Independent Review of the ICANN Security and Stability Advisory Committee:

Final Report

Report Prepared for the Internet Corporation for Assigned Names and Numbers (ICANN)

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December 17, 2018

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I.   Introduction

The Security and Stability Advisory Committee (SSAC) advises the ICANN community and the ICANN Board of Directors (ICANN Board) on issues concerning the security and integrity of the Internet's naming and address allocation systems. The ICANN Bylaws stipulate that the SSAC be independently reviewed at least once every five years.[3] In accordance with this requirement, our review includes an assessment of:

- Whether the SSAC has a continuing purpose within the ICANN structure.

- How effectively the SSAC fulfills its purpose and whether any change in structure or operations is needed to improve effectiveness.

- The extent to which the SSAC as a whole is accountable to the wider ICANN community, its organizations, committees, constituencies, and stakeholder groups.

- The implementation state of the SSAC's prior review.[4]

This report provides findings and recommendations based on interviews with, and a survey of, ICANN community members, our observations of the SSAC, and our experience with ICANN and extensive work with other nonprofit and volunteer-based organizations to improve their effectiveness. In addition, an "Assessment Report" was published on June 20, 2018, and feedback reflected upon in the preparation of this report was solicited from the ICANN community via a public session at ICANN62, a public webinar, and a public comment period.[5]

A draft final report was released on October 15, 2019, and was open for public comment through December 3, 2019.[6] The draft final report was presented for discussion in person at ICANN63 and via webinar on November 20, 2019. The conversations and comments from this public comment period were helpful to the Independent Reviewer, and we would like to thank those who took the time to assist with the entire review process, from those interviewed and surveyed, to those who provided feedback on the written reports.

Our assessment of the SSAC was conducted from February through July of 2018. That assessment found the SSAC to be a productive and effective organization, with room to improve in certain

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[3] ICANN Bylaws, *ICANN*, Article 4, Section 4, available at
https://www.icann.org/resources/pages/governance/bylaws-en#VII-1, accessed on May 1, 2018.
[4] ICANN An Overview of the Request for Proposal for the Review of the ICANN Security and Stability Advisory Committee, *ICANN*, 2017, available at https://www.icann.org/en/system/files/files/rfp-ssac-review-07jul17-en.pdf, accessed on May 20, 2018.
[5] We would like to thank all those who commented during the public comment session, webinar, and period, including the Non-Commercial Stakeholder Group which provided written comments.
[6] Six public comments and a Report of Public Comments are available on the SSAC Review Website. "Draft Final Report of The Second Security and Stability Advisory Committee Review (SSAC2), available at
https://www.icann.org/public-comments/ssac-review-final-2018-10-15-en, accessed December 13, 2018.

areas. Our report provided 22 findings (reported here as 23 findings for convenience of discussion) across a broad set of topic areas, including:

- The effectiveness of the SSAC, such as the amount of work asked of and accomplished by the SSAC, the mechanisms in place to understand the implementation of SSAC's advice by the ICANN Board, and the timing with which the SSAC's advice is provided and acted upon.

- The relationship and interconnectedness between the SSAC and both other SO/ACs and the broader ICANN Community, including on issues of transparency.

- The existing membership and structure of the SSAC, including its size, membership recruitment, and term limits.

- The implementation state of the SSAC's prior review, the results of which were released in 2009.

We provide in this report a total of 30 recommendations that are based on our assessment findings.

Each finding is presented followed by its associated recommendations, if any. At times, there is not a perfect one-to-one relationship between findings and recommendation, as multiple findings may relate to one recommendation, and multiple recommendations may seek to address a single finding.

Section II provides background on the SSAC and Section III discusses the methodology we followed for our independent review of ICANN's SSAC. Sections IV through VII of the report detail our findings and recommendations. Below, is an overview of our recommendations, listed in groups by section of this report in which they appear.

Section IV relates to the continuing purpose of the SSAC.

1. The SSAC has a clear continuing purpose within ICANN. Its existence as an Advisory Committee should continue.

   The SSAC is widely acknowledged to be very important to the overall mission of ICANN

Section V relates to the SSAC's advice generation and provision of advice to the ICANN Board.

2. The SSAC should ensure that each advisory or report provided to the ICANN Board includes a high-level summary that outlines the topic or issue in easily understandable terms and lists the key findings with uniquely numbered recommendations.

   This will assist the Board in interpreting then implementing SSAC advice by making individual recommendations easier to identify and track through to resolution.

3. When providing advice, the SSAC should ensure that the Board Liaison reviews and provides feedback on both the summary and full document before submission to the

Board. The SSAC should proactively discuss talking points and potential Board response timing with the SSAC Board Liaison.

> *This will help ensure recommendations are phrased in a way that can be understood and acted upon expediently, and will help the SSAC to predict how the Board's advice review timing may interact with its competing priorities.*

4. The SSAC Board Liaison should work with the ICANN Board and ICANN Staff to ensure that Board Action Request Register (ARR) adequately captures the information required to understand the status of advice from when it is given through its implementation.

> *This will make it easier and less time-intensive to identify the status of any recommendation that is pending ICANN Board response or implementation.*

5. The SSAC should periodically review the implementation state of past and future advice provided to the ICANN Board to ensure that all action items are listed in the ARR. The SSAC should follow-up with the ICANN Board via its Board Liaison when advice has not yet been addressed or when progress is unclear.

> *Using the updated ARR, the SSAC should be able to review then check in on the status of any recommendation provided to the ICANN Board with relative ease.*

6. For time sensitive issues, the SSAC should establish process and work deadlines that take into account the decision timelines of other ICANN entities. The SSAC should work with SSAC staff to ensure internal deadlines are set up to make meeting external deadlines as possible as reasonable.

> *The SSAC should continue to endeavor to align its work with ICANN deadlines where reasonably possible, without compromising the provision of sound advice.*

7. The SSAC should develop a process to, when possible, provide a "quick look" at a particular issue for the Board. Such "quick looks" might not be the result of a consensus-driven process, but rather would disclose differing opinions.

> *This will help the ICANN Board better understand certain issues more quickly. When a "quick look" request is unreasonable, the SSAC's Liaison can work with the ICANN Board to refine the request or questions asked of the SSAC.*

8. The SSAC should formalize an annual process geared towards setting research priorities and identifying relevant emerging security, stability, and resiliency (SSR) threats in the short- and medium-term.

> *This will allow the SSAC to plan research goals and membership needs around both a short- (1-year) and more medium-term (5-year) time horizon.*

9. The skills needed for tasks identified in the SSAC's annual priority setting and emerging threat identification exercise should feed into the SSAC's membership and recruitment processes.

The SSAC's upcoming priorities can be assessed against current member interest, skills, and availability. The Membership Committee can help determine if new members or Invited Guests could be brought in to the SSAC for upcoming needs.

10. The SSAC should explicitly communicate the reasons for its decisions around topic selection and focus with others in ICANN. New requests should be compared to the current set of priorities and communicated about accordingly.

    The SSAC fields many requests and completes a large amount of work. A well-articulated set of research priorities can be referred back to when considering tradeoffs or resources needed to fulfill requests when more is asked of the SSAC.

11. The SSAC should continue to approach the ICANN Board when additional funding, resources, or access to external contractors may be required to achieve a project in the desired timeline or at the desired scale.

    This enables the ICANN Board to either refine requests or to assist the SSAC in obtaining required resources.

12. The SSAC should consider whether an internship can be offered to graduate students in cybersecurity or data analytics programs for assistance with research or specific work products. In addition, the SSAC should continue to endeavor to leverage the assistance of ICANN's technical staff when it is appropriate to do so.

    Much like the SSAC's current volunteers, highly capable students are often interested in volunteering time to work with experts and gain experience. Certain tasks may be delegable via either paid or unpaid internships.

13. The SSAC should work with ICANN Staff to obtain a dedicated, secure, data storage location for use in SSAC analyses.

    Centralized storage helps to organize and maintain data over time.

Section VI relates to the SSAC's integration with SO/ACs and the ICANN community.

14. The SSAC advises the ICANN Board and Community on matters relating to the security and integrity of the Internet's naming and address allocation systems. To do this effectively, the SSAC needs to be aware of policymaking that is ongoing within ICANN. We recommend the SSAC designate an outward representative to each SO/AC that is willing to have one. These roles should be structured to add minimal burden to the SSAC's already large set of responsibilities.

    An open line of communication with each SO/AC provides a mechanism by which the SSAC can keep apprised of the activities and PDP processes of SO/ACs, and can help it understand the types of SSR issues that may become important down the road. They also can help the SSAC communicate proactively when its advice and recommendations may affect an SO/AC.

15. As time availability allows, the SSAC should continue to have members involved as individuals in large, cross-ICANN efforts that have SSR-related components, such as the SSR2.

    Doing so will enable the SSAC's members to leverage their expertise where useful and keep the SSAC more continuously connected with wider ICANN initiatives.

16. In the process of developing each SAC-series document, the SSAC should explicitly discuss who affected parties may be and whether or not affected parties should be consulted for feedback or should be notified that the SSAC plans to publish a document on a given topic.

    Soliciting feedback can give the SSAC additional information to consider when generating advice, assist the SSAC in considering how its advice may be put into action, and increase SSR awareness within the potentially affected party.

17. The SSAC's Administrative Committee should provide an email update to the leadership of ICANN's SOs/ACs one month prior to each ICANN meeting with links to relevant SSAC documents/proceedings from the SSAC's website.

    Brief communications that can be shared within SO/ACs makes the SSAC more transparent and keeps SSR top of mind as an ICANN meeting approaches.

18. The SSAC should post specific additional materials online in the short-term, to consolidate information and increase transparency. The SSAC's Administrative Committee should then undertake a yearly review of the SSAC's website to determine whether additional content should be provided or whether the website should be restructured.

    Periodic website improvements increase transparency and can assist with member recruitment.

19. The SSAC should remain accountable directly to the ICANN Board and through it to the wider ICANN community.

    The current accountability mechanisms for the SSAC are appropriate.

Section VII relates to SSAC's size, membership, and term length and limits.

20. The current number of SSAC members is appropriate. The SSAC should continue to work to ensure its members are engaged, in conjunction with the recruiting points made below.

    There should be a yearly flow of individuals on to and off of the SSAC, providing new ideas and perspectives while retaining active members' expertise.

21. Each year, the SSAC should develop a formalized recruiting plan with goals, potential recruiting targets, meetings to attend, messaging for prospective candidates, and any other items that are deemed useful. Similarly, it should maintain a list of potential future members, even if those individuals are not currently applying to the SSAC.

    A formalized recruiting plan can help the SSAC to increase the robustness of its talent pipeline, ease the transition of retiring members, reflect on the required skills

and diversity for more medium-term goals, and grow its network in light of increased workload.

22. The SSAC should work with the ICANN Board to secure funding to present its work at and/or attend two or three major security conferences outside of ICANN meetings annually, where members may meet new interested applicants.

    Both academic and professional conferences provide opportunities to meet established and emerging experts in SSR-related fields who could bring new and useful perspectives as future SSAC members or Invited Guests. It also can assist with increasing geographical diversity.

23. The SSAC Membership Committee should generate a list of academic or other institutions with research efforts in fields related to SSR. The Membership Committee should keep this list up to date, and consider if academics may bring useful perspectives as either Invited Guests or full SSAC members.

    Academics working in related fields may be interested in collaboration with the SSAC. A connection to academic institutions can also serve as a feeder for individuals to assist with SSAC work.

24. The SSAC should continue efforts to recruit individuals with a strong technical background but who also have legal/policy expertise. Discussion of the need for individuals with legal, policy, and law enforcement expertise should be codified in each year's recruiting plan.

    While the SSAC currently has members experienced in legal, policy, and law enforcement backgrounds, it is important that this continue to be a criteria that is considered when planning the SSAC's recruiting.

25. The SSAC should endeavor to recruit individuals with a strong technical background who also represent a broad set of geographical locations and reasonably balanced set of genders. Discussion of how to do so should be codified in each year's recruiting plan.

    When it is possible to obtain both diversity and the required technical expertise for the SSAC, processes should be in place that maximize the likelihood of doing so.

26. The SSAC's membership review process should include a yearly review process for the SSAC's external Liaisons and representatives.

    This informal review will provide feedback to the SSAC's external interfaces to help them identify actions that are seen as useful.

27. The SSAC's leadership should be limited to two, three-year terms. The SSAC should impose no term limits on non-leadership members.

    This aligns with the SSAC's current term limits, except for the SSAC Chair.

28. The SSAC should work with the ICANN Board to update the ICANN Bylaws in order to allow for there to be term limits on the SSAC Chair.

    After the update is made, the SSAC should term-limit its Chair as described above.

29. The SSAC should maintain its current processes and activities around disclosing potential conflicts of interest, both at the individual level and as a group of individuals. It should also update its online disclosure of interest statements to clearly articulate when the disclosure was last submitted for each member.

    In an organization such as the SSAC, it is impossible to assure a complete lack of conflict of interest on the part of each individual. Instead, the SSAC needs internal checks among the group of individuals to assure that conflicts are addressed and don't influence the institutional decisions of the organization.

Section VIII relates to the SSAC's prior review implementation and continuing efforts for self-improvement.

30. The SSAC should continue to nurture and build upon the SSAC's culture that values self-improvement, including between formal reviews.

    Effective organizations do not learn and improve only during formal processes, but via continuous reflection as experience is gathered. Such continual improvement allows an organization to learn in real time and to be robust to change.

Outside of these recommendations above, we note that in managing its work, the SSAC faces certain tensions. For example, while technical excellence is the foundation of the SSAC's credibility and excellence is strongly tied to the SSAC's consensus building processes, this can at times be in tension with the need to communicate more broadly and quickly to non-technical constituents. Similar tensions arise when balancing outside transparency into the topics discussed by the SSAC with the need for responsible disclosure that does not notify attackers of potential security risks, or when balancing organizational flexibility with the need to at times have well defined formal processes. Recommendations are made with the balance of these tensions in mind, as discussed further throughout this report.

II.   Background

A. ICANN

The Internet Corporation for Assigned Names and Numbers (ICANN) is an international non-profit organization in charge of coordinating the global Domain Name System and Internet policy,

among other responsibilities.[7] The mission of ICANN, as stated in its Bylaws, is "to ensure the stable and secure operation of the Internet's unique identifier systems."[8]

This mission includes the coordination and allocation of names in the root zone of the Domain Name System (DNS) and the coordination of the development and implementation of policies concerning the registration of second-level domain names. ICANN also coordinates the operation and evolution of the DNS root name sever system, as well as the allocation and assignment of Internet Protocol and Autonomous System numbers at the top-most level, providing open access for registries and facilitating the development of global registry policies.

Security, stability, and resiliency (SSR) is critical for the proper functioning of the Internet and the fulfillment of ICANN's mission. ICANN's "multi-stakeholder model" is structured to ensure that ICANN also represents the interests of industries, non-commercial organizations, individual Internet users, the technical community, and national governments. While final decisions on Internet policy recommendations rest with the Board of Directors, ICANN's three Supporting Organizations (SOs) and four Advisory Committees (ACs) develop policy recommendations and advise the Board.[9]

B. ICANN's Security and Stability Advisory Committee

Since 2002, the Security and Stability Advisory Committee (SSAC) has advised the ICANN community and the ICANN Board of Directors (ICANN Board) on issues concerning the security and integrity of the Internet's naming and address allocation systems. In particular, the SSAC is responsible for:[10]

- Communicating on security matters with the Internet technical community and the operators and managers of critical DNS infrastructure services.
- Engaging in ongoing threat assessment and risk analysis of the Internet naming and address allocation services to assess where the principal threats to stability and security lie, and advising the ICANN community accordingly.
- Communicating with those who have direct responsibility for Internet naming and address allocation security matters (e.g., IETF, RSSAC, RIRs, and name registries) to ensure that its advice on security risks, issues, and priorities is properly synchronized with existing standardization, deployment, operational, and coordination activities.
- Reporting periodically to the ICANN Board of Directors on its activities.

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[7] "Beginner's Guide to Participating in ICANN," *ICANN*, p. 2, available at
https://www.icann.org/resources/pages/beginners-guides-2012-03-06-en, accessed on May 15, 2018.
[8] ICANN Bylaws, *ICANN*, Article 1, Section 1(a), *ICANN*, available at
https://www.icann.org/resources/pages/governance/bylaws-en/#article1, accessed May 15, 2018.
[9] "Beginner's Guide to Participating in ICANN," p. 2, available at https://www.icann.org/resources/pages/beginners-guides-2012-03-06-en, accessed on May 15, 2018.
[10] ICANN Bylaws, *ICANN*, Article 12, Section 12.2(b)(i), available at
https://www.icann.org/resources/pages/governance/bylaws-en#VII-1, accessed on June 14, 2018.

- Making policy recommendations to the ICANN community and ICANN Board of Directors.[11]

In order to fulfil these responsibilities, the SSAC studies issues using a consensus-driven model in order to produce reports, advisories, and comments:

- Reports are in-depth analyses that may recommend specific actions to ICANN, and typically take a number of months to produce.
- Advisories handle more time-sensitive concerns, addressing an active security or stability problem with recommended actions.
- Comments are responses to requests for feedback on other documents, either from groups within ICANN or from external organizations.[12]

These publications, known as the SAC series, are available online.[13] There have been 100 SAC-series publications in the SSAC's history, with ten publications released in 2017.[14] In 2018, the SSAC also launched a new SSAC-Correspondence series of documents, used to communicate on management or community issues.[15]

The SSAC Liaison to the ICANN Board of directors formally submits any SSAC reports or advisories via email along with a Submission Cover Letter 48 hours prior to publication. After 48 hours, the publication is posted to the SSAC web site and SSAC Discussion Space. The SSAC Chair then sends an email along with a Submission Cover Letter to any affected ICANN parties notifying them that the work product has been published.[16]

The SSAC selects research topics primarily through its own members, but also studies topics when directed to by the ICANN Board, and it accepts suggestions from SO/ACs and the ICANN community. Once the committee selects a particular subject, a Work Party (consisting of one or two leaders, as well as a flexible number of contributors and reviewers) is formed to study the issue.[17]

The SSAC is currently composed of 37 volunteer members, all of whom are technical experts in domain name, addressing, and/or security areas, with a mix of industry and research backgrounds.[18] All members participate as equals, although there is an Administrative Committee

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[11] "Security Committee Charter." *ICANN*, 2011. https://www.icann.org/groups/ssac/charter, accessed on May 21, 2018.

[12] "SSAC Operational Procedures Version 5.1," SSAC, February 27, 2018, Section 1, p. 6.

[13] "SSAC Documents | by Category", *ICANN*, available at https://www.icann.org/groups/ssac/documents-by-category, accessed on May 15, 2018.

[14] "SSAC Reports and Advisories", *ICANN*, available at https://www.icann.org/groups/ssac/documents, accessed on May 21, 2018.

[15] "SSAC Documents | Correspondence", *ICANN*, available at https://www.icann.org/groups/ssac/documents-correspondence, accessed on May 21, 2018.

[16] "SSAC Operational Procedures Version 5.1," SSAC, February 27, 2018, Section 3.4, p. 33.

[17] "SSAC Operational Procedures Version 5.1," SSAC, February 27, 2018, Sections 3.1-3.2, p. 28-29.

[18] "SSAC Bios and Disclosures of Interest," available at https://www.icann.org/groups/ssac, accessed on May 21, 2018.

that includes the SSAC Chair, Vice-Chair, Liaison to the ICANN Board of Directors, and SSAC Support Staff. SSAC members in leadership roles do not receive special rights or privileges and are elected by SSAC's members. In addition to the Administrative Committee, other special roles in SSAC include liaisons, invited guests, and the SSAC Membership Committee.[19]

The SSAC Membership Committee has two primary roles. First, it is the administrative body responsible for reviewing applicants and inviting new members to join the SSAC, subject to approval by the ICANN Board. Second, the SSAC Membership Committee is responsible for reviewing current members at the end of their term and making a recommendation regarding renewal to the SSAC. Members of the SSAC are appointed for three-year terms, which can be renewed indefinitely. Members whose terms are expiring that year are not eligible to serve on the Membership Committee. Typically, a third of SSAC's members are considered for renewal each year. The Membership Committee is composed of three non-voting members (the SSAC Chair and Vice-Chair, and the Liaison to the ICANN Board) and five voting members, who are volunteers from the SSAC.

In addition to the appointed members of the SSAC, there are three SSAC Support Staff who are paid employees of ICANN. These staff include the Sr. Director of Policy Development Support, a Technical and Policy Specialist, and a Senior Technical Analyst.[20] Their role is to assist in the production of SSAC work product and to serve on the Administrative Committee.

III.   Methodology of the Independent Review of the SSAC

A. Scope of Review

The ICANN Bylaws require that the SSAC be independently reviewed at least once every five years.[21] In accordance with this requirement, our review includes:

- **An assessment of whether the SSAC has a continuing purpose within the ICANN structure.** This includes an examination of SSAC's chartered purpose, which is to advise the ICANN community and Board on matters relating to the security and integrity of the Internet's naming and address allocation systems, and how well it is fulfilled. Such an examination is designed to assess the SSAC's continuing purpose within the ICANN structure.

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[19] The SSAC currently has Outward Liaisons including a Liaison to the ICANN Board. While the SSAC does have Inward Liaisons, any Inward Liaison to the SSAC must meet the full qualifications to be an SSAC member. As a result, some individuals mentioned in interviews that they do not consider these to be Inward Liaisons in the traditional sense. Invited guests participate in SSAC activities such as Work Parties for an extended period of time when their expertise is particularly relevant (e.g., while developing a specific work product), but do not have the privileges of full membership such as voting, serving on the membership committee, or holding a leadership position. After this work is completed, they may apply to become permanent members.

[20] "Security and Stability Advisory Committee." *ICANN*, 2017, https://www.icann.org/groups/ssac, accessed on May 21, 2018.

[21] ICANN Bylaws, *ICANN*, Article 4, Section 4, available at https://www.icann.org/resources/pages/governance/bylaws-en#VII-1, accessed on May 1, 2018.

- **An assessment of how effectively the SSAC fulfills its purpose and whether any change in structure or operations is needed to improve effectiveness.** Subject to the scope of the SSAC's chartered remit (ICANN Bylaws, 12.2(b)), we examine the purpose, structure, and operations with respect to the SSAC's effectiveness, in accordance with ICANN-provided criteria.

- **An assessment of the extent to which the SSAC as a whole is accountable to the wider ICANN community, its organizations, committees, constituencies, and stakeholder groups.** Here, we will assess if the SSAC is sufficiently accountable regarding security matters according to its chartered mandate to provide advice to the ICANN community and Board, and to engage and communicate with the community on various security matters as detailed in its role.[22]

- **An assessment of the implementation state of the SSAC's prior review.** This includes a status report of the implementations approved by the ICANN Board from the first SSAC Review, and an assessment of the effectiveness of these implementations.

Our independent review of the ICANN SSAC has been divided into two stages: (1) assessment of the SSAC's performance and (2) recommendations to improve the SSAC's effectiveness. This draft final report reflects the findings of both phases.

B. Review Methodology

To assess the SSAC's performance, we rely on a large number of individual interviews, an online survey, documents developed by the SSAC and other SOs/ACs, the prior external review, and auditing of SSAC's in-person meetings at ICANN61 and conducted remotely after ICANN61. This draft final report includes recommendations to improve the functioning of the SSAC based on this assessment, our experience with ICANN, and extensive work with other nonprofit and volunteer-based organizations to improve their effectiveness.

It is important to emphasize that our approach does not require perfect representation across the ICANN community from either those interviewed or those surveyed. We have not, for example, drawn conclusions based principally on the frequency with which we heard a particular opinion during our interviews and through the survey instrument. Rather, the interviews and online survey are methods designed to gather diverse perspectives across ICANN with the goal of ensuring we have heard and considered many diverse opinions before making our assessment and our recommendations. Throughout this process, we have endeavored to minimize potential bias, for example by scheduling additional interviews to be sure competing perspectives were heard.

We conducted 42 individual interviews with current and former members of the SSAC, the ICANN Board, SSAC support staff, and other members of the ICANN community. These interviews were conducted in-person at ICANN61 and remotely, and were intended to capture a wide variety of

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[22] ICANN An Overview of the Request for Proposal for the Review of the ICANN Security and Stability Advisory Committee, *ICANN*, 2017, available at https://www.icann.org/en/system/files/files/rfp-ssac-review-07jul17-en.pdf, accessed on May 20, 2018.

individuals' views on the role and processes of the SSAC, the strengths and weaknesses of the SSAC, and the relationship between the SSAC and the ICANN community.

To ensure we spoke with individuals that possessed a variety of perspectives, potential interviewees were selected through a variety of channels. In particular, interviewees were selected based on recommendations from the SSAC Review Working Party and from others within the ICANN community. Additionally, we asked interviewees for their personal recommendations of community members with different perspectives, and also interviewed people who contacted us directly and expressed an interest in sharing their feedback on the SSAC.

Interviews were semi-structured. While a list of questions was used as a reference, interviewees were asked different questions based on their backgrounds and on our learnings from prior interviews. In doing so, a variety of perspectives were explored and followed-up on throughout the process. We found 42 interviews to be sufficient to explore multiple perspectives on the ideas and feedback points raised.

Figures 1, 2, and 3 show the composition of interviewees in terms of their affiliations within ICANN, their gender, and the global region that they associate with.

Figure 1: Current/Former ICANN Roles and Affiliations
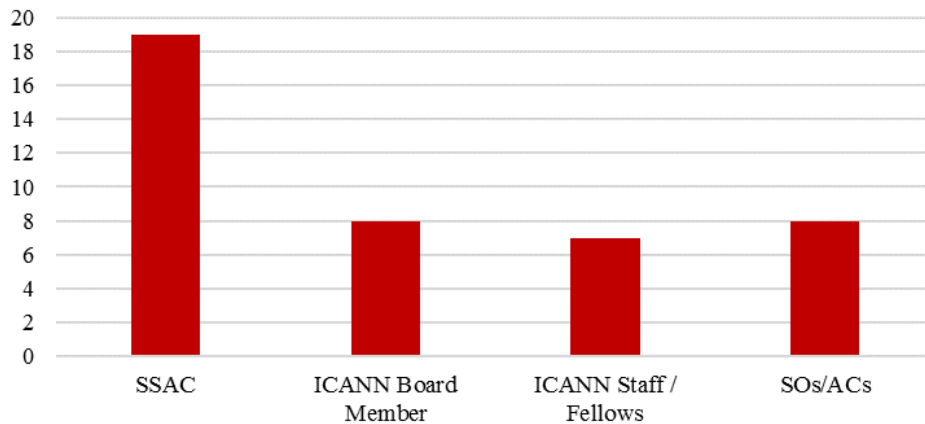
Number of Interviewees: 42

Figure 2: Gender Composition
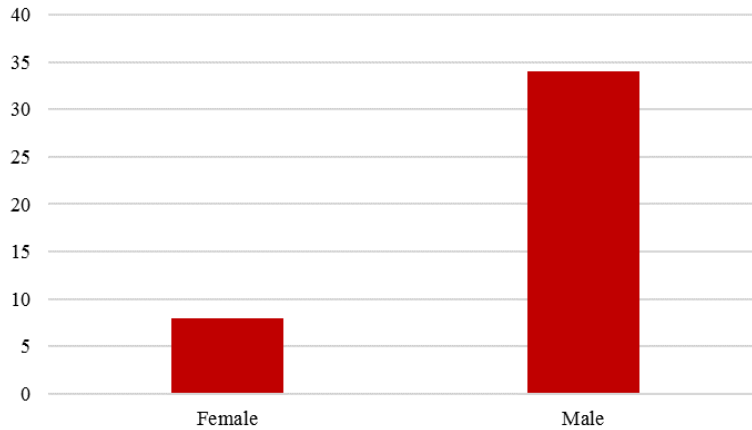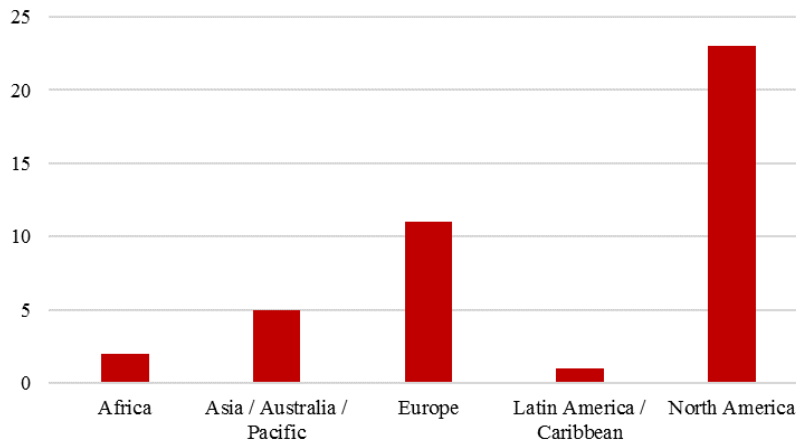*Number of Interviewees: 42*

Figure 3: Region in which Interviewees Reside
*Number of Interviewees: 42*

We also received input from the ICANN community through an online survey with the goals of (1) collecting feedback from a wider set of respondents, (2) allowing individuals who were not interviewed to provide feedback on the SSAC, and (3) allowing those who were interviewed and interested to comment on a broader set of topics. The survey was informed by our interviews and was refined in collaboration with the SSAC Review Work Party (RWP). The survey was publicized widely, and used best practices in survey design.[23]

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[23] Promotion of the survey included ICANN announcements, use of ICANN social media, and outreach to community members conducted by RWP. Survey best practices included randomized answer order to avoid potential bias, minimization of open-ended questions for quantitative analysis, and options to "Not know" or be "Unsure," among others.

The online survey collected feedback from current and former members of the SSAC, the ICANN Board of Directors, other SOs/ACs, as well as ICANN staff and other individual members of the ICANN community. The survey had 52 total respondents who completed the entire survey.[24] Figures 4, 5, and 6 below show the makeup of the group of survey respondents in terms of their affiliations within ICANN, their gender, and the global region which they associate with, respectively.

Figure 4: Current/Former ICANN Roles and Affiliations[25]

Number of Survey Respondents: 80

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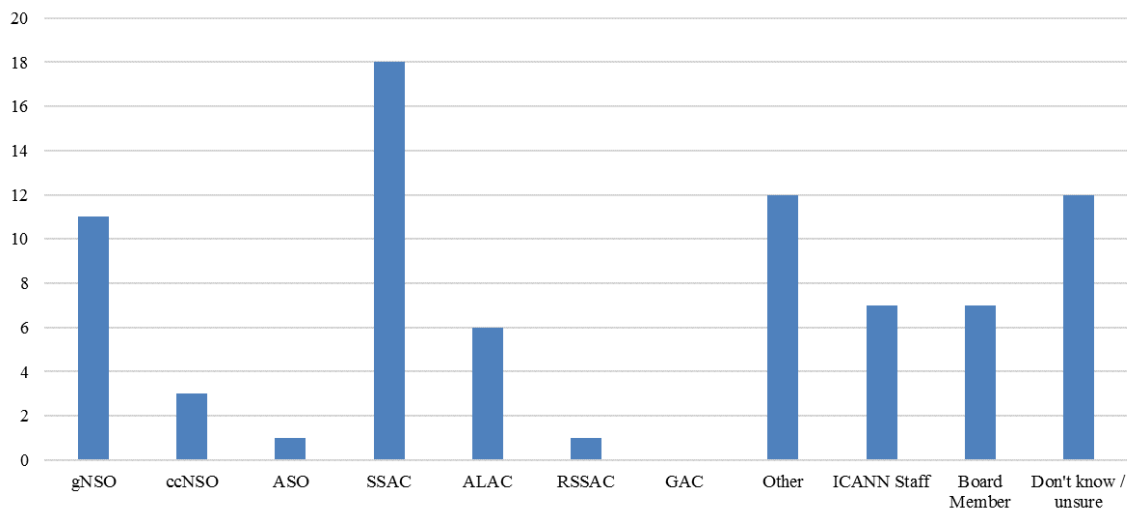
[24] In addition, a larger group of up to 80 respondents answered only a portion of the survey. Findings are robust to this larger sample. Figures in this report show results from all respondents who answered the question.

[25] The number of survey respondents in each category does not sum to the total number of respondents because there is overlap in organizational affiliation.

Figure 5: Gender Composition
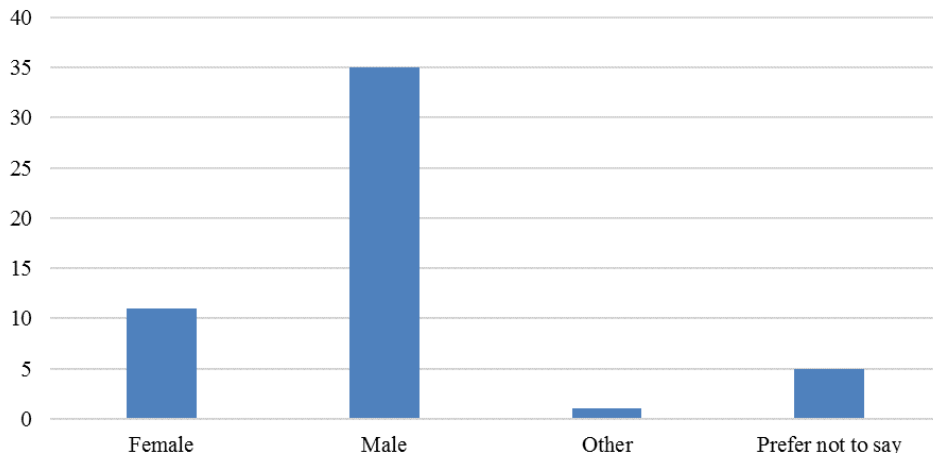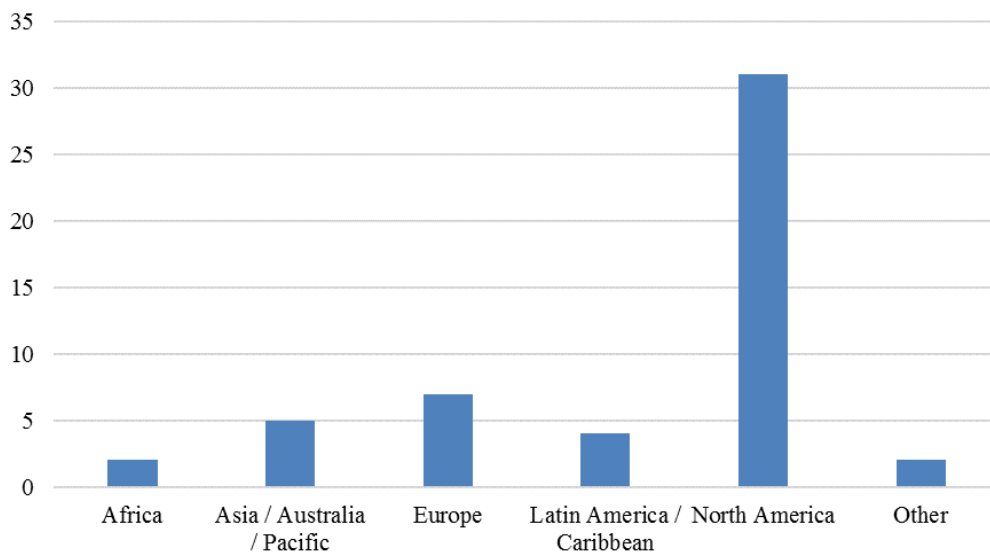*Number of Survey Respondents: 53*

Figure 6: Region in which Survey Respondents Reside
Number of Survey Respondents: 52

We note that, in the public comment period of this report, the Business Constituency (BC) and the gTLD Registries Stakeholder Group (RySG) both commented that more representation from non-SSAC SO/AC members would have been useful in the review process. We note that multiple outreach strategies were used both in person and digitally to solicit feedback from SO/AC members, including passing out fliers to announce interview opportunities broadly, direct requests to members of SO/ACs to assist in distributing the online survey, social media blasts, public meetings and webinars, and two public comment periods. To the extent that stakeholders feel as though the independent review processes as put forth by ICANN do not sufficiently solicit

feedback or open the process to SO/ACs outside of the one under review (in this case, the SSAC), we would encourage those interested to continue the dialogue within ICANN.

IV. Findings and Recommendations: The Continuing Purpose of the SSAC

A. <u>Finding 1:</u> The SSAC is widely acknowledged to be very important to the overall mission of ICANN. The role of the SSAC is closely aligned with ICANN's mission.

The role of the SSAC is closely aligned with the overarching mission of ICANN. The mission of ICANN, as stated in its Bylaws, is "to ensure the stable and secure operation of the Internet's unique identifier systems."[26] SSAC's role as an Advisory Committee within ICANN is "to advise the ICANN community and Board on matters relating to the security and integrity of the Internet's naming and address allocation systems."[27]

Numerous interviews revealed that, in practice, the missions of ICANN and the SSAC align. While ICANN's role extends broadly beyond technical matters, the SSAC focuses specifically on providing reliable technical advice regarding security risks to the Internet naming and address allocation services. Interviewees who self-identified as non-technical members of the ICANN community widely agreed that they rely on and expect the SSAC to proactively help the community, including those without technical backgrounds, on technical issues related to the security, stability, and reliability of processes and decisions regarding the DNS and root zone.

As shown in Figure 7, when asked how important the SSAC is to the overall mission of ICANN, all but one respondent indicated that the SSAC is either very important or important, with 97% indicating that the SSAC was very important. Notably, not a single survey respondent believed that the SSAC was not important or very much not important. This aligns with the results of our interviews, where all but one person asked agreed that the SSAC is "critical" to the mission of ICANN.

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[26] ICANN Bylaws, *ICANN*, Article 1, Section 1(a), *ICANN*, available at
https://www.icann.org/resources/pages/governance/bylaws-en/#article1, accessed June 20, 2018.
[27] ICANN Bylaws, *ICANN*, Article 12, Section 2(b), available
https://www.icann.org/resources/pages/governance/bylaws-en/#article12, accessed June 20, 2018.

Figure 7: How important do you perceive the SSAC is to the overall mission of ICANN?
Number of Survey Respondents: 74
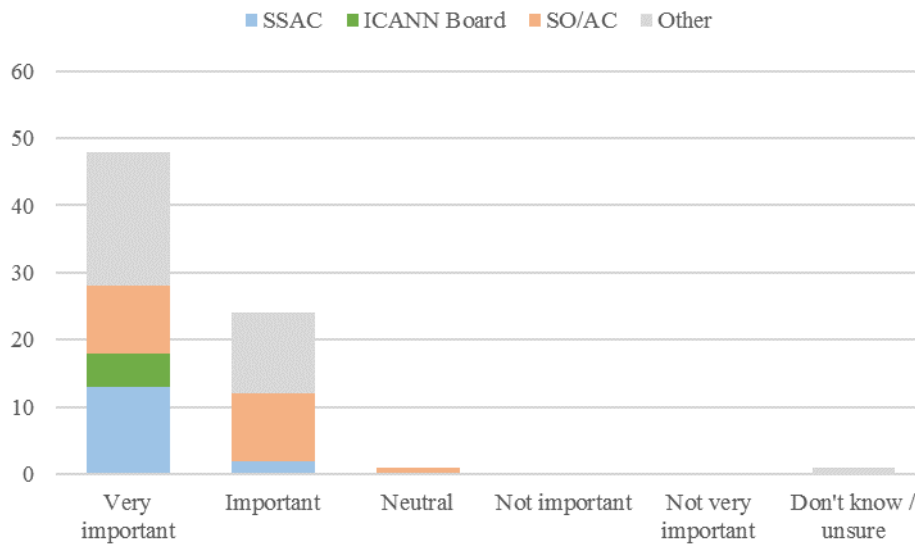
Recommendation 1: The SSAC has a clear continuing purpose within ICANN. Its existence as an Advisory Committee should continue.

For the reasons outlined above and throughout this report, it is clear that the SSAC provides an important role within ICANN and that the high value of this role is widely recognized. While additional specifics are discussed throughout this draft final report, we conclude that the SSAC has a continuing purpose within ICANN, and that its role as an Advisory Committee to the ICANN community and the ICANN Board is both necessary and appropriate.

V.   Findings and Recommendations: The SSAC's Advice Generation and Provision of Advice to the ICANN Board

This section begins by examining the effectiveness of the SSAC, and then discusses the effectiveness of the relationship and between the SSAC and the ICANN Board, the body which is typically charged with reviewing and deciding what SSAC advice should be implemented. It then reviews the SSAC's method of selecting topics for study and ends by discussing the SSAC's advice-generation process.

A. Finding 2: Individuals throughout ICANN largely agree that the SSAC is successful in providing high quality advice on a broad variety of relevant SSR issues.

Interviews and survey responses largely agree that the SSAC is successful in providing high quality SSR advice. Individuals noted that the SSAC provides high quality advice on a variety of SSR issues, and they noted that the SSAC has a particularly strong work ethic and generates a large quantity of advice and documents for a volunteer group. The technical skill and ability of

SSAC members are clear to others throughout the ICANN community, and ICANN Board members indicate that they appreciate and rely on the SSAC's advice.

SSAC's published materials are its primary way of providing advice to the community. As shown in Figure 8, the SSAC has published 100 documents in its SAC series, which include SSAC Reports, Advisories, and Comments, as discussed in Section I.B. above. The SSAC has continued its high rate of publication since its last review, and interviews indicate that these documents have been useful to the ICANN community. Numerous interviewees noted SAC095, "SSAC Advisory on the Use of Emoji in Domain Names," as a particularly useful recent SSAC work that was widely reviewed.[28]

In 2018, the SSAC introduced a new type of document, known as an "SSAC Correspondence" to allow the SSAC to more effectively track SSAC letters, comments, and other correspondence on administrative, community, and other non-SSR issues (e.g., comments on the recent NomCom Independent Review).[29] To date, this new document series appears to have increased SSAC's communication with the wider community, as the total number of SSAC Correspondences for the first part of 2018 is greater than the total number of SSAC documents in 2017.

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[28] "SAC095 SSAC Advisory on the Use of Emoji in Domain Names", SSAC, May 25, 2017, available at https://www.icann.org/en/system/files/files/sac-095-en.pdf, accessed on May 15, 2018.
[29] "New SSAC Document Numbering System", SSAC, January 3, 2018, available at https://www.icann.org/en/system/files/files/ssac2018-01-03jan18-en.pdf

| Year | SAC Series Documents | | | | | SSAC |
	Report	Advisory	Comment	Letter	Total	Correspondence
2001	1				1	
2002	3				3	
2003	1				1	
2004	1				1	
2005	1				1	
2006	6		2		8	
2007	5	1	2		8	
2008	5	3	4		12	
2009	4	1	2		7	
2010	3		1		4	
2011	2	1	2		5	
2012	2	2	1		5	
2013	1	3	2	1	7	
2014	2	3	1		6	
2015		2	5		7	
2016		2	11	1	14	
2017		2	7	1	10	
2018					0	13
Total	37	20	40	3	100	13

While 58% of respondents find the SSAC to be very effective or effective, some individuals indicated otherwise (see Figure 9).[30] Understanding these perspectives is important as the SSAC continues to improve upon itself in the years ahead. 12% of respondents indicated that the SSAC was either ineffective or very ineffective, while 20% were neutral. Notably, while the majority of SSAC and ICANN Board members found the SSAC to be effective, members of other SOs/ACs and others held more varied views.

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[30] We note that "neutral" is different from "don't know/unsure" in that a neutral opinion is an opinion that falls between "effective" and "ineffective", whereas "don't know/unsure" reflects that the respondent does not feel sufficiently knowledgeable to answer the question.

Figure 9: How effective, or ineffective, is the SSAC in performing its role?

Number of Survey Respondents: 74
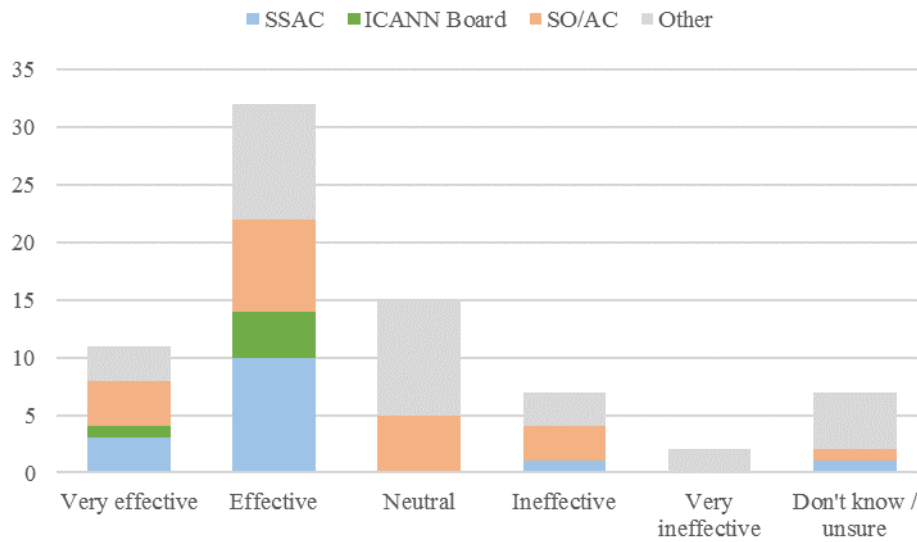
We also asked both interviewees and survey respondents to comment on the effectiveness of SSAC's advisory process. Figure 10 shows that 53% of respondents found the SSAC's advisories, in particular, to be either very effective or effective.

Figure 10: How effective, or ineffective, are the outcomes from SSAC's advisory process?[31]

Number of Survey Respondents: 51
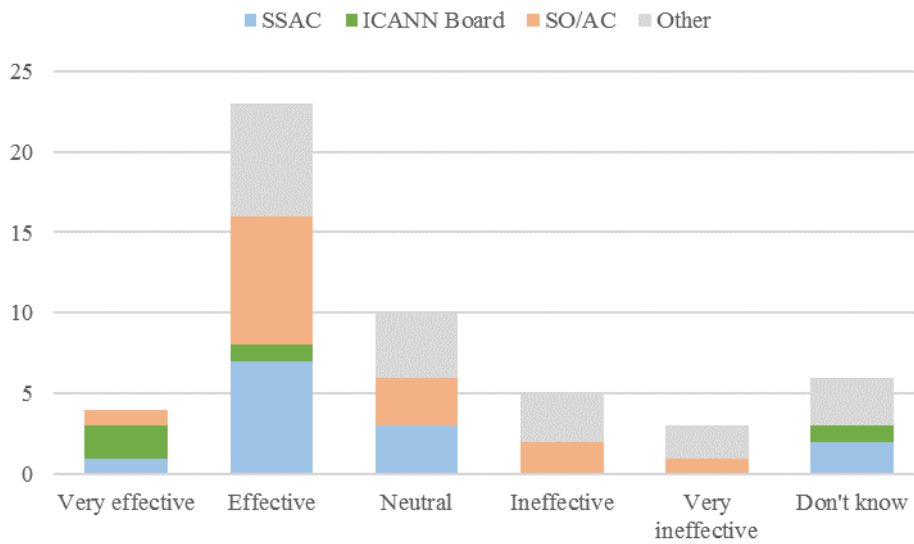
Individuals provided a number of ways that they believe the SSAC could be more effective. Figure 11 shows the results of a question asking respondents to rank the most important areas for the SSAC to improve upon. Top responses include requests for the SSAC to develop processes to provide advice in a more timely fashion, to increase stakeholder involvement, and to develop better relationships within the ICANN community (e.g., with other SOs/ACs). Recommendations for these and other suggested places for refinement are discussed throughout this draft final report.

The SSAC prides itself on technical expertise and its credibility stems from that; but, it serves and communicates with a broader audience that is in some places much less technical. Interviews indicated that increased efficiencies could come from heightened sensitivity to a less-technical mindset and the priorities of readers (e.g., policy development timelines and implementation needs). For example, it was suggested that at times the SSAC could be more clear and/or concrete in articulating how advice could be acted on or implemented, and work on its articulation on issues where legal, policy, or territorial matters closely relate to technical security.

Figure 11: What would you consider the most important areas for the SSAC to improve on?

Number of Survey Respondents Who Included Response in Top Three Selections

Response	Total
Develop processes to provide advice in a more timely fashion	17
Engage stakeholders through public meetings and presentations	12
Develop better relationships with ICANN community (such as SOs/ACs)	12
Solicit feedback from ICANN community and third parties as part of work party process	11
Improve delivery process of relaying advice to the ICANN community	10
Develop better relationships with third parties outside of ICANN	10
Participate in ICANN community public comment periods	10
SSAC recruiting	9
Develop better coordination with the timing of priorities for other SOs/ACs	8
Better tailor writing styles based on audience of advice	8
Incorporate outside expertise into the SSAC advisory process	7
Topic selection	6
Improve SSAC work party efficiency and coordination. Establish formal coordination processes	6
Technical writing	6
Incorporate support staff into WP	3
None	2

These areas of potential improvement are discussed at length throughout this draft final report, and recommendations are given. While these areas for self-improvement are critical, we view these as avenues to improve an already relatively strong and effective SSAC.

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[31] This question also explained that "The SSAC's advisory process involves activities such as providing advisories, comments, or reports in regards to security, stability, and resiliency technical issues."

B. Finding 3: The role of the SSAC Board Liaison is key in ensuring the Board is able to interpret and understand the advice provided by the SSAC.

Both interviews and survey results, as shown in Figure 12, confirm that the SSAC and ICANN Board have an effective relationship. Members of the ICANN Board unanimously spoke of the importance and value of the role played by the SSAC Liaison in maintaining that relationship, and also described other SSAC members as approachable.

Figure 12: How do you describe the relationship between the SSAC and the ICANN Board?

Number of Survey Respondents: 19
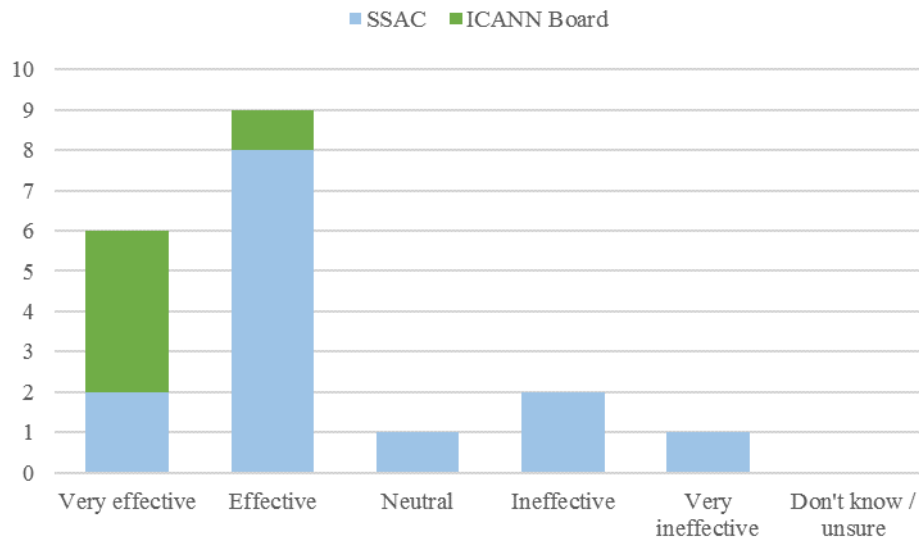
The ICANN Board is an extremely busy body, and its membership has a varied background with differing degrees of technical expertise. The ICANN Board relies heavily on the SSAC Liaison to assist it in understanding the importance and implications of SSAC advice, drawing its attention to specific items, and understanding when and how to ask the SSAC for advice. In practice, the SSAC Liaison formally submits SSAC documents to the ICANN Board. Board members indicated that the Liaison has gone beyond this by preparing useful summaries of the documents to help the Board contextualize any important technical nuances of the advice. It was separately suggested that similar summaries may also be useful to a broader audience outside of the ICANN Board.

Recommendations involving the role of the Board Liaison are included across the various findings below.

C. Finding 4: There is some concern among members of the SSAC that advice provided to the ICANN Board is not acted on in a timely manner.

Interviews and survey results generally indicated that the relationship between the SSAC and the ICANN Board is effective.[32] The ICANN Board greatly appreciates the advice of the SSAC, and relies on its advice when making SSR-related decisions. It was also indicated that there may be room for further alignment in timing or timing expectations between the SSAC and the ICANN Board. Within the SSAC, many individuals indicated that they do not feel the ICANN Board implements advice in a timely manner. On the Board, individuals indicated that they wished the SSAC could, at times, better align the timing of advice with the Board's decision making schedule.

As shown in Figure 13, the majority of respondents on both the ICANN Board and the SSAC feel as though the ICANN Board implements SSAC advice often, very often, or all the time, while only one respondent said not often.

Figure 13: How often does the ICANN Board implement advice given to them by the SSAC?

Number of Survey Respondents: 19
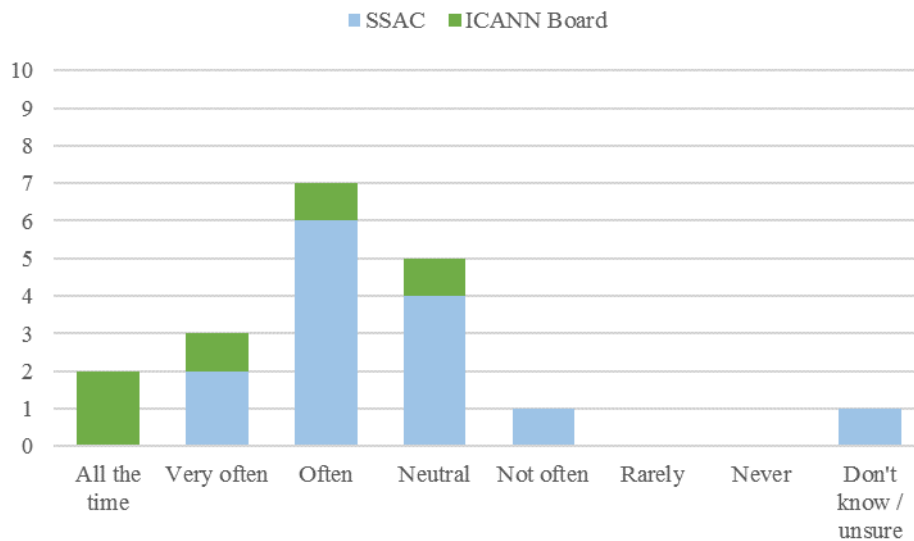
In October 2016, ICANN reviewed the historical advice provided to the ICANN Board by the SSAC and provided the SSAC with an update.[33] Since that time, the ICANN Board has maintained an advice tracker, updated periodically.[34] This Action Request Register (ARR) "provides a centralized system supporting a consistent and repeatable process for tracking and managing

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[32] See Figure 12.

[33] "ICANN Board Advice Register and Status of SSAC's Historical Advice to the ICANN Board," ICANN, October 19, 2016, available at https://www.icann.org/en/system/files/correspondence/crocker-to-faltstrom-19oct16-en.pdf.

[34] The most recent tracker can be found on ICANN's website at https://features.icann.org/board-advice.

[ALAC, RSSAC, and SSAC] advice."[35] Many interviewees indicated that the ARR has been very helpful in creating a more transparent feedback process, allowing the SSAC to have a better idea as to the status of its advice. However, while 39% of survey respondents expressed that the ARR is very effective or effective, 44% felt neutrally, and several find the tracker to be very ineffective (see Figure 14).

Interviews reveal that those who do not find the ARR to be effective have concerns about the timeliness of the ICANN Board in responding to SSAC advice, and find the tracker to lack transparency in showing the status of items that are in the process of being implemented, a process that they say can at times take more than a year. Figure 15 indicates that many respondents feel that the ICANN Board can be untimely in its response, and no respondents feel that the Board responds in a very timely manner. An internal analysis conducted by members of the SSAC RWP found that some SSAC advice takes more than two years between report release and ICANN Board Resolution, and advice can at times take over a year to implement thereafter.

Figure 14: How effective have you found the Board's tracker at tracking advice received from the SSAC?
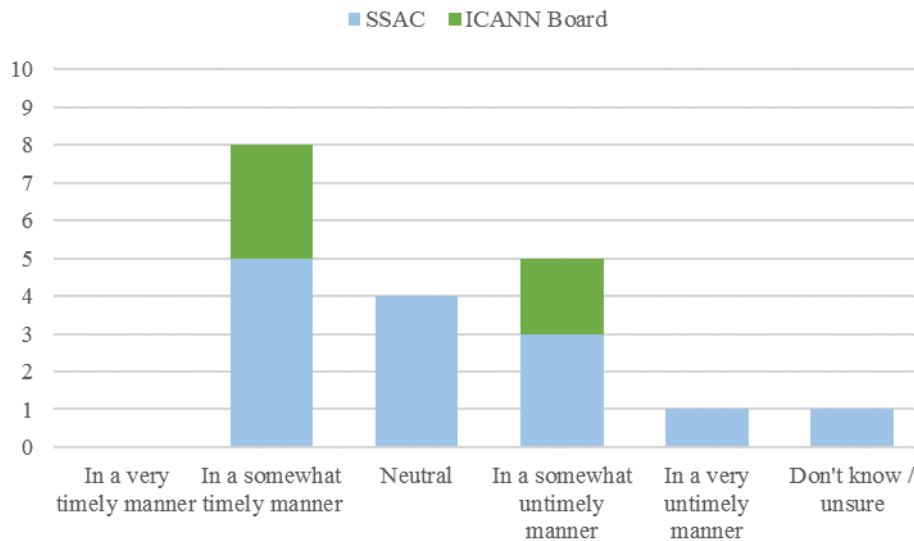
Number of Survey Respondents: 18
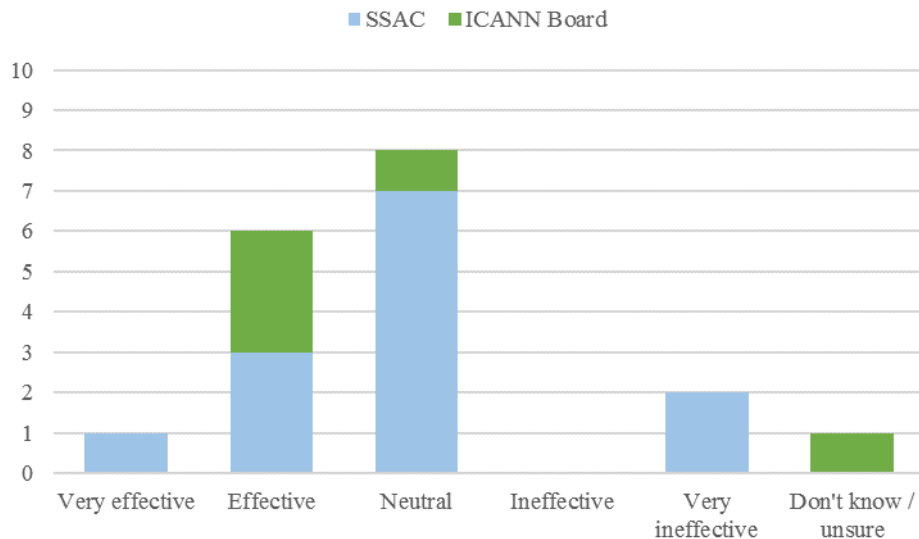
[35] "Board Advice Process," ICANN, available at https://www.icann.org/en/system/files/files/board-advice-process-handbook-25oct17-en.pdf.

Figure 15: How timely, or untimely, is the ICANN board in reacting to, and potentially incorporating, SSAC advice?

Number of Survey Respondents: 19

This aligns with responses heard in interviews: that is, that the ICANN Board is very busy, SSAC advice is one of many items that the Board considers, and thus is sometimes is not considered as quickly as some might expect. Interviews with ICANN Board members indicate there are several factors that affect the speed with which the Board responds to SSAC advice. This includes the clarity of the advice, the alignment of SSAC advice with the timing of other issues the Board is considering, and the ways in which particular pieces of advice are put forward for review by the Board.

Delayed timing can either stem from process issues (e.g., if it were too difficult to track recommendations) or a misalignment in expectations (e.g., if the ICANN Board believes it to be answering all items placed in front of it promptly, but the SSAC feels some items are lagging). To address both of these potential issues, our recommendations relate to the preparation of advice, delivery of advice, the tracking of advice consideration and subsequent implementation, and the ability to check in on the status of any item.

Recommendations 2 through 4 below relate most closely to this finding.[36]

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[36] As noted in the Introduction, there is not necessarily a one-to-one relationship between findings and recommendations. Some recommendations are informed by multiple findings, while some findings may lead to multiple recommendations. Recommendations are presented in this report in proximity to the most relevant findings.

Recommendation 2: The SSAC should ensure that each advisory or report provided to the ICANN Board includes a high-level summary that outlines the topic or issue in easily understandable terms and lists the key findings with uniquely numbered recommendations.

Section 3.5 of the current SSAC Operating Procedures discusses the importance of tracking, reviewing, and following-up on SSAC recommendations. The section itself contains details in regards to the numbering of SSAC's documents, but it does not provide details on the numbering of specific recommendations or an outline of how the SSAC should follow-up on recommendations to ensure they are considered and, if accepted, accurately implemented.

In order to track the consideration and subsequent implementation of recommendations, it should be made as easy as possible for all involved to identify, understand, and monitor the recommendations themselves.

A first step is ensuring that the reader had adequate information to contextualize recommendations. This is achieved by the introduction or executive summary of the document, a section the SSAC currently provides. This summary should present the core issues studied in easily understandable terms, and it should discuss the work that the SSAC underwent to study the issue. Relevant stakeholders should be disclosed, for example, if the SSAC consulted with other SO/ACs in the course of advice generation. While the primary audience of many SSAC documents is the ICANN Board, these introductions or executive summaries can also be written using lanaguage to make the document accessible to the ICANN community as a whole.

The second step is then ensuring that recommendations are clearly articulated and enumerated. Recommendations should be actionable in that the required next step should be clear. Recommendations should also be numbered so they can be tracked. As the SAC-series documents are uniquely identified, we propose a unique numbering system for recommendations that leverages this existing enumeration. Items within SAC-series documents could be tracked using a suffix to the SAC name, for example in SAC101, *SSAC Advisory Regarding Access to Domain Name Registration Data*, the seven contained recommendations could be numbered SAC101-1 through SAC101-7.

This enumeration can then globally identify a recommendation, be it in the ARR or another document.

Recommendation 3: When providing advice, the SSAC should ensure that the Board Liaison reviews and provides feedback on both the summary and full document before submission to the Board. The SSAC should proactively discuss talking points and potential Board response timing with the SSAC Board Liaison.

As discussed above, the SSAC Board Liaison plays a critical role in the delivery of the SSAC's advice to the ICANN Board and in setting the expectations of the SSAC for how and when the ICANN Board may respond. The Board Liaison is the individual who typically relays the SSAC's advice to the ICANN Board, and historically the Liaison has provided summaries and

contextualization to help ensure the ICANN Board understands advice. The Liaison then participates in SSAC meetings where she or he updates the SSAC on Board activities.

Discussion with the SSAC Board Liaison can help the SSAC gauge the time and effort that it may take for specific recommendations to be responded to or implemented, given the ICANN Board's competing priorities. To do so, we recommend that the Board Liaison review and provide feedback on both the introduction/executive summary and the content of each document before its submission to the Board. To the extent the Board Liaison believes additional contextualization within the document would help to increase understanding and decrease response times, any such language could be considered.

Additionally, as the Board Liaison develops talking points for either the cover email or discussion with the ICANN Board, we recommend that these talking points be shared with the SSAC Administrative Committee and relevant SSAC Work Party so that they may understand how the information is being presented and weigh in as necessary. In the process of developing these talking points, the Board Liaison can give an idea of how the recommendation may fit into other priorities of the ICANN Board and provide a rough idea of when the Board may have the bandwidth to respond to the advice - either in the typical course of business or via proactive prompting from the Board Liaison.

> ### Recommendation 4: The SSAC Board Liaison should work with the ICANN Board and ICANN Staff to ensure that Board Action Request Register adequately captures the information required to understand the status of advice from when it is given through its implementation.

The ARR should allow the ICANN community to quickly and easily understand the status of the advice made to the ICANN Board.[37] As of July 31, 2018, the SSAC has 46 items listed in the ARR. As can be seen below in Figure 16, 27 (59%) of the open Advice Items from the SSAC are currently in the implementation phase, meaning the Board has accepted the recommendation and directed ICANN to implement an action. Interviews have indicated that it can be difficult to understand the implementation state of these items, and so additional details into these items could assist the ICANN community in understanding their status.

Figure 16: Current Status of Open Advice Items in the ARR
As of 31 July 2018

Status of Open Advice Items (# items)	Phase 1 | Receive & Acknowledge	Phase 2 | Understand Request	Phase 3 | Evaluate & Consider	Phase 4 | Implement	Phase 5 | Close Request	Total Number of Open Advice Items
ALAC	0	0	0	3	1	**4**
RSSAC	0	7	4	0	0	**11**
SSAC	0	7	0	27	12	**46**
Total by Phase	**0**	**14**	**4**	**30**	**13**	**61**
Δ since update	0	-1	-1	-1	-2	-5

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[37] The discussion in this section is specifically based on our review of the SSAC. We have not reviewed the use of the ARR for RSSAC and ALAC feedback. We note that the advice of the GAC is not registered in the ARR.

The current ARR provides two columns of information in addition to a summary of the advice given: they are "Phase" (which lists one of the five phases shown above) and "Action Taken" (a general status update). Based on our review, most items the implementation state are characterized at a fairly high level. Additionally, no date information outside of the date advice was given is included in the tracker, so it can be difficult to understand when a given entry was last updated.

We recommend that the SSAC Board Liaison work with the ICANN Board or relevant ICANN Staff to ensure that the ARR captures additional information that is not currently captured in the ARR. In particular, this information should help to differentiate between the status of advice before it is accepted or rejected by the ICANN Board, then again during implementation. Some useful fields to capture may be:

- Date Last Updated - A simple date field recording the last time the entry for a given piece of advice was updated.

- Days Since Last Update - A calculated field based on "Date Last Updated" that makes it easy to filter the ARR to records based on how long it has been since the status was updated, making follow-up easier.

- Action Taken - The current "Action Taken" field could be updated to specifically articulate actions taken by the Board, allowing for implementation status to be captured separately by those asked to implement by the Board.

- Implementation Owner - The part of ICANN responsible for implementation, per the ICANN Board's directive. This should include enough detail for the SSAC to identify who to follow-up with if implementation status is unclear.

- Implementation Status - For accepted advice, this field could provide a status update based on the latest understanding of implementation progress. This field could be set to "N/A" for advice that has been rejected or not yet decided upon.

We recommend that the SSAC's Board Liaison work with the SSAC and the ICANN Board/relevant ICANN Staff to implement a plan that properly balances the effort in maintaining the ARR with the ability to track items until their completion. As the ARR is also used to track the advice of the RSSAC and the ALAC, we suggest inviting representatives from those ACs to join the discussion. The final process for updating the ARR should be clear, and each item under implementation should have a known point of contact who can speak to its current status when asked.

In addition, we note that the ARR does not track, in detail, any recommendations that the SSAC makes to other SO/ACs. For example, SAC100 which provided recommendations to the Policy Development Process Working Group on New gTLD Subsequent Procedures was listed as a single line-item in the ARR with a note that no action was required on the part of the ICANN Board. While we do not feel that the ARR is the right place to track advice made bilaterally from ACs to all other bodies within of ICANN, the SSAC may wish to consider whether such advice should be tracked in a more detailed fashion.

Recommendation 5: The SSAC should periodically review the implementation state of past and future advice provided to the ICANN Board to ensure that all action items are listed in the ARR. The SSAC should follow-up with the ICANN Board via its Board Liaison when advice has not yet been addressed or when progress is unclear.

Ultimately, the ARR should be a tool that the SSAC can use to understand what happens to the advice and recommendations that the SSAC has given. While it is not the SSAC's role to implement advice, the SSAC should be able to know that its advice is being duly considered and, when appropriate, implemented.

The SSAC should be able to follow-up on any item by either discussing the item with the SSAC Board Liaison, or, when the Liaison is unsure of the status, she or he can reach out to the ICANN Board or other relevant party (such as an ICANN Staff member in charge of implementation) for information. The Board Liaison can help the SSAC identify the most effective times to follow-up given the ICANN Board's other objectives.

We recommend the SSAC's Administrative Committee actively review the implementation state of advice provided to the ICANN Board. This includes both historical advice currently in the ARR, and new advice items moving forward. We expect this process will be made much easier to do once updates to the ARR, such as those in Recommendation 4, are implemented. Ultimately, the SSAC should not be shy about working with its Liaison to ensure it understands the review and implementation status of advice that has been given.

D. **Finding 5: There is some concern among members of the ICANN Board that the advice of the SSAC cannot be provided quickly and could more often align with the Board's decision making schedule.**

Interviews with ICANN Board members indicated that some believe the SSAC could do a better job of lining up the advice it provides with the decision making timeline of the ICANN Board. The Board also expressed that it would be useful if the SSAC were able to provide the Board with a "quick look" at certain SSR issues, even if it meant foregoing the full consensus process used by the SSAC. These Board members believed it would be valuable for the SSAC to be able to at times consider providing a varied set of non-consensus opinions (with that nuance laid out clearly) to help the Board understand an issue expediently when needed.

Figure 17 shows the results of a question asking how satisfied respondents were with various aspects of the SSAC's advisory process. Most individuals were either very satisfied or somewhat satisfied across a broad variety of aspects relating to the SSAC's advice generation. Respondents were least satisfied with the timeliness of the SSAC's advice.

Figure 17: Please indicate the extent to which you are satisfied, or not, with the following aspects of the advisory process.[38]

Number of Survey Respondents: 49
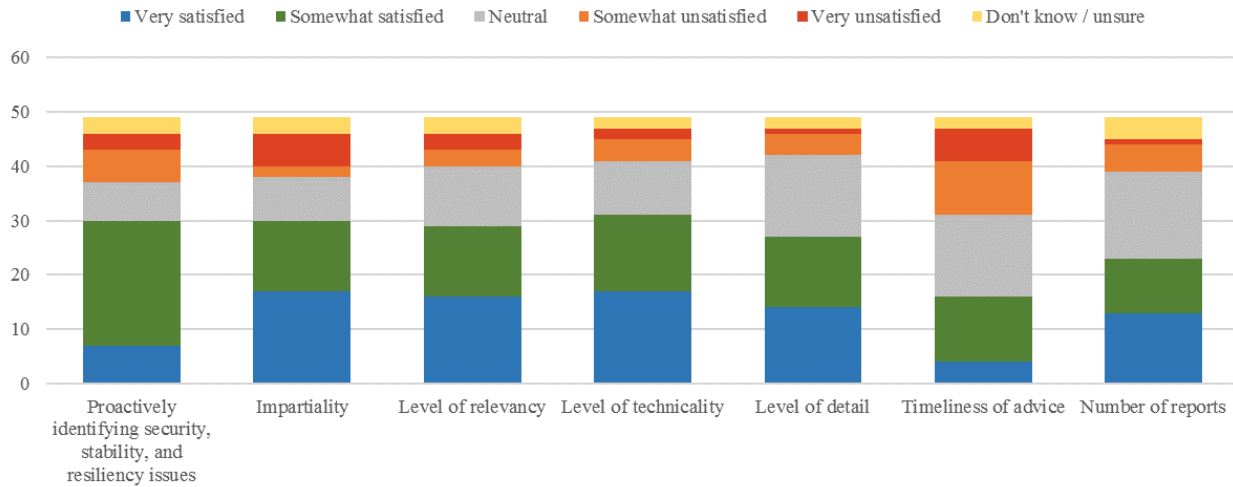
Additionally, certain ICANN Board and SSAC members cautioned that the SSAC should be careful not to become unduly focused on process issues at the expense of technical advice. Several individuals suggested that the Name Collision Analysis Project (NCAP) is one such example to be mindful of.

Recommendations 6 and 7 below relate most closely to this finding.

> **Recommendation 6: For time sensitive issues, the SSAC should establish process and work deadlines that take into account the decision timelines of other ICANN entities. The SSAC should work with SSAC staff to ensure internal deadlines are set up to make meeting external deadlines as possible as reasonable.**

While timeliness is certainly important, we generally agree that the SSAC is correct to be cautious about rushing advice. Security issues can by their nature be complicated, and interviews have revealed that the SSAC appropriately puts time and care into picking words carefully in an effort to be as clear as possible. That said, there may be ways the SSAC can work to provide advice in ways more in line with the decision making schedule of the ICANN Board. The SSAC does not produce advice in a vacuum. Rather, advice is developed to be reviewed and implemented by those who have need of it when making decisions or developing policy.

We recommend that the SSAC should, for time sensitive issues, establish work schedules that take into account the decision timelines of other ICANN entities. This could involve asking other ICANN entities when decisions will be made, and/or working with the relevant Liaisons to understand the expected timing of decisions that would rely on the SSAC's advice. For example, the Board Liaison can provide the SSAC with regular updates of the types of items that the Board

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[38] This question also explained that "The SSAC's advisory process involves activities such as providing advisories, comments, or reports in regards to security, stability, and resiliency technical issues."

is focusing on throughout the year, so that the SSAC can aim to provide advice at times that may be most ideal for implementation.

While the SSAC should make an effort to provide advice in a fashion that is in-line with decision making schedules, the SSAC should also continue to be clear to others that it follows a consensus driven process, and that, depending on complexity, it may be impossible to provide advice on a tight timeframe. When such an impossible deadline is requested of the SSAC, the SSAC should provide a clear update to the other body to explain why additional time is needed.

> **Recommendation 7: The SSAC should develop a process to, when possible, provide a "quick look" at a particular issue for the Board. Such "quick looks" might not be the result of a consensus-driven process, but rather would disclose differing opinions.**

The existing, consensus-based process of advice generation within the SSAC is highly valuable and should remain the main way that the SSAC produces recommendations and advice. Multiple members of the ICANN Board also expressed that it would be useful to, at times, be able to ask the SSAC for a "quick look" at a particular issue. Such correspondence could help the Board frame or understand an issue at a high level, without providing specific recommendations. It could also provide the ICANN Board with an understanding of the range of potential perspectives that might exist on a topic.

We recommend the SSAC develop a procedure to provide a "quick look" on certain issues to the ICANN Board, particularly given the new SSAC Correspondence Series meant to focus on communication instead of advice. The SSAC would always have the capability to reject such a "quick look" request, and/or help the ICANN Board to modify its request into one that can be handled in such a fashion (via the SSAC's Board Liaison). If desired, the SSAC should also be able to use this process to provide a "quick look" on any issue of its choosing, outside of a formal request.

> E. <u>**Finding 6:**</u> **The SSAC is well prepared to deal with emerging security threats. It was noted that the SSAC does not have formal procedures geared towards identifying emerging threats as an input to setting research priorities. Some interviewees indicated that as threats continue to increase in number and in complexity, there could be value in developing processes by which the SSAC could more formally review the security ecosystem as part of its topic selection.**

The SSAC has strong technical expertise and almost all interviewees indicated that the SSAC is generally well-prepared for SSR threats that may occur in the future. Less technical interviewees indicated that they do not have the background to know if the SSAC is appropriately evaluating the security landscape to pick topics of research focus, but these interviewees stated they are relying on the SSAC to do so.

The SSAC's method of selecting topics to provide advice on has evolved over time. Interviews indicate that in the early days of the organization, the SSAC Chair drove the focus of the organization. Today, the SSAC's administrative committee maintains a running list of potential topics for research, and it keeps tabs on SSAC member interest in each topic. Topic ideas are

generated in a variety of methods, including informally via SSAC meetings and emails, direct requests from the ICANN Board and SO/ACs, and also at ICANN Meetings including via informal interactions and the SSAC's Public Meeting. The SSAC's internal Annual Workshop also devotes a section to developing new ideas.

In order for a topic to be focused on by the SSAC, several conditions must be met. There needs to be a member (or two) of the SSAC who is interested in leading the Work Party on that topic, and there needs to be enough interest and availability among other members to take part. The question must also be clearly defined, actionable, and within the scope of the SSAC's remit. The SSAC has historically disbanded a Work Party if it becomes apparent that the underlying questions are not clear. There are currently no formal voting or prioritizing mechanisms around topic selection, which has been seen as appropriate for a volunteer organization.

This process of topic selection has been effective for many years. Interviewees indicate that, historically, the research interests of the SSAC have aligned with the security needs of the ICANN community, in part because the SSAC is comprised of experts who inherently are interested in pressing security issues. However, individuals on the SSAC and the ICANN Board also indicated that there is some interest in considering whether or not the SSAC should develop more formal procedures geared towards identifying emerging threats as an input to setting research priorities. Several interviewees believe that the cybersecurity landscape and number of threats is rapidly evolving, and that a more defined process could be useful in assessing this environment. The SSAC's recent session on emergency security threats during Tech Day at ICANN62 was well attended, and the SSAC fielded many questions from the ICANN community.

As shown in Figure 18 below, 53% of survey respondents find the current topic selection process to be either very effective or effective in identifying emerging and future security threats, while 24% were neutral, and 18% felt the process was ineffective or very ineffective. While the majority of respondents find the current process to be effective, the ability to identify emerging and future threats in regards to SSR issues is critical for ICANN, and it would be ideal if more respondents felt this way. Similarly, Figure 19 shows that while 18% of respondents were very satisfied with the current topic selection process, 47% were only somewhat satisfied, and 35% felt neutral, somewhat unsatisfied, or very unsatisfied.

Figure 18: How well do you feel the current topic selection process is able to identify emerging and future threats?
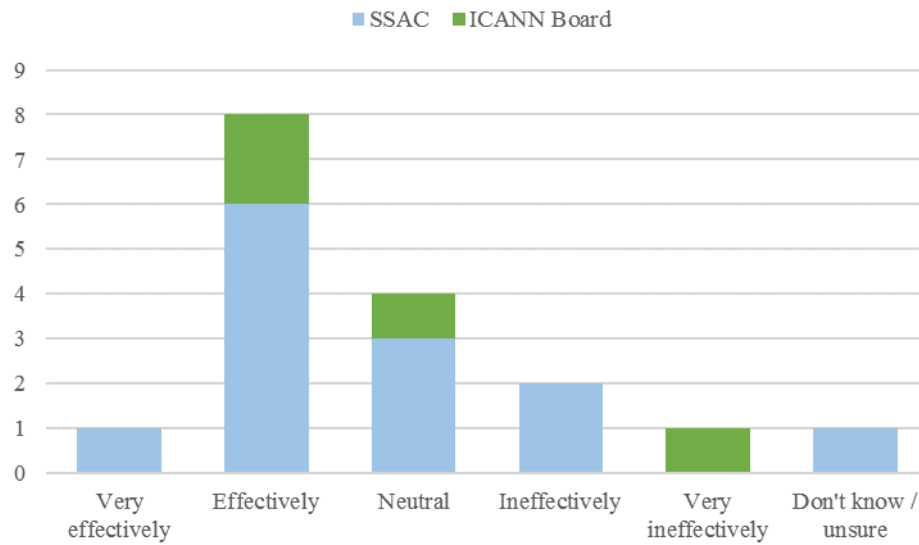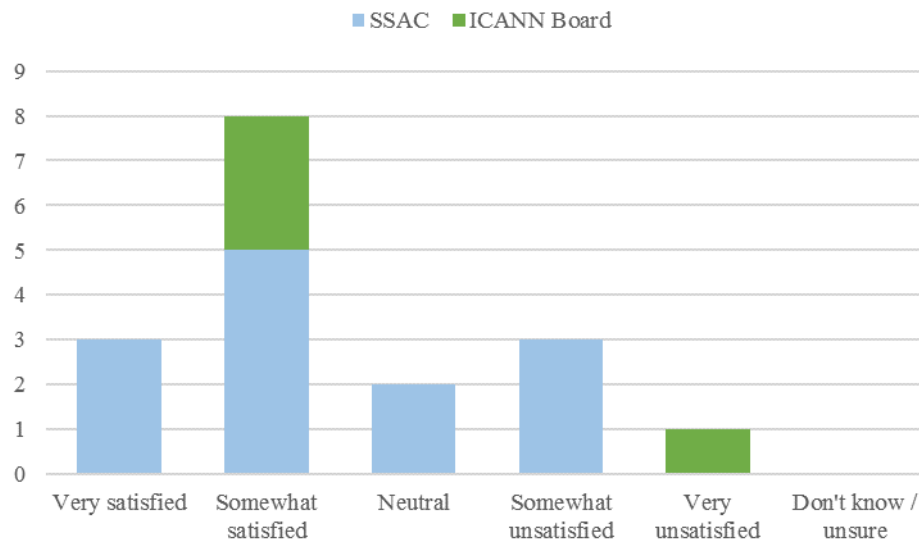*Number of Survey Respondents: 17*

Figure 19: Are you satisfied, or unsatisfied, with the current topic selection process?
Number of Survey Respondents: 17

Recommendations 8 and 9 below relate most closely to this finding.

Recommendation 8: The SSAC should formalize an annual process geared towards setting research priorities and identifying relevant emerging SSR threats in the short- and medium-term.

We recommend that the SSAC formalize a process to build structure into its mechanisms of setting research priorities and identifying emerging threats within the SSAC's remint. This process should not be overly time-consuming, but rather should be created with the goal of allowing the SSAC to clearly plan potential research goals over both short (one-year) and medium-term (five-year) time horizon. The results of this exercise can assist the SSAC in communicating goals with other ICANN and non-ICANN organizations, and can flow into internal processes relating to membership and skills evaluation, e.g., so that the SSAC can ensure it recruits new members with skills in emerging security areas.

We recommend this process build upon the SSAC's already successful activities, such as the "new idea" session at the SSAC's internal Annual Workshop. Regardless of how the process is structured, we recommend SSAC members reflect upon ongoing changes in the security space and how it may impact future SSAC work needs. Items for research could be split into short (one-year) and medium (five-year) priorities, and items that are particularly critical for SSR reasons can be flagged with a variant of "needs to happen." As discussed more below, it is important that the conversation around topic focus include a discussion of member interest, skills, and the SSAC's ability to take on any items seen as critical.

As the SSAC at times is given research requests from other entities within ICANN, including the ICANN Board, the lightweight planning exercise should be completed with these stakeholders in mind. The SSAC should consider the priorities and ongoing activities of such groups. The Board Liaison and other liaisons should be a part of the conversation to assist with this.

After the first year of implementing such a process, the list of research goals should be revisited on at least an annual basis and updated as needed.

Recommendation 9: The skills needed for tasks identified in the SSAC's annual priority setting and emerging threat identification exercise should feed into the SSAC's membership and recruitment processes.

Once research priorities are clearly identified across both short and medium-term time horizons, these research goals can flow into SSAC processes, including those around membership. We recommend the SSAC reflect on its list of upcoming priorities to assess how they align with current member interest, skills, and time availability. If there are important topics that the SSAC does not have the time to take on, this can be flagged for the Membership Committee to help determine if there are Invited Guests that could be brought into the SSAC for selected topics.

We recommend identified research priorities also be used as an informal gauge of which topics current SSAC members are interested in. We suggest there be a step where members are encouraged to flag which short and medium-term topics they are likely to have interest in. As discussed elsewhere in this report, the SSAC is currently close to an ideal size and, to the extent

that certain members are not interested in participating in topics on a medium-term time horizon, it may be an indication that it makes sense for that member to roll off as new members are recruited.

In the longer-term, the SSAC should consider if there are specific upcoming topics for which additional new or redundant expertise or perspectives could be useful. The Membership Committee should use this information when determining how to focus recruiting efforts, when considering the skills of new applicants, and when periodically updating the SSAC's skills matrix (see Recommendation 21).

F. **Finding 7: Individuals suggested that the largest impediment to the SSAC's success is the fact that the organization is volunteer-based, yet has a large amount of work to do. SSAC volunteers express they have been subject to an increasing requests, both in number and in scope.**

As with many bodies within ICANN, the SSAC is comprised entirely of volunteer members who donate their time, efforts, and expertise. As discussed above, SSR issues are important within the mission of ICANN, and they relate to a wide variety of ICANN activities. The limited time of SSAC members has historically needed to be juggled between competing priorities to provide advice, and as mentioned above, the SSAC has been prolific in providing advice documents to the ICANN Board and Community.

Interviews revealed numerous individuals who feel that a lot is being asked of the SSAC. This included among SSAC members, many of whom reported that there are increasing demands on their time. Multiple reasons were given: some SSAC members feel as though the ICANN Board is asking for guidance more often than it previously did; some reflect that the recent NCAP project is very large in scope (the largest project that the SSAC has taken on), and that it also requires project management overhead; and, others reflect that there is increasing requests for collaboration with other SO/ACs.

When asked about the largest impediments to the SSAC completing its duties, roles, or mission, options relating to the time and resources available to the SSAC were mentioned frequently. As show in Figure 20, the second most selected option (32 respondents) indicated that "time availability from volunteers on the SSAC" is the largest impediment. This "time availability" was the most frequently selected option by SSAC members themselves, and tied as the top impediment noted by members of the ICANN Board. Similarly, 19 respondents cited the SSAC was "lacking available resources," and 14 indicated that the SSAC was "overtasked with requests from other ICANN entities." These three options each ranked in the top five most frequent responses.

Figure 20: What would you consider the biggest impediments to the SSAC completing its duties, roles, or mission?

Number of Survey Respondents: 72
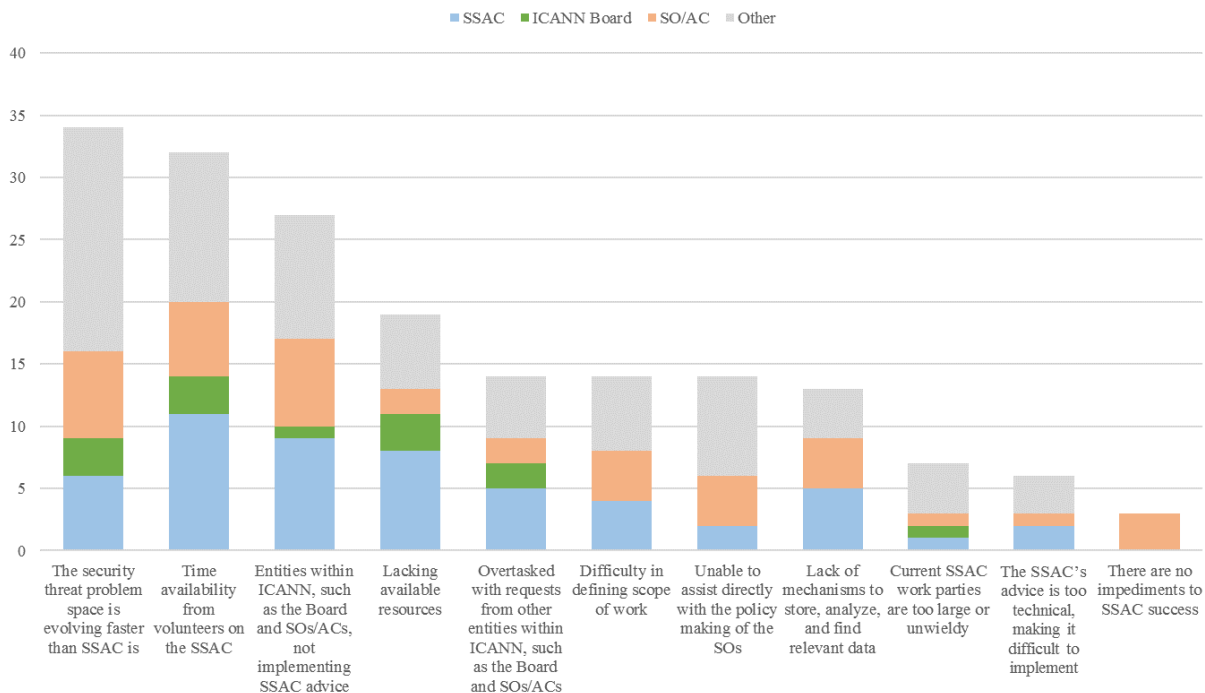
Survey responses also show that SSAC members may feel they need to contribute more often than they would like to, an important factor in the longer-term sustainability of any volunteer organization. As seen in Figure 21, 53% of SSAC respondents felt that their time contribution to the SSAC was "more than you would like," while 33% felt their contribution was "just the right amount."

Figure 21: What is your view of your time contributions to the SSAC?
Number of Survey Respondents (SSAC Members): 15
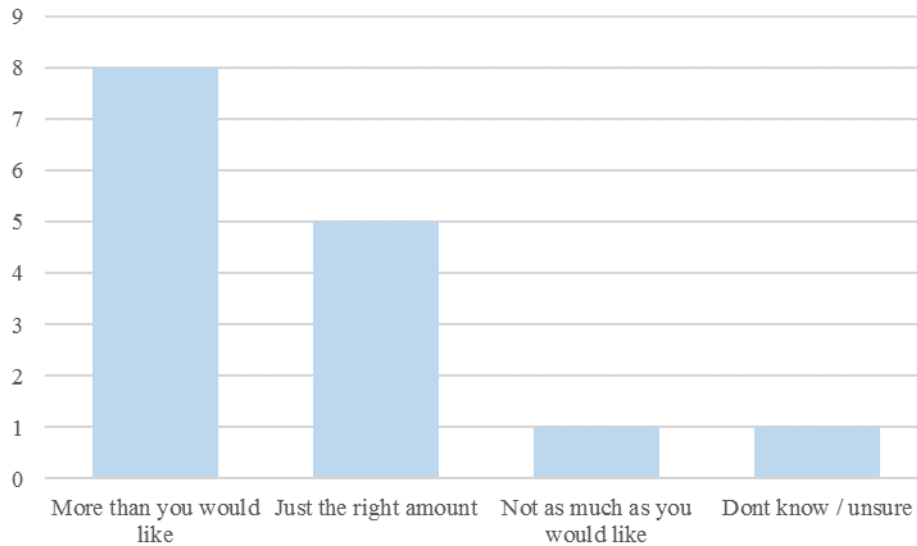
Several individuals suggested strategies that could be considered to help reduce the burden on the SSAC without decreasing its effectiveness. One option frequently mentioned was to look for opportunities to collaborate with ICANN's Office of the Chief Technology Officer (OCTO) more frequently, and it was noted that communication between the two groups is already strong. It was also noted that the SSAC should go back to the ICANN Board (or others) with requests for resources if needed - for example, the SSAC recently requested funding to support the NCAP project, which would include the use of external contractors for certain tasks.

In terms of support for individual research projects, several individuals noted that past experience with working with SSAC "Invited Guests" on specific issues has been helpful, a result born out in the survey where 73% of SSAC respondents reflected that such guests have been effective. Interviewees noted that these guests could be academics with related research interests, or simply individuals interested in assisting the SSAC with a specific project or research item. Additionally, it was suggested that the SSAC could consider whether or not ICANN Fellows could provide assistance in certain kinds of work.

Finally, SSAC members broadly have praised the skills of ICANN Staff in supporting the SSAC. Several interviewees suggested that perhaps additional staff resources would help with the large amount being asked of the SSAC.

Recommendations 10 through 12 below relate most closely to this finding.

Recommendation 10: The SSAC should explicitly communicate the reasons for its decisions around topic selection and focus with others in ICANN. New requests should be compared to the current set of priorities and communicated about accordingly.

The SSAC both sets its own research agenda and takes on tasks as requested by other ICANN bodies, including the ICANN Board. In doing so, the SSAC has many potential projects that compete for the SSAC's limited resources.

Ultimately, the SSAC will not be able to focus on every item requested of it. In these situations, the SSAC should continue to take proactive action and responsibility for organizing its resources. This should include selecting what projects to focus on and what projects to save until later, working with those who request projects to refine the scope of requests, and communicating these decisions transparently so that members of the ICANN Community can understand why the SSAC has decided to focus on each task and how the task is important to ICANN. There must be a well-developed process to track potential and incoming topics and, for those not selected, a clear rationale for why the SSAC's limited resources could not be allocated to these tasks.

We first recommend that the outcomes of the SSAC's lightweight topic selection and emerging threat identification process be shared more broadly within ICANN (see Recommendation 8). This could take the form of a yearly SSAC-Correspondence series document discussing emerging threats and the SSAC's potential short and medium-term focus for the ICANN Board. To the extent that there are topics considered then rejected by the SSAC (either as out of the SSAC's remit, unlikely to lead to actionable recommendations, or for other reasons), we recommend these be included along with a brief summary of why they should not be pursued at the present time.

Throughout the year as the SSAC is approached with new requests, these requests should be compared against the current task list and intended short-term goals of the SSAC. Using this information, the SSAC can judge whether a particular task is feasible and what kinds of tradeoffs might be required in order to meet new requests. This information can be communicated back to the requesting body via the appropriate channels, along with requests for additional resources when needed (see Recommendation 11). The SSAC should periodically update its list of based on such requests and information.

In addition, the SSAC should continue to communicate its ongoing and upcoming research focuses broadly within the ICANN Community, as it currently does at ICANN Public Meetings. The SSAC should also continue to invite the public to suggest topics at such meetings. To the extent that the SSAC is studying or considering review of a potential threat that must remain confidential, that item should be listed once it becomes safe to do so.

We also recommend that the SSAC's priorities be communicated to other SO/ACs in meetings of the SO/AC chairs, by relevant liaisons, and continued informal interaction. The SSAC's upcoming focuses may in part be set by the needs and requests of others in the ICANN community as revealed in such conversations.

Recommendation 11: The SSAC should continue to approach the ICANN Board when additional funding, resources, or access to external contractors may be required to achieve a project in the desired timeline or at the desired scale.

When the SSAC is asked by the ICANN Board to provide services that fall outside the reasonable capabilities of a volunteer organization, either due to the time required or other circumstances, the SSAC should first work with the ICANN Board to see if the request can be refined. If the project reflects a large scope of work, the SSAC should let the ICANN Board know what kind of resources would be required in order to achieve the desired goal. These responses should give a rough idea of the funding, resources, or other items that might be required.

The recent Name Collision Analysis Project (NCAP) is one example of the SSAC requesting additional resources when it believes a project to be too extensive to shoulder alone. In addition to establishing a stakeholder process for community input into creating a project plan, the initial project proposal advised the ICANN Board that reasonable costs could be in excess of $3 million USD over three years.[39]

This kind of communication is a useful starting point for the SSAC as it communicates with the ICANN Board about what would be needed to fulfill a large request. We note there also may be times where the ICANN Board asks a question that it believes to be straightforward, but that in fact the SSAC believes it would take more resources than reasonable or easily obtained. In these situations, we recommend the SSAC work with the ICANN Board via the Board Liaison, and potentially the SSAC Correspondence series, to refine or clarify the request.

Recommendation 12: The SSAC should consider whether an internship can be offered to graduate students in cybersecurity or data analytics programs for assistance with research or specific work products. In addition, the SSAC should continue to endeavor to leverage the assistance of ICANN's technical staff when it is appropriate to do so.

While the deep expertise of SSAC members is valuable, so are the contributions to the SSAC by ICANN Staff. As we have seen in meetings, these contributions can at times include detailed research or analysis provided to assist the SSAC. These results are then presented to the SSAC or a specific Work Party for review and for discussion. We note that from all of our observations, the SSAC puts care into ensuring that assistance from ICANN staff is at the direction of the SSAC and that it does not affect the SSAC's independence.[40]

We recommend the SSAC reflect upon whether this model could potentially be useful in a slightly different implementation, and recommend the SSAC's Membership Committee study the idea of providing an internship opportunity open to graduate students in cybersecurity or data

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[39] "SSAC Proposal for the Name Collision Analysis Project," SSAC, March 2, 2018, available at https://community.icann.org/display/NCAP/NCAP+Working+Documents?preview=/79437474/79438151/NCAP%20Proposal%20for%20Public%20Comment%2020180302.pdf.

[40] Further details regarding the role of ICANN Staff in regards to the SSAC can be found in the most recent SSAC Operating Procedures, Section 2.8.7. "SSAC Operational Procedures Version 7.0," SSAC, November 30, 2018, available at https://www.icann.org/en/system/files/files/operational-procedures-30nov18-en.pdf.

science/analytics programs. The internship, paid or unpaid, could be associated with one specific Work Party, or with the SSAC more broadly. Graduate students are often looking for ways to apply their knowledge, and we believe many students would be interested in the opportunity to assist the SSAC's technical experts. The SSAC could post about opportunities on its website, and/or let academic contacts know about the opportunity.

There are also likely ways that the SSAC can leverage internal ICANN resources to assist with specific research tasks. We have heard from many interviewees about the positive relationship between the SSAC and the ICANN Office of the Chief Technology Officer (OCTO). While it is important that the SSAC maintain its independence from paid ICANN Staff, we recommend that the SSAC should continue to work with and leverage the research of OCTO. The SSAC may be able to ask for targeted assistance with specific research or data gathering tasks, while saving aspects of independent judgement and advice generation for the SSAC's volunteers.

In addition, while we are not recommending another dedicated staff member to the SSAC at this time, if the SSAC is subject to an increasing number of requests, one will be needed. We recommend that the SSAC keep this in mind and, if requests of the SSAC continue to increase, start a discussion with the ICANN Board about providing an additional staff member. We note that as the SSAC shares some staff with the RSSAC, an increase in workload of either committee could lead to tightening of ICANN Staff's availability for the SSAC.

G. <u>Finding 8:</u> The SSAC's process of generating advice is collegial and is generally effective. Some best practices and suggestions for improvement have been gathered as part of the review process.

SSAC members that we interviewed generally reflected that the process of generating advice is collegial and effective. This matches our observations of SSAC meetings both remotely and in person. Interviewees noted three areas of success that particularly stand out: (1) the SSAC makes sustained efforts to provide a collaborative environment; (2) the SSAC works to keep an awareness of its audience and the "bigger picture"; and, (3) the SSAC Support Staff effectively assists the SSAC.

The SSAC makes a clear effort to foster an environment where expressing differing viewpoints and building consensus is encouraged. Members of the SSAC state that they are comfortable speaking up on any topic, and that they aim to listen to and engage in dialogue with their peers. From observation, SSAC meetings are very polite. Members take turns in meetings, and make sure any interested member has time to speak on a topic. Work parties also make an effort to incorporate views into SSAC materials after a conversation takes place. The results of this collegiality can be seen in the large amount of consensus-based output that the SSAC creates.

In addition, we observed that members of the SSAC take a step back to think about the "big picture." Members of the SSAC ask themselves if the work they engage in is relevant to the SSAC's remit, and if it is of use to the ICANN Community. Multiple SSAC members indicated that the SSAC is not afraid to stop Work Parties that do not appear to have a clearly defined objective or that do not seem as though they will result in actionable advice. Additionally, we have seen the SSAC engage in discussions regarding the audience of their communications to attempt

to ensure that wording is as clear as possible. Multiple SSAC members reiterated the importance of getting this right.

Every interviewee who was asked reflected on the importance of, and appreciation for, the work undertaken by the SSAC Support Staff. Contributions range from heavily assisting with writing, to keeping detailed track of and notes from Administrative Committee and Work Party meetings via status and timeline tracking, to assisting with and presenting on data analysis.

A number of favored best practices were also mentioned in discussions. Several SSAC members identified that it has been useful at times to have two chairs for a Work Party, in case one becomes busy. These individuals reflected that typically the SSAC is successful at determining situations in which two Work Party chairs might be useful. Others reflected that recent efforts to standardize document processes around Google Docs have been effective.

Several pain points and places for refinement were identified. Multiple members of the SSAC mentioned that the SSAC does not currently have dedicated data storage space, which could be useful for the ability to do more analysis. Others reflected that it would be useful for the SSAC to record operational metrics around the time taken for each stage of the publication development process, so that the SSAC could use these data to refine processes. Finally, a few interviewees reflected that the SSAC should be careful not to get too caught up in administrative issues at the expense of technical analysis and advice.

> ### Recommendation 13: The SSAC should work with ICANN Staff to obtain a dedicated, secure, data storage location for use in SSAC analyses.

Multiple members of the SSAC mentioned that the SSAC does not currently have dedicated data storage space. We believe there would be benefits from the SSAC having dedicated and secure storage.

A single, secure storage space would allow the SSAC to store and then access raw data and related files in a single place. As time passes, members of the SSAC would be able to easily find data used or generated in old analyses, even if that analysis occurred years before or as part of a different Work Party. Data and stored files could be less likely to be lost when a member leaves the SSAC, taking their personal devices with them.

We recommend that the SSAC work with relevant ICANN Staff to obtain dedicated space suitable to its needs. We note that we, as the independent examiner, have not studied ICANN's file storage system in depth and do not know the full extent of its technical capabilities. The exact solution for space provision will be subject to what makes sense within ICANN's systems.

In addition, if the SSAC believes that permissions are likely to be required (e.g., if only certain members of the SSAC should be able to access certain kinds of data), we suggest the SSAC work with ICANN Staff to determine what can be done to allow for this kind of security.

VI.   Findings and Recommendations: The SSAC's Integration with SO/ACs and the ICANN Community

A. **Finding 9: There is a need for individuals with an understanding of SSR-related issues to take part in policy development, and some members of the community suggest the SSAC or its members (as individuals) should play that role. Others state that the SSAC should play a technical advice, audit, and verification role, and that assisting more directly in policymaking itself is not the point of the SSAC.**

Interviews indicated that there are varied expectations among members of the ICANN community in regard to the role of the SSAC within ICANN's policymaking processes. Some individuals indicated that the SSAC needs to play a more active part in the community and participate in policy making and other community work. These individuals suggested that the SSAC participate directly in working groups, and through this participation, provide their expertise and knowledge directly with those helping to develop ICANN policy early in the process.

Others, including many individuals on the SSAC, suggest that this is a misunderstanding of how the SSAC functions and how security issue awareness should be integrated into policy development. These individuals tended to suggest that the SSAC should continue to focus on providing consensus-based advice on core technical issues, and that the role of the SSAC is to provide advice, and to audit the SSR implications of policies and practices once they are developed. As one interviewee stated, for example: "The SSAC should not evaluate what TLD strings are okay, but rather should comment on whether the process used to determine the appropriateness of TLD strings has been okay."

All interviewees who were asked about this issue agreed that it is important for SSR advice and awareness of SSR issues to be incorporated into ICANN policymaking. In practice, individuals had mixed views whether or not the SOs/ACs are currently effective in incorporating SSR knowledge and implementing the SSAC's advice. In interviews, some members of SOs/ACs stated that they believe the SSAC's advisories are primarily used by the ICANN Board and not in SO/AC policymaking. Survey results, as shown in Figure 22, provide a more mixed view. Many individuals state that SSAC advice is sometimes incorporated in reviews. However, we note that the number of survey responses from members of any one individual SO/AC was small, making it difficult to put too much weight on this metric, as can be seen in Figure 23. In both figures, we see that many respondents were unsure whether the SSAC's advice was used in policy development.

Figure 22: How often is the advice given by the SSAC incorporated into the policy development process of the following SOs/ACs?

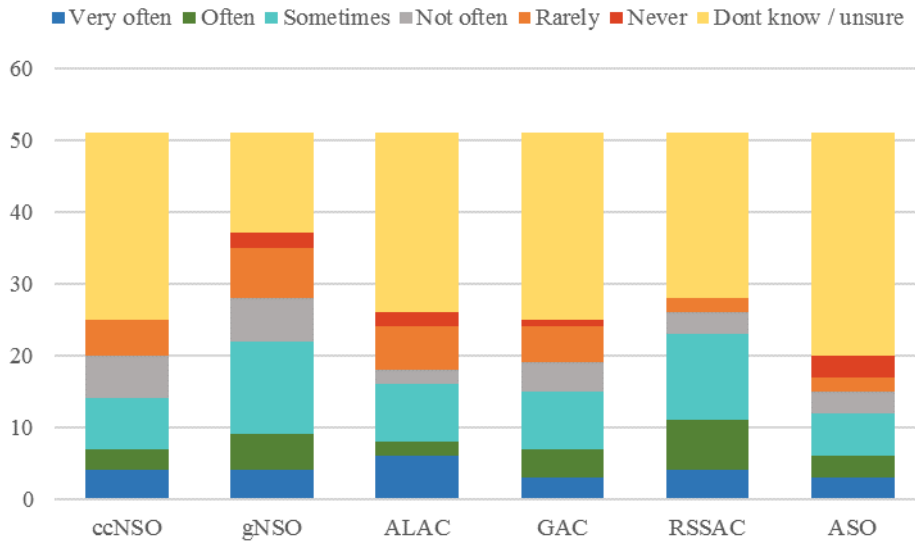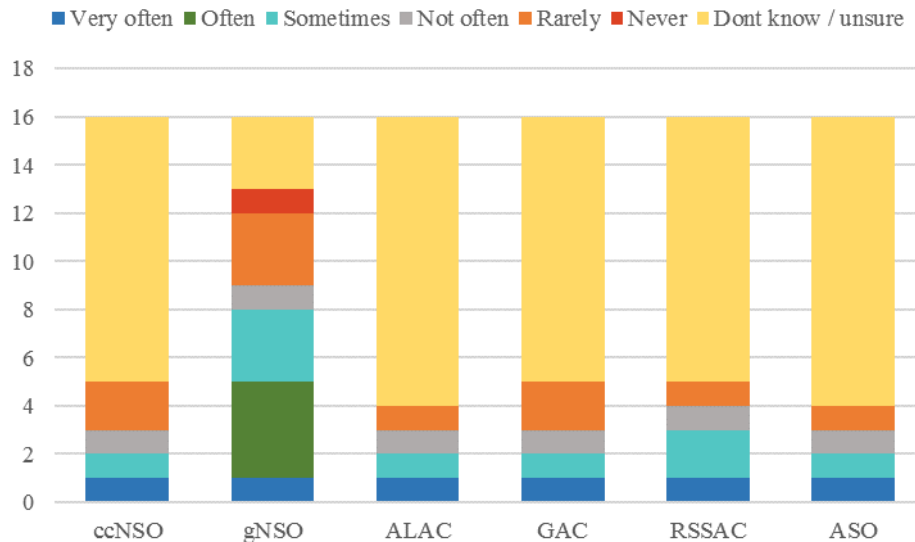*Number of Survey Respondents: 51*

Figure 23: How often is the advice given by the SSAC incorporated into the policy development process of the following SOs/ACs? (SO/AC Member Responses Only)

Number of Survey Respondents: 16

Individuals also reflected on situations in the past few years where the SSAC's decision audit and verification role has led to tensions between the SSAC and other groups. Interviewees referenced instances where the SSAC's advice was either in disagreement with the advice of work parties or shutdown work processes, sometimes after volunteers had invested significant time into the effort. For example:

- SAC084 (2016) responded to the ccNSO's EPSRP Working Group's Proposed Guidelines for the Extended Process Similarity Review Panel for the IDN ccTLD Fast Track Process.[41] The SSAC recommended that the "ICANN Board not accept the proposed guidelines for the EPSRP, as those guidelines represent a threat to the security and stability of the DNS."[42]

- SAC098 (2017) commented on the processes being followed by the SSR2 Review Team after the review team had spent "hundreds of hours engaged in procedural matters and almost no progress… made on substantive matters," and suggested that the ICANN Board, "[t]ake immediate action to temporarily halt the SSR2 review."[43]

To be clear: it is the role of an independent SSAC to audit policy and to advise the ICANN Board to prevent policies that may inadvertently lead to security risks. It is not only healthy, but also necessary for ICANN to have a mechanism by which security experts can flag concerns, and that the ICANN Board is able to listen to these concerns to pause, slow down, or halt work that may have adverse security implications for the Internet. The fact that the SSAC's advice was able to lead to a pause in work streams that the SSAC believed needed to be revisited is a sign that these mechanisms are working.[44]

At the same time, when the SSAC's advice regards the work of other volunteers after a significant amount of time has been invested, feedback can cause tensions. For example, in SAC055, the SSAC commented on the WHOIS Review Team's Final Report that "a single universal 'WHOIS' policy, as defined in the Review Team's report, is unlikely to be effective or even achievable," and that the ICANN Board should "defer any activity… directed at finding a 'solution' to 'the WHOIS problem'" until the purpose of domain name registration data is better understood.[45,46] Individuals wished that they had known the SSAC's concerns regarding this earlier, before substantial volunteer efforts had been invested. In the case of SAC055 and SAC084, some individuals wished that the SSAC had participated in the work party or in earlier opportunities for public review. One individual cautioned that it can seem as though the "SSAC ends up […] marking up people's homework and giving them an "F" without being involved in their work."

SSAC members and others explained in interviews (and in SAC089) that ability to participate is partially a function of the SSAC's available resources and existing processes, and that the SSAC

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[41] "Final Report ccNSO EPSRP Working Group", ccNSO, January 6, 2017, available at https://ccnso.icann.org/sites/default/files/file/field-file-attach/2017-04/epsrp-final-report-06jan17-en.pdf, accessed on May 30, 2018.

[42] "SAC084 SSAC Comments on Guidelines for the Extended Process Similarity Review Panel for the IDN ccTLD Fast Track Process", SSAC, August 31, 2016, available at https://www.icann.org/en/system/files/files/sac-084-en.pdf

[43] "SAC098: The Security, Stability and Resiliency of the DNS Review (SSR2)", SSAC, October 4, 2017, available at https://www.icann.org/en/system/files/files/sac-098-en.pdf

[44] We note that we have not independently reviewed all of the security details behind these decisions and are not commenting on the details of these specific examples.

[45] "WHOIS Policy Review Team Final Report", May 11, 2012, available at https://www.icann.org/en/system/files/files/final-report-11may12-en.pdf

[46] "SAC055 WHOIS: Blind Men And an Elephant" SSAC, September 14, 2012, available at https://www.icann.org/en/system/files/files/sac-055-en.pdf, accessed on May 30, 2018.

has worked to discuss and improve processes.[47] The SSAC is small relative to the number of ICANN efforts that intersect with SSR issues, and furthermore, as SSAC opinions require consensus-building process, individuals are unable to speak alone on behalf of the SSAC. This does not prevent SSAC members as individuals from being involved in ICANN policy, though in practice that is difficult due to the volunteer nature of the SSAC and the amount of work required by SSAC members. Interviewees widely agree that individual members of the SSAC are friendly, helpful, and approachable when it comes to discussing SSR. The SSAC has also focused more in recent years on providing feedback into public comment periods. Additionally, members of both the ccNSO and the SSAC reflected that collaboration after initial tensions was generally effective.

Some individuals note that if the SSAC is not to be involved in policymaking, then the SSAC could consider ways to help ensure that SSR issues are raised earlier in the policymaking processes of other SOs/ACs: for example, by helping to nurture a discussion forum for those working to incorporate SSR issues into ICANN policy. It was suggested that this could raise the likelihood of all going well in SSAC audit activities. As one interviewee put it: "the greatest success is if it is the case that interaction between PDPs and SSAC and SSR people lead to the result that the SSAC's review of PDPs and policy find that everything is fine."

B. **Finding 10: Many individuals both inside and outside of the SSAC identified that creating more interaction with other ICANN SOs/ACs should be an area of focus for the SSAC. The SSAC has been making strides to communicate more frequently and to forge stronger relationships with other SOs/ACs.**

The SSAC has a strong reputation throughout ICANN for its technical expertise. Non-SSAC members who know individual SSAC members describe them as approachable, and generally reflect on having positive personal relationships. However, some interviewees also have indicated that the SSAC can at times seem like an "ivory tower" that is less accessible to the rest of ICANN. As the SSAC's purpose is to provide SSR advice to both the ICANN Board and the ICANN community, many individuals indicated that strong and active relationships throughout ICANN, coupled with the SSAC's independence, is helpful to that goal.

Of survey respondents who had an opinion, the current relationships between the SSAC and SOs/ACs are largely described as somewhat positive or neutral, with the exception of the RSSAC which is described as very positive or somewhat positive (see Figure 24).[48] We find similar results in 7, which shows that most respondents were either somewhat satisfied or felt neutrally about the level of interaction between the SSAC and SO/ACs, and in Figure 26, which shows that most respondents were either somewhat satisfied or felt neutrally about the level of interaction between the SSAC and the ICANN community, more broadly. Of those who had an opinion, 26% were

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[47] "SAC089: SSAC Response to ccNSO Comments on SAC084", SSAC, December 12, 2016, available at https://www.icann.org/en/system/files/files/sac-089-en.pdf

[48] We note that this observation aligns with the recent RSSAC review, which found that "The RSSAC's relationship with the SSAC has improved and is working well." "Independent Review of the ICANN Root Server System Advisory Committee (RSSAC)," Interisle Consulting Group, February 22, 2018, available at https://www.icann.org/en/system/files/files/rssac-review-assessment-report-22feb18-en.pdf.

either somewhat unsatisfied or very unsatisfied with the SSAC's level of interaction with the ICANN community.

Figure 24: How would you describe the relationship between the SSAC and SOs/ACs?
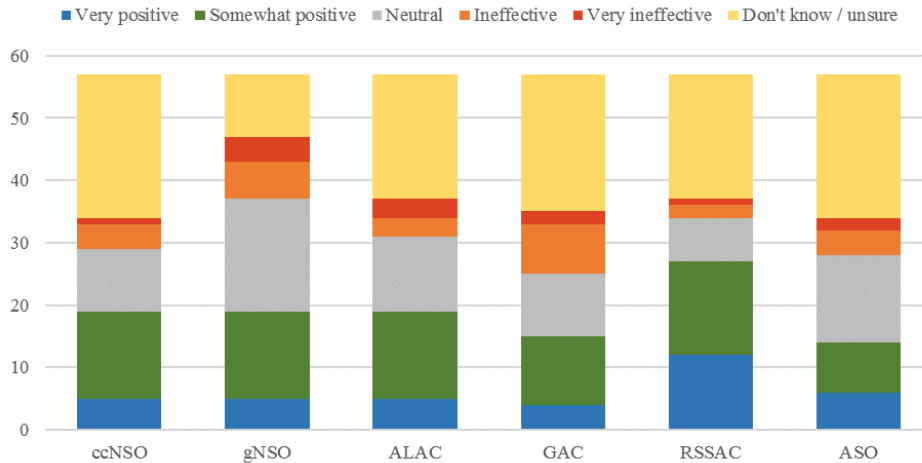*Number of Survey Respondents: 57*

Figure 25: How satisfied, or unsatisfied, are you with the current level of interaction between the SSAC and the following SOs/ACs?
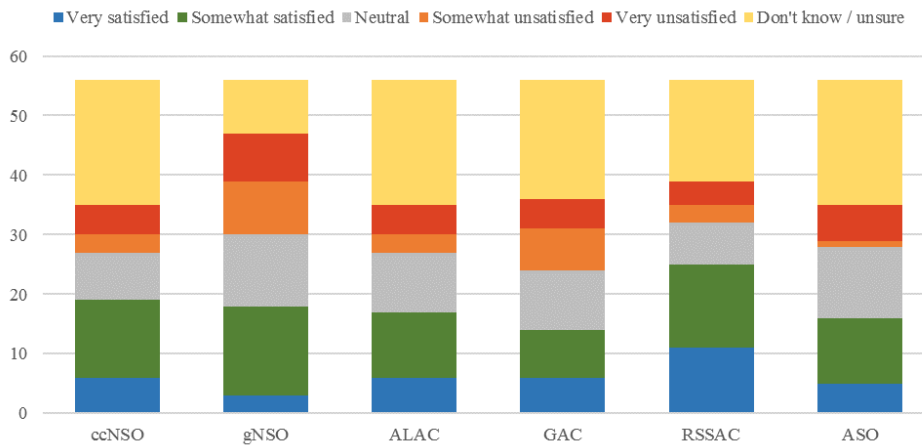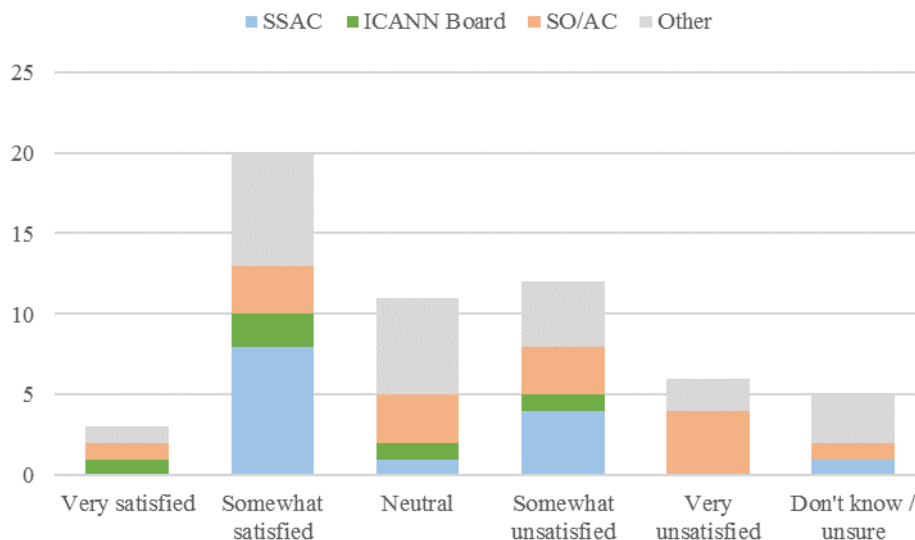*Number of Survey Respondents: 56*

Figure 26: How satisfied, or unsatisfied, are you with the current level of interaction between the SSAC and the ICANN community (outside of SOs/ACs)?

Number of Survey Respondents: 57

Interviews identified many instances where individuals would like more communication from the SSAC. Survey respondents who identified reasons why they were not satisfied with their interactions with the SSAC reported that some top reasons are:

- There is no mechanism for feedback between the SSAC and SOs/ACs.

- There are few shared group members between the SSAC and other SOs/ACs.

- The SSAC does not participate enough in public comment periods of other SOs/ACs.

- The timing of SSAC advice is not synchronized with the needs of SOs/ACs.

While these areas were identified, we note that people commented in interviews that the SSAC has taken steps in recent years to increase its visibility within ICANN. This has occurred both within and outside of the SSAC's formal advisories.

In regards to its advisories, our interviews and observation of SSAC meetings indicate that the SSAC is focused on providing advice in a way that is understandable and accessible. Almost all interviewees who had an interest in doing so indicated that they are able to read and understand SSAC documents. SSAC interviewees were particularly focused on ensuring documents could be understood so that they could be useful.

Outside of its advisories, the SSAC has made efforts to focus on the community. For example, the SSAC has been increasingly focused on providing feedback into public comment periods in recent years. Members of the SSAC also participated on the original SSR2 Review Team (prior to SAC098) and intend to continue participation. It was noted positively that both outgoing and incoming SSAC Chairs attended recent SO/AC Chairs meetings. We also observed recent examples directly: the SSAC held a joint session with the ALAC at ICANN61, hosted large public meetings in regards to the NCAP Working Group, and hosted a well-attended session on emerging security topics at Tech Day at ICANN62.

Recommendations 14 through 16 below relate most closely to the two findings above.

> **Recommendation 14: The SSAC advises the ICANN Board and Community on matters relating to the security and integrity of the Internet's naming and address allocation systems. To do this effectively, the SSAC needs to be aware of policymaking that is ongoing within ICANN. We recommend the SSAC designate an outward representative to each SO/AC that is willing to receive one. These roles should be structured to add minimal burden to the SSAC's already large set of responsibilities.**

We believe that the SSAC provides the most value to ICANN when it can focus on providing consensus-based advice on core technical issues. The SSAC should provide advice and audit the SSR implications of policies and practices once (and sometimes as) they are developed. However, to those who are not deeply steeped in SSR issues, security issues can at times come up unexpectedly, as can be seen in examples of "surprise" expressed to us in interviews and outlined above.

We think it is important that the SSAC have an open line of communication with each SO/AC for multiple reasons. Open communication provides a mechanism by which the SSAC can keep apprised of the high-level activities and PDP processes of SO/ACs, which can help it understand where ICANN is headed and the types of SSR issues that may become important down the road. It also can help the SSAC disseminate its publications and advice, and give the SSAC a better idea of how its recommendations are used and discussed by SO/ACs.

We recommend this be accomplished by external representatives to each of ICANN's interested SO/ACs. This role should be structured in a way that is not overly burdensome to the SSAC. While the SSAC does have a mechanism in place to designate "outward liaisons," this mechanism tends to be quite time consuming for the SSAC members involved. As a result, while we suggest the SSAC keep the outward liaison positions it currently has (and that it maintain the mechanism to designate new outward liaisons), we believe it would be overly burdensome to recommend that the SSAC have full outward liaisons for all of its SO/AC relationships.

We recommend the SSAC reach out to each SO/AC to determine which would be interested in having an outward representative from the SSAC, then work with those interested to provide one. In addition to increasing communication, this will have important implications for transparency, as outlined further below.

The roles of this representative should include:

- Have that representative meet with their designated SO/AC at least once at each ICANN public meeting, and include as an agenda item an opportunity to answer questions, report on the SSAC's work, and discuss as relevant the SSR nature of that SO's/AC's work.[49]
- Attend a sufficient quantity of the remote meetings of the given SO/AC to keep generally apprised on the goals of the SO/AC, and important PDP or other processes.

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[49] We note that the SSAC as a whole already has joint meetings certain other SO/ACs, such as the ALAC. Such a meeting could take the place of the Liaison in person agenda item, discussed above.

- Assist in letting the SO/AC know if it might be stumbling into an SSR issue that is readily apparent to the representative. For example, if it becomes clear that an activity of the SO/AC may run afoul of historic SSAC advice, or that it may reasonably prompt a desire for the SSAC to review a topic more formally.
- Report back to the SSAC on the activities of the SO/ACs, and assist the SSAC in giving the SO/AC a professional "heads up" when SSAC's advice under development may impact the committee (see also Recommendation 16).

In defining this role, the SSAC should show care to ensure that the SSAC's outward representatives do not become a means for other SO/ACs to exert direct or indirect influence over the SSAC, its work activities, or its conclusions.

It is important to underscore that individuals, even representatives or external liaisons, cannot formally speak for the SSAC, which takes a consensus-driven approach to providing advice and documents. When setting up the outward representative relationship, the SSAC should be clear that this individual is unable to speak on behalf of the entire SSAC, and rather is there to help increase communication. While certain questions may be answerable by the representative, the representative should also feel empowered to remind the SO/AC of this limitation, and let the SO/AC know when a request would be better sent to the SSAC as a whole, or when the organization might need to recruit someone with SSR experience (e.g., an external contractor) to assist with details of the PDP process.

> **Recommendation 15: As time availability allows, the SSAC should continue to have members involved as individuals in large, cross-ICANN efforts that have SSR-related components, such as the SSR2.**

Members of the SSAC have historically taken part in some large, cross-ICANN efforts, such as the SSR2 Review. To the extent members have interest and bandwidth, we recommend they continue to participate in ICANN-wide activities that may have important implications for SSR issues of the SSAC's remit.

We note that in an organization as large as ICANN, the SSAC's members may not always have the bandwidth to participate in processes. The SSAC's website should have a clear way that the PDP group can reach out to the SSAC with SSR-related questions (see Recommendation 18, below).

> **Recommendation 16: In the process of developing each SAC-series document, the SSAC should explicitly discuss who affected parties may be and whether or not affected parties should be consulted for feedback or should be notified that the SSAC plans to publish a document on a given topic.**

As discussed above, there have been several instances where an SO/AC or other working group has expressed surprise at advice rendered by the SSAC. According to the SSAC's operating procedures, Sections 3.2.3 and 3.2.4, "The Work Party also may consult with members of the ICANN community affected by the issue under study," and "[o]nce the SSAC has approved an

initial draft work product, the next step is to engage affected parties in the ICANN community in a preliminary review if the Work Party deems it necessary to do so." Section 3.2.4 also provides a detailed process under which the SSAC can solicit a party for feedback.

From our audit of SSAC meetings, the SSAC does think about and discuss potentially affected parties. We recommend the process be more formalized, and would suggest that the discussions regarding affected parties occur early and throughout in the Work Party process and not only once the SSAC has approved initial draft work product.

We recommend that, when a embarking on a new Work Party, a first task should be to explicitly discuss who the potentially affected parties are. While affected parties may be unclear or may evolve over the course of a Work Party's activities, a baseline discussion is useful and relatively quick to have. Second, once potentially affected parties are identified, we recommend the Work Party discuss whether or not that party should be consulted for feedback or should be otherwise notified.

Our goal is not to encourage the SSAC to slow down each and every advisory document process with an extended public review period. As the SSAC's advice is primarily technical in nature, many or the majority of advisories may not require such a process. In addition, when a pressing security concern arises, the SSAC may not have time for a review process before advising the ICANN Board. In certain situations, a professional "heads up" may be more appropriate than a review. However, we note that the speed in providing an advisory up front may only be a temporary time savings - to the extent that an advisory catches another ICANN body off-guard, time savings up front could be traded off with complicated discussion once an advisory or other communication is released.

C. <u>**Finding 11:**</u> **The SSAC is generally seen to be less transparent than other parts of ICANN. While most interviewees understand this to be necessary given the sensitive nature of security risks, many would like to see a more transparent SSAC.**

The needs of transparency and the handling of SSR issues can be in tension. While ICANN's philosophy is to be as open as reasonably possible, those in the security community must follow a responsible disclosure model. In short, a vulnerability or security issue should only be disclosed to the community after it has been discovered, notification has been given to the impacted parties, and a period of time allowing the vulnerability to be addressed has passed.

The SSAC, by its nature and role, deliberates on issues related to the security, stability, and resilience of the Internet's naming and numbering systems. As the SSAC studies various topics, a bad actor with too much transparency could look for and identify clues into vulnerabilities to exploit. Interviews have indicated that many within the SSAC value and want to provide transparency, but finding the right way to do so can be difficult.

That said, many individuals around the ICANN community (including a portion of SSAC members) question whether or not the SSAC needs to be as closed as it is. As can be seen in Figure 27, 54% of survey respondents would like the SSAC to be more transparent. Notably, while 100%

of respondents from the ICANN Board and 69% of those from the SSAC feel as though the SSAC is properly transparent, 71% of SO/AC and Other respondents would like more transparency. Nobody felt that the SSAC should be less transparent.

Figure 27: How well do you feel as though the SSAC's level of transparency balances with competing values (e.g., the importance of confidentiality in security issues)?
Number of Survey Respondents: 48
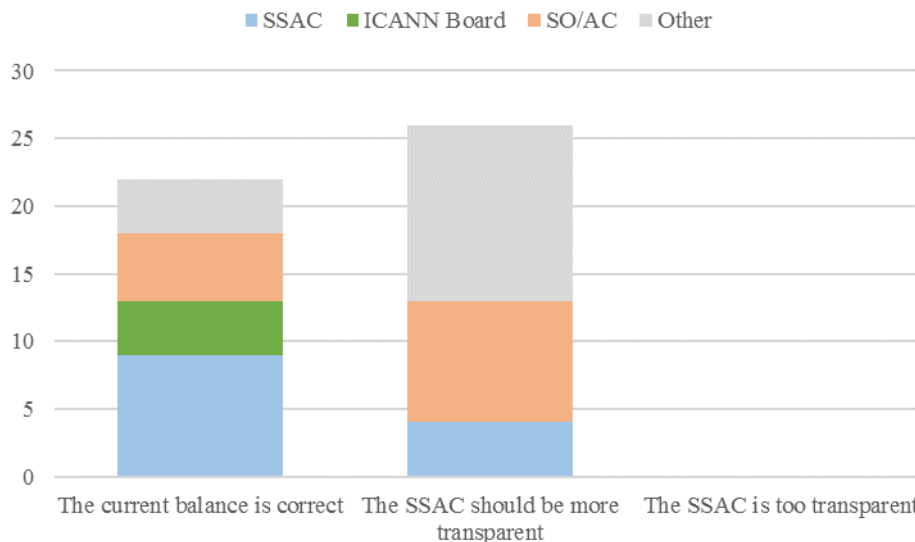
Interviewees and survey respondents who want more transparency indicate that it is difficult to trust the outcome of processes that are not known and traceable. When the SSAC serves in an audit role that can (and has) generated advice leading to the security-related shutdown of potential policies and community processes, it becomes easy for those working on the impacted activities to question the process by which the SSAC has reached its conclusion.

Two specific community concerns were identified:

- Some feel as though SSAC outcomes are provided without an ability to see or understand the SSAC's processes. They describe that SSAC meetings are closed and public meetings are scheduled during busy ICANN weeks.

- As discussed in-depth elsewhere in this review, the SSAC has not historically participated in community-based policy development. Individuals who have not studied the SSAC and its methods have stated it is not immediately obvious to them why that is.

The SSAC has taken a number of steps since its last review to increase transparency. These include the publication of materials online (as discussed further below), the creation and publication of work plans, and enhanced language around objections and conflicts of interest in SSAC publications. At ICANN61, the Independent Examiner attended the SSAC's public meeting and noticed that the SSAC was clear in presenting planned work, offered significant time for community engagement, and proactively answered the questions that were asked of it.

SSAC members indicate that recent conversations have probed ways to increase transparency further. Ideas have included whether additional meeting minutes could be provided, whether more SSAC meetings could be open, and how the SSAC might work with ICANN Communications to provide public updates or highlights to SSAC work. In addition, the recent NCAP work party has required the SSAC to proceed in a more transparent manner (e.g., with extended public meetings and comment periods).

> **Recommendation 17: The SSAC's Administrative Committee should provide an email update to the leadership of ICANN's SOs/ACs one month prior to each ICANN meeting with links to relevant SSAC documents/proceedings from the SSAC's website.**

We recommend that the SSAC's Administrative Committee provide a short email update to the leaders of ICANN's SO/ACs on a quarterly basis, and that the SSAC encourage the SO/AC leadership to share these messages with their wider membership. These email messages could provide a brief overview of the SSAC's activities, and bulleted lists to key SSAC publications in the period, with a couple of sentences explaining the topic of the document.

Our interviews suggested that some in ICANN see the SSAC as an "ivory tower." Periodic communication can help break down this perception, and such a message also provides another avenue for the SSAC to promote readership of its publications for those who might not otherwise go to the SSAC's website to download them.

While not strictly part of this recommendation, we note that the SSAC may also consider maintaining an opt-in mailing list where others can sign up to receive the periodic SSAC updates.

> **D. Finding 12: The SSAC's website includes important information that assists with transparency. Community members suggested other items that may be useful to include.**

The SSAC's website broadly contains information on:

- What the SSAC is and how it operates (including a link to the SSAC's operating procedures);
- The official role of the SSAC, as per the ICANN Bylaws;
- Biographical information and conflict of interest statements for SSAC members;
- SSAC work plans back to 2010, currently published at a pace of 3 per year; and,
- The SSAC's "SAC" and "SSAC-Correspondence" document series.

Review of the SSAC's website reveals that it is generally kept up to date. As of May 2018, the SSAC's most recent operating procedures are posted (version 5.1 from February 2018), the SSAC's stated role matches the current ICANN Bylaws, and the SSAC's biographical information was last updated on March 2018.

Since 2014, the SSAC's work plans have been presented via "SSAC Activities Update[s]" during the SSAC's Public Session at ICANN meetings. These documents are hosted online and include a

contemporaneous overview of the SSAC, the SSAC's advice generating processes, current Work Parties, recent SSAC publications, and questions to/from the community.

The SAC and SSAC-Correspondence documents are clearly organized by topic and year, which is helpful in reviewing. The topics for the SAC series are currently: "Addressing," "DNS Abuse," "DNS Security," "ICANN Planning," "Internationalized Domain Names," "Registration Services," "Root System," and "WHOIS." We note that the SSAC's overview page does not currently explain the purpose of the SSAC Correspondence series, which may be a helpful clarification.

Two types of information, not on the SSAC website, came up in interviews. First, several interviewees questioned why the SSAC does not post minutes of its meetings or more details about the activities of its working groups. As discussed in detail above, historically this has been because of tradeoffs between security and transparency. Second, interviewees asked if the SSAC would be able to put more information on its website regarding what the SSAC looks for in new members and how one might know if he/she were qualified to apply. While the Membership Selection process is described in Section 2.2 of the SSAC's operating procedures, it is not discussed on the main SSAC webpage.

In addition, one member of the community stated that it might be helpful to include pictures of current SSAC members on the SSAC's webpage to make it easier to identify and meet individuals at ICANN meetings.

> **Recommendation 18: The SSAC should post some specific additional materials online in the short-term, to consolidate information and increase transparency. The SSAC's Administrative Committee should then undertake a yearly review of the SSAC's website to determine whether additional content should be provided or whether the website should be restructured.**

We recommend that several items be added to the SSAC's website in the short term. These are:

- An explanation of the purpose of the SSAC-Correspondence Series.
- A link to the most recent ICANN Board ARR.
- A clear articulation of how and when an SO/AC or Work Party within ICANN might request feedback or comments from the SSAC.
- A clear explanation of how one can apply to join the SSAC and high-level information regarding the types of skills that the SSAC is looking for in members.
- (Optional) Pictures of current members who are willing to include one, to assist newer members of ICANN in identifying SSAC members at ICANN meetings.

In addition to the information above, as the SSAC continues to evolve it will have new content to post to its website. We suggest that the SSAC Administrative Committee engage in a yearly discussion as to whether there are new types of items to include on the SSAC's website. While some years this conversation may be short, in other years it may trigger the addition of information useful for transparency.

E. **Finding 13: The SSAC is accountable directly to the ICANN Board, and through it to the wider ICANN community.**

In order to function effectively, the SSAC must be free to give accurate technical advice on SSR issues regardless of whether or not that advice is popular. One can imagine situations where security interests and business desires may not align (e.g., areas where compromising the security of the internet may be profitable to one specific stakeholder). As such, it is important that the SSAC is accountable in a way that it can maintain its independence.

While to date the ICANN Board has relied on members of the SSAC to recommend whether new members should be added or existing members should be renewed, interviews indicate that the SSAC has put careful study into its membership recommendations, which has led the ICANN Board to accept them.

Additionally, we note that as the SSAC is an advisory committee, and it is the ICANN Board and other parts of the community that act on the SSAC's advice. As the SSAC itself makes recommendations, not decisions, the recommendations of the SSAC by their nature will involve the scrutiny of the ICANN Board or other impacted groups. Because it is an advisory committee, interviewees indicated that it is paramount for the SSAC to provide its advice in an unbiased and transparent way to maintain trust in its recommendations. As discussed elsewhere, community members generally find the SSAC's advice to be effective, and interviewees note that outside of some specific instances of tension outlined above, the SSAC's advice is well respected within ICANN.

Recommendation 19: The SSAC should remain accountable directly to the ICANN Board and through it to the wider ICANN community.

We find the current methods of accountability for the SSAC to be appropriate, and do not find there to be a need for changes at this time.

VII. **Findings and Recommendations: SSAC's Size, Membership, and Term Length and Limits**

In this section, we summarize our findings, derived from both our interviews and survey results, regarding the SSAC's size, membership, and term length and limits.

A. **Finding 14: The SSAC's size of roughly 40 members appears to be appropriate given tradeoffs in the size of the SSAC, though some thought that additional members with additional perspectives would be valuable.**

Currently, the SSAC is made up of 37 members, one of whom is elected by the SSAC to be the Liaison to the ICANN Board of Directors. Members of the SSAC are appointed for three-year terms, which can be renewed indefinitely. The SSAC Chair and Vice-Chair lead the committee, and the SSAC receives support from three SSAC Support Staff who are paid employees of ICANN. This includes the Sr. Director of Policy Development Support, a Technical and Policy Specialist,

and a Senior Technical Analyst.[50] Their role is to assist in the production of work products and to serve on the Administrative Committee.

Many individuals indicated that a balance needed to be struck when considering the size of the SSAC. In particular, more members may help with an increasingly large work load while also increasing the range of skills, or diversity of perspectives, held by SSAC members, while fewer members may make it easier to reach consensus on certain issues before the SSAC. Cognizant of this balance, most individuals we interviewed stated that SSAC's current size of approximately 40 members (currently 37) is appropriate. This is supported by our survey results, displayed below in Figure 28, in which a large majority of individuals indicated that the SSAC is the "right size."

Figure 28: Is the Current Size of the SSAC Too Large, Too Small, or the Right Size?
Number of Survey Respondents: 17
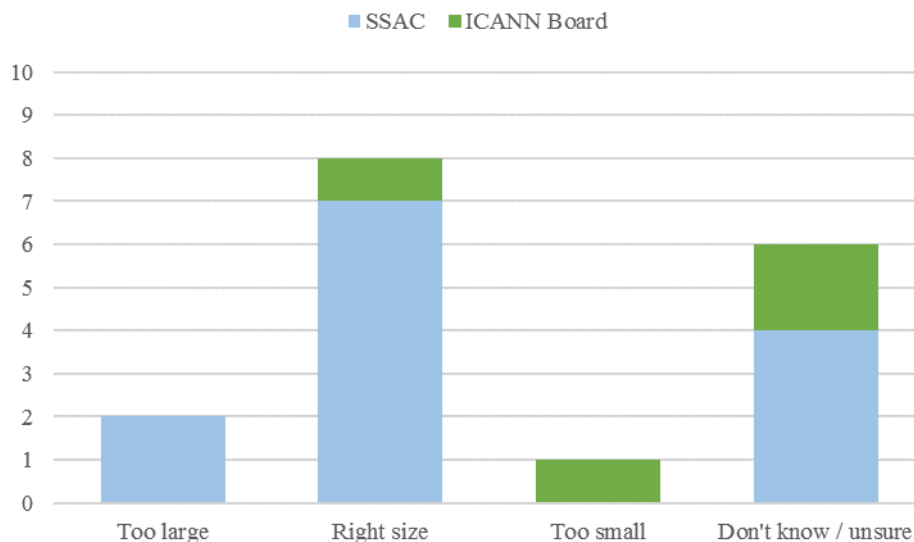
While most interviewees who were asked and most survey respondents (see Figure 29) indicated that the SSAC currently covers the areas of expertise that it should, several individuals noted that there are certain types of skills and experience that are lacking.

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[50] "Security and Stability Advisory Committee." *ICANN*, 2017, https://www.icann.org/groups/ssac, accessed on May 21, 2018.

Figure 29: How Effectively Does the SSAC Cover All Areas of Expertise?
Number of Survey Respondents: 17
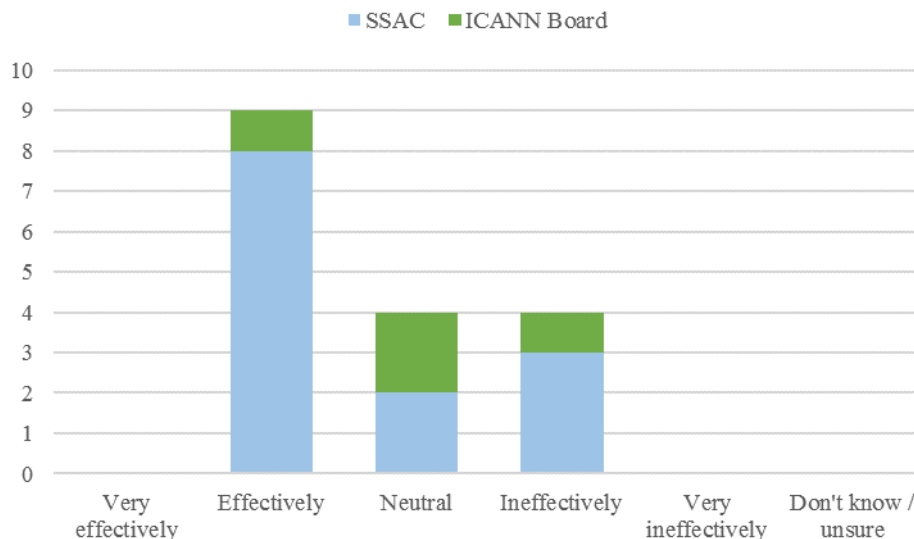
Recommendation 20: The current number of SSAC members is appropriate. The SSAC should continue to work to ensure its members are engaged, in conjunction with the recruiting points made below.

Given tradeoffs in size and time availability discussed above, a roughly 40-person SSAC is working well. A larger SSAC would risk becoming difficult to manage, and a smaller might not be able to complete the SSAC's large amount of work.

That said, the fact that the current size of the SSAC is similar to this ideal size does not mean that there does not need to be a yearly flow of individuals on to and off of the SSAC. New ideas and perspectives are useful to any organization, and we suggest the SSAC continue to work proactively to make sure members are engaged and contributing, or otherwise encouraged to roll off to make room for new participants.

B. **Finding 15: The SSAC does not undergo active or targeted recruiting, but rather recruits informally based on need and the existing network of the SSAC. Many interviewees would like to see improvements in the SSAC's recruiting process, but they are cautious about the burden such processes might place on the SSAC's volunteers.**

When considering whether to recruit new members, the SSAC first identifies gaps in skills through the use of a skills matrix that the SSAC has developed and refined over the years. Although some individuals find the skills survey to be either very effective or ineffective in identifying these gaps (see Figure 30 below), a number of individuals either were neutral on the effectiveness of the skills survey or found it to be ineffective in identifying gaps. Interviews indicated that this is because the skills survey was seen as out of date. However, the SSAC is currently in the process of updating the skills survey to address this.

Figure 30: How Effective is the SSAC Skills Survey at Identifying Gaps?
Number of Survey Respondents (SSAC Members): 15
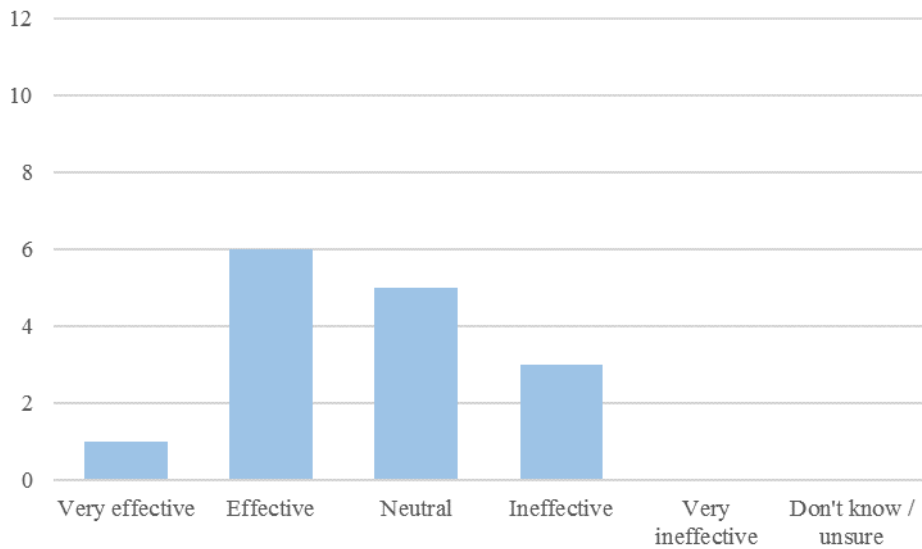
Once these gaps have been identified, SSAC members then typically rely on their own networks of contacts to identify potential candidates, in addition to the general practice of accepting applications for membership. While this informal approach to recruiting has generally appeared to work well, many interviewees and survey respondents suggested that improvements could be made, and in particular, that a more formalized process might increase the diversity of backgrounds, skills, and expertise of new SSAC members. In particular, as shown below in Figure 31 below, only a small number of survey respondents rated the SSAC's recruiting operations as being very effective or effective, with many respondents indicating that the SSAC's recruiting operations as neutral, ineffective, or very ineffective. Some commented that the question was difficult to answer, because the SSAC does not have a formal recruiting operation.

Figure 31: How effective, or ineffective, do you believe the SSAC's recruiting operations are?

Number of Survey Respondents: 49
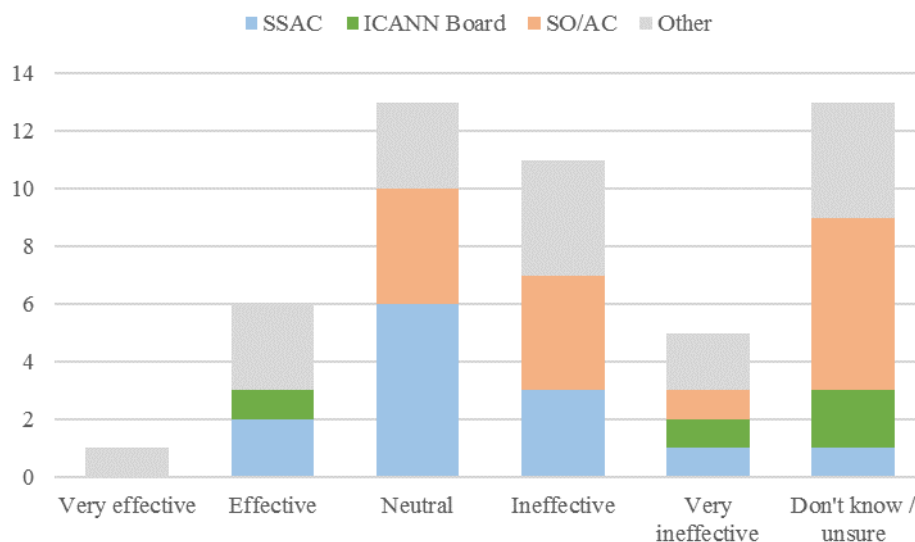
The SSAC has an open process for accepting applications for membership; anybody can contact the SSAC and request consideration to join. However, we heard from several individuals that the process and requirements to become an SSAC member is not clear to many outside of the SSAC. Some interviewees reflected a concern that the ICANN Board might simply "rubber stamp" whoever the SSAC deems should join. The lack of geographic and gender diversity on the SSAC also leads some to view its membership selection process with suspicion (i.e., "an ivory tower" or "boys club"), as the technical diversity valued by the SSAC may not be as readily apparent to the community at large.

Recommendations 21 through 23 below relate most closely to this finding.

> **Recommendation 21: Each year, the SSAC should develop a formalized recruiting plan with goals, potential recruiting targets, meetings to attend, messaging for prospective candidates, and any other items that are deemed useful. Similarly, it should maintain a list of potential future members, even if those individuals are not currently applying to the SSAC.**

We recommend that the SSAC, each year, develop a formalized recruiting plan with specific recruiting goals. While the historic method of recruitment to the SSAC based primarily on the network of existing members has worked well for many years, this process is vulnerable to creating echo chambers and blind spots. While we do not believe the current SSAC to be operating in such a state, it is important that the SSAC directly address this risk by having processes in place that allow for active reflection and planning around member recruitment.

The success of the Internet and general advance of technology has led to an increasing number of experts in fields of cybersecurity. A planned effort around recruiting will help the SSAC identify these individuals, and would also offer second-order benefits. The process of reflecting on recruiting goals generates conversation and can useful pressures on existing members of the SSAC. For example, having an expectation of planning around new members may make it easier for existing SSAC members to flag that they intend to roll off, or simply need to take a short break.

Recruiting is also closely related to networking, and by undertaking targeted recruiting efforts, such as by presenting at a conference about the SSAC's work, the SSAC can increase the body of security experts who are aware of and interested in the SSAC's work. Such processes would provide additional leads to restock the SSAC's already broad technical diversity in the case that someone rolls off the SSAC, and it could allow the SSAC to broaden, for example, its geographical diversity as qualified experts are identified (see Recommendations 25).

We recommend that the SSAC's Membership Committee put together a preliminary recruiting plan each year, and that it be open to comment by the full SSAC before finalization by the Membership Committee. This could include potential technical skills the SSAC would like to recruit, regions the SSAC would like represented in its membership, and/or recruiting and outreach activities that the SSAC would like to undertake (e.g., attending conferences to meet SSR experts outside of the current SSAC's network or other ideas as determined by the SSAC).

In preparing the preliminary plan, items of reflection should include consideration of:

- The SSAC's short and medium-term topic-selection/emerging-threat identification.
- The SSAC's internal skills survey.
- Member availability and recent participation levels.
- Potential avenues for networking and raising awareness about the work of the SSAC.
- Diversity of perspectives, particularly in technical skill, but also in legal and policy expertise, and in geographic and gender diversity (See Recommendations 24 and 25).
- The level of interest of current members in tackling administrative as well as technical tasks.
- Goals and outcomes of the prior years' recruiting plan.
- Other items, as decided by the SSAC.

The recruiting plan should not be overly cumbersome, but rather should have clear goals designed to help the SSAC recruit and learn from the effort. Early versions could be two to three pages in length, and we expect that as time passes the SSAC's plans may become more concrete as specific conferences, academic programs, or other venues where suitable experts congregate are identified.

Potential items valuable to discuss in a plan includes:

- The SSAC's internal assessment of skills it would be useful to add to the SSAC in the year, based on the items reviewed above.
- A concrete number of individuals the SSAC would like to recruit with each skill or characteristic.

- The SSAC's plan to meet/encourage said individuals to join.

Each year, the SSAC should take action to attempt to accomplish the goals of its recruiting plan. All actions need not be taken by the Membership Committee. For example, in the case of presenting a SAC document as a networking tool outside of the traditional ICANN meetings, members of the Work Party may be best suited to attend and report back with names of potential candidates. The Membership Committee should periodically communicate progress against the plan to the wider SSAC in a transparent way.

In addition, we recommend that the SSAC's Membership Committee maintain a list of potential members that have been met via various networking efforts. This will assist the SSAC in finding replacements for specific skills when needed, and can be useful in conjunction with the formalized recruiting plan to allow the SSAC to consider reaching back out to contacts met in a one-off fashion. This list should, to the extent reasonable, contain the skills a contact could potentially bring to the SSAC, and it should be updated as members of the SSAC meet new contacts in the security space who might be good fits for the SSAC.

> **Recommendation 22: The SSAC should work with the ICANN Board to secure funding to present its work at and/or attend two or three major security conferences outside of ICANN meetings annually, where members may meet new interested applicants.**

The cybersecurity community holds conferences regularly on a variety of topics at locations worldwide. These include both academic conferences around published work, and professional conferences organized around topics or specific events.[51] These conferences are seen as a primary mode of communication and networking by academics and professionals in the field. Conferences can provide an opportunity for the SSAC, as they can also serve as a mechanism for the SSAC to share its work and identify potential new SSAC members.

By building a presence at conferences that discuss SSR issues, the SSAC could further increase the robustness of its membership by meeting new practitioners in the field. In addition, networking can generate excitement among potential recruits about the interesting work that the SSAC undertakes, and can help ensure a potential stream of future applicants to the SSAC from academic backgrounds.

We recommend that the SSAC's Board Liaison work with the ICANN Board to secure funding for SSAC members to travel to and participate in security conferences. A useful target would be for the SSAC aim to present its research at 2-3 security conferences per calendar year.[52] In addition, we encourage members of the SSAC who regularly attend security conferences as an individual to

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[51] For example, see a list of academic conferences and discussion of their prominence at
http://faculty.cs.tamu.edu/guofei/sec_conf_stat.htm, and a list of upcoming professional conferences at
https://infosec-conferences.com/.

[52] We understand that some academic conferences may focus only on peer-reviewed, published work. We do not suggest the SSAC should feel required to enter its work into the peer-review process. Given its SSR role within ICANN, academic security conferences may very well be interested in hearing about the SSACs work, and conferences where the SSAC does not present are still useful as an opportunity to identify potential new members.

keep in mind their work on the SSAC while in attendance. New connections that could potentially serve as SSAC members should be referred to the Membership Committee for further consideration and outreach.

Finally, as conferences are held all over the world, they provide natural opportunities for SSAC members to meet individuals in under-represented regions and to encourage those qualified to apply to join the SSAC (see Recommendation 25).

> **Recommendation 23: The SSAC Membership Committee should generate a list of academic or other institutions with research efforts in fields related to SSR. The Membership Committee should keep this list up to date, and consider if academics may bring useful perspectives as either Invited Guests or full SSAC members.**

A number of academic institutions have departments or researchers focused specifically on issues of cybersecurity. While not all of these departments will immediately relate to the SSAC's ICANN-specific remit, engagement with more academics could be useful to the SSAC both to increase the diversity of its membership and to build relationships that could help yield Invited Guests or others (e.g., interns) to assist with specific projects (see Recommendation 12).

As such, we recommend the SSAC's Membership Committee generate a list of academic programs or institutions with research in fields related to SSR that may overlap with qualification to study items of the SSAC's remit. As part of the development of its yearly recruiting plan, we recommend the SSAC consider this list and whether there are individuals at these institutions who could either in the short or the medium-term be reached out to about potential membership on the SSAC. This list should periodically be shared with the SSAC for comment or suggestions.

> C. **Finding 16:** **The SSAC has wide-ranging and deep technical expertise. The SSAC does not compromise its high technical requirements when vetting potential members, though some interviewees caution that the SSAC should avoid defining "technical" too narrowly, as SSR issues can be both technical and interdisciplinary.**

In particular, we heard from several interviewees regarding the value of having individuals with a legal and/or policy background, as such expertise would help to ensure that the SSAC's advice is clear, understandable, and actionable. With this in mind, it should be noted that over the past several years the SSAC has recruited members with more diverse backgrounds, particularly with legal and/or policy expertise, in part to adapt to ICANN's needs and to be prepared for current and future issues. The SSAC reflects that current SSAC membership includes two members with law degrees, two privacy and public policy experts, and seven with experience in government positions across executive branch, law enforcement, and military service.

Recommendation 24: The SSAC should continue efforts to recruit individuals with a strong technical background but who also have legal/policy expertise. Discussion of the need for individuals with legal, policy, and law enforcement expertise should be codified in each year's recruiting plan.

While the SSAC currently has members experienced in legal, law enforcement, and policy backgrounds, it is important that this continue to be a criteria that is thought about when planning the SSAC's recruiting. As such, we recommend that this topic be explicitly discussed in each yearly recruiting plan.

D. <u>Finding 17:</u> **The SSAC is perceived to lack geographical and gender diversity and is comprised mostly of male individuals from the U.S. and Europe. While many individuals told us that they do not feel it is appropriate for a technical body to have diversity at the expense of technical skill, several SSAC and non-SSAC members indicated that perspectives from other regions and types of individuals would be beneficial.**

Interviewees who were asked, as well as survey respondents, generally indicated that the SSAC is not diverse along a number of dimensions, including geography, gender, age, and language. Below, in Figure 32, we provide a summary of survey responses to the question of the degree to which the SSAC is diverse with respect to geography, gender, ICANN organizational affiliation, organizational affiliation outside of ICANN, background/experience, age, and language. While 49% of responses indicated that the SSAC is either very diverse or diverse with respect to organizational affiliation outside of ICANN and background/experience, only 23% of responses indicated that the SSAC is either very diverse or diverse with respect to including geography, gender, age, and language.

Figure 32: How Diverse is the SSAC along these Dimensions?
Number of Survey Respondents: 48
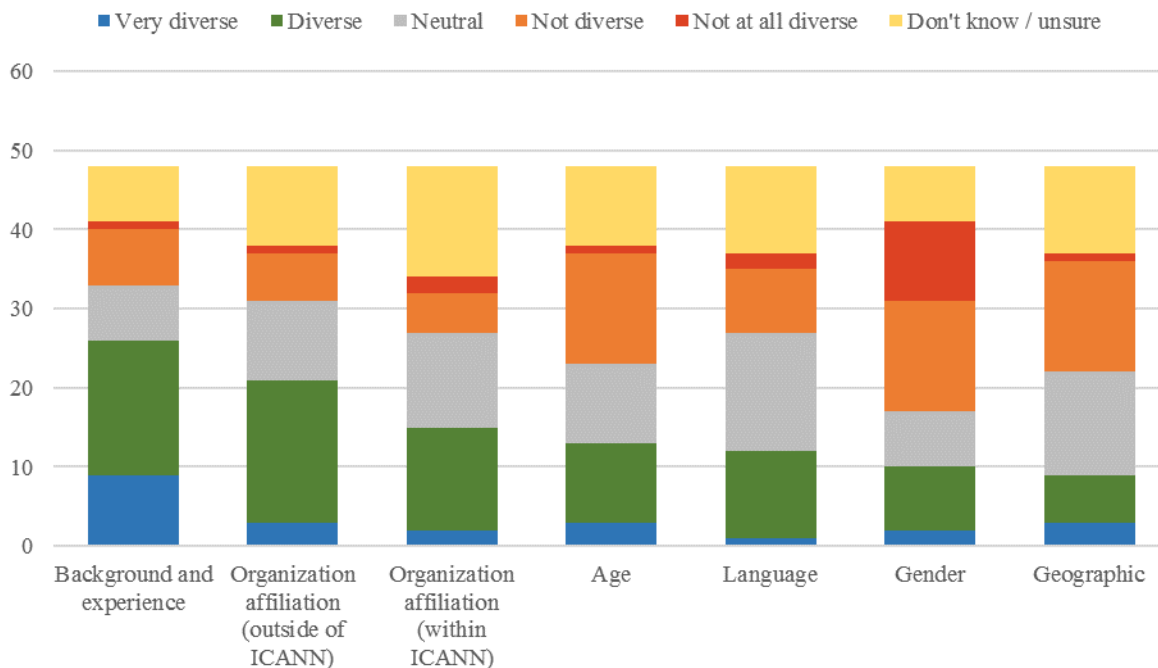
Although a lack of diversity was noted, many interviewees stated that given the technical nature of the material considered by the SSAC, diversity should not be prioritized over technical expertise. However, there was one caveat to this sentiment; in particular, several individuals noted that to the extent there are SSR-related issues that are specific to certain regions or geographies, it may be important to ensure greater geographic diversity within the SSAC.

> **Recommendation 25: The SSAC should endeavor to recruit individuals with a strong technical background who also represent a broad set of geographical locations and reasonably balanced set of genders. Discussion of how to do so should be codified in each year's recruiting plan.**

We recommend that, in addition to technical diversity, discussion of geographical and gender diversity should be included within the SSAC's yearly recruitment plan. We are not, however, recommending a specific breakdown by gender or geography as part of this recommendation. While we agree with the sentiment that diversity should not be prioritized at the expense of needed technical expertise, when it is possible to obtain both diversity and the required technical expertise for the SSAC, processes should be in place that maximize the likelihood of doing so.

The security sub-filed of computer science is gender-imbalanced, and while the SSAC can over time contribute to the other efforts that are underway to fix that, the SSAC cannot fix it alone and also cannot compromise on its core technical mission. As such, we recommend the SSAC continue to encourage qualified potential members of all genders to join the organization, where possible encouraging members who are of a gender that is under-represented on the SSAC.

With regards to geographical diversity, we have heard in interviews, including from some ICANN Board and SSAC members, that there is a concern that a predominantly North American and European-based SSAC may have a more difficult time understanding the cultural contexts of how the Internet is likely to be used in cultures that differ from those regions. These voices suggest that better representation of those with new cultural contexts can only increase the robustness of the SSAC's discussions.

The current levels of diversity on the SSAC do not appear to be incompatible with the SSAC's ability to meet the objective of providing ICANN with sound expertise. However, we suggest that the aforementioned yearly recruitment plan is a place where this can be reflected upon and weighed along other recruiting needs to strike the right balance. This process can encourage the SSAC's likelihood of meeting a more diverse set of individuals. For example, as mentioned above, we believe that SSAC could seek to meet people in new regions via targeted participation in conferences outside of regions where the majority of SSAC members reside.

E. **Finding 18: The membership review process used by the SSAC today is clearer and more transparent than it had been in the past, and when flaws have been identified the process has undergone (and continues to undergo) improvements.**

As noted earlier above, each SSAC member is reviewed prior to determining whether to reappoint that member to an additional three-year term. Based on both our interviews and the survey responses, the membership review process is generally seen as being effective (see Figure 33 below), although there have been a small number of instances in which the review process resulted in outcomes that were viewed negatively. Based on these negative outcomes, interviewees noted that changes have been made to the review process, including informal check-ins with the Chair of the SSAC.

In addition to individuals generally indicating that the review process is effective, most individuals also noted that the Membership Committee is transparent (see Figure 34) and that the Membership Committee follows its own rules and procedures (see Figure 35).

Figure 33: How Effective if the Membership Committee at Reviewing Current SSAC Members?
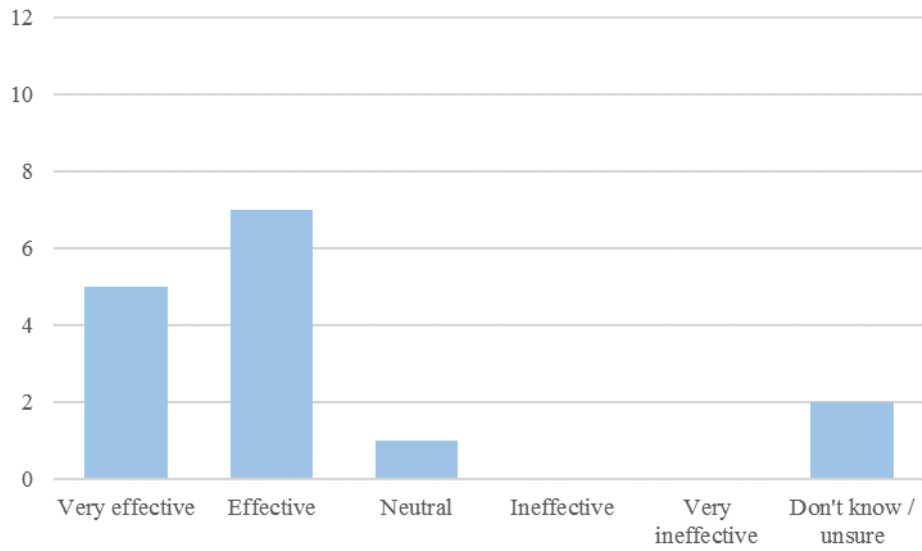
Number of Survey Respondents (SSAC Members): 15

Figure 34: Is the Membership Committee Transparent?
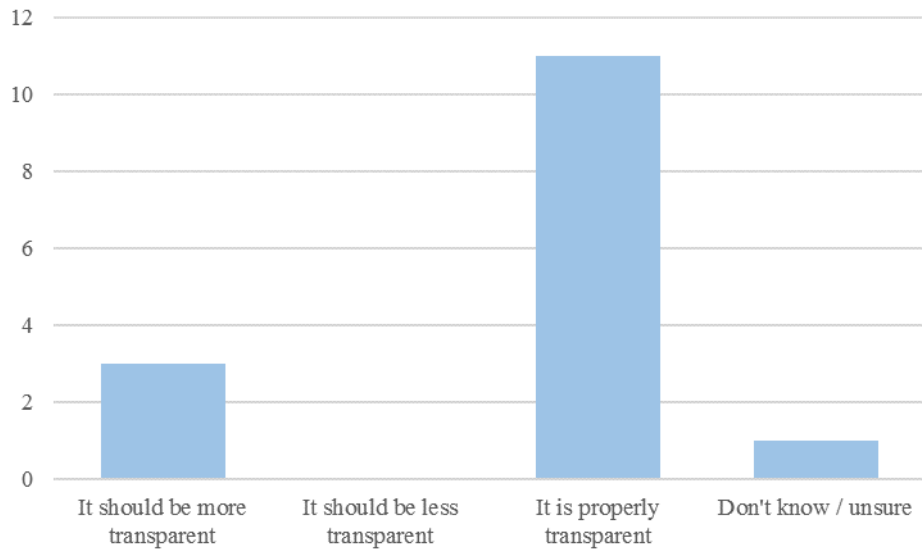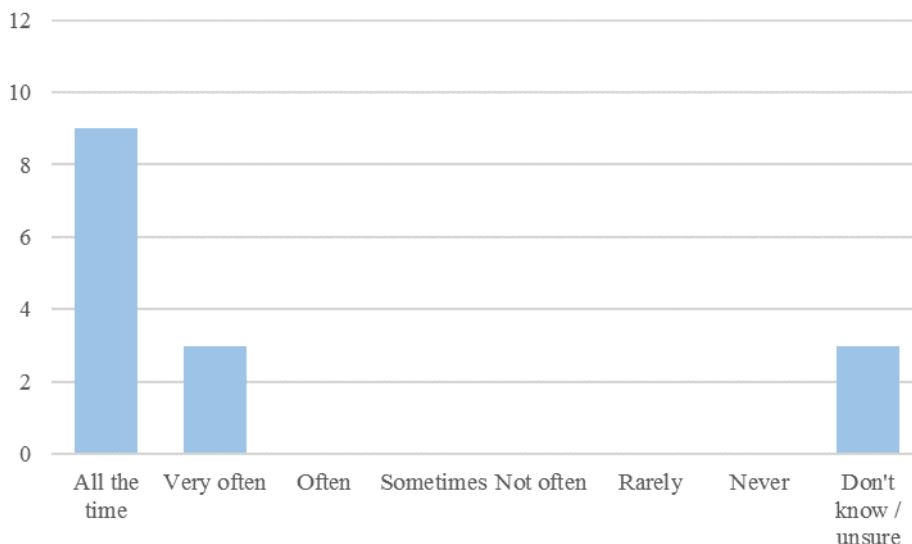
Number of Survey Respondents (SSAC Members): 15

Figure 35: Does the Membership Committee Follow Its Procedures?
Number of Survey Respondents (SSAC Members): 15

Recommendation 26: The SSAC's membership review process should include a yearly review process for the SSAC's external Liaisons and representatives.

While for the most part, SSAC members told us that they are comfortable openly and honestly debating with peers, several SSAC members noted that they would feel uncomfortable voicing an opinion in relation to the effectiveness of one of the SSAC's external Liaisons. The current SSAC operating procedures have no process in place to consider the performance of external Liaisons and to provide feedback to assist the Liaison in refining the way that they represent the SSAC.

We recommend that the Membership Committee conduct a brief review for each of its external Liaisons and outward representatives (as recommended above) each year. This review should allow the committee to reflect on the activities of that Liaison or representative, and to provide a mechanism for them to hear what efforts are seen to be most useful to the SSAC and to adjust activities accordingly. It should also provide a confidential avenue for any SSAC member to voice feedback or concerns. To the extent that issues arise, we recommend that the SSAC Chair have an informal conversation with any Liaison or representative when needed.

F. **Finding 19: The SSAC's term length of three years for non-leadership members is generally considered to be appropriate, and almost all interviewees and survey respondents indicated that there should be no term limits for SSAC's non-leadership members.**

When asked whether any changes should be made to the term length of SSAC's non-leadership members, as shown in Figure 36 below, the majority of respondents suggested that the current three-year term length is the most appropriate, although a few individuals suggested shorter or longer terms for SSAC members. When asked about the appropriate term length, individuals noted the tradeoff in shorter as opposed to longer terms, with shorter terms potentially allowing for more turnover and less chances of organizational capture, and longer terms allowing for greater

organizational effectiveness given the time required to come up to speed on working within ICANN and SSAC. Most respondents indicated that a three-year term balances these benefits and concerns.

Figure 36: What is the Appropriate Term Length for SSAC's Non-Leadership Members?
Number of Survey Respondents (SSAC Members): 15
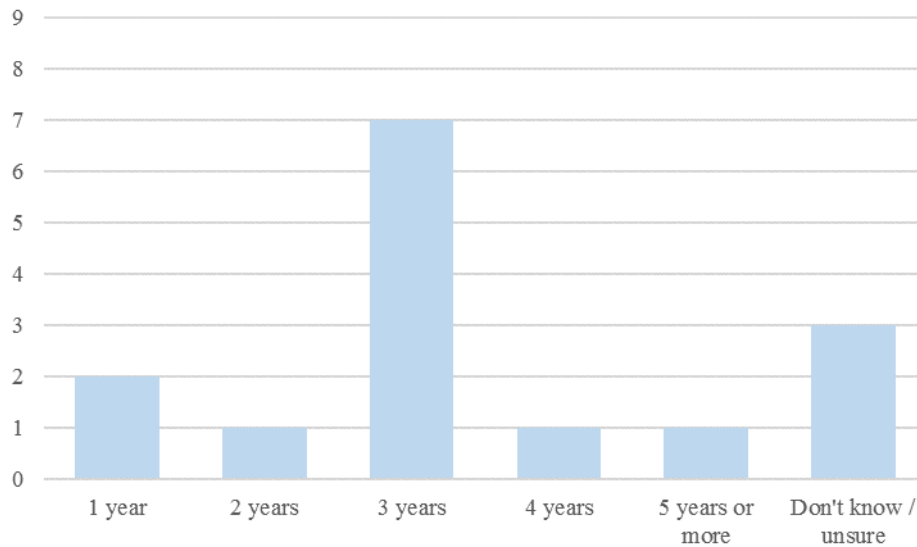
When asked if SSAC members should have term limits, no survey respondents indicated that such term limits should exist. (See Figure 37 below.) Similarly, no interviewees proposed that term limits be instituted.

Figure 37: Should there be Term Limits for SSAC's Non-Leadership Members?
Number of Survey Respondents (SSAC Members): 15
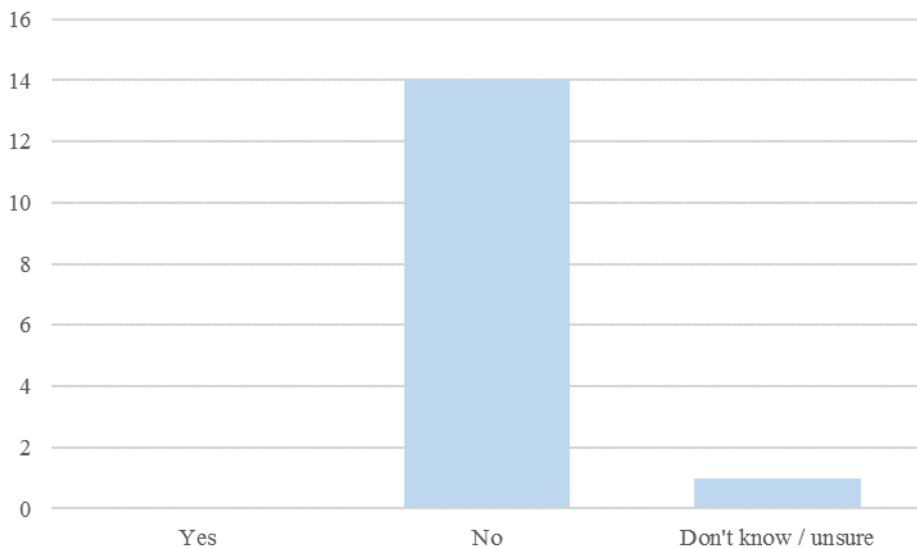
G. **Finding 20: The SSAC's term length of three years for leadership members is generally considered to be appropriate (Chair and Vice Chair). There exists much more variation in individuals' views as to the appropriate term limit, if any, for SSAC leadership.**

When asked whether any changes should be made to the term length of SSAC's leadership members, as shown in Figure 38 below, the majority of respondents suggested that the current three-year term length is the most appropriate, although a few individuals suggested shorter or longer terms for SSAC leadership members.

Figure 38: What is the Appropriate Term Length for SSAC's Leadership Members?
*Number of Survey Respondents (SSAC Members): 15*
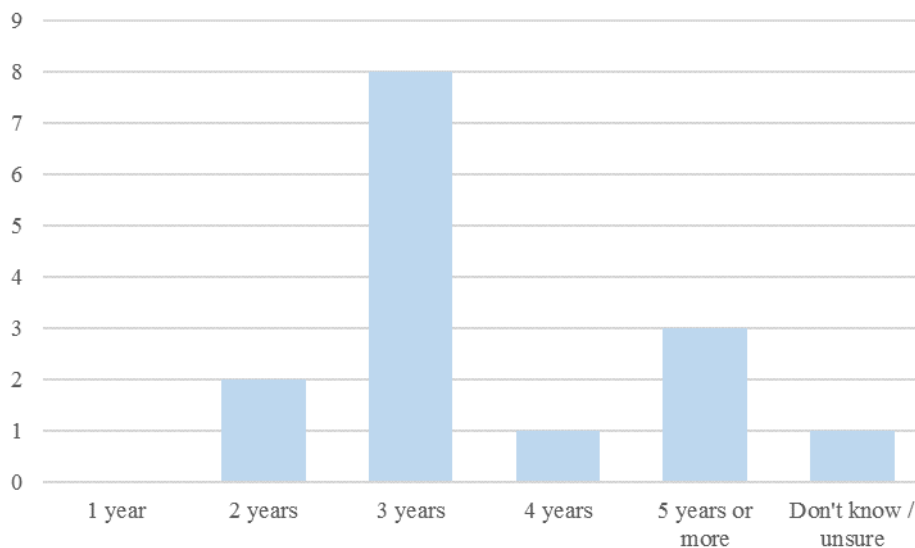
There was somewhat less consensus with respect to whether there should be term limits for the leadership of the SSAC, and if there are term limits, the appropriate length of such a term limit. As shown in Figure 39 below, a total of four respondents (out of 15) expressed a view that there should be no term limits for SSAC's leadership, as currently is the case for the SSAC Chair, while ten respondents expressed a view that there should be a term limit, with most of these individuals expressing support for a limit of two terms for SSAC's leadership.

It should be noted that in February 2018, the SSAC voted to impose term limits for its Vice-Chair and Board Liaison positions, however, was unable to impose term limits for the SSAC Chair position due to the ICANN Bylaws. The ICANN Bylaws specifically state that the SSAC Chair may serve an unlimited number of terms.[53] The ICANN Bylaws do not impose a similar restriction across other SOs/ACs, and some SSAC members noted it may be useful for the SSAC to have prerogative of choice over this decision.

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[53] "The chair and members may be re-appointed, and there are no limits to the number of terms the chair or members may serve," ICANN Bylaws, Section 12.2.b.ii

Figure 39: Should there be Term Limits for SSAC's Leadership Members?
Number of Survey Respondents (SSAC Members): 15
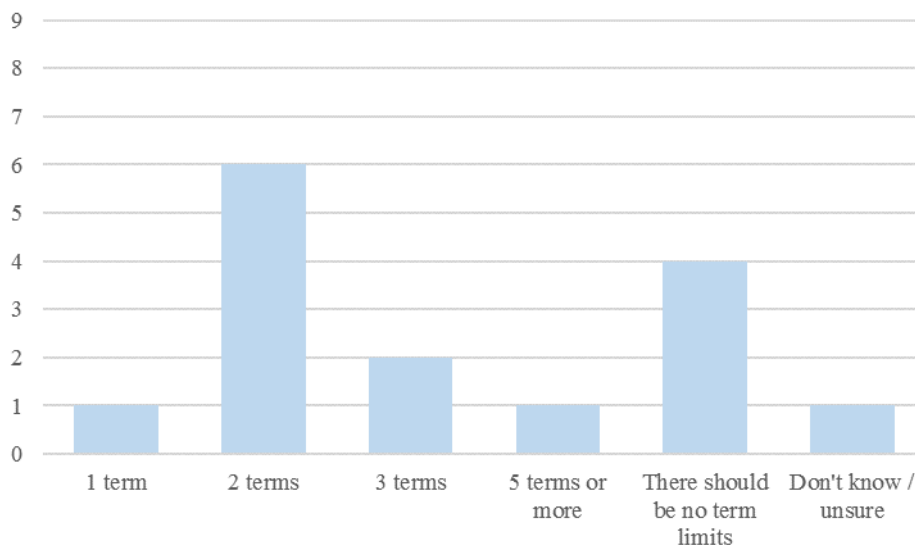
Recommendations 27 and 28 below relate most closely to the two finding above.

> **Recommendation 27: The SSAC's leadership should be limited to two, three-year terms. The SSAC should impose no term limits on non-leadership members.**

When considering the tradeoffs described above, we find term limitations of two, three-year terms to be appropriate. Two terms of three years gives sufficient time for the SSAC to undertake longer-term projects under stable leadership, while also periodically providing the opportunity for new members of the SSAC to serve in leadership roles.

We also recommend that the SSAC endeavor to have at least two applicants for any opening in the SSAC's Chair, Vice-Chair, or Board Liaison position, even when the current holder of a position is eligible for reelection. Competition is healthy, and the process of periodically discussing the desired future direction of the SSAC's leadership roles can cause useful reflection for the SSAC as a whole.

We do not recommend term limits for non-leadership members. Because very detailed technological knowledge required for the SSAC, automatic removal could lead to a loss of important niche skills that are hard to recruit for, and we have seen no evidence of negative outcomes due to the current term lengths.

> **Recommendation 28: The SSAC should work with the ICANN Board to update the ICANN Bylaws in order to allow for there to be term limits on the SSAC Chair.**

As discussed above, the SSAC has been unable to place a term-limit on its Chair position, despite a desire to do so. The ICANN Bylaws 12.2(b)(E)(ii) state that "The SSAC's chair […] shall be

appointed by the Board. […] The chair and members may be re-appointed, and there are no limits to the number of terms the chair […] may serve."[54]

We recommend the SSAC be able to term-limit its Chair, and suggest that the SSAC's Board Liaison work with the ICANN Board and relevant members of ICANN Staff to amend the bylaws so that they do not explicitly state that the SSAC Chair is immune from term limitations. The SSAC may then term-limit the Chair per its own Operational Procedures.

H. **Finding 21: The SSAC has mechanisms to allow for the disclosure of conflicts of interest, and members seem comfortable identifying each other's potential conflicts of interest. Some SSAC members indicated that, by nature of the technical expertise required to contribute to the SSAC, limited conflicts of interest are unavoidable. Other SSAC members believe more can be done to limit potential conflicts.**

The SSAC has both formal and informal mechanisms to disclose a conflict of interest. Formally, every member of the SSAC is required to provide a Declaration of Interests "not less frequently than once a year, or whenever there is a material change, declaring and describing any specific interests, relationships, arrangements, or affiliations that might affect or reasonably be perceived to affect his or her judgement in the context of participation in SSAC."[55] These declarations are posted on the SSAC's website, and our review shows that they are regularly updated both in the course of business and as new members join. SAC publications after this mechanism went into effect also contain a hyperlink to these statements.

Informally, most interviewees indicated that members of the SSAC either properly recuse themselves or disclose conflicts of interest as they arise. Several described situations where a potential conflict of interest was called out proactively during SSAC meetings to help ensure that potential biases were clear in conversation. SSAC members seemed to welcome and encourage such dialogue. In our observation of SSAC meetings, this mechanism seems to be working - individuals were quick to disclose both personal and professional biases as part of conversation. Almost all SSAC survey respondents are either very satisfied or satisfied with the current recusal policies (see Figure 40).

Many members of the SSAC discussed that potential conflicts of interest are impossible to completely avoid on the SSAC, as many of its members have built their deep expertise in industry and, as volunteers, it would be unrealistic for SSAC members to leave their job as a requirement for SSAC duty. As can be seen in Figure 41, a majority of SSAC members believe that the level of conflict of interest perceived in the SSAC is a 3 on a 1-5 scale (with 1 being the lowest).

However, several interviewees expressed that additional recruitment outside of the SSAC's traditional network might help to reduce conflicts of interest further. For example, they suggested that recruiting additional academics or security researchers might diversify the SSAC and lower the potential for conflicts of interest. In addition, a couple of interviewees suggested that the

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[54] "ICANN Bylaws," https://www.icann.org/resources/pages/governance/bylaws-en.
[55] "SSAC Operational Procedures Version 5.1," SSAC, February 27, 2018.

informal method of topic selection in the SSAC could potentially cause SSAC members to focus on topics related to their day job. In our survey, 20% of SSAC respondents stated they were more likely to participate in a work party that related to their day job.

Finally, several interviewees noted that the SSAC has been discussing conflicts of interest in-depth as part of the NCAP working group.

Figure 40: How satisfied, or not satisfied, are you with the SSAC's current recusal policies (e.g., allowing for recusals or withdrawals in each published document)?

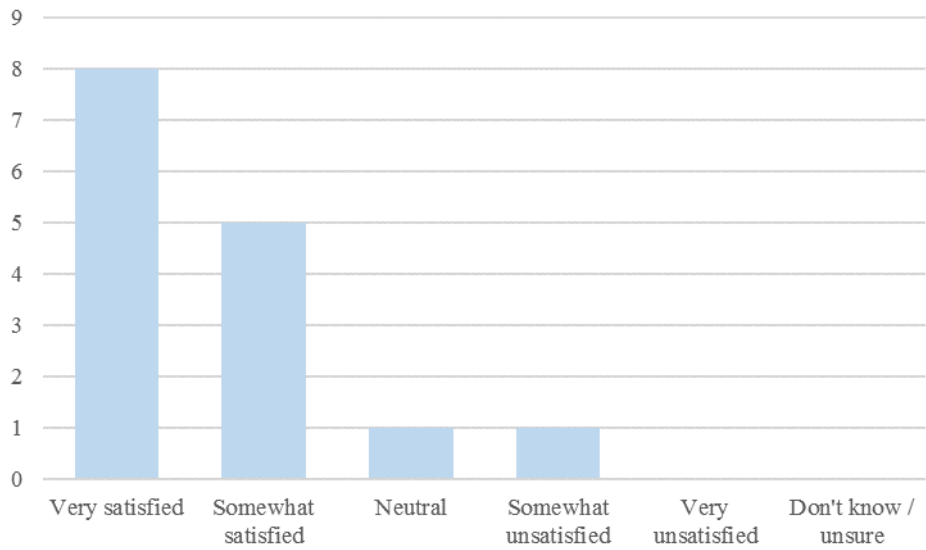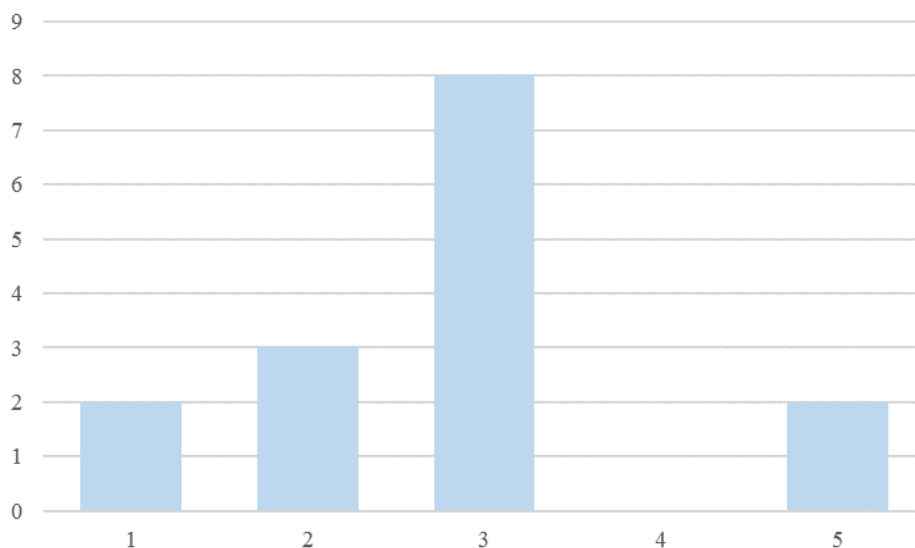*Number of Survey Respondents (SSAC Members): 15*

Figure 41: Do you perceive the current level of conflict of interest on the SSAC to be low, moderate, or high, on a scale of 1 to 5 (with 1 being low and 5 being high)?

Number of Survey Respondents (SSAC Members): 15

Recommendation 29: The SSAC should maintain its current processes and activities around disclosing potential conflicts of interest, both at the individual level and as a group of individuals. It should also update its online disclosure of interest statements to clearly articulate when the disclosure was last submitted for each member.

In a setting such as the SSAC, it is impossible to assure a complete lack of conflict of interest on the part of *each individual*. Instead, the SSAC needs internal checks among the *group of individuals* to assure that conflicts are addressed and don't influence the institutional decisions of the organization. Based on our review, the SSAC's work does not appear to be unduly influenced by external conflicts.

The SSAC should continually strive to reduce the potential for a conflict of interest to unduly impact its judgement. We recommend that the SSAC maintain its current processes around disclosures of interest, and its current culture where these items can be actively discussed.

While our review of the SSAC's website shows that disclosure of interest statements are periodically updated, it is currently impossible for a member of the public to determine whether or not individual members of the SSAC are updating these statements "no less frequently than once a year," (in addition to the many other specific instances where updates are required).

We recommend that the SSAC update its disclosure of interest page to explicitly state when the disclosure of interest statement was last updated for each member of the SSAC, instead of only using one date for the entire webpage. On the current page,[56] each member of the SSAC has a

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[56] See, for example, the biographies listed at https://www.icann.org/resources/pages/ssac-biographies-2018-06-15-en.

biography, under which a disclosure of interest is listed. We recommend the line which currently states "Disclosure of Interest" be updated to state "Disclosure of Interest (last updated on [date])."

While this is a small change in text, tracking this date publically will create a commitment mechanism to ensure disclosures remain up to date. The SSAC's Staff should periodically follow-up with SSAC members to ensure disclosures are updated at least yearly, as well as outside of this when in line with the current SSAC's Operating Procedures.

VIII. Findings and Recommendations: Prior Review Implementation and Self-Improvement

A. <u>Finding 22:</u> The SSAC has taken clear steps to implement the recommendations that were accepted after its prior review. With minor caveat, the SSAC has been successful in these implementations.

JAS Communications LLC was engaged to perform an external review of the SSAC in November 2008, and subsequently released its assessment on May 15, 2009 (the "JAS Review").[57] The ICANN Bylaws dictate than an external review is to be carried out for each of its advisory committees and support organizations every five years. At the time of the JAS Review, the ICANN Bylaws dictated that the external review identify:

- Whether that organization has a continuing purpose in the ICANN structure, and

- If so, whether any change in structure or operations is desirable to improve its effectiveness.

The JAS Review determined that "Unquestionably, the SSAC has a continuing purpose in the ICANN structure."[58] The review found that security and stability was and would continue to be important within the ICANN community and that the SSAC were adept at providing the necessary technical advice. In its report, JAS identified three areas around which to improve the SSAC:

- <u>Organizational clarity and charter</u> **-** The SSAC's charter was considered overly broad leading to difficulties in determining what fell within the SSAC's remit. JAS identified several areas where further clarification was needed.

- <u>Improving formality and transparency</u> **-** JAS recommended the SSAC engage in an annual review and planning process together with ICANN management, staff, and other SOs/ACs enabling better coordination with the community. Additionally, JAS recommended several improvements to strengthen SSAC's internal processes such as publishing meeting minutes, incorporating outside expertise, and implementing a member review process.

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[57] "Review of the ICANN Security and Stability Advisory Committee," JAS Communications, May 15, 2009.

[58] "Review of the ICANN Security and Stability Advisory Committee," JAS Communications, Section 3, p. 4, May 15, 2009.

- Proactively addressing conflicts of interest **-** JAS recommended various actions to reduce conflicts of interest and provide an opportunity for recusal and dissents to be noted.

1. JAS Review Findings

JAS outlined a series of findings in its Final Assessment Report including but not limited to the SSAC's adherence to its mandate and the procedural effectiveness of publishing work products.

JAS provided a summary of the SSAC's effectiveness for each of the SSAC's chartered task areas.[59]

- **Develop a security framework**: The original SSAC Charter included a task area aimed at developing a security framework for the DNS and outlined a need to focus on operational issues. The JAS review concluded that the SSAC did not appear to have a "security framework" document, or similar work product. Furthermore, there was some ambiguity and disagreement over whether the SSAC's should continue to "focus on operational considerations of critical naming infrastructure" as the SSAC typically focused on items of larger, strategic importance rather than strictly operational issues. As a result of the review, the mandate to develop a security framework was dropped from the SSAC's Charter.[60]

- **Communication on security matters**: The SSAC has been highly effective in communicating with the internet technical community and operators, and it has become a respected brand.

- **Ongoing threat assessment and risk analysis**: The SSAC has been proactive in research and publications, however, JAS noted that ongoing threat and risk assessment might require significant resources that were lacking. Some SSAC reports were found to be too technically focused to be easily used to policy makers and too technical to be accessed by non-technical professionals.

- **Communicate with those who have direct responsibility for DNS security matters**: The SSAC membership was well representative of relevant communities, leading to direct communication.

- **Report periodically to the ICANN Board**: In the past, communication was largely informal. In November 2008, the positions of "SSAC Chair" and "Liaison to the ICANN Board" were created to increase formality.

- **Make policy recommendations**: The SSAC makes occasional policy recommendations, however, the "consistency and effectiveness of SSAC's formal communication with the Board is in doubt." Some feedback noted that the lack of an "active response" from the Board to SSAC advice made it difficult to determine whether SSAC advice was effectively consumed and implemented.

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[59] "Review of the ICANN Security and Stability Advisory Committee," JAS Communications, Section 6.1, pp. 16-19 May 15, 2009; Please refer to the SSAC charter detailed in section 1.B of the report.
[60] Earlier versions of the SSAC Charter included an additional task area that read "To develop a security framework for Internet naming and address allocation services that defines the key focus areas, and identifies where the responsibilities for each area lie. The committee will focus on the operational considerations of critical naming infrastructure."

Additionally, the JAS Review provided feedback on the effectiveness of the SSAC's work products. It was noted that the SSAC's work were of "superb technical quality and almost completely if not entirely free of technical errors." However, JAS raised potential concerns around the informality of the procedures for developing a work product. Various stakeholders throughout the review process indicated that "SSAC products would be substantially improved with additional policy, economic, business, and risk management content." JAS believed that the SSAC "lack[ed] the skill-set to provide significant commentary in these nontechnical areas" into its reports, which was subsequently outlined in JAS' recommendations. The previous RWP considered that the SSAC Charter should not be amended to specifically include nontechnical risks to security and stability.

2. JAS Review Recommendations and Assessment

As a result of the review, JAS presented the SSAC with 33 recommendations aimed at improving the SSAC. These recommendations and our findings as to their current implementation state can be found in Appendix A. The Appendix outlines the original recommendation, a general sense of the previous Review Work Party's (then called the Review Working Group) agreement or disagreement with the recommendation, the final action to be implemented, a measure of recommendation implementation status by the previous RWP as of March 2011, and a brief assessment of the implementation state.

Additional details on our assessment follow:

Significant portions of the JAS Review recommendations were aimed at improving the SSAC's "Organization Clarity and Charter." Within this set, most recommendations focused on maintaining current processes deemed important by JAS to ensuring efficacy of the SSAC. In large part, these recommendations required little to no action and included recommendations focusing on maintaining independence as an advisory body, maintaining independence from other groups within the ICANN community, and remaining sensitive to political and business issues while providing advice.[61] In large part, the SSAC has been successful at maintaining the current processes outlined in JAS' initial recommendations. There is room for improvement in one suggestion from the JAS Review, to "Whenever possible, provide advance notice in the form of a professional 'heads-up' when uncomfortable situations are reasonably foreseeable. Avoid the perception of 'blindsiding' individuals and entities." A small number of members of the ICANN community reflect they felt blindsided by specific SAC documents, as discussed in Section II.C of this review.

Additionally, the JAS Review recommended that the SSAC Charter be amended in certain situations to provide organizational clarity. In most cases, the SSAC RWP disagreed or partially disagreed with the suggested amendments. For example, the JAS Review suggested that the SSAC Charter be amended to require the SSAC Chair and Liaison to the ICANN Board be separate individuals, and the SSAC Charter also be amended to specifically include non-technical risks to security and stability as within its scope.[62] In these and similar situations, the SSAC RWP

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[61] Please refer to JAS recommendations numbered one, two, three, six, seven, and thirteen.
[62] Please refer to JAS recommendations numbered eight and eleven.

disagreed with the recommendation and no actions were immediately taken. In the case of the SSAC Chair and SSAC Liaison, the SSAC later decided to update its Operational Procedures to require these two roles to be separate individuals, regardless.

A significant number of recommendations relating to "Formality and Transparency" required changes to SSAC procedures. The JAS Review recommended that the SSAC increase transparency to the ICANN community and public by posting meeting 'minutes' and simple conflict disclosure forms for each member on their website. The SSAC currently does not post minutes from internal meetings publically, but keeps extensive internal meetings and notes on its private Wiki site. The SSAC has recently been discussing if there are appropriate ways to post more such information publically without compromising security. The SSAC has provided additional transparency by its posted work plans and "Activities Updates" from each ICANN meeting.[63] Additionally, all SSAC members' biographies now include a "Disclosure of Interest" section online.[64]

Furthermore, the JAS Review recommended that the SSAC formalize a series of membership and lightweight planning procedures such as including language stating that SSAC membership can be renewed indefinitely, reviewing SSAC memberships every three years such that one-third of membership are up for review every year, allowing for administrative members to be removed via a simple majority vote, and implementing an annual planning process.[65] To date, the SSAC has implemented each of these recommendations. Additional language has been added to the ICANN Bylaws to allow for indefinite membership,[66] that the SSAC would undergo a yearly membership review,[67] and that SSAC appointees can be removed by a majority vote.[68] Finally, the SSAC has implemented a lightweight annual planning process evidenced by new language in the operation procedures and "Current and Future Milestones" presented at yearly ICANN meetings.[69]

In an effort to further increase transparency around conflicts, the JAS Review included a series of recommendations for "Conflicts of Interest." JAS recommended that each SSAC publication include sections allowing for dissenting opinions and recusals from the research.[70] The SSAC agreed with this recommendation and implemented an "Objections or Withdrawals" section in all subsequent reports. Second, JAS suggested that the SSAC develop and post a conflicts of interest

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[63] "SSAC Work Plans and Activities", *ICANN*, available at https://www.icann.org/groups/ssac/workplan-activities, accessed on May 24, 2018.
[64] "Biographies and Statements of Interest of SSAC Members", *ICANN*, available at
https://www.icann.org/groups/ssac/biographies-13feb14-en, accessed on May 24, 2018.
[65] Please refer to recommendations numbered 21, 22, 24, and 15.
[66] "The SSAC's chair and members shall be appointed by the Board. SSAC membership appointment shall be for a three-year term... The chair and members may be re-appointed, and there are
no limits to the number of terms the chair or members may serve," ICANN Bylaws, Section 12.2.b.ii
[67] "The SSAC chair shall stagger appointment recommendations so that approximately one-third (1/3) of the membership of the SSAC is considered for appointment or reappointment each year," ICANN Bylaws, Section Article 12, Section 2.b.ii
[68] "The Board shall also have the power to remove SSAC appointees as recommended by or in consultation with the SSAC." ICANN Bylaws, Article 12, Section 2.b.ii
[69] "SSAC Operational Procedures Version 5.1," SSAC, February 27, 2018, Section 2.5, pp. 8-20.
[70] Please refer to recommendations numbered 31 and 32.

policy similar to the one posted by the ICANN Board, which resulted in additional language to the SSAC Operational Procedures.[71]

Finally, the JAS Review made two recommendations involving financial compensation to SSAC Members from the ICANN Organization. These decisions are made by the ICANN Board and thus are to some extent outside of the SSAC's direct control. First, the JAS Review suggested that ICANN reimburse travel expenses for the SSAC Chair to ICANN meetings when appropriate. Currently up to fifteen members of the SSAC can receive travel reimbursements if incurred, one of which can be the SSAC Chair. Second, the JAS Review suggested the ICANN Board study the issue of paying a stipend or honorarium to SSAC Leadership and members. We are unaware of such a study taking place.

With the few noted exceptions, the SSAC has been diligent and effective at implementing the accepted feedback from its prior review.

B. <u>Finding 23:</u> The SSAC values self-improvement and makes clear efforts to continually improve even outside of the formal review process.

Outside of the implementation of prior review feedback, the SSAC has made continuous efforts to improve its processes. Conversations with members of both the SSAC's incoming and outgoing Administrative Committee have shown that individuals take the continual improvement of the SSAC seriously, and that they were excited to discuss how the SSAC could continue to improve.

The SSAC's belief in continual self-improvement has manifested in multiple ways. As examples:

- The SSAC has updated its Operating Procedures at least five times since its last review. For example, a February 2018 update implemented term limits on the SSAC's Liaison to the ICANN Board.

- The SSAC's Annual Workshop, an in-person meeting of SSAC members, regularly polls attendees and reports back on what was effective or not effective.

- The SSAC RWP has conducted its own internal analysis and Assessment of the SSAC. The RWP is taking steps to refine SSAC processes regardless of this Independent Review.

- The SSAC is in the middle of reviewing and updating its skills matrix to better understand member capabilities and skills on a yearly basis.

- The SSAC is engaged in internal conversation regarding how it might be more transparent to the ICANN community.

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[71] "All members provide independent advice and are expected to call attention to circumstances when the comments they offer are not their own." "If members wish to withdraw support from a document, or register a dissent, these positions are included at the end of the document to which they apply." See Section 1.1 of SSAC Operational Procedures, p. 7.

Recommendation 30: The SSAC should continue to nurture and build upon the SSAC's culture that values self-improvement, including between formal reviews.

Effective organizations (and individuals) do not learn and improve only during formal processes, but via continuous reflection as experience is gathered. Such continual reflection and self-improvement allows an organization to learn from activities in real time and to be robust to change. We encourage the SSAC to continue to nurture and build upon its existing culture of self-improvement, which is highly valuable.

As an example: the NCAP project is one potential location where the SSAC can learn from experience. Members have indicated an interest in using the scale of the NCAP project to help establish best practices for future projects on similar scale, and to take in learnings about working on a project with more public participation than other work of the SSAC. We would encourage such activities, and suspect there will be many similar opportunities to learn from experience between this review and the next review that the SSAC undertakes.