created to focus on ensuring that ICANN remains accountable in the absence of its historical contractual relationship with the U.S. government. Through these working groups, the multistakeholder community has proposed or is considering a number of mechanisms to manage identified risks while enhancing ICANN's accountability to the multistakeholder community in the absence of the contract with NTIA. NTIA, with input from an interagency working group, will evaluate the proposal on behalf of the U.S. government. According to NTIA officials, NTIA will evaluate the proposal against its core goals but has not yet determined how to evaluate it or identified a framework to guide its assessment.

Given the extent of changes being considered in the developing transition proposal—changes that are likely to create a new organizational environment for the operation of the technical functions—applying a framework for evaluation could provide valuable tools with which to consider the proposal. As a result of governance and accountability breakdowns in the nonprofit, federal government, and public company sectors, strengthened governance and accountability standards have

come about in recent years—and frameworks have been developed as leading practices to help organizations obtain reasonable assurance that their goals and objectives will be met, among other things. Applying such a framework to evaluate the transition proposal could serve as a transparent benchmark and help NTIA determine the strength of the proposal, identify any important weaknesses, and consider the extent to which the final proposal will achieve the core goals for the transition. An evaluation that makes use of a framework may help assure all stakeholders and Congress that NTIA has fully analyzed how the final proposal would manage the potential risks that stakeholders have identified related to the Internet functions before letting NTIA's contract with ICANN expire and completing the transition of these Internet functions that was envisioned decades ago.

Recommendation for Executive Action

To ensure that NTIA's evaluation of the Internet multistakeholder community's transition proposal fully considers whether the proposal provides reasonable assurance that NTIA's core goals for the transition will be met, we recommend that the NTIA Administrator review relevant frameworks for evaluation, such as the COSO framework and the ISO quality management principles, and use the relevant portions of the frameworks to help evaluate and document whether and how the transition proposal meets NTIA's core goals.

Agency Comments

We provided a draft of this report to the Departments of Commerce, Defense, Homeland Security, Justice, and State, and to the General Services Administration for their review and comment.

The Department of Commerce provided written comments on our draft report in a letter dated August 10, 2015. These comments are summarized below and are reprinted in appendix III. The Department of Commerce concurred with our recommendation and stated that as part of its evaluation, NTIA will use the relevant frameworks we suggested to guide its assessment of the final proposal against core goals. The Department of Commerce also provided technical comments, which we incorporated as appropriate.

The Department of Justice's Federal Bureau of Investigation provided technical comments, which we incorporated as appropriate. The Departments of Defense, Homeland Security, and State and the General Services Administration did not provide comments on the draft report.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to the appropriate congressional committees and the Secretary of Commerce. In addition, the report will be available at no charge on GAO's website at <http://www.gao.gov>.

If you or your staffs have any questions about this report, please contact me at (202) 512-2834 or goldsteinm@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Major contributors to this report are listed in appendix IV.

A handwritten signature in black ink, appearing to read 'M. Goldstein', with a long, sweeping horizontal line extending to the right.

Mark L. Goldstein
Director
Physical Infrastructure Issues

List of Requesters

The Honorable Fred Upton
Chairman
Committee on Energy and Commerce
House of Representatives

The Honorable Greg Walden
Chairman
Subcommittee on Communications and Technology
Committee on Energy and Commerce
House of Representatives

The Honorable Marsha Blackburn
House of Representatives

The Honorable John Shimkus
House of Representatives

The Honorable Mike Kelly
House of Representatives

The Honorable Todd Rokita
House of Representatives

Appendix I: Scope and Methodology

To provide background information on the Internet Assigned Numbers Authority (IANA) technical functions covered by the contract between the Department of Commerce's National Telecommunications and Information Administration (NTIA) and the Internet Corporation for Assigned Names and Numbers (ICANN), we reviewed documents related to these technical functions and interviewed technical experts from ICANN, including ICANN's chief technology officer, the Internet Society, the Internet Engineering Task Force, and the National Institute of Standards and Technology. We also attended a presentation given by ICANN's staff for these technical functions that described their work.

To describe the process being used to develop a transition proposal and identify how the process is considering risks associated with the transition as identified by stakeholders, we identified stakeholders through a process described below. We followed transition efforts by ICANN and the multistakeholder community by observing multiple sessions related to the transition at ICANN's 52nd meeting in Singapore in February 2015, and listening to (live or via recording, or via reviewing transcripts or meeting notes) selected meetings held by the accountability working group from December 2014 through June 2015; by the coordination working group between December 2015 and June 2015; by the numbers working group from December 2014 through May 2015; and by the names working group from December 2014 through June 2015. We also reviewed some information from a listserv established by the working group on accountability, in order to understand issues raised and the process used to generate consensus among working group members.

We reviewed relevant documents and draft proposals from each multistakeholder working group (the coordination group, the protocol parameter, numbers, and names working groups, and the accountability working group), including documentation of the stress tests conducted by the working group on accountability, among other things. We reviewed prior GAO work related to ICANN.¹

We also reviewed relevant documents, including the contract between NTIA and ICANN and ICANN's proposal incorporated by reference into

¹GAO, *Internet Management: Limited Progress on Privatization Project Makes Outcome Uncertain*, [GAO-02-805T](#) (Washington, D.C.: June 12, 2002); and GAO, *Department of Commerce: Relationship with Internet Corporation for Assigned Names and Numbers*, [GAO/OGC-00-33R](#) (Washington, D.C.: July 7, 2000).

the contract, and NTIA documents related to these Internet technical functions and the proposed transition. We reviewed ICANN documents, including, among others, ICANN's bylaws, ICANN's articles of incorporation, ICANN's budgets from fiscal year 2010 to fiscal year 2015, reports by ICANN-affiliated review committees on ICANN's structure and accountability, and the affirmation of commitments between the Department of Commerce and ICANN.

To identify stakeholders, we selected a nongeneralizable sample of stakeholders that were knowledgeable about ICANN and that had differing positions and interests in the working of the Internet technical functions and the proposed transition to help ensure our analysis and conclusions would cover a variety of viewpoints. Selected stakeholders included the following:

- Federal agencies: We interviewed and/or received written responses to questions from NTIA and 10 other federal entities, the majority of which were involved in an NTIA-convened interagency working group. This group included stakeholders from the Department of Defense's Chief Information Officer, Defense Information Systems Agency, and an additional security-related agency; the Department of Homeland Security's Science and Technology Directorate and National Protection and Programs Directorate; the Department of Justice's Criminal Division and Federal Bureau of Investigation; the State Department; the General Services Administration; and the Federal Communications Commission.
- ICANN: We interviewed ICANN officials, including members of ICANN's management, the ICANN board chair, and one ICANN board member.
- ICANN community: We conducted semi-structured interviews with stakeholders involved with ICANN's working groups, supporting organizations, and advisory committees. These stakeholders spoke to us from their individual perspectives and did not represent the views of the ICANN organization or group with which they were associated, nor are their views generalizable to all stakeholders from their particular communities. In some cases, stakeholders we spoke with had experience related to multiple parts of the multistakeholder community. These stakeholders included the chairs (and in some cases, members or participants) of the IANA Stewardship Coordination Group (coordination group), Planning for the IANA/NTIA Transition (protocol parameters working group), the Consolidated RIR

IANA Stewardship Proposal team² (numbers working group), the Cross Community Working Group on Names (names working group), and the Cross Community Working Group on Accountability (accountability working group). Stakeholders interviewed also included chairs, members or participants of the Number Resource Organization, Generic Names Supporting Organization (including each of its four stakeholder groups—commercial, noncommercial, registries, and registrars), Country-code Names Supporting Organization, At-large Advisory Committee, Security and Stability Advisory Committee, and Governmental Advisory Committee. Stakeholders interviewed also included root server operators.

- Others: We also conducted semi-structured interviews with stakeholders from industry groups and associations representing businesses, telecommunications companies, think tanks, and academic institutions with a focus on Internet governance issues and interviewed Internet freedom organizations, and economists with knowledge about ICANN and a perspective on any economic implications of ICANN's technical functions operations or the proposed transition.

In total, we interviewed officials from 10 federal entities outside of the Department of Commerce, and additional stakeholders representing 31 unique stakeholder perspectives. We use indefinite quantifiers throughout the report—"some", "many", and "most"—to inform the reader of the approximate quantity of nonfederal stakeholders that agreed with the particular statement or idea. To determine when to use each indefinite quantifier, we split the total of the nonfederal stakeholders into approximate thirds, so that "some" would refer to more than one but fewer than or about equal to one-third of the respondents (i.e. 2 to 11 of the nonfederal entities); "many" would refer to more than one-third but fewer than or about equal to two-thirds of the respondents (i.e., 12 to 21 of the nonfederal entities); and, "most" would refer to more than two-thirds of the group but not all respondents (i.e., 22 to 30 of the nonfederal entities). The information from these interviews is not generalizable but provides us with a broad perspective from knowledgeable stakeholders on potential risks related to the transition and the multistakeholder community's approach to develop a transition proposal to address potential risks and meet NTIA's core goals.

²RIR refers to regional Internet registry.

To further consider how the process to develop a transition proposal is considering risks related to the transition, we compared the processes being used by the transition working groups to identify risks and propose management strategies for these risks to general principles recommended by risk management frameworks developed by us, the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and the International Organization for Standardization (ISO).³ We selected these principles and frameworks based in part on our prior work that used these frameworks. In addition, our risk management framework was designed through a broad range of consultations with prior government reports and experts in the fields of risk management, risk modeling, and terrorism, and through reviewing numerous frameworks from industry, government, and academic sources. It was also field tested on several GAO reviews and reviewed by three academic experts in risk management. The other two sets of principles and frameworks we considered were designed by nongovernmental organizations—one by COSO and one by ISO—based on leading practices, with the goal of improving risk management in a broad range of organizations. To determine how NTIA is planning to evaluate a transition proposal against its core goals for the transition, we reviewed documentation on NTIA's core goals and public statements by NTIA that provided some additional detail on these goals. We also interviewed NTIA officials. To identify what, if any, tools could help NTIA with such an evaluation, we summarized the perspectives of stakeholders we interviewed on NTIA's core goals for the transition. We also reviewed our standards for internal control⁴ and other prior work, COSO's *Internal Control-Integrated Framework*,⁵ and ISO's *ISO 9000—Quality Management Principles and 31000—Risk Management Principles and*

³See GAO, *Risk Management: Further Refinements Needed to Assess Risks and Prioritize Protective Measures at Ports and Other Critical Infrastructure*, [GAO-06-91](#) (Washington, D.C.: Dec. 15 2005); Committee of Sponsoring Organizations of the Treadway Commission, *Enterprise Risk Management—Integrated Framework* (2004); and International Organization for Standardization, *ISO 31000 Risk Management—Principles and Guidelines* (2009).

⁴GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: November 1999). These standards were recently updated. The updated standards will be in effect for federal agencies beginning in fiscal year 2016. GAO, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#) (Washington, DC: September 2014).

⁵Committee of Sponsoring Organizations of the Treadway Commission, *Internal Control—Integrated Framework* (2013).

*Guidelines*⁶ to evaluate whether these tools could assist NTIA in evaluating a transition proposal in light of its core goals. We selected these frameworks based in part on our prior work that used frameworks from these organizations. Moreover, the COSO framework was designed to be applied across various types of organizations, including nonprofits, and has been recognized as a leading evaluation framework. In addition, the ISO quality management principles provide a framework that can be used to guide organizations toward improved performance and contain guidance and tools that can be used by any type of organization to help meet customer requirements. Both frameworks were developed based on leading practices. We also reviewed these tools for evaluation with NTIA.

We conducted this performance audit from September 2014 to August 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

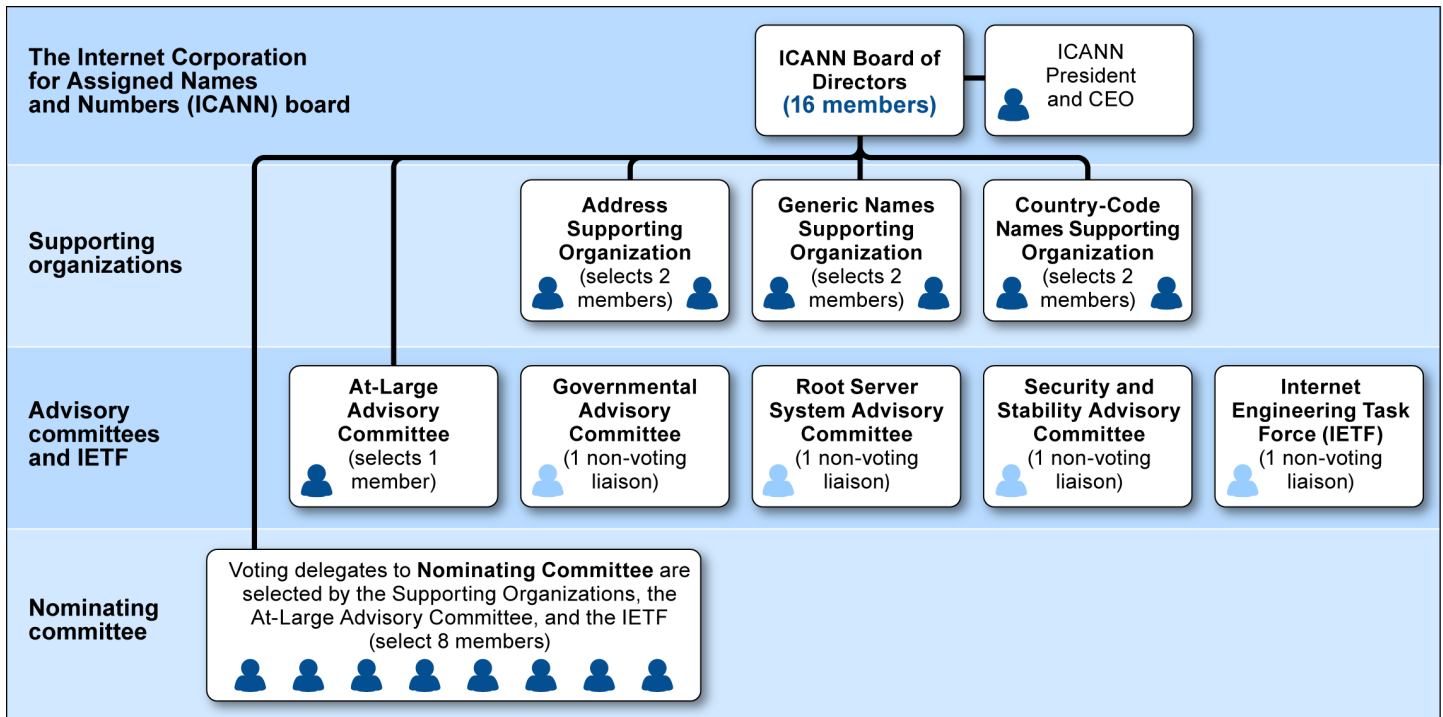
⁶International Organization for Standardization, *ISO 9000 Quality Management Principles* (2012); and *ISO 31000 Risk Management—Principles and Guidelines* (2009).

Appendix II: Internet Corporation for Assigned Names and Numbers’ (ICANN) Board, Current Accountability Structures, and Contracts

ICANN’s Board and Current Accountability Structures

The board of directors, which oversees the Internet Corporation for Assigned Names and Numbers (ICANN), consists of 16 voting members and four non-voting liaisons. As shown in figure 9, the voting members of the board are comprised of seven members selected by particular supporting organizations or stakeholder communities, eight members selected by a nominating committee, which is itself made up of individuals from particular stakeholder groups, and the final board member is the president of ICANN. Under the bylaws, no more than five directors can be from the same geographical region and directors are selected to serve three-year, staggered terms.¹

Figure 9: Board of Directors of the Internet Corporation for Assigned Names and Numbers (ICANN)



Source: GAO analysis of ICANN bylaws. | GAO-15-642

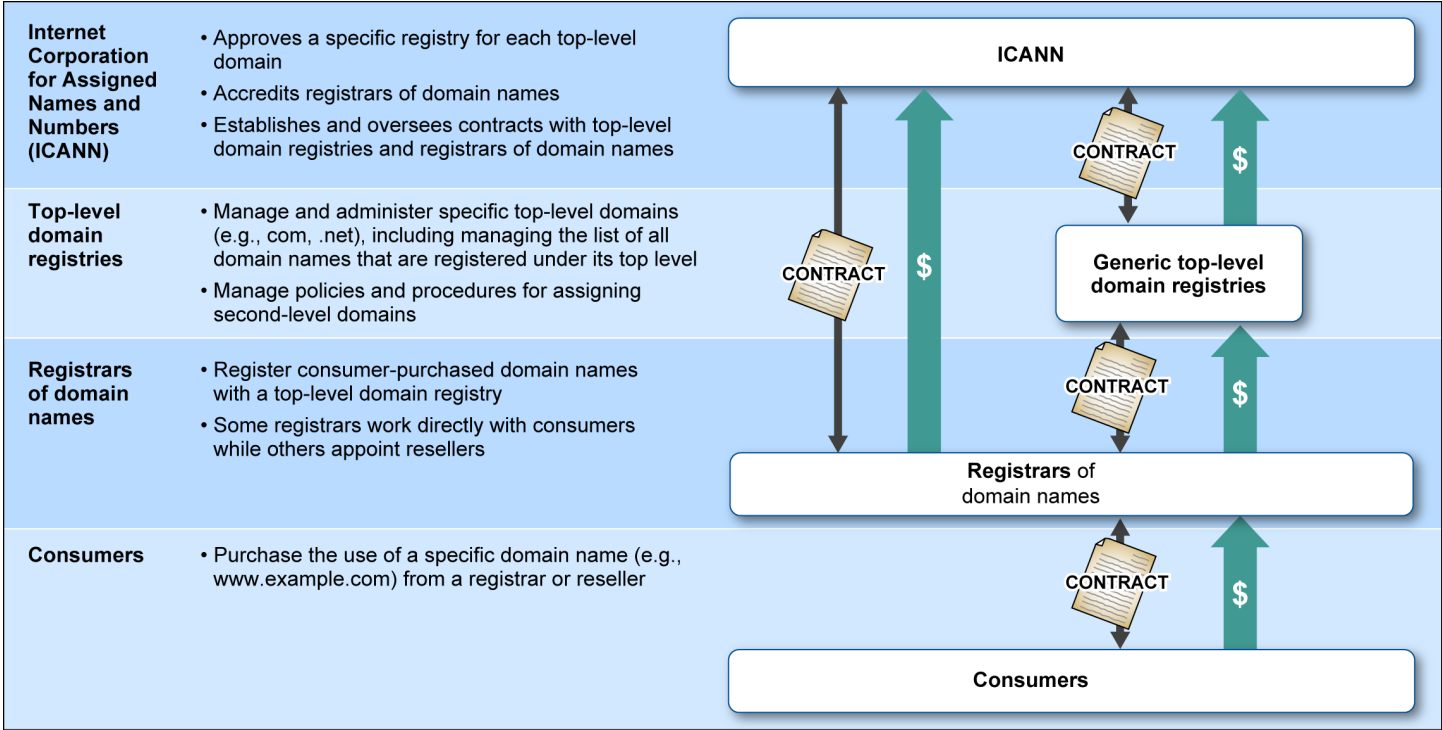
¹For purposes of ensuring board member diversity, ICANN divides the world into five regions: Africa, Asia/Australia/Pacific, Europe, Latin America/Caribbean Islands, and North America.

In addition, ICANN’s bylaws specify a number of measures meant to ensure the transparency and accountability of the organization. These include, among other things, maintaining a publicly available website with information on ICANN, including the board’s minutes; a notice and comment period for any proposed major policy changes; a reconsideration provision whereby any person or entity materially affected by an action of ICANN may request review or reconsideration of that action by the board; a process for an independent review of board actions; a periodic review of ICANN structure and operations; and an office of Ombudsman to act as a neutral dispute resolution practitioner.

Contracts and Fees

ICANN has contractual relationships with, and collects fees from, various parties in the generic domain name industry, as shown in figure 10.

Figure 10: Business Relationships among the Internet Corporation for Assigned Names and Numbers (ICANN) and Other Parties in the Generic Domain Name Industry



Source: GAO analysis of ICANN information. | GAO-15-642

ICANN published an operating-expenses budget of \$108 million for fiscal year 2015. According to ICANN, its operating revenues primarily come from fees paid by top-level domain registries (about 57 percent in fiscal year 2015) and registrars (about 40 percent).² The contract between NTIA and ICANN requires that if ICANN charges fees to perform the requirements of the IANA functions contract, those fees be based “on the cost of providing the specific service for which the fee is charged.” ICANN officials told us that the fees it charges currently are not constrained by this provision in the IANA functions contract because the fees ICANN currently charges are not collected for services that are performed in relation to the IANA functions specified in the contract.

At the end of May 2015, according to ICANN officials, it had 317 staff members in its operations program. In addition to its headquarters in Los Angeles, it has hub offices in Istanbul, Turkey and Singapore, and has engagement offices in Beijing, China; Brussels, Belgium; Geneva, Switzerland; Montevideo, Uruguay; Seoul, Korea; and Washington, D.C.

²According to ICANN's Chief Financial Officer, these percentages are as of March 2015, based on 9 months of activity in fiscal year 2015. The rest of ICANN's operating revenues come from contributions from the 5 regional Internet registries, country-code top-level domains, meeting sponsorships, and other sources. In addition to this budget, ICANN projected additional revenues of \$54.9 million in fiscal year 2015 from new generic top-level domain application fees.

Appendix III: Comments from the Department of Commerce



THE DEPUTY SECRETARY OF COMMERCE
Washington, D.C. 20230

August 10, 2015

Mr. Mark L. Goldstein
Director, Physical Infrastructure Issues
U.S. Government Accountability Office
441 G Street, N.W.
Washington, DC 20548

Dear Mr. Goldstein:

Thank you for the opportunity to review and comment on the U.S. Government Accountability Office's (U.S. GAO) draft report entitled *Internet Management: Structured Evaluation Could Help Assess Proposed Transition of Key Domain Name and Other Technical Functions* (GAO-15-642).

In the draft report, U.S. GAO recommends that the National Telecommunications & Information Administration (NTIA) review relevant frameworks for evaluating the multistakeholder community's transition proposal. U.S. GAO also recommends the use of relevant portions of the frameworks to help evaluate and document whether and how the transition meets NTIA's core goals.

The report states that the frameworks are intentionally flexible, such that NTIA could select elements that are applicable to the community's efforts to identify and manage risks. The Department concurs with this recommendation. As a part of its evaluation, NTIA will use relevant frameworks suggested by U.S. GAO to guide its assessment of the final proposal against core goals.

If you have any questions, please contact Lawrence E. Strickling, Assistant Secretary for Communications and Information, at (202) 482-1840.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Andrews", is written over a horizontal line.

Bruce Andrews

Appendix IV: GAO Contact and Staff Acknowledgments

GAO Contact

Mark L. Goldstein, (202) 512-2834 or goldsteinm@gao.gov

Staff Acknowledgments

In addition to the contact above, Derrick Collins (Assistant Director), Amy Abramowitz, Tommy Baril, Melissa Bodeau, John Healey, Gerald Leverich, Kimberly McGatlin, Joshua Ormond, Kate Perl, Kelly Rubin, Maria Stattel, James R. Sweetman, Jr., Michelle Weathers, and Alwynne Wilbur made key contributions to this report.

GAO's Mission

The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through GAO's website (<http://www.gao.gov>). Each weekday afternoon, GAO posts on its website newly released reports, testimony, and correspondence. To have GAO e-mail you a list of newly posted products, go to <http://www.gao.gov> and select "E-mail Updates."

Order by Phone

The price of each GAO publication reflects GAO's actual cost of production and distribution and depends on the number of pages in the publication and whether the publication is printed in color or black and white. Pricing and ordering information is posted on GAO's website, <http://www.gao.gov/ordering.htm>.

Place orders by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537.

Orders may be paid for using American Express, Discover Card, MasterCard, Visa, check, or money order. Call for additional information.

Connect with GAO

Connect with GAO on [Facebook](#), [Flickr](#), [Twitter](#), and [YouTube](#).
Subscribe to our [RSS Feeds](#) or [E-mail Updates](#).
Listen to our [Podcasts](#) and read [The Watchblog](#).
Visit GAO on the web at www.gao.gov.

To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Website: <http://www.gao.gov/fraudnet/fraudnet.htm>

E-mail: fraudnet@gao.gov

Automated answering system: (800) 424-5454 or (202) 512-7470

Congressional Relations

Katherine Siggerud, Managing Director, siggerudk@gao.gov, (202) 512-4400, U.S. Government Accountability Office, 441 G Street NW, Room 7125, Washington, DC 20548

Public Affairs

Chuck Young, Managing Director, youngc1@gao.gov, (202) 512-4800, U.S. Government Accountability Office, 441 G Street NW, Room 7149, Washington, DC 20548



Please Print on Recycled Paper.