A Study on Governance for Decentralized Finance Systems Using Blockchain Technologies

Keio Research Institute at SFC

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Background and purpose of the study

Background of the study

In recent years, the progress of FinTech has been transforming the financial industry and markets, and blockchain technology, in particular, has the potential to significantly change the future shape of finance through the transformation of the structure of financial transactions. For example, Joichi Ito, who serves as former MIT Media Lab Director, pointed out[1] that although blockchain technology is still in its infancy, with proper verification of the technology, industrialization would advance, and it would eventually play a role in social infrastructure.

In order to link the progress of technology to the improvement of user convenience, it is necessary to leverage the pioneering trials and initiatives related to blockchain technology and to respond appropriately when new technology is used in the financial sector, from the perspective of stability of the financial system, protection of users, and Anti-Money Laundering, and Counter-Terrorist Financing. In fact, the crypto asset "Libra" announced by Facebook is a potential threat to the stability of the existing financial system, and the fact that governments have expressed concern and caution about it suggests the need for such efforts.

Since 2017, JFSA has been collaborating and working with financial authorities and private sector researchers in various countries to promote research and studies on the potential use and issues of blockchain technology, as well as holding “Blockchain Roundtables[2,3].” In these circumstances, Keio University, which reports this research result, participated in the study and held discussions with researchers and developers in other countries and it revealed that when decentralization, autonomy, anonymization, and globalization are used in financial systems ("decentralized financial systems"), the traditional approach of regulating primarily financial institutions might make it more difficult to achieve the objectives of financial

[1] https://media.dglab.com/2017/10/02-interview-02/
[2] Yuta Takanashi, et., al. “Call for Multi-Stakeholder Communication to Establish a Governance Mechanism for the Emerging Blockchain-Based Financial Ecosystem, Part 1 of 2.” Stanford Journal of Blockchain Law & Policy. Online: https://stanford-jblp.pubpub.org/pub/multistakeholder-comm-governance (Accessed June 28, 2020)
[3] Yuta Takanashi, et., al. “Call for Multi-Stakeholder Communication to Establish a Governance Mechanism for the Emerging Blockchain-Based Financial Ecosystem, Part 2 of 2.” Stanford Journal of Blockchain Law & Policy. Online: https://stanford-jblp.pubpub.org/pub/multistakeholder-comm-governance2 (Accessed June 28, 2020)

regulation.

Concerning these issues, the roundtables to date have pointed out the need for a multifaceted response to the various social issues that arise as the use of technology progresses, going beyond current laws and regulations, to capitalize on the progress of technology for further financial and economic development in the future. Specifically, at a high-level seminar at the G20 Finance Ministers and Central Bank Governors Meeting in Fukuoka in June 2019, the importance of participation from the various stakeholders (e.g., engineers, businesses, users and academia, etc.) in the decentralized financial system and multi-stakeholder governance ("MSG") was emphasized. It was adopted in the conference's communiqué with the support of other countries. It was also adopted in a communiqué at the 14th G20 Summit held in Osaka in the same month.

Based on that background, the purpose of this project is set to deepen the understanding of MSG, which is considered to be necessary to link technological development to sound financial and economic development, and to explore the direction of future efforts that will be necessary. As a result, this project also contributes to the establishment of a conference body applying MSG that will stabilize a decentralized financial system.

Parts of this report are based on a paper on a workshop[4] that one of the authors attended as part of the activities associated with this report[5].

Summary of the study

The results of this project are summarized below.

（1） Research and Studies

A comparison between decentralized financial systems and the Internet is often made as an example of how requirements such as decentralization, autonomy, anonymization, and globalization have made it difficult to achieve regulatory objectives. On the other hand, such requirements are also a fundamental feature of blockchain technology, so it is vital to have a better understanding of decentralized financial systems. In particular, as previously stated,

[4] Workshop on Coordination of Decentralized Finance (CoDeFi) (2020), In association with Financial Cryptography 2020, Online https://fc20.ifca.ai/codefi/ (Accessed August 10, 2020)

[5] Suzuki S. (2020) Multistakeholder Governance for the Internet. In: Bernhard M. et al. (eds) Financial Cryptography and Data Security. FC 2020. Lecture Notes in Computer Science, vol 12063. Springer, Cham. https://doi.org/10.1007/978-3-030-54455-3_17

there is an international consensus through opportunities such as the G20 that, in order to realize the sophistication of a decentralized financial system, it is essential for the parties involved to understand the MSG, which is a mechanism to achieve consensus building and system-wide governance.

For this reason, the study began by briefly summarizing the role that MSG has played in the development of the Internet. Specifically, the study analyzed 1) interviews with the parties involved in the formation of the MSG from the beginning, 2) involvement in institutions currently operating under the MSG (e.g., ICANN[6], IETF[7], etc.) and the practice of examining decentralized financial systems in such institutions, and 3) evaluation of the MSG by government agencies and related institutions (e.g., the Organization for Economic Co-operation and Development (OECD), Financial Stability Board (FSB)) operating under mechanisms different from those of the MSG and examining the possibility of cooperation.

In particular, we investigated the contribution of MSG to the resolution of social issues brought about by the development of technology, including the Internet, from the perspective of survey analysis. Specifically, this includes technical issues in the development of the Internet (e.g., domain name dispute resolution, countermeasures for IP address[8] operation and exhaustion), and efforts to stabilize basic Internet operating technologies (e.g., DNS). Based on our understanding of such examples (successes and failures) of the Internet, were deepen our examination of multi-stakeholder governance in a decentralized financial system.

In light of this research analysis, the following points were clarified.

1. Governance Mechanisms of a Decentralized Financial System
    - Identify the issues posed by decentralized financial systems and the reasons why MSG can be useful in solving them
    - The overall concept of governance activities and the specific mechanisms which can lead to technological development and solutions to social challenges

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[6] Internet Corporation for Assigned Names and Numbers：A private, non-profit corporation established in the United States in October 1998 to coordinate Internet resources such as domain names, IP addresses, protocol port numbers and parameter numbers, and the DNS root name server system on a private-sector-led, global scale.

[7] Internet Engineering Task Force：A voluntary organization that promotes the standardization of Internet technology, evolving from a group that discusses the formulation of common technical specifications for interconnecting computer systems.

[8] IP address is a numerical label assigned to each device connected to a computer network that uses the Internet Protocol for communication.

- Analysis of relationships and comparisons with existing financial system governance structures (e.g., including relationships with various international regulatory standard-setters and national regulators)
- Identify stakeholders who need to be involved and design incentives for each stakeholder to participate in governance activities
- Examples of specific issues to be addressed once the governance activity has started

2. The Operation of the Governance of a Decentralized Financial System
   - Decision-making structure for governance activities (including output and participant selection)
   - The elements necessary for the core governance organization and functions of the secretariat, as well as funding acquisition methods
   - Specific analysis and comparison of existing multi-stakeholder governance models
3. Develop a specific schedule for the establishment of the MSG
4. Anticipated obstacles and challenges to the establishment of MSG

（2） Building an International Network to Establish Multi-stakeholder Governance

At the “Blockchain Roundtable”, which is held by the JFSA in March every year as a forum to discuss the possibilities and issues of using blockchain technology among major countries (financial authorities, etc.) and academic experts, etc., promoting the use of blockchain, we kept in close contact with the JFSA regarding the future holding of such multi-stakeholder meetings. We also supported the examination and management of such meetings to contribute to the establishment of governance and provide support for the discussion of this study at this meeting.

As a result, we contributed to the establishment of the "Blockchain Governance Initiative Network" (“BGIN”), which was composed of a network-oriented conference body composed of volunteers from the JFSA, researchers, businesses, governments around the world, and parties involved in cryptocurrencies and blockchains, with the person in charge of the project also participating as parties, to implement MSG, and the person in charge of this project also participated as a party.

1. Research and analysis of multi-stakeholder governance on the Internet (IMSG)

In this section, we overview the current status of multi-stakeholder governance on the Internet.

First, we unravel the history of the birth and growth of multi-stakeholder governance on the Internet. We borrowed detailed research from “The History of IANA: An Extended Timeline with Citations and Commentary[9]” and summarized from the evolvement of multi-stakeholder governance. Then, we interviewed Professor Jun Murai[10] of Keio University, who was deeply involved in the process to learn more about the inside insight of the evolution.

In the following chapter, we provide set of overviews for some of the key communities of the Internet: the Internet Corporation for Assigned Names and Numbers (ICANN), Internet Governance Forum (IGF), Internet Society (ISOC), Internet Engineering Task Force (IETF), and World Wide Web Consortium (W3C). The most crucial community is ICANN. For the ICANN research, we interviewed several key people to understand how ICANN evolved and how they involved in ICANN.

1.1. The Internet, the community, and the process of its governance

Following is a summary of key events while in the evolution of the Internet development concerning gTLD[11] and ICANN[12]. We will describe key events in three phases: Beginning of Network Resource Allocation Management (1972- 1994), Discussions on gTLD towards the establishment of ICANN (1996-1998), and finally, the event on ICANN to leaving US oversight.

Figure 1 depicts major events in chronological order.

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[9] Snyder, J., Komaitis, K., Robachevsky, A.: The History of IANA: An Extended Timeline with Citations and Commentary. Internet Society (May 2016), online: https://www.internetsociety.org/ianatimeline/

[10] Professor Jun Murai is also the principal researcher of this project.

[11] gTLDs are one of the categories of top-level domains (TLDs) maintained by the IANA for use in the DNS of the Internet.

[12] This is a summary that refers to the carefully summarized literature by Snyder et, al. shown in the above footnote. Some of the expressions are from the literature. Please refer to the literature for full and detailed references.

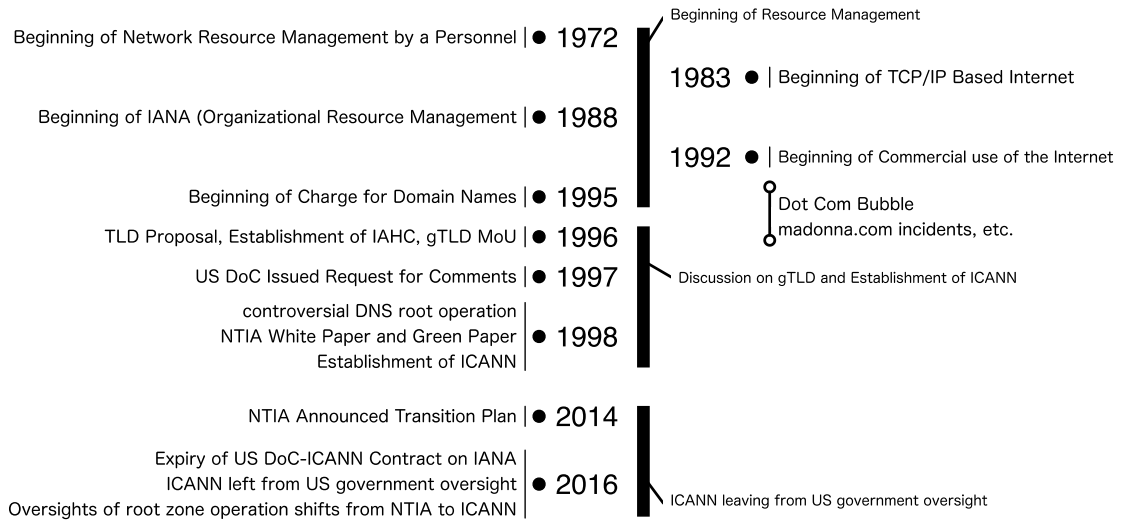

Figure 1: Timeline of the events related to Multi-stakeholder Governance on the Internet

We describe each of the key events in the following sections.

Beginning of Network Resource Allocation Management (1972-1994)

We can observe the beginning of network resource allocation management in 1972 initiated by Jon Postel as part of ARPANET activity. ARPANET is a research network established by the US Department of Defense's Advanced Research Project Agency (DARPA). Later, ARPANET became the basis of the Internet.

May 30, 1972 – Beginning of the network resource allocation management

Jon Postel, a graduate student at UCLA, proposed to have a "numbering czar" to be appointed to manage various numbers in emerging ARPANET. This event is the beginning of the Internet's number authority, later will be known as Internet Assigned Numbers Authority — IANA.

January 1983 – TCP/IP[13] becomes the protocol for ARPANET

Around 1987 – ARPANET to the Internet

National Science Foundation (NSF)'s NSFnet, which links the research community, grew and exceeded the size of ARPANET. As the growing interconnected TCP/IP network becomes the common TCP/IP backbone, people started calling the network "Internet."

[13] The Internet protocol suite commonly known as TCP/IP is the conceptual model and set of communications protocols used in the Internet and similar computer networks.

December 1988 – Appearance of the name "IANA"

The term "IANA" appeared the first time in RFC1083[14].

October 1992 – Beginning of commercial use of the Internet

NSF lifted the rule to ban commercial traffic on the Internet.

September 1995 – Beginning of charge for domain name registration

NSF allowed Network Solutions (a private company which will become the part of VeriSign) to charge for domain name registration services.

March 1994 – clarification on IANA's responsibility

RFC 1951 "Domain Name System Structure and Delegation[15]" published. This document states that IANA is "responsible for overall coordination and management for the DNS."

Discussions on gTLD towards establishment of ICANN (1996-1998)

From 1996 through 1998, various interested parties (multi-stakeholder) discussed gTLD implementation. The series of events is the beginning of Internet multi-stakeholderism.

June 1996 – Postel's international TLD proposal

Jon Postel proposed the process for the creation of new international TLDs in an Internet-Draft "New Registries and the Delegation of International Top Level Domains[16]."

November 1996 – Establishment of the International Ad Hoc Committee (IAHC)

IAHC established to refine the above mentioned Postel's Internet-Draft. The group supported by seven organizations consists of twelve individuals[17].

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[14] Internet Activities Board: RFC1083: IAB OFFICIAL PROTOCOL STANDARDS (December 1988), (Status: Historical) online: https://tools.ietf.org/html/rfc1083 (Accessed April 12, 2020)

[15] Postel, J.: RFC1591: Domain name system structure and delegation (March 1994), online: https://tools.ietf.org/html/rfc1591 (Accessed April 12, 2020)

[16] Postel, J.: New registries and the delegation of international top level domains (June 1996), online: https://tools.ietf.org/html/draft-postel-iana-itld-admin-01 (Accessed April 12, 2020)

[17] Formation of International Ad Hoc Committee (IAHC) (November 1996), online: https://www.internetsociety.org/history-timeline/formation-of-international- ad-hoc-committee-iahc/ (Accessed April 12, 2020)

December 1996 – IAHC published a document "Draft Specifications for Administration and Management of gTLDs."

IAHC published a document "Draft Specifications for Ad- ministration and Management of gTLDs[18] [5]." The term "generic Top Level Domain (gTLD)" appeared the first time in the document.

February 1997 – IAHC produced the final report

IAHC produced the final report "Generic Top Level Domain Memorandum of understanding (gTLD MoU)[19]." The document includes no- table proposals which evolved and implemented in ICANN policies:

- Registry/Registrar model
- Notification mechanism on name assignments
- A resolution mechanism on trademark-related domain name disputes

July 1997 – The US Department of Commerce published "Request for Comments"

The US Department of Commerce published "Request for Comments on the Registration and Administration of Internet Domain Names[20]"

January 28, 1998 – Controversial DNS root operation

Jon Postel sent an email to the operators of non-US government DNS root servers to replace the reference of one of the root servers with a server which set-up by Postel. This move removed the effect of the US government. On February 3rd, Postel requested to revert the change. The controversial operation demonstrated that a single individual could control the DNS. This event accelerated discussion, eventually led to the formation of ICANN.

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[18] International Ad Hoc Committee: Draft Specifications for Administration and Management of gTLDs (December 1996), online: https://tools.ietf.org/html/draft- iahc-gtldspec-00 (Accessed April 12, 2020)

[19] ESTABLISHMENT OF A MEMORANDUM OF UNDERSTANDING ON THE GENERIC TOP LEVEL DOMAIN NAME SPACE OF THE IN- TERNET DOMAIN NAME SYSTEM (gTLD-MoU), Online in the Internet Archive: https://web.archive.org/web/20091205200123/http://www.gtld-mou.org/gTLD-MoU.html (Accessed April 12, 2020)

[20] US Department of Commerce: Request for Comments on the Registration and Administration of Internet Domain Names. Federal Register (July 1997), online: https://www.gpo.gov/fdsys/pkg/FR-1997-07-02/pdf/97-17215.pdf (Accessed April 12, 2020)

February 1998 – NTIA published "Green Paper."

The National Telecommunications and Information Administration (NTIA) of the US Department of Commerce published a proposal so- called "Green Paper[21]."

June 1998 – NTIA published "White Paper."

NTIA published a statement of policy, so-called "White Paper[22]."

September 30, 1998 – Establishment of ICANN

ICANN left from the US oversight (2014-2016)

At the establishment of ICANN in 1998, it was under the US government's oversight. That means it was not a genuinely bottom-up mult-stakeholder forum. The events between 2014 through 2016 made ICANN leave the US government's oversight. This event is a remarkable moment for the Internet mult-stakeholderism.

March 14, 2014 – NTIA announces a transition plan[23]

September 30, 2016 – The IANA functions contract between the US Department of Commerce and ICANN expired

October 1, 2016 — ICANN left from US government oversight

October 20, 2016 – Oversights of root zone operation shifts from NTIA to ICANN

Verisign (formerly Network Solutions) has been responsible for operation of the DNS Root Zone since 1992, under an agreement with the National Science Foundation[24]. A new

[21] Department of Commerce National Telecommunications and Information Administration: Improvement of Technical Management of Internet Names and Addresses (15 CFR Chapter XXIII Docket No 980212036-8036-01) (Feburary 1998) (Accessed April 12, 2020)

[22] Department of Commerce National Telecommunications and Information Administration: Management of Internet Names and Addresses (Statement of Policy). Federal Register (June 1998), online: https://www.gpo.gov/fdsys/pkg/FR-1998- 06-10/html/98-15392.htm (Accessed April 12, 2020)

[23] National Telecommunications and Information Administration: NTIA Announces Intent to Transition Key Internet Domain Name Function (March 2014), online: https://www.ntia.doc.gov/press-release/2014/ntia-announces-intent-transition- key-internet-domain-name-functions (Accessed April 12, 2020)

[24] National Science Foundation and Network Solutions. (1993, January) NCR 92-18742 Network Information Services Manager for NSFNET and the NREN: INTERNIC

contract for this service is established between Verisign and ICANN to replace one with NTIA. This shifts oversight of root zone operation from NTIA to ICANN[25].

January 6, 2017 – ICANN and NTIA terminated the Affirmation

The "Affirmation of Commitments[26]," established in September 2009, set the tone for IANA management by redefining the relationship between the US Government and the Internet and pushing the IANA aspects of Internet towards self-governance. With the changes suggested by the Enhancing ICANN Accountability Group (CCWG-Accountability) in place, ICANN and NTIA formally agree that the Affirmation can be terminated[27].

Registration Services Cooperative Agreement. online: https://archive.icann.org/en/nsi/coopagmt-01jan93.htm (Accessed April 12, 2020)

[25] Department of Commerce. (2016, October) Amendment 33 to NCR 92-18742. online: https://www.ntia.doc.gov/files/ntia/publications/amendment_33.pdf(Accessed April 12, 2020)

ICANN and Verisign. (2016, September) Root Zone Maintainer Service Agreement. online: https://www.icann.org/iana_imp_docs/63-root-zone-maintainer-agreement-v-1-0(Accessed April 12, 2020)

[26] ICANN and US Department of Commerce. (2009, September) AFFIRMATION OF COMMITMENTS BY THE UNITED STATES DEPARTMENT OF COMMERCE AND THE INTERNET CORPORATION FOR ASSIGNED NAMES AND NUMBERS. online: https://www.icann.org/resources/pages/affirmation-of-commitments-2009-09-30-en (Accessed April 12, 2020)

[27] Ellen Rony and Peter Rony, *The Domain Name Handbook: High Stakes and Strategies in Cyberspace*. Lawrence, Kansas, USA: R&D Books, 1998, http://www.domainhandbook.com/ifwp.html.

Jun Murai's Insight (interview summary, October 9, 2019)

Profile: Jun Murai, Distinguished Professor, Keio University

Jun Murai received his Ph.D. in Computer Science, Keio University in 1987, majored in Computer Science, Computer Network and Computer Communication. He established JUNET (Japan University UNIX Network), the first network in Japan connecting multiple universities, in 1984. In 1988, established the WIDE (Widely Integrated Distributed Environment) Project, a Japanese Internet research consortium. Has long been engaged in research related to Internet technology platforms, and is known as the Father of the Internet in Japan and in international circles as the Internet Samurai.

He is a member of the Strategic Headquarters for the Promotion of an Advanced Information and Telecommunications Network Society (IT Strategic Headquarters), a member of the Cyber Security Policy Council, National center of Incident readiness and Strategy for Cybersecurity(NISC), Cabinet Secretariat, chairs and serves on many other governmental committees, and is active in numerous international scientific associations.

He was a Member of Internet Architecture Board (IAB) from 1993-1995, Board of trustee of Internet Society (ISOC) from 1997-2000, Board of Director of the Internet Corporation for Assigned Names and Numbers (ICANN) from1998-2000. He was inducted into The 2013 Internet Hall of Fame (Pioneer)/ 2011 IEEE Internet Award / 2005 Jonathan B. Postel Service Award / 2019 the Knight of the Legion of Honor by the French Government.

Career:

1990 Associate professor, Faculty of Environment and Information Studies, Keio University
1991 President, the Japan Network Information Center (JPNIC)
1993 Member of Internet Architecture Board (IAB) (~1995)
1997 Professor, Faculty of Environment and Information Studies, Keio University (～2020)
Board of trustee of Internet Society (ISOC) (~2000)
1998 Director, the Internet Corporation for Assigned Names and Numbers (ICANN) (~2003)
2000 Advisory Member of the Strategic Headquarters for the Promotion of an Advanced Information and Telecommunications Network Society (IT Strategic Headquarters) (～2009, 2012～)

2005 Vice-President, Keio University (~2009)
2005 Advisory Member, Information Security Policy Council,
Cabinet Secretariat Information Security Center, Cabinet Secretariat of Japan
2008 Member of Science Council of Japan
Member of Global Agenda Councils, World Economic Forum (～2014)
2009 Dean, Faculty of Environment and Information Studies, Keio University (～2017)
2014 Member, Global Agenda Council on Future of Digital Communications,
World Economic Forum
2015 Chairman, IoT Acceleration Consortium
2017 Dean, Graduate School of Media and Governance, Keio University (～2019)
2020 Distinguished Professor, Keio University (Current Position)

Education:

1979 Graduated from Keio University ,
Department of Mathematics, Faculty of Science and Technology
1981 Received MS for Computer Science, Keio University
1987 Received Ph.D in Computer Science, Keio University

Awards:

2005 Jonathan B. Postel Service Award
2011 IEEE Internet Award
2011 The Okawa Prize
2013 Internet Hall of Fame
2019 the Knight of the Legion of Honor by the French Governmen

Timeline based discussion with Professor Murai

IETF

The Internet Engineering Task Force (IETF) was the beginning. We designed it in a way that can be connected by following the standard specifications, but when we actually tried to connect it, it didn't work. This is why interoperabilityis necessary. From a computer science standpoint, I could say this was the first incident. Before the Internet, it was a single telephone company that had operational responsibility, but ithas become a model realized by multiple

parties.

The IETF's planning organization which was initially called the Internet Activity Board and now called the Internet Architecture Board, was making the decisions.

Around 1992, due to the lack of IP addresses and other reasons, next-generation IP networks began to be considered. At that time, there was a debate on whether to use an ISO-based protocol called CLNP or an IP-based protocol. The consensus at the time was "one IP was all that was needed".

When INET'92[28] took place in Kobe, Internet Activity Board (different from the current IAB), in coordination with the ISO, proposed the choice of the CLNP. However, the IAB faced fierce opposition from the community, became dysfunctional, and reorganized as the Internet Architecture Board (Same as the current IAB. Hereinafter referred to as "IAB").

This was the beginning of a revolution, so to speak, and the introduction of the multi-stakeholder concept. Murai was an early board member of the new IAB, and he was chosen from diversity and a global perspective.

NIC

Going back 20 years, in 1972, various network resources needed to be allocated, and the first address registration organization, SRI-NIC (SRI = Stanford Research Institute), was established.

Not only IP addresses but also RFC issuance management was started. The person who managed it was Jon Postel.

The domain name was also discussed with Jon Postel, and it was decided to go with NIC.

The JP domain was managed by Murai. This was the era of JUNET before the Internet connection began. Since Japan was using hierarchical domain names ahead of other countries in the early Internet mail, the replacement went quite naturally. Specifically, Top Level Domain's ".junet" was just switched to ".jp".

Stake separation and operations

After deciding on a standard, it would actually work (operations), but the stakeholders were beginning to separate. We believe that this was triggered when the standardization of OT (Operational Technology) began in the IETF.

[28] The first meeting as the Internet Society hosted by the WIDE Project.

If there is not a good overall and social investment in each stake (role), there will be problems such as failures. This was an important finding. Maybe the railroad system has similar issues in some ways.

Internet Society（ISOC）

The first ISOC meeting was held by WIDE in Japan (1992-INET'92). In INET'92, people from countries with no Internet connection were invited to attend. This was our first time to run an international conference, and we had to work with our own responsibility without knowing what to do, so even the preparation of lunch was a challenge. We all worked together to make it a success. Although it was around this time that the communities were starting to form subtly, with NTT, KDD, and other personal computer communication communities, DDI, and the privatized NTT groups and others already in existence, the initial establishment of the At-Large element, which represented users, including participation from a diversity perspective, was probably triggered by INET'92. However, the At-Large community did not grow well in Japan.

Domain Name System(DNS）

At first, there was only the IETF, so the domain name was managed by the IETF. DNS is semi-automatic, so it was about protocols, and the IETF is the group that decides the information (protocols) for the network lines, so it was inevitable that it would be the IETF's job. At this stage, there was a strong technical aspect to it.

I used to manage the (Japanese) domain in the time of JUNET. I understood that name assignment is difficult, for example, because there are so many universities that have Tokyo in their names, so there is a struggle. For example, when someone who does not belong to the Japan Broadcasting Corporation (NHK) came to pick up the domain “NHK,” I turned it down. I knew instinctively that this wasn't a good idea.

The first troubles in the domain were at madonna.com and mtv.com.

There was a discussion between WIPO (World Intellectual Property Organization) and IETF's DNS experts, and I was nominated by the IETF Chairman to join the discussion. This was due to the fact that I was an IAB veteran and a non-American, rather than DNS expertise. The meeting was completely out of place, and since there was a person on the WIPO side who understood the IETF well, it went relatively smoothly, and we decided to form an Ad-hoc Committee, and I became a member.

In the IAHC (International Ad-Hoc Committee), we received a lecture on registered

trademarks and decided to use the concept of ADR (Alternative Dispute Resolution) instead of the rule-based approach, which was the greatest achievement. It would be easier if there were a single place to register, but that was not the case, so I decided to use a first-come, first-served basis, but when there was a dispute, I would handle it.

For madonna.com and mtv.com, it was a win for Madonna and MTV. There was another case of JAL, but this time Japan Airlines lost. The criterion for resolution was “whether or not it was deliberately abused.”

gTLD

The IAHC started as an IPR coordination, but as the Internet gradually became a big thing, it was barely functioning in terms of intellectual property protection due to assigning names only to “.com” or “.org.” In addition, the country code Top Level Domains (ccTLDs), which are assigned to each country, were being bought up miserably with buying power, and the situation was becoming unhealthy. In other words, the domain name space was starting to make money. Considering how far it would expand, I understood that there would be so many business opportunities.

When this happens, no matter who makes the decision, people will always complain. “How do we work this out?” became the governance demands on ICANN, which started a series of domain name controls.

Root name server

When ICANN was established, Murai chaired the root DNS operator group at ICANN.

In DNS, 13 root name servers manage the “root” of the domain name. These 13 servers had 13 names from A to M, and were operated in four countries (the United States, Sweden, the Netherlands, and Japan), mainly in the United States. Of these, the M root servers were managed by WIDE Project under the leadership of Murai. Thirteen is the “maximum number that can be compressed into a 512-byte UDP datagram[29,30]”.

Some people didn't understand that the four countries had a monopoly on the thirteen root servers. There was a tone that it is a shame not to have it and gain to have it. There was a misunderstanding, and I tried to explain it, but it wasn’t understood.

The opinions that were coming out here were “I want it in my place” and “Won't it stop when

[29] A communication unit of the Internet.

[30] This restriction was later relaxed by a standard called EDNS0.

thirteen of them got broken?" There were two opinions on risk aversion.

The security concerns were resolved by applying a technology called Anycast, which was first used in the Nagano Olympics, without increasing the (root server's) IP addresses, i.e. by simply increasing the number of servers (copies) without increasing the number of operators. In the blink of an eye, there were about 200 servers. It was said that Diversity is Strength. Later, we were able to demonstrate its safety at the time of Y2K[31]. The measurement was necessary to demonstrate the safety, and the WIDE Project carried out this project while supporting CAIDA of UCSD.

ICANN

With regard to the issues of the governance, risks, and 365-day operations of DNS, the question of who is responsible for the operation of the Internet has become a challenge.

Also, national issues are brought to us by the government. There are a lot of nationalist-fueled industry players (phone companies, for example).

That's why ICANN was created. We had to think about the whole thing and solve it.

We started out by arbitrarily choosing "Interim Board." The founding chair was Esther Dyson[32], with Murai as a board member. Asking all of the communities one by one, then, assigned board seats to the stakeholders. If you look at the board seats now, it's hard to tell at first glance, but it's quite ingenious. Among other things, the Bylaws have very detailed provisions, as if to prevent water from leaking. Achieving diversity has been a difficult and somewhat complicated process.

What was particulary important was diversity and making sure that "every community's voice is heard." There was an international balance to be struck by my entry, and two women entered (The Chair and President Linda of Radcliffe College). The board also took into account people with multiple attributes; for example, Murai being an engineer was a factor. If we had to say, we would have tried to achieve a composition that would not be complained about.

Most of all, chairman Dyson was amazing. She listened to everything. She listened to all the people in the world complaining. She listened to them many times and went around the world three times. When you do something like this, the people who were complaining about it start

[31] The Year 2000 Problem.

[32] Esther Dyson is a charismatic American investor, businessperson, and science journalist.

to give up after about the third time. In the end, that's what gets you through. We let them complain until they ran out of the complaints with “I'm listening to you” stances, and they finally came through, even though nothing on this side had changed. This was a great learning experience. But at least we shared the mission: “We have to do this at ICANN.”

ICANN has been successful in making money with gTLDs. In other words, a tax could be taken from the entire Internet. They then separated IANA's functions from the U.S. government and brought back the number assignment. Also, the domain name authorization was back. It's a great success to have made it this far. Now it's all about how to spend the money. It is a joy and a surprise.

The separation of the IANA function (ICANN) from the U.S. government stems from its contract with the U.S. Department of Commerce (DoC). The root zone operation was outsourced, but governance is what determines the content of the root zone file. There was an argument that a single country's signature should not determine the validity of this route zone.

There was also an earlier discussion about whether the office should be in California. Postel was at USC/ISI (University of Southern California, Information Sciences Institute) and was able to host, and California state law makes it easier to operate as a non-profit. It became a big debate, but we decided to consider it when the U.S. government started to meddle in, and we began to operate it, but it turned out to be no problem.

Multi-stakeholder

From the multi-stakeholder perspective, the composition has been changed a bit since the beginning due to the need of managing legal matters and the growing importance of security.

The bottom line is that ICANN decided on the At-Large, decided on the core operators, and included the governance and route operators into the advisory committee. Since the domain name was the source of the dispute, the concept of operation was adopted, and the DNS operator was included.

We got complaints such as, “How come we don't have it, it's a loss, it's unfair,” from the governments. ICANN did not include the government directly, but nationalists with government backgrounds sometimes came to the table. It was mostly from the phone companies, and the close relationship between phone companies and the governments may have been a factor. ICANN doesn't listen to the government very well. ICANN itself, on the other hand, has never been in trouble with national issues.

There has always been a debate as to whether the governance of the Internet as a global space should be conducted by an UN-type body coordinated by countries. Internet governance, based on the soundness of current operations that are operating correctly and on rationality as engineering, has been of increasing interest to governments as its impact on society has grown. The prior operation was led by the engineers involved in building and developing it, but another way of looking at it is that it was led by the “Internet developed countries.” It is natural for the “Internet developing countries” to insist on governance at the UN, where the debate is based on fair rights for each country. There was a need for a governance structure that would ensure technical rationality, but also allow countries to participate as stakeholders.

On the other hand, in addition to the community of development engineers at the IETF, there were many people in IETF who felt comfortable with the state before a wide range of users came in (IETFer). There was also a money-hating aspect to it. There was also a conflict between the people who created the technology and those who wanted to make it work in business. This was resolved because people “can no longer do this with engineering fundamentalism.” “Which is better, giving up and losing control?” When people started to realize that, even the fundamentalist ones said “let's do it for everyone.” Some people later flew around the world for the Internet inclusion.

It is important to note, from a diversity perspective, that the system of exercising democracy through plenary elections is not easy: when ICANN's At-Large elections were attempted on the Internet, the amount of votes cast by Japanese “users” was so overwhelming that they concluded it was a failure.

Think Tank

What really needs to be done is the function of a think tank, and we need to make proposals. It is necessary to establish a mechanism to make proposals to financial organizations, the G20, the Japanese government, and others. Maybe we need something like a fintech think tank.

There must be a mechanism for making policy recommendations on decentralized finance and saying that this is what the mechanism must do and that who must be included. This is what we call a think tank.

Q&A

The Difference Between Blockchain and IP

The IP is “one,” but the blockchain has become multiple. There is a strong will in the community that the Internet will never be fragmented.

What do you think about Libra?

Instead of governments caring about creating a currency, shouldn't the issues such as “oil compatibility” or “let's solve the Lehman Shock in 20 countries” be solved?

The private currency should be adjusted from trying. New solutions to things like “oil compatibility” and “let's solve the Lehman Shock in 20 countries” could also emerge.

It is necessary to create a financial and monetary version of the consensus that "there is always one IP."

Define a “value of consensus” among humanity. Can't we start from there?

Is it possible to create a multi-stakeholder international organization in Japan?

The failure of APNIC[33] to function well as an organization in Japan is an example, but I believe that there is a need to develop a system to create a non-profit international corporation to function in Japan. Above all, there is no definition of charity. We can do it in Australia (APNIC is currently in Australia). In Japan, the challenge is to create an organizational environment where Japan is at the center of the action for the entire planet.

If you can define what the organization does, maybe you can make the rules. If it's an event promoter, it might be possible. Or perhaps a think tank would be better. It might be possible to mix it with the super city concept.

What do you think we need to do to start a multi-stakeholder dialogue in the future?

In terms of a sense of superiority and inferiority, ICANN has lined up people who have strong influence and impact. We're going to need a bunch of people who are super bright and known by everyone in the world. In the case of ICANN, it was about defining the nomination process on a community-by-community basis. It would be better to have the reasoning for the board selection. We need to think about how to get the technical community together. You'll also need an operator.

[33] Asia-Pacific Network Information Centre (APNIC)
https://www.apnic.net/

There would always need to be a form in which changes could be considered, i.e., pushing through with “interims.” The people involved should be investigated, and hearings and questionnaires would be essential.

1.2. Communities and their challenges from an internet governance perspective

1.2.1. ICANN

ICANN — The Internet Corporation for Assigned Names and Numbers — maintains and coordinates procedures for namespaces on the Internet, including domain names, IP addresses（IPv4 and IPv6）， autonomous system numbers, and protocol identifiers. It also has a mission to facilitate the operational coordination of the DNS root name server system.

As stated in the ICANN Bylaws' statement of core values, it emphasizes broad, informed participation that reflects the functional, geographic, and cultural diversity of the Internet at all levels of policy development and decision-making, while promoting competition. Every aspect of the ICANN bylaws -- the way board members are elected and the way representatives of specific groups are elected -- has been very carefully designed to reflect the core values.

According to the ICANN site[34], The bottom-up, consensus-driven, multi-stakeholder approach has resulted in significant results, including the following:

- Establishing market competition for generic domain names（gTLDs）
- Implementing an efficient and cost-effective Unified Domain Name Dispute Resolution Policy（UDRP）.
- Guidelines for Internationalized Domain Name（IDN） deployment are developed.
- Completed joint deployment of Domain Name System Security Extensions （DNSSEC） for the root zone.
- A new gTLD program was created in 2013.
- The world has widely embraced ICANN as a forum for formulating Internet governance policy.

[34] https://www.icann.org/resources/pages/welcome-2012-02-25-en

1.2.1.1. The Organizational Structure of ICANN

Structure of ICANN

ICANN's mult-stakeholder model consists of the ICANN Board of Directors, three supporting organization, four advisory committees, one technical liaison group, two governance accountability entities, and the Empowerment Community. In addition to the stakeholders, Ombudsman and ICANN staff helps the organization to work.

- The ICANN consists of following entities:
  - Supporting Organizations（SO）: develop and recommend policies concerning the Internet’s technical management within their areas of expertise:
    - Generic Names Supporting Organization（GNSO）
    - Address Supporting Organization（ASO）
    - Country Code Names Supporting Organization（ccNSO）
  - Advisory Committees（AC）: formal advisory bodies to ICANN board
    - At-Large Advisory Committee（ALAC）
    - Security and Stability Advisory Committee（SSAC）
    - Root Server System Advisory Committee（RSSAC）
    - Governmental Advisory Committee（GAC）
  - Nomination Committee（NomCom）
  - Empowerment Community（EC）
  - Ombudsman
- ICANN Staff

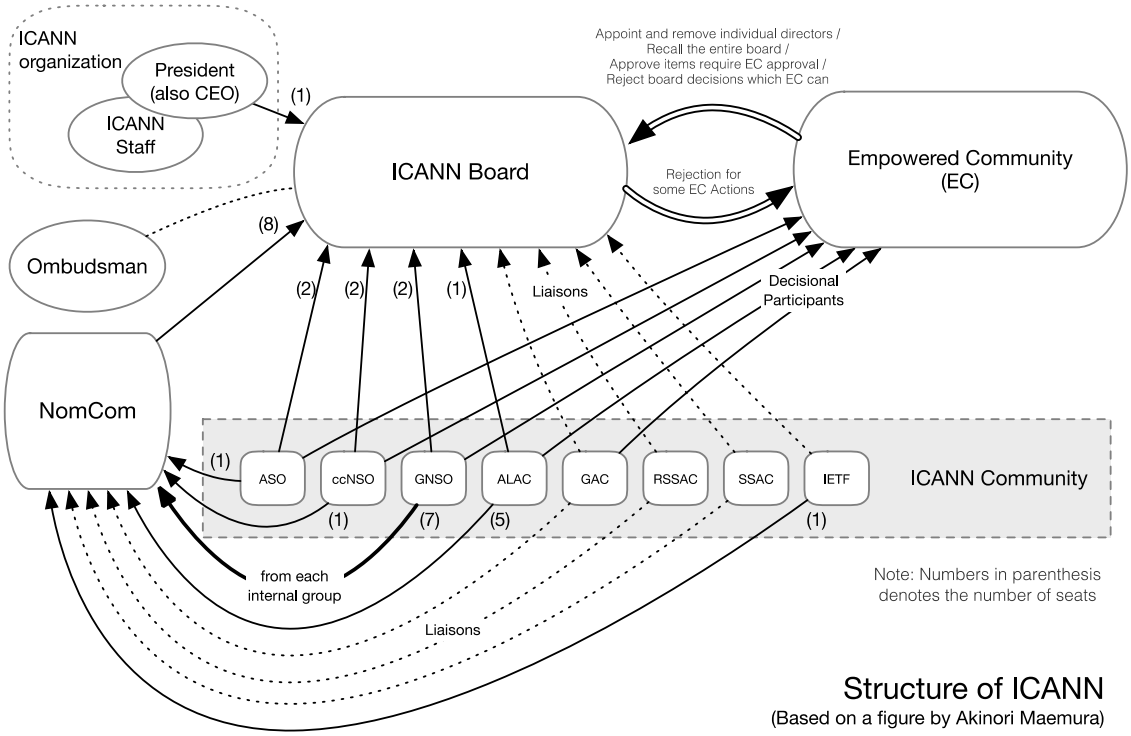


Figure 2: Structure of ICANN

Figure 2 shows the current structure and relationships of the above entities.

ICANN Board consists of sixteen voting seats, assigned to: two for each SOs, one for ALAC, eight nominated via NomCom, and one for director of the board, who is the President and CEO of ICANN. It also has non-voting liaison member seats from GAC, RSSAC, SSAC and IETF.

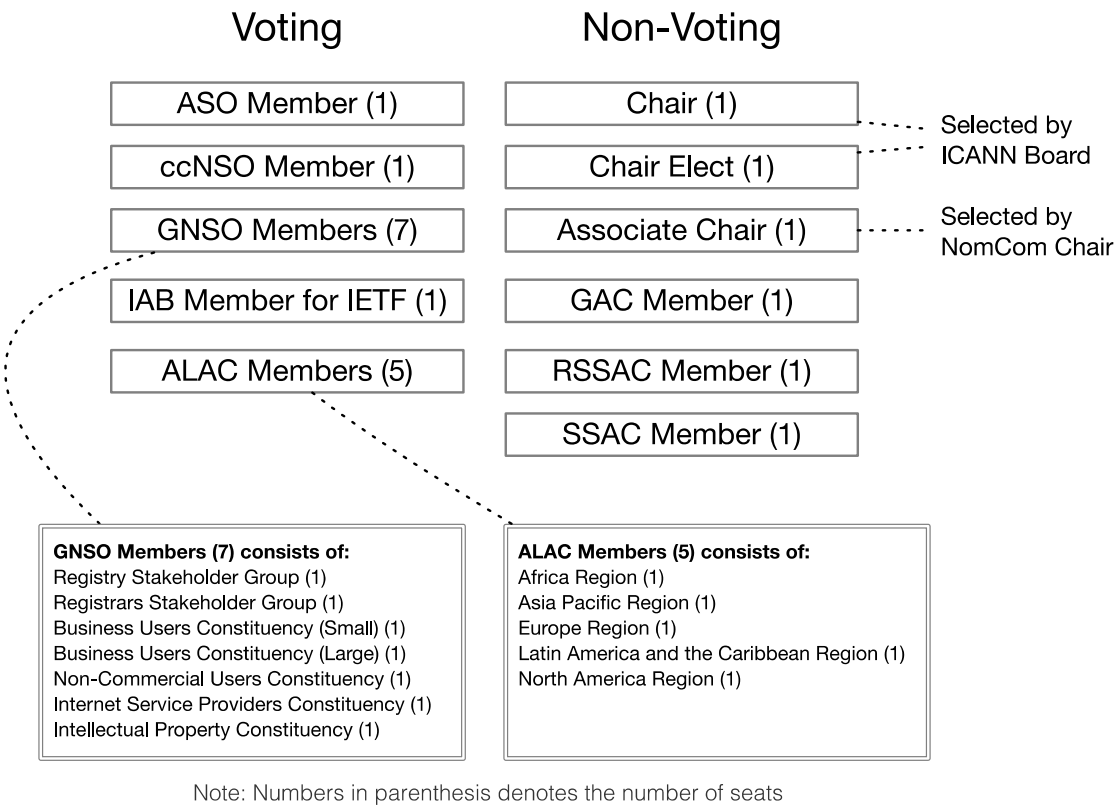


Figure 3: The member structure of NomCom. GNSO and ALAC

NomCom is responsible for appointing number of the seats to the ICANN Board of Directors, ALAC, ccNSO and GNSO. NomCom acts on behalf of the interest of the global Internet community. NomCom consists of fifteen voting delegates and six non-voting leaders, advisors, and delegates. Figure 3 shows the member structure of NomCom. GNSO and ALAC has multiple seats, reflecting the diversity inside the group.

Recently introduced Empowered Community（EC） is the mechanism to enforce community power to ICANN board. It consists of five decisional participants from three SOs（ASO, ccNSO, GNSO）， ALAC and GAC. It monitors how the board execute the operation of ICANN. EC may appoint and remove individual directors, recall the entire board, approve items require EC approval, or reject decisions of the ICANN board. On some of the topics board rejects the request from EC, and there is a mitigation mechanism.

ICANN staff provides various support functionalities. Ombudsman make sure that ICANN community members are treated fairly.

Groups supporting/advisinging ICANN

As discussed in the previous section, ICANN consists of multiple groups, all of them have its own governance model. The governance model will be described in Sec. “ICANN Decision Making Mechanism”. In this section, we briefly describe three SOs, four ACs.

Supporting Organizations（SO）

Supporting Organizations develop and recommend policies concerning the Internet’s technical management within their areas of expertise.

Generic Names Supporting Organization（GNSO）[35] develops policy concerning generic Top Level Domain（gTLD）. It consists of Contracted Party House（CPH） and Non-Contracted Party House（NCPH）. CPH's members are registry and registrar, who sells and operate domain names. NCPH's members consists of various stakeholders — business, Internet Service Providers, Intellectual Properties lawyers, etc. It is one of the key players in ICANN.

Country Code Names Supporting Organization（ccNSO）[36] develops policy concerning generic Top Level Domain（gTLD）. It is a body within the ICANN structure created for and by ccTLD managers. It develops policy concerning country code Top Level Domain（ccTLD）.

Address Supporting Organization（ASO）[37] develop recommendations on Internet Protocol（IP） address policy and to advise the ICANN Board. Each of the five Regional Internet Registry（RIR） provides three volunteers to serve on the ASO Address Council（AC）.

Advisory Committees（AC）

Advisory Committees are formal advisory bodies to ICANN Board.

At-Large Advisory Committee（ALAC）[38] voices interest of Internet end users. 230 At-Large Structure（ALS） organizations belongs one of five at-large Regional Organizations（RALO） which represents five geographical regions — Africa, Asia, Australasia and Pacific Islands, Europe, Latin America and the Caribbean Islands, and North America. Also, Individual member can join to ALAC independently from ALS/RALO structure.

[35] https://gnso.icann.org/en
[36] https://ccnso.icann.org/en
[37] https://aso.icann.org
[38] https://atlarge.icann.org

Security and Stability Advisory Committee（SSAC）[39] advises on issues relating to the security and integrity of the Internet's naming and allocation systems. The SSAC members are appointed by ICANN board.

Root Server System Advisory Committee（RSSAC）[40] advises on the matters relating to the operation, administration, security, and integrity of the root server system of DNS. The RSSAC member consists of representatives from the organizations responsible for operating global root service.

Governmental Advisory Committee（GAC）[41] advises on public policy issues, particularly in the area where ICANN policies intersect with national laws and international agreements. According to the GAC homepage, the GAC has 176 governments as Members and 36 Intergovernmental Organizations（IGOs） as Observers. Members of the GAC must be national governments, multinational governmental organizations and treaty organizations, or public authorities. Each may appoint one representative and one alternate representative to the GAC.

The Internet Engineering Task Force（IETF）[42] is the premier Internet standards body, developing open standards through open processes. Any individual can be a member of the IETF, and there are no organizational memberships. Internet Architecture Board（IAB） which is the part of IETF, providing architectural oversight of the engineering work of the IETF.

ICANN participants

As discussed in the previous section, ICANN consists of multiple groups. While some of the group accepts individual membership, all of them have its own governance model to a delegate for the ICANN board. The bottom of the ICANN multi-stakeholder hierarchy is individual or organization.

Participants of ICANN consists of members from various stakeholders. At the first glance, these participants belong to a single stake holder community, but in the reality, many of them belongs to multiple communities.

[39] https://www.icann.org/groups/ssac
[40] https://www.icann.org/groups/rssac
[41] https://gac.icann.org
[42] https://ietf.org

Also, each of these participants possibly has multiple attributes. For example, Prof. Jun Murai who we interviewed is an academia, in research community, but also he is an engineer, one of the members of IETF, one of the members of RSSAC[43]. RSSAC is engineering and operator community.
Since each individuals or organization may have such multiple attributes, the classification is not a simple matter.

In addition to above, everybody belongs to (at least) a nation. Of course, they're not necessary represent the nation. Also has belong to single or possibly multiple community in terms of ethnology.

Table 1 shows the analysis of groups and the attributes of members. In addition to the above table, diversity on ethnicity and regions need to be considered.

One of the core values of ICANN is **diversity**. Looking at the differences provides important perspective on the diversity point of views. As in the statement of the core values in ICANN Bylaws, it is focusing on broad and informed participation, reflecting the functional, geographic, and cultural diversity of the Internet at all levels of policy development and decision-making, while promoting competition. Every aspect of ICANN Bylaws, i.e., how to select the board members, or how to choose a representative of the specific group, are extremely carefully designed to reflect the core values. To achieve good balance in diversity point of view, sometimes, they even adjust number of voting seats

[43] He is also a past member of IAB, and also one the initial member of ICANN board.

Table 1: The analysis of groups and the attributes of members

(L1 denotes one liaison member)

		ICANN			Typical Individual Attributes					
ICANN Grouping		Board	NomCom	EC	Commercial	User	Engineer	Operator	Standardization	Government
SO	ASO	2	1	1	○		○	○		
	ccNSO	2	1	1	○		○	○		
	GNSO	2	1	1	○	○	○	○		
NomCom		8								
End User	ALAC	1	5	1	○	○	○		○	
Government	GAC	L1	L1	1						○
	RSSAC	L1	L1				○	○		
	SSAC	L1	L1				○	○		
	IETF	L1	1		○		○	○	○	

ICANN Decision Making Mechanism

ICANN's decisions are made through a bottom-up process involving discussion and advice among ICANN groups and participation from around the world. The final decision-making body, the Board of Directors, makes the decisions with relevant advice.

SOs develop policies, ACs develop advices, in bottom-up process. Each of the development process involve similar but slightly different steps, such as, not limited to: identifying issues, scope the issue, form a working group, develop a report, review, sending the report to ICANN board. For policy, ICANN board will vote for a decision. Recently introduced Empowered Community（EC） also have influence on the Board decisions, and may reject decisions.

Policy Development

ICANN develops DNS Policy, Operational Policy, and also General Practices[44].

DNS Policies are developed through formal Policy Development Processes（PDPs） as defined in ICANN Bylaws. The operational policy defines how ICANN operates. It is not necessary to follow PDPs.

[44] https://www.icann.org/policy

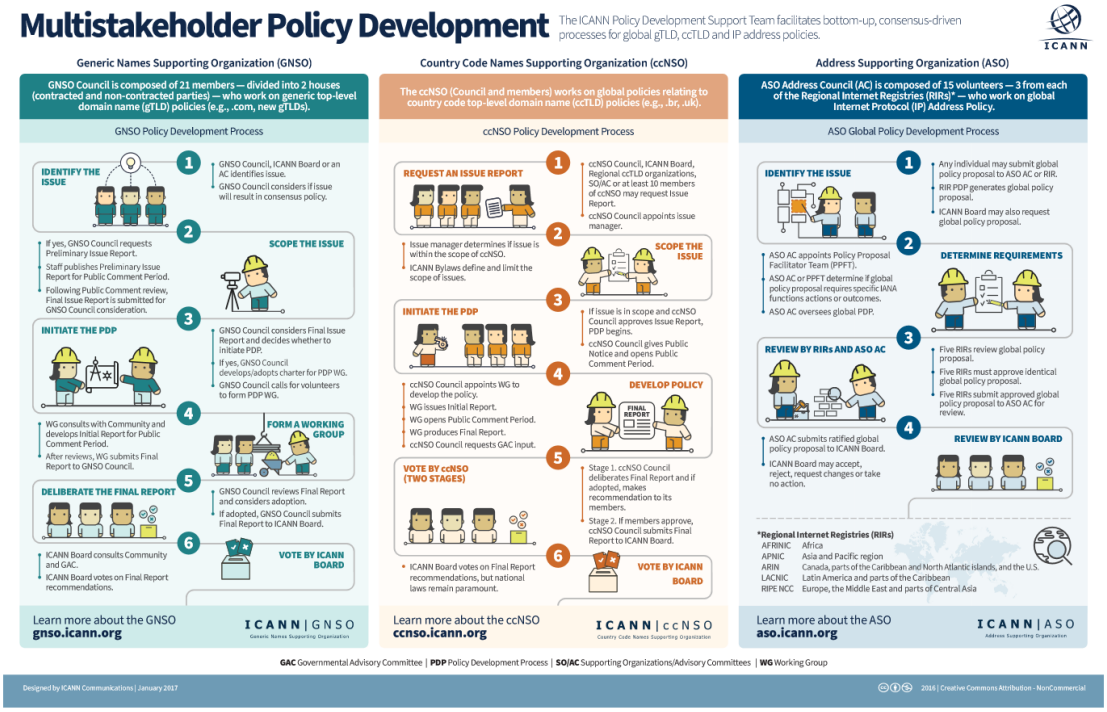


Figure 4: ICANN's multi-stakeholder Policy Development at GNSO, ccNSO, and ASO[45]

Supporting organizations（NGSO, ccNSO, and ASO） each manage different resources, also have different governance mechanisms and different policy development processes. Figure 4 depicts the process of supporting organizations.

Advice Development

At ICANN, alongside with policy development, various stakeholders provide advice to the board.

Four of the advice committees — ALAC, GAC, RSSAC, and SSAC — have their advice development processes depicted in Figure 5.

[45] https://www.icann.org/en/system/files/files/multistakeholder-policy-development-31jan17-en.pdf

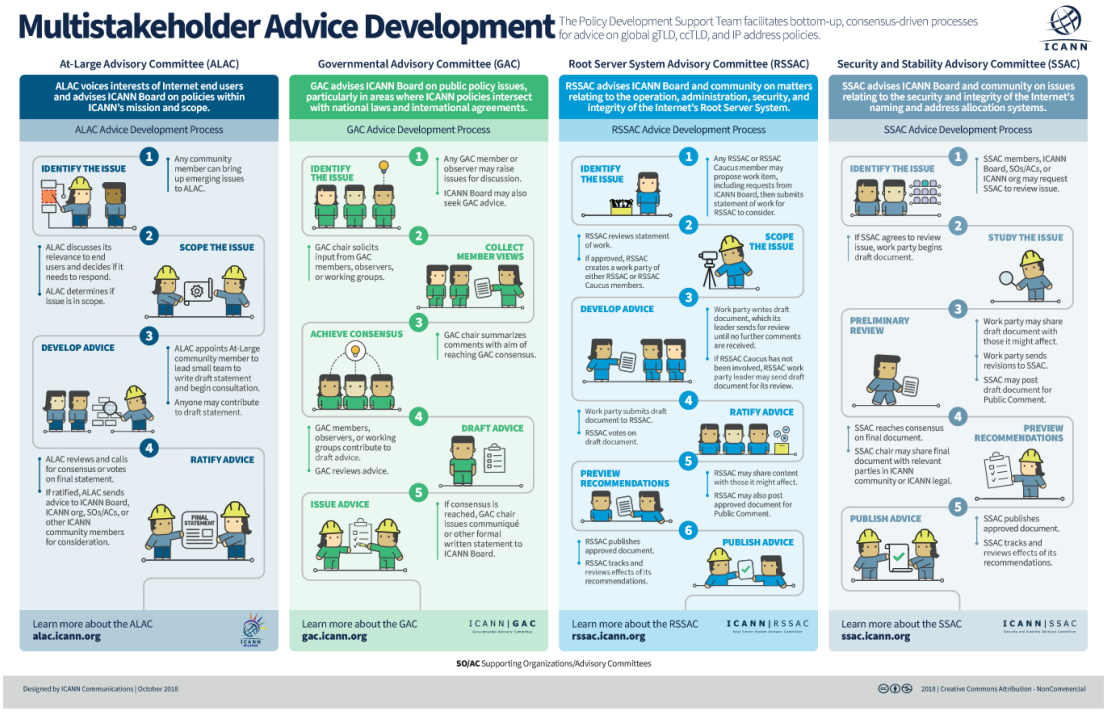


Figure 5: ICANN's Multi-stakeholder Advice Development at ALAC, GAC, RSSAC, and SSAC[46]

Power of Empowerment Community

As described in The Empowerment Community's web site[47], EC has nine powers to ensure the ICANN Board and Organization are accountable.

- Reject ICANN and IANA budgets, and ICANN operating and strategic plans
- Reject standard Bylaw amendments
- Reject PTI governance actions
- Approve fundamental Bylaw and Articles amendments, and asset sales
- Recall the entire ICANN Board
- Appoint and remove individual ICANN Board directors（other than the President）
- Require the ICANN Board to review its rejection of IANA Function Review（IFR）, special IFR, Separation Cross-Community Working Group（SCWG） creation, and SCWG recommendation decisions

46 https://www.icann.org/en/system/files/files/multistakeholder-advice-development-31oct18-en.pdf
47 https://www.icann.org/ec

- Initiate community reconsideration request, mediation, or Independent Review Process（IRP）
- The rights of inspection and investigation

The community powers and rules that govern the Empowered Community are defined in the ICANN Articles of Incorporation[48] and ICANN Bylaws.

ICANN Review Mechanism

ICANN depends on its review mechanism to achieve its commitments and core values described in the ICANN Bylaws.

Following reviews are described in ICANN Bylaws Article 4:

- Periodic Reviews:
  - Annual reviews, every year
  - Four specific reviews in five-year cycles
- Independent Review Process (at any time)

Annual Review produces a yearly report on the state of accountability and transparency.

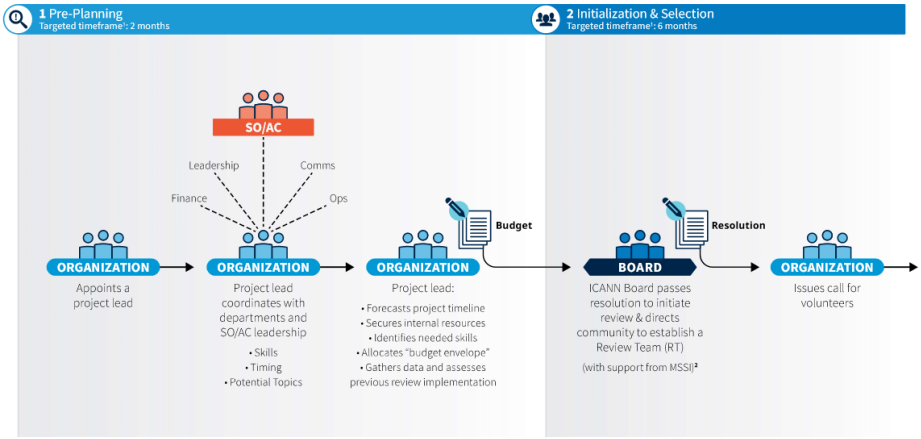
Four specific reviews are the followings:

- Accountability and Transparency Review (ATRT)
- Security, Stability, and Resiliency Review (SSR)
- Competition, Consumer Trust and Consumer Choice Review (CCT)
- Registration Directory Service Review (RDS)

ATRT, SSR, and RDS are running in five-year cycles. CCT runs only when “after a New gTLD Round has been in operation for one year.” The details of the process are described in the Specific Reviews Process Overview handbook[49] and a flowchart is available also[50]. We included the flowchart here to depict how the process is complicated. Please look at the flowcharts how carefully the process is designed.

[48] https://www.icann.org/resources/pages/governance/articles-en
[49] https://www.icann.org/en/system/files/files/specific-reviews-process-handbook-06mar18-en.pdf
[50] https://www.icann.org/en/system/files/files/specific-reviews-process-flowchart-31aug17-en.pdf

Specific Review Process



1 All targeted timeframes based on Bylaw-mandated 5-year cycle

2 Begins 5-year countdown until next review must begin

Legend

ORGANIZATION — ICANN organization
SO/AC — Supporting Organizations and Advisory Committees
BOARD — ICANN Board
COMMUNITY — ICANN community
RT — Review Team
OEC — Organizational Effectiveness Committee

Glossary

AC - Advisory Committee
MSSI - Multistakeholder Strategy and Strategic Initiatives
RFP - Request for Proposal
SO - Supporting Organization

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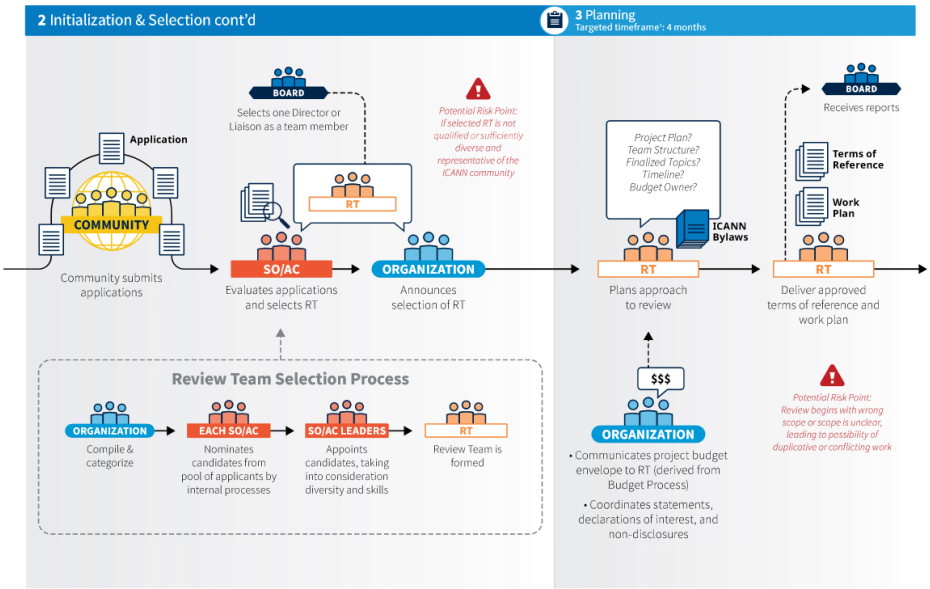
Specific Review Process



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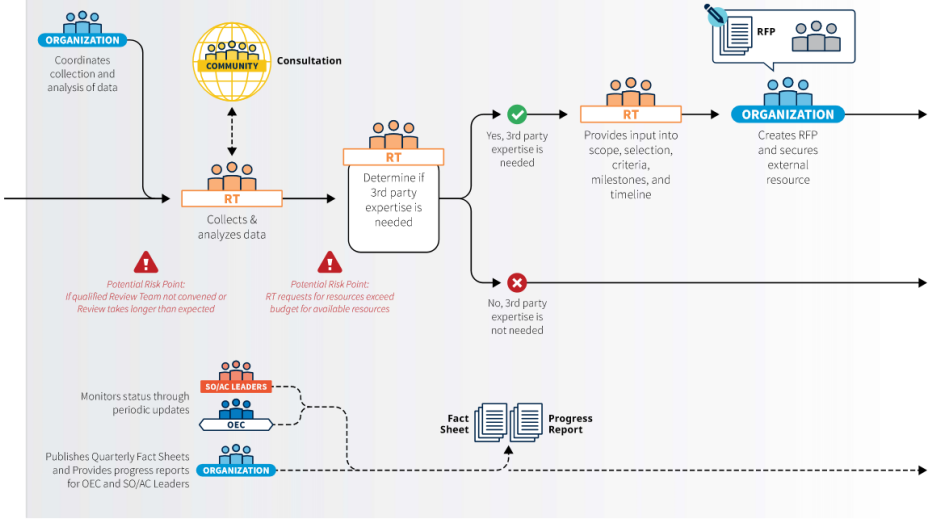
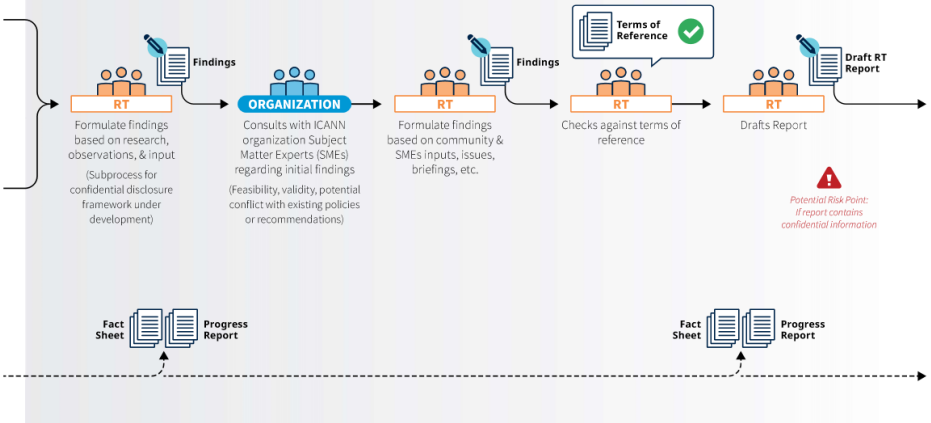
Specific Review Process

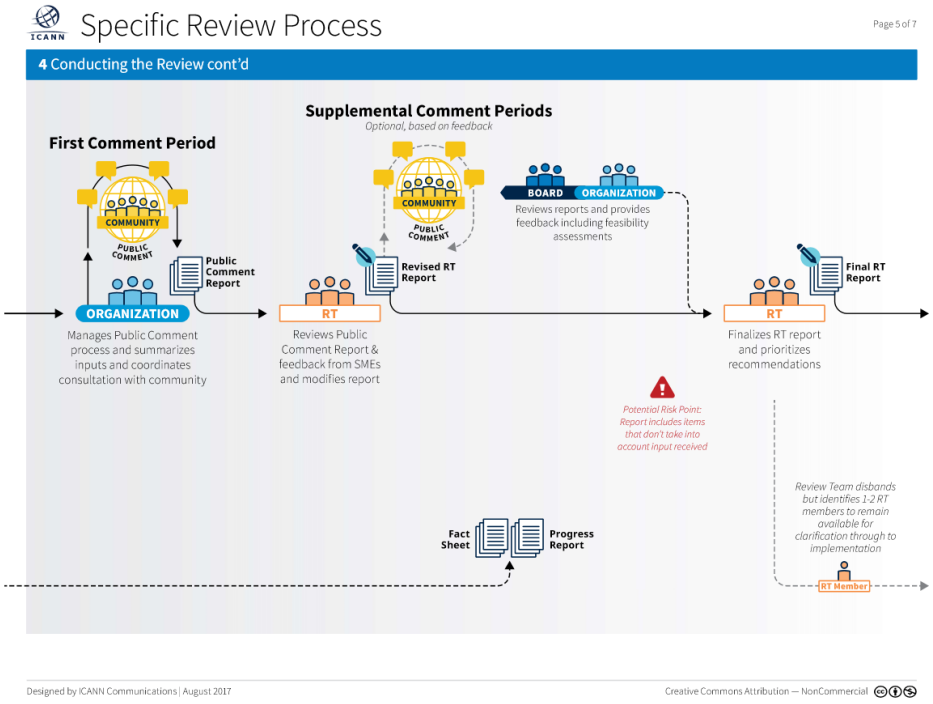
4 Conducting the Review
Targeted timeframe*: 12 months



Specific Review Process

4 Conducting the Review cont'd




Specific Review Process
Page 5 of 7
4 Conducting the Review cont'd
First Comment Period
Supplemental Comment Periods
Optional, based on feedback
COMMUNITY
PUBLIC COMMENT
Public Comment Report
ORGANIZATION
Manages Public Comment process and summarizes inputs and coordinates consultation with community
RT
Reviews Public Comment Report & feedback from SMEs and modifies report
Revised RT Report
BOARD
ORGANIZATION
Reviews reports and provides feedback including feasibility assessments
Final RT Report
Finalizes RT report and prioritizes recommendations
Potential Risk Point: Report includes items that don't take into account input received
Review Team disbands but identifies 1-2 RT members to remain available for clarification through to implementation
Fact Sheet
Progress Report
RT Member
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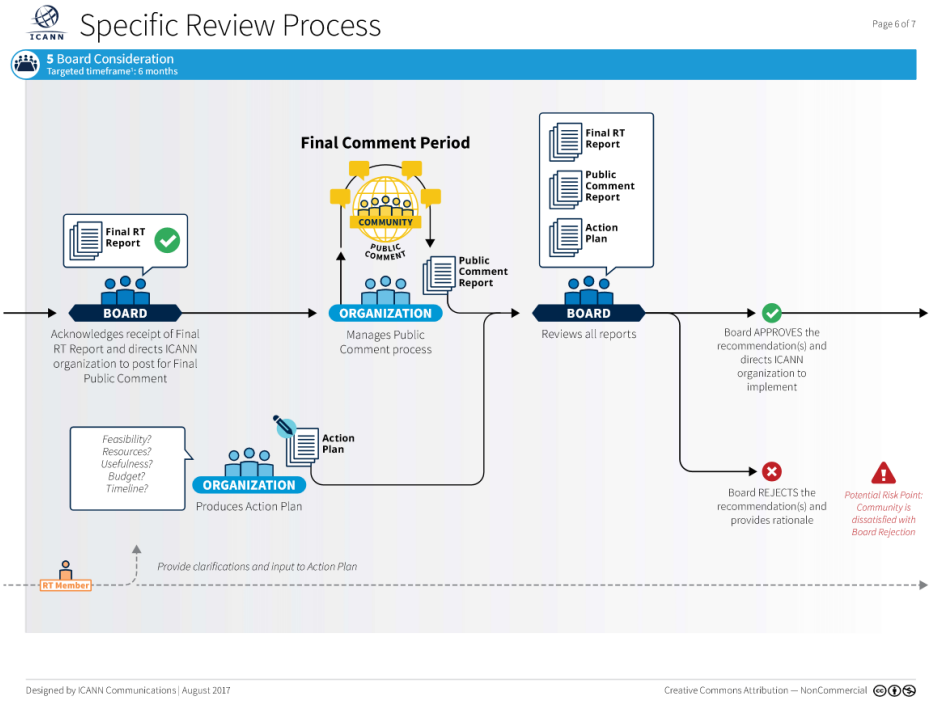
Specific Review Process
Page 6 of 7
5 Board Consideration
Targeted timeframe¹: 6 months
Final Comment Period
Final RT Report
BOARD
Acknowledges receipt of Final RT Report and directs ICANN organization to post for Final Public Comment
COMMUNITY
PUBLIC COMMENT
ORGANIZATION
Manages Public Comment process
Public Comment Report
Final RT Report
Public Comment Report
Action Plan
BOARD
Reviews all reports
Board APPROVES the recommendation(s) and directs ICANN organization to implement
Board REJECTS the recommendation(s) and provides rationale
Potential Risk Point: Community is dissatisfied with Board Rejection
Feasibility? Resources? Usefulness? Budget? Timeline?
Action Plan
ORGANIZATION
Produces Action Plan
RT Member
Provide clarifications and input to Action Plan
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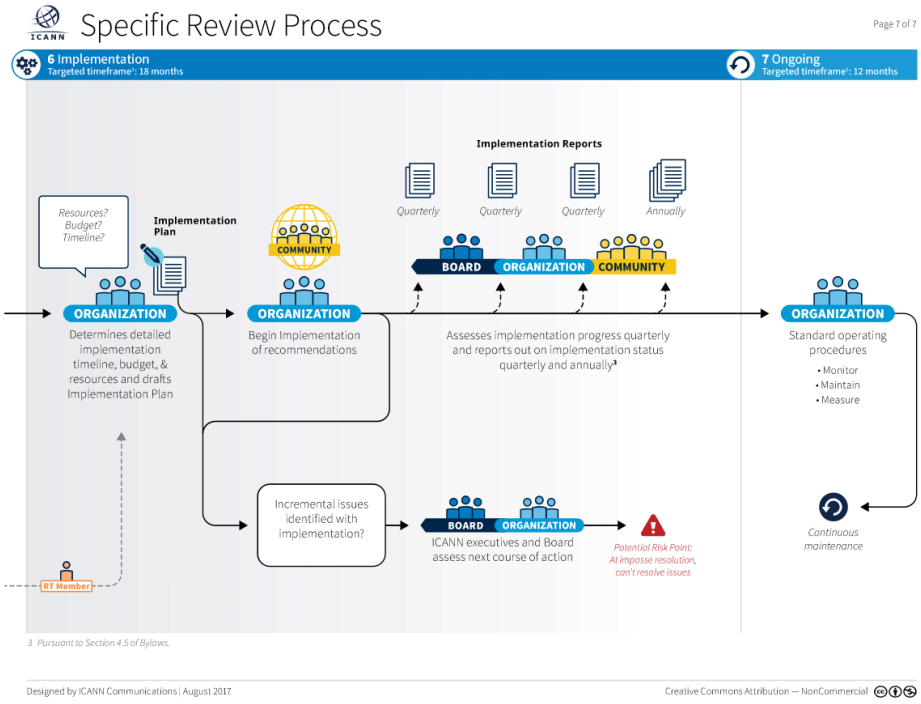

Figure 6: flowchart (1-7)

Independent Review Process, described in ICANN Bylaws Section 4.3, is a separate process for an independent third-party review of Disputes within specific nine purposes listed in the ICANN Bylaws. One of the examples is '.amazon' gTLD dispute[51].

Secretariat Functions

ICANN organization provides secretariat functionalities for ICANN. It is a non-profit organization[52], headquarter located at Los Angeles, California State, the United States.

ICANN organization's role

ICANN organization and its staff does all of the office work of ICANN's business. From the point of views of ICANN Bylaws, ICANN staff assists:

- Help to coordinate between the ICANN Board and other entities in the ICANN

[51] https://www.icann.org/resources/pages/irp-amazon-v-icann-2016-03-04-en
[52] The United States 501(c)(3) tax status. On its tax exemption status, please refer to Application For Tax-Exempt Status（U.S.）
https://archive.icann.org/en/financials/tax/us/

community

- Provide information to the requesting entity as necessary and allowed.
- Provide support for SOs.
- Prepare and provide annual operating plans.
- Prepare and deliver five-year strategic plans.

But it is hard to understand the detail from this shortlist

In 2016, the ICANN board decided to have clear guidance and clarification of roles between the ICANN Board and the ICANN CEO/Management[53][54]. This document provides some idea of how ICANN organization's work. The document "ICANN's Delegation of Authority Guidelines Adopted 8 November 2016" is publicly available[55]. The document provides Guiding Principles, ICANN Board's key roles, ICANN CEO's key roles, ICANN CEO, and Senior Management's Key Roles. These roles show how ICANN delegates the works to the ICANN organization. Please refer to the document for the listed roles.

ICANN organization's Internal Structure

There is no publicly available information on ICANN staff and internal organization beyond the above documents. In the ICANN's yearly report[56], we can read the number of personnel at ICANN is 390（annual average）. In addition to the annual report, ICANN organization's current executive team member list[57] is useful to see what kind of significant activities going on inside:

- ICANN Corporate Officers
    - President and CEO, CFO, COO, CIO, General Counsel, Secretary, three senior VPs（with overlaps）[58].
- Executive Team: 13 members share the following titles（some of the people has multiple titles）:
    - CEO, CIO, CFO, CTO,
    - General Counsel, Secretary, Managing Director
    - Areas: Engineering, Global Human Resources, Global Communications, Advisor to CEO, Global Stakeholder Engagement, Multi-stakeholder Strategy, Strategic Initiatives, Contractual

[53] https://features.icann.org/icann-delegation-authority-guidelines
[54] https://www.icann.org/resources/board-material/resolutions-2016-11-08-en#1.f
[55] https://www.icann.org/en/system/files/files/delegation-of-authority-guidelines-08nov16-en.pdf
[56] https://www.icann.org/resources/pages/governance/annual-report-en
[57] https://www.icann.org/en/system/files/files/management-org-01apr20-en.pdf
[58] In the 2019 yearly report, we couldn't find CTO, and also couldn't find any reason why

Compliance, Consumer Safeguards, Policy Development Support, Government & Intergovernmental Organization's（GIO） Engagement

Financial view on ICANN

The followings are consolidated highlights of Fiscal Year 2019, from the yearly report[59].

Funds come from fees from contracted parties（registry, registrar, and other）， contribution, and gTLD related application and auction fees. Funding（support and revenue） for 2019, a total of 143 million USD consists of:

- 84mil: Registry
- 48mil: Registrar
- 4mil: contributions
- 7mil: gTLD application fees.

Expenses for 2019, total 139million USD used for:

- 51%: Personnel（390 employees, yearly average）
- 23%: Professional Services
- 12%: Administration
- 11%: Travel and meetings
- 3%: Capital

Consolidated funds available to ICANN as of 30 June 2019 is 464 million USD:

- 150mil: Reserve Fund
- 35mil: Operating Cash
- 314mil: gTLD related funds in:
    - 106mil: new gTLD funds
    - 208mil: new gTLD Auction Proceeds

[59] https://www.icann.org/resources/pages/governance/annual-report-en

Characteristics from the Perspective of ICANN Officials

During the ICANN67 meeting in Montreal, one of the researchers met several key players in ICANN community. All of the meetings are 15min to 30min due to the availability of each of interviewee. Due to the limitation of the time available, all of the interviews are unstructured.

The interviewer initially introduce himself, then provide the research content and what we want to know about ICANN, followed by some Q&As.

The list of the people the interviewer met is as follows:

- Mr. Akinori Maemura, ICANN Board
- Mr. León Felipe Sánchez Ambía, ICANN Board Vice-Chair
- Mr. Satish Babu, ICANN Board
- Mr. Rafik Dammak, GNSO Council Vice-Chair

For Akinori Maemura, we met him in Tokyo, prior to the ICANN meeting with enough amount of time with recordings. For the other interviews, each of the interviewee's profile is presented, then key findings (if any), and key Q&As are presented.

Akinori Maemura, ICANN Board (also belongs to JPNIC) Interview Summary

Profile: Mr. Akinori Maemura

ICANN Board of Directors, ASO Asia Pacific Regional Elected Director.

General Manager of the Internet Development Department at JPNIC. After working at NEC to launch Internet services, he joined JPNIC and APNIC operations. He served on the APNIC Board of Directors from 2000 to 2016, during which time he chaired the APNIC Board of Directors from 2003 to 2016. He moved from NEC to France Telecom and was a member of the board of directors of JPNIC (in charge of the IP field) from 2002 to 2007. In 2007, he resigned from JPNIC's Board of Directors and left France Telecom to become the General Manager of JPNIC's IP Division. He has been in his current position since 2009.

(From JPNIC's "ICANN's Organizational Profile" page and the list of ICANN Board members: https://www.nic.ad.jp/ja/icann/about/organization.html)

Hearing Results

- I don't think the design philosophy of ICANN has changed much.
  - Multi-stakeholderism means “it's better to do it with global multi-stakeholders as written out in the green paper/white paper”.
  - It is important to focus on GAC and At-Large in multi-stakeholderism.
- Much of what ICANN basically has to think about is the gTLD[60].
- The most significant key player is the GNSO (Generic Names Supporting Organization)[61] no matter what.
  - The GNSO is very well-structured, with a Contracted Party House (CPH) and a Non-Contracted Party House (NCPH)[62].
    - CPH[63] = Registry and Registrar. A domain seller.

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[60] ICANN："About the gTLD Contract Compliance Program." https://www.icann.org/resources/pages/gtld-2016-01-18-ja, (Accessed March 23, 2020).

[61] ICANN/GNSO: “Generic Names Supporting Organization” https://gnso.icann.org/en, (Accessed March 23, 2020）

[62] ICANN/GNSO: “GNSO Counsill-2011”. https://gnso.icann.org/en/about/structures/2011/council, 2018-03-15. (Accessed March 23, 2020）

[63] ICANWiki: “Contracted Party House” https://icannwiki.org/Contracted_Parties_House,

        - NCPH[64] = There are users and various people (business, ISP, intellectual property people).
        - I think the balance of the vote is 1:2.
- ICANN's organization is now called “org,” but it is a secretarial staff.
- GNSO is only doing the gTLD policy.
- The structure of ICANN is to “ask for anything, listen to everyone's opinion, and make it into a form in the way we heard.”
    - Another recent development is the Empowered Community (EC)[65,66].
        - Normally it is the General Membership Assembly that controls the Board of Directors, but since ICANN cannot define membership, the GNSO and the various other Supporting Organization & Advisory Committees (SO&AC) get together to decide.
        - ICANN couldn't define membership, so we created something like “constituency representatives of stakeholders” instead. It's structured in a way that you have veto power over what the board decides and approves what's important.[67]
- There is a process for making decisions, and it is determined by the Policy Development Process (PDP).[68]
- The bottom line is that it's all about SO&AC and ICANN's Mandate (delegated authority). There are about four more. These Mandates will be reviewed every five years.

2019-01-14 (Accessed March 23, 2020）

[64] ICANNWiki: “Non Contracted Party House” https://icannwiki.org/Non-Contracted_Parties_House, 2019-01-14 (Accessed March 23, 2020）

[65] ICANN: “Empowered Community.” https://www.icann.org/ec, (Accessed March 23, 2020）

[66] JPNIC Newsletter No. 71 - Internet Ten-Minute Lecture “What is an Empowered Community” https://www.nic.ad.jp/ja/newsletter/No71/ March 2019 (Accessed May 3, 2020）

[67] ICANN: “Multistakeholder Policy Development.” https://www.icann.org/en/system/files/files/multistakeholder-policy-development-31jan17-en.pdf, 2017-01 (Accessed March 23, 2020）

[68] ICANN: “Developing Policy at ICANN.” https://www.icann.org/policy, (Accessed March 23, 2020）

- Consumer Choice and Trust（CCT）[69]
- Accountability Transparency（Accountability, transparency.）[70]
- WHOIS[71]

- I think the other key is the "review". We ask ourselves if our process is good, and we say, "Well, the current process has these problems, so let's change it." There are about 13 reviews running simultaneously this year. We're very busy.
- The review involves a third party interviewing various stakeholders and bringing a bunch of proposals up to a final report. I work on reviews in about a year or a year and a half.
  - Complain about the final report in public comment, and it is finally approved by the board.
  - The approved recommendations will basically be put into implementation.
    - Ex. About two GNSO reviews ago, the balance of "1:2" changed.
  - We are doing the whole thing that is "The process itself is structured in a way that we can change it by ourselves in a gradual way" inclusively in a multi-stakeholder model.
  - I think "multi-stakeholder" and "inclusive" probably have a couple of points.
    - We need to think about the balance of influence per stake, just like we need to change the balance of votes.
    - Aside from that, the key is to be "inclusive and transparent," so that you can see exactly what's going on from the outside.
- Initially, when ICANN was established in 1988, we wrote in a white paper that it should be such a system, so we implemented it for that purpose.
- With the IANA transition[72], we are no longer under contract with the U.S. Department of Commerce in earnest, and we are now in a position of winning autonomy.
  - After the transition, the system is simple: "The service level of the IANA

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[69] ICANN: "Competition, Consumer Trust, and Consumer Choice Review (CCT)." https://community.icann.org/pages/viewpage.action?pageId=56135383, 2019-08-03. (Accessed March 23, 2020)

[70] ICANN. "Accountability and Transparency". https://www.icann.org/resources/accountability, (Accessed March 23, 2020)

[71] ICANN. "About WHOIS". https://whois.icann.org/en/about-whois, (Accessed March 23, 2020)

[72] ICANN. "THE IANA STEWARDSHIP TRANSITION, WHAT TOU NEED TO KNOW". https://www.icann.org/iana-transition-fact-sheet, (Accessed March 23, 2020)

functions will be defined and the beneficiary community will confirm its fulfillment." The system after the transition was carefully considered because although the system is actually functioning well after the transition, there are many things that will not be understood until the actual implementation of the system begins.

- CPH has business and business rationality perspectives; NCPH has the user's perspective. It is a user's rights protection perspective, so it appears to be an activist perspective.
    - These people (NCPH) come in from the process, and if the process doesn't work, the decisions they make will not work.
    - The people over here (CPH) say it's good if it's practical.
- GAC
    - I think the GAC was thought out in a very good way. In each meeting, we put out a "GAC communiqué[73]," and there is a section that says, "This is the advice we will give you." If the board makes a decision that is not in line with the policy set out in the "GAC Advice," the board must clearly state the reasons for the decision.
    - It is clearly stated in the Bylaw (Code). The conditions under which it is adopted as GAC advice are specified in detail. The intentions of government officials issued under such provisions are ordered to be listened to particularly well.
    - Creating a consensus in the GAC is basically impossible. There is the only consensus on the very basics. In the case of GAC, "what is written in the GAC advice is not necessarily what everyone thinks." It's a wonder. However, since we have to respect the opinions of each country, the "GAC Advice" is the one that is agreed to gently say, "What should we say as the whole GAC." As one person put it, "That is a statement in which it was agreed that governments would not complain when they introduced it." You should think that's about it.
    - There were 1 chair and 5 vice-chairs. We have to respect what each country has to say. It's not to dismiss or argue, so "that level" of advice comes out. Still, it works well as a check.
    - More recently, there's the ".amazon dispute."
    - It is a well-designed check mechanism. It stipulates that advice from

[73] ICANN/GAC: "ICANN67 GAC Communique." https://gac.icann.org/contentMigrated/icann67-gac-communique, 2020-03-16（Accessed 2020-03-24）

government officials is to be seriously scrutinized, and while it is often rejected for reasons given, they say they may accept some. I think it's impossible for all governments to have a say in matters like the world government, so I think it's a good balance that only the right things come out.

- At-Large
  - There were 5 Regional At Large Organizations (RALO)[74] and At-Large Structures (ALS)[75], and ALS can be created by anyone, and Japan has ISOC-JP[76]. There was a time when people involved in Japan were working hard to make an ALS committee. It was difficult to keep working hard, so it was dormant.
  - These people are surprisingly active; I'm still not sure how the individual At-Large people are funded. Are they rich or academia?
  - One thing I don't understand is that the segment of At-Large people and GNSO's NCPH users is overlapping. The person is not overlapping. The double-hat structure is not possible in the first place.
  - At-Large is the place where most public comments are submitted, and we read all the documents that come out.
  - Surprisingly, there are many lawyers. The next vice-chair of the board, Leon Sanchez[77], is also an IT lawyer.
  - On a global scale, it's like, "there are surprisingly many people in the legal profession who are passionate about their life's work." Japan is a bit disappointing. It might be a serious question when you think about why Japan doesn't reach that level.
- The contents of ICANN are difficult to discuss.
  - In workstream 2, which we call WS2 (sounds like a code name), we will examine ICANN's accountability for the transfer of IANA's oversight authority as a series of efficiency measures.
  - There is a section on staff accountability in the final report of Workstream 2. ICANN staff support community policy development in a variety of ways,

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[74] ICANNWiki：“RALO.” https://icannwiki.org/RALO, 2016-06-17. (Accessed March 23, 2020）

[75] ICANNWiki: “ALS.” https://icannwiki.org/ALS, 2017-02-23. (Accessed March 23, 2020）

[76] ISOC-JP: https://www.isoc.jp/,(Accessed .March 23, 2020）

[77] ICANNWiki: “Leon Sanchez.” https://icannwiki.org/Leon_Sanchez, 2019-01-29. (Accessed March 23, 2020）

including meeting management, drafting, and travel assistance. Staff accountability seeks to ensure that these supports are provided appropriately (e.g., fair, impartial, prompt, etc.). It is likely that the reason this was considered was that there were cases of lack of appropriateness and concerns about it.

- The accountability and governance structure of the ICANN staff is the primary corporate governance, so the board doesn't complain too much about it, leaving it to the CEO.
- The point that governance is required is that ICANN is a “501 (c)(3)” charity, so it is required to manage accounts and disclose it accordingly. All executive salaries must be disclosed.
- The election of the executives is the board's prerogative, and it will be decided once a year.
- Currently, there are five to six executives, including the SVP (senior vice president) and the chief executive officer, and GC (Legal Officer). Their salaries are all disclosed. There is an accountability mechanism that stems from the rule that the board appoints qualified people as executives from a management enforcement perspective because they have the appointing power.
- Anything more than that is the CEO's prerogative, and ICANN is “opening the door to complain” in order to show that they are doing a decent job of serving the community.

- Openness at ICANN
  - ICANN seems that “You can disclose so much.” It's all in Bylaws and we, the Board, are doing it according to what it says in Bylaws.
  - The U.S. government is also very good at disclosure. Many policy researchers in Japan use the U.S. government as the subject of their research and I think that is because of the amount of information being disclosed. It is very important to disclose. I'm not sure if that can be done in the area of electronic assets.

- Other discussions
  - Now I'm a board member, so I should talk a little more about myself. When I'm on the IP address side, and looking at ICANN, which is like a domain master, it has to be done as a multi-stakeholder model because it's written in the white paper, and I mentioned about researchers in the policy process participating in, but I think it was very artificially brought to its current state.
  - It had to be made even though it was made artificially. There was a policy demand that it had to be made, and the money was in the right place.
  - When Dr. Murai's time, ICANN was running out of money, and JPNIC once provided about 20 million yen in financial support. I think the current form of the organization was realized because it is sitting in a place where there is a flow of money and it is able to be cash rich. The money is there, so community players (I'm doing it as part of JPNIC's work, and so are the other businesses) are doing it for work, but even if I try to do it privately, I'm still going to get paid for my travel. So, they say, "Well, if I can get the travel expenses, I'll do that." If you make it a little artificial, you might be able to do it.
  - Larry Strickling[78], the former director of the National Telecommunications and Information Administration (NTIA)[79] , who thinks the structure of ICANN is like his own child, says that he would like to employ a multi-stakeholder model like the one created at ICANN in other places.
  - It's like "keep the enemy close by." How do we do something like a fight while we have different interests? I suppose they have been doing this for 20 years, biting into a stone and thinking that we can do something about it.
  - I wonder if such a thing is really possible in Japan.

- I started doing the IP address thing almost 20 years ago, in 2000 and was told that it was really a bottom-up process, and I really didn't get used to it. I had to speak up and make my own suggestions. I thought it was different from the Japanese way.

[78] ICANNWiki: "Lawrence Strickling." https://icannwiki.org/Lawrence_Strickling, 2017-06-20.（Accessed 2020-03-24）
[79] NTIA: "Lawrence E. Strickling." https://www.ntia.doc.gov/page/2011/lawrence-e-strickling, （Accessed 2020-03-24）

Mr. León Felipe Sánchez Ambía, ICANN Board Vice-Chair Interview Summary

Profile: Mr. León Felipe Sánchez Ambía

"León Felipe Sánchez Ambía is an intellectual property attorney who graduated from the Universidad Nacional Autónoma de México（UNAM）. He also completed his postgraduate studies on intellectual property at the UNAM and Internet law at Harvard Law School. Since 2006, León has been a partner at Fulton & Fulton, a law firm specializing in intellectual property and IT law based in Mexico City, and is the head of their Intellectual Property division."（from "León Felipe Sánchez Ambía Selected by At-Large Community as Next ICANN Board Director"[80]）

At ICANN: Current ICANN Board Vice-Chair, ALAC Vice-Chair, CCWG co-chair on accountability. Past NomCom member.

Key Findings

- ALAC, naturally, consists of committed people.
- Include all of the affected parties is important.

Key Q&As

Q: How did you get involved in ICANN?

- First came in as a Fellow, then selected as ALAC member by the NomCom and then designated cross community on IANA transition. Gained respect.

Q: Why are you involved with ALAC?

- There are committed people. Genuine interest to constructively shaping policy of ICANN by reflecting users's interest. Also, there are vibrant people at ALAC.

Q: What is the key success factor of ICANN?

- Key factor for success to shape policy is include all affecting parties including users.
- Constituency or group of fora, which represents user's interests are important.

Q: As I mentioned we'll work on decentralized finance. Any suggestions?

- Unconventional org needs unconventional idea. Follow the hierarchy or establishment.
- Build structures and rules in an unconventional way

[80] https://www.icann.org/news/announcement-2-2017-02-27-en

- Think who is benefited by（the policy）

Mr. Satish Babu, ICANN Board Interview Summary

Profile: Mr. Satish Babu

"Satish Babu is a past President of the Computer Society of India, where he held charge during 2012-13. During his tenure, he was instrumental in making CSI an At-Large Structure of ICANN. He was the Founding Director of the International Centre for Free and Open Source Software, working there from 2011 through 2015 while on his Sabbatical. He is also the Founder-Chair of ISOC India Trivandrum Chapter（ISOC-TRV）. Satish was elected as the Chair of the Asia-Pacific School on Internet Governance（APSIG） in July 2019."（from Wikipedia[81]）
Associated with IEEE, ISOC, IGF, several NGOs. Also a founder and key organizer of the India School of Internet Governance[82]

At ICANN: Current ICANN Board Member, Co-Chair of the ALAC Working Group on IDNs, ALAC Committee on the Global Public Interest, chair of APRALO. Past NomCom member.

Key Q&As

Q: How did you get involved in ICANN?

- Via ALAC, IDN, APRALO.

Q: Any specific event related to ALAC

- Election failure was a mess. created partition. Not everybody was happy, but found a balance.

Q: Any interest in decentralized finance?

- I actually did a presentation at APRIGF. Have interest in on-chain Governance

[81] https://en.wikipedia.org/wiki/Satish_Babu
[82] https://insig.in

Mr. Rafik Dammak, GNSO council vice-chair Interview Summary

Profile: Mr. Rafik Dammak

Mr. Rafik Dammak is a Computer Engineer at NTT Communications and served on ICANN's 2013 NomCom, where he represented the NCUC. He was also elected to be the chair for NCSG starting from AGM 2013, and his term ended in AGM2015. He was the chair of NCUC until 2016. He is currently GNSO council vice-chair until the term ends in 2020.

LinkedIn: https://www.linkedin.com/in/rafikdammak/

At ICANN: Current NCUC Chair, GNSO Council liaison to EPDP team & Vice-Chair, Past NCUC Rep at NomCom, Past GNSO Council（NCSG — non-commercial stakeholder group — representative）

Note: He presented at ICANN Report Meeting 2020[83]. He is very active *in Japan* at various ICANN/IGF meetings.

Key Findings

- Where policy making happens, voice is heard. It's open.
- Consensus may have disagreement. Final report may have lists of disagreement.
- Diversity is best part of ICANN
- There are inefficiency exists, but it is flip side of the thing goes at ICANN.

Key Q&As

Q: Are you based in Japan?

- Yes[84]

Q: Please tell me your background and how you involved to ICANN.

- From Tunisia, Interested started, did capacity building program at Diplo Foundation[85] online. It is a school on internet on governance. There was lot of discussions on ICANN. Then, attended the summer school on Internet governance[86]. I attended IGF at Rio de Janeiro in 2007. Received master degree at University of Tokyo, joined

[83] https://www.nic.ad.jp/ja/materials/icann-report/20200421-ICANN/
[84] Mr. Dammak is unique in that he works for a Japanese company in Japan and is also involved in the Japanese multi-stakeholder community.
[85] https://www.diplomacy.edu
[86] https://eurossig.eu/

NCUC in 2008.

Q: What is good about ICANN?

- Where policy making happens, voice is heard. It's open. NCUC is open. Asked questions first, before join. It is much open compare to other. The benefit for me is to get experience. I'm not representing interest. Minority exists. Representatives may have more power.

Q: How GNSO works?

- GNSO has process/procedure. at WG people can have consensus, may have disagreement. Final report may have disagreement listed too.

Q: What is best part of ICANN?

- Community itself. Different back-group, from different group. How they behave, etc. Fascinating to see people push their position. New comer and diversity. How they work. How working group operate.

Q: What is not good at ICANN?

- Many people complain about efficiency（but it's flip-side of how it goes here） Improvement. Staff complains, governance. Board sometimes try to satisfy somebody. Civil society tries to get short cut. Accountability. Minority who do not have resources or powerful enough.

1.2.1.2. Notable Observation on ICANN

In this chapter, the authors described how ICANN is organized and works and how we can learn from ICANN to establish a mult-stakeholder community.

As a closing remark, let us provide a few observations on ICANN.

In short words, ICANN is exceptionally complex to understand.

Honestly, we might be failed to capture it precisely enough. For example, some of the parts of it are not clearly defined. The complexity of the document is astonishing. Moreover, to capture the real, up-to-date ICANN require to understand not only Bylaws but also need to follow other documents generated by the meetings, such as the board's decisions, etc.

Maybe, some such state is owing to the nature of the mult-stakeholder-style decision-making process. Only agreements between stakeholders wrote into documents such as ICANN ByLaws. Any other topics, even the items that are usually documented within a typical organization, were not published in any form since there is no consensus on it. One of the board members mentioned that the board wants to call the back-office part of ICANN "Secretariat," but couldn't have an agreement. The board member also said that even simple looking items require a lot of detailed discussions, which cause even a simple consensus that may take a long way.

Also, ICANN Bylaws is complicated, but many parts of the Bylaws are to achieve ICANN's core values. One of the prominent points of view is how they meet fairness concerning diversities in terms of various factors. The author is now wondering whether it is feasible to achieve current ICANN's balance with simpler Bylaws.

Anyway, we need more time to learn more from ICANN.

In the next section, we describe the captured structure and activities of ICANN.

1.2.2. IGF

1.2.2.1. IGF

The Internet Governance Forum (IGF) is a global, multi-stakeholder forum for various people[87] from around the world to gather and discuss public policy issues regarding the Internet and exchange best practices. More than 2,000 delegates from a wide range of countries and regions representing stakeholders such as governments, the private sector, academia, and civil society participate in the annual meetings. The IGF was launched by the Tunis Agenda which[88] was adopted at the World Summit on the Information Society (WSIS) in 2005. After the first five[89] years, it was extended another five years. It was then determined to extend it an additional ten years at the WSIS+10 General Assembly High-Level meeting (December 2015) .[90]

Advantages of participating in the IGF include the following:

- Workshops and main sessions at the IGF illustrate the latest trends of public policy issues regarding the Internet from the perspective of each county, region, and stakeholder.
- Everyone has an opportunity to directly interface with the high-level leaders from governments and intergovernmental organizations that attend the IGF's sessions and workshops.
- Not only panelists, but attendees also have ample opportunity to speak or raise questions. The IGF emphasizes providing interaction between all the stakeholders during the various sessions and workshops.
- Attendees have the opportunity to network with central figures in each field by attending several receptions which are organized by each stakeholder during the IGF.

1.2.2.2. Multi-Stakeholder Advisory Group

[87] Internet Governance Forum: https://www.intgovforum.org/multilingual/ (Accessed March 1, 2020)
[88] "World Summit on the Information Society - ITU," 22 Jan. 2015, https://www.itu.int/net/wsis/. (Accessed March 1, 2020)
[89] "WSIS: Tunis Agenda for the Information Society – ITU," 18 Nov. 2005, https://www.itu.int/net/wsis/docs2/tunis/off/6rev1.html (Accessed March 1, 2020)
[90] "GA High-Level Meeting - UN DESA - the United Nations." https://publicadministration.un.org/wsis10/GA-High-Level-Meeting. (Accessed March 4, 2020)

The IGF states that it “does not make binding decisions” and values “multi-stakeholderism.” This chapter describes the Multi-Stakeholder Advisory Group (MAG), which addresses those characteristics of the IGF.

The UN Secretary-General established the advisory group called MAG in 2006. The MAG advises the Secretary-General on the schedule, program, and main themes of the annual IGF. The MAG comprises 55 members selected from the stakeholders with consideration to geographical and gender diversity. The MAG conducts discussion in its mailing-list, virtual meetings, and face-to-face meetings in preparation for the annual forum; such as evaluating and selecting from hundreds of workshop proposals, and deciding on further outreach activities. MAG meetings respect “Chatham House Rule” and “Rough Consensus”, which was adopted[91] from the Internet Engineering Task Force (IETF). MAG members are expected to enhance 7 Working Groups (WGs), Best Practice Forums (BPFs), and Dynamic Coalitions (DCs). They[92] [93] [94] also have to cooperate with National and Regional Initiatives (NRIs).[95]

All MAG members are appointed by the Secretary-General. While it is common to get recommendations from well-known stakeholders such as the Internet Society (ISOC)[96] or the International Chamber of Commerce (ICC/BASIS)[97], anyone can be a candidate to become a MAG member. The Department of Economic and Social Affairs (UN DESA) [98] coordinates the application and selection process. Former MAG members from Japan are

[91] IETF: "RFC 7282 - On Consensus and Humming in the IETF." https://tools.ietf.org/html/rfc7282 (Accessed March 1, 2020)
[92] Internet Governance Forum: "MAG Working Groups," https://www.intgovforum.org/multilingual/content/mag-working-groups (Accessed March 1, 2020)
[93] Internet Governance Forum: "Best Practice Forums," https://intgovforum.org/multilingual/content/best-practice-forums-4 (Accessed March 1, 2020)
[94] Internet Governance Forum: "Dynamic Coalitions," https://www.intgovforum.org/multilingual/content/dynamic-coalitions (Accessed March 1, 2020)
[95] Internet Governance Forum: "IGF Regional and National Initiatives," https://www.intgovforum.org/multilingual/content/igf-regional-and-national-initiatives (Accessed March 1, 2020)
[96] "Internet Society: Home." https://www.internetsociety.org/ (Accessed March 1, 2020)
[97] "Business Action to Support the Information Society (BASIS) - ICC." https://iccwbo.org/global-issues-trends/digital-growth/internet-governance/business-action-to-support-the-information-society-basis/ (Accessed March 1, 2020)
[98] "UN DESA - the United Nations." https://www.un.org/development/desa/en/ (Accessed March 1, 2020)

Mr. Masanobu Kato (2006-2012), Mr. Izumi AIzu (2012-2014), Ms. Izumi Okutani (2014-2016), and Mr. Kenta Mochizuki (2017-2019).

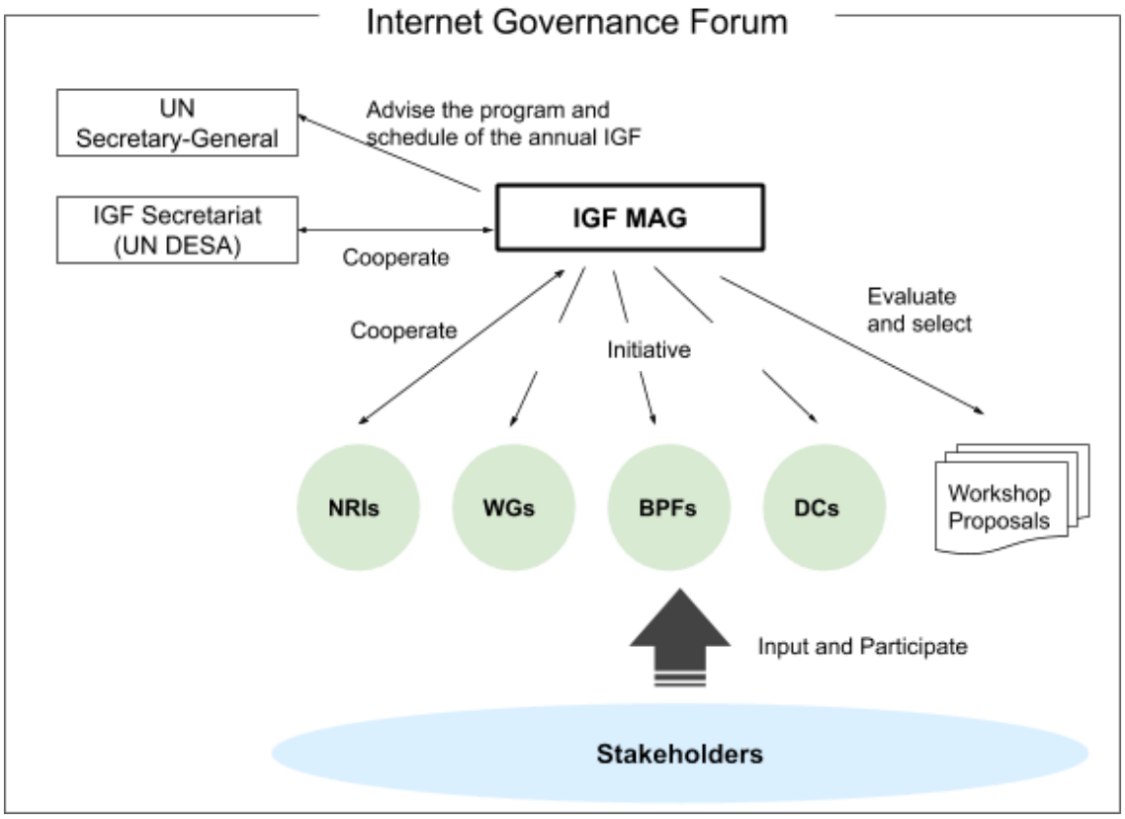


Figure 7: Internet Governance Forum

1.2.2.3. Historical Background of Establishing the IGF

This chapter describes the historical and political background of forming the IGF. To gather the information, we asked people who served as MAG members about the situation at that time.

With the rapid increase of discussions regarding the commercial use of domain names around the middle of the 1990s, issues such as competition policies and trademarks arose. ICANN was established thanks in part to calls for launching a bottom-up non-governmental organization to deal with those issues. To minimize the involvement of governments, ICANN decided not to include representatives from governments as board members. However, they did make efforts to gather board members from all over the world.

Meanwhile, some were concerned about the involvement of the U.S. government in the establishment of ICANN. The U.S. Department of Commerce was the administrator of the root servers. Furthermore, the secretariat of ICANN has been based in California since it is the home state of John Potel, who is well known for contributing to the Internet standards. While people at that time recognized it as only natural, it was one of the factors that showed the heavy involvement of the United States. Since the early days, the U.S. government often emphasized their commitment to Internet development and operation.

Around 2002, there was an active discussion on how to discuss policy issues regarding the Internet without relying on a specific country. Though there were some options, the U.S. government claimed that the discussion should be based on the principle of market competition. Japan and Canada strongly supported the opinion. On the other hand, countries in the Middle East, as well as China and Russia opposed that, and approached the United Nations to launch another function of Internet governance. As a result, forming the Internet Governance Working Group (WG) in the United Nations was decided at the WSIS in 2003. The report announced by the WG proposed a new global forum and the Tunis Agenda, which was approved by the WSIS in 2005, officially announced the establishment of the IGF.

With the launching the IGF, Internet governance issues could include not only Internet resources – such as IP addresses or domain names – but also public policy issues such as privacy and the digital economy. The WSIS suggested a model which does not replace the existing ICANN. While the IGF supports the ICANN organization, it was decided it would not work on the management of Internet resources; which emphasized the word “enhanced cooperation.” Alternatively, some insisted that the IGF should be involved in resource management based on the founding treaty.

One of the key characteristics of the IGF is that it “does not make binding decisions.” People who had been involved in the establishment of the IGF expressed the following idea: If the IGF needed to make binding decisions, it would become inflexible and unable to function as a forum. Most people at the time supported the opinion that this key characteristic of the IGF should be protected.

1.2.2.4. The Expected Governance Model of the IGF in the Future

The previous chapter described one of the characteristics of the IGF as that there are no negotiated outcomes. However, with the increased participation from various stakeholders,

the number of people who will expect clear outcomes from the IGF has increased.

In July 2018, Secretary-General Antonio Guterres launched the High-Level Panel on Digital Cooperation (HLPDC)[99]. Its purpose is to encourage digital cooperation because the current 15 level of global and digital cooperation is not enough to be scaled appropriately in light of the rapid evolution of technology. In the panel, Ms. Melinda Gates (co-chair, Melinda Gates Foundation) and Jack Ma (Executive Chairman, Alibaba Group) moderated as co-chairs. The panel consisted of 20 members representing various stakeholder groups from around the world including Vinton Cerf, who is often called the “father of the Internet,” and Yuichiro Anzai from Japan. They had three face-to-face meetings to have open consultations and to call for public comments from all regions and stakeholders.

The panel subsequently published the report “The Age of Digital Interdependence.” The report discusses topics such as “An Inclusive Digital Economy and Society,” “Human and Institutional Capacity,” “Human Rights and Human Agency,” as well as “Trust, Security and Stability.” The Internet Governance community paid extra attention to the chapter “Global Digital Cooperation.” The chapter proposes “IGF Plus,” which recommends adding a new function to the existing forum to encourage governments to work on suggesting policies or norms in the IGF. Therefore, there is a possibility the existing model of the IGF and the relationship between the forum and the United Nations may change in the future.

[99] "Secretary-General's High-level Panel on Digital Cooperation" https://www.un.org/en/digital-cooperation-panel/ (Accessed March 1, 2020)

1.2.3. Internet Society

1.2.3.1. Purpose of ISOC

The Internet Society (ISOC[100]) is an international non-profit organization established in 1992 to support and promote the development of the Internet as global technological infrastructure, a resource that enriches people's lives, and a force for social good.

Based on the basic vision of “The Internet is for everyone,” ISOC's activities focus on the following perspectives.

- Build and support a community that makes the Internet work.
- Promote the development and application of Internet infrastructure, technology, and open standards.
- Advocate for policies that are in line with the view toward the Internet.

The main activities carried out by ISOC are as follows.

- Promote the open development of Internet standards, protocols, management, and technology infrastructure.
- Support education in developing countries.
- Facilitate professional development and build a community to foster participation and leadership in areas critical to the evolution of the Internet.
- To provide reliable information about the Internet.
- To provide a forum for discussion of issues affecting the evolution, development, and use of the Internet in technical, commercial, social, and other contexts.
- Foster an environment in which international cooperation, local communities, and self-governance can function.
- Play a central role in a collaborative effort to promote the Internet as a positive tool for the benefit of people around the world.
- Manage and coordinate strategic initiatives and outreach activities in humanitarian, educational, social, and other contexts.

1.2.3.2. Organizational Structure of ISOC

The ISOC is a membership organization and is open to anyone from anywhere in the world.

[100] https://www.internetsociety.org/

There are two types of membership: individual members and organizational members, and there are two types of individual members: Global members with no membership fee, and Sustaining members, with an annual membership fee. There are six ranks for organizational members, and each rank has a different annual membership fee (USD 1,250 to USD 100,000) depending on whether the organization is a for-profit or not-for-profit organization, and voting is weighted according to rank during elections for board members.

The ISOC consists of a board of directors (Board of Trustees), an Advisory Council of supporting organizational members, local chapters and individual members. ISOC's decision-making is carried out by the Board of Trustees. The ISOC's Articles of Incorporation stipulate that there are “no less than 12” Trustees, and as of April 2020, the Board of Trustees consisted of 13 members. The Trustees are selected by nomination by the regional chapters, the organization members, and the IETF or elected. An advisory committee formed by the organization members provides advice on ISOC's activities and the Board of Trustees as appropriate to support the Board of Trustees.

ISOC regional chapters are established in 91 countries and regions around the world, and each country and other constituent units carry out activities to promote the spread of the Internet and various educational activities. These groups believe in the mission of ISOC, committed to realizing its objectives in their geographical area and are formed by applying to and being approved by ISOC headquarters. ISOC supports regional chapters by providing them with tools and funding programs.

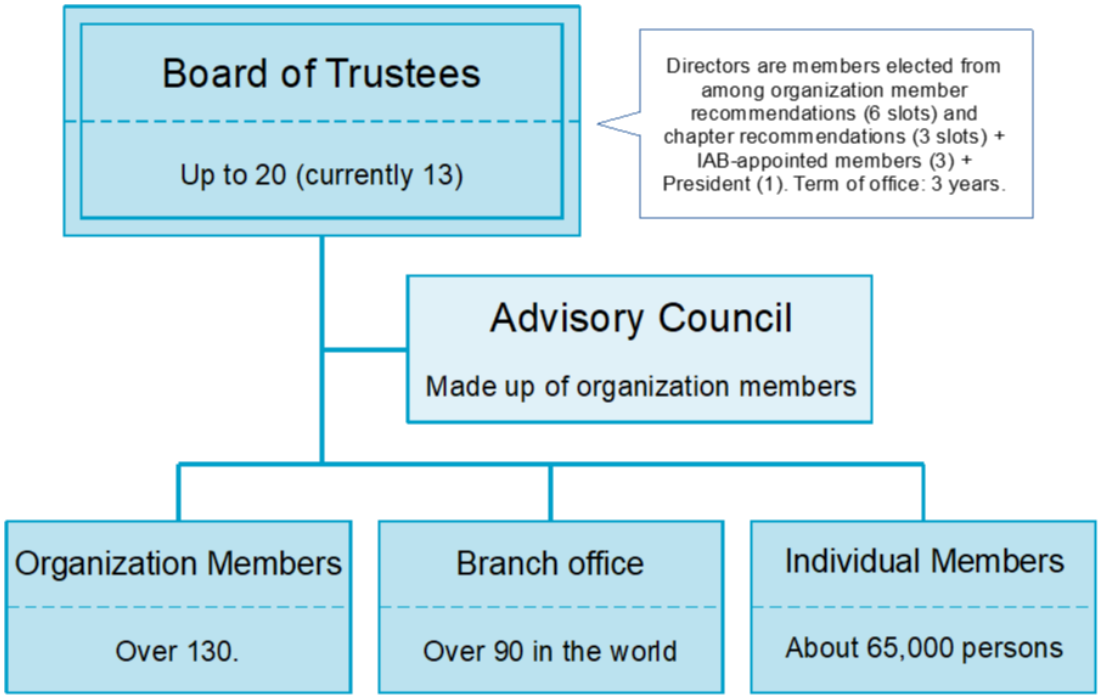


Figure 8: ISOC Organization

（original from https://www.nic.ad.jp/ja/newsletter/No53/0800.html）

1.2.3.3. Related Organizations and Liaisons

At ISOC, it supports the activities of groups such as the Internet Engineering Steering Group (IESG)[101] and the Internet Architecture Board (IAB)[102] in the standardization of Internet technologies and systems, and is deeply involved in the management of the Internet Engineering Task Force (IETF) [103], an organization for standardization of Internet technologies, and the Internet Research Task Force (IRTF)[104] an organization for Internet research activities.

With regard to education, ISOC provides and implements educational programs, technology provision, and support for participation in communities associated with ISOC, such as the IETF, mainly in countries where the Internet is still in a state of development. At the same time, we support organizations working to promote the Internet in those countries.

101 https://www.ietf.org/about/groups/iesg/
102 https://www.iab.org/
103 https://www.ietf.org/
104 https://irtf.org/

In addition to the aforementioned activities, ISOC is the parent organization of PIR[105], one of the gTLD registries, and although ISOC does not work directly, it is indirectly involved in the field of domain name registration management. It was announced that PIR, which has been entrusted by ICANN to manage the registration of the .org domain, one of the historic gTLDs that has existed since the dawn of the Internet, will be sold by ISOC to investment company Ethos Capital[106] in November 2019. However, the question of the appropriateness of the decision to sell PIR, the absence of the community at the time of consideration, the long-term continuity of the .org management, and the impact on the user community have sparked debate in the Internet community. As of April 2020, no conclusion has been seen (Note: ISOC decided to abandon the paln to sell the .org asset to Ethos Capital just before finishing this report).

ISOC, on the other hand, has an Affiliate Agreement with the Affiliates, non-profit organizations whose mission and objectives intersect with those of ISOC, declaring specific mutual goals and activities in the Affiliate Agreement. The Affiliate Agreement defines the specific mutual goals, activities, and benefits that ISOC and the Affiliates seek to pursue and confer. As of April 2020, ISOC's Affiliates include:

- Access Now[107]
- Africa Telecommunications Union（ATU）[108]
- Caribbean Association of National Telecommunications Operators（CANTO）[109]
- Caribbean Telecommunications Union[110]
- Center for Democracy and Technology[111]
- Global Cyber Alliance[112]
- Go6 Institute[113]
- Messaging, Malware and Mobile Anti-Abuse Working Group（M3AAWG）[114]

105 https://www.pir.org/
https://thenew.org/org-people/
106 https://ethoscapital.com/
107 https://www.accessnow.org/
108 http://atu-uat.org/
109 https://www.canto.org/
110 https://www.ctu.int/
111 https://cdt.org/
112 https://www.globalcyberalliance.org/
113 https://go6.si/en/
114 https://www.m3aawg.org/

1.2.4. IETF

The Internet Engineering Task Force (IETF)[115] is the premier Internet standards body, developing open standards through open processes. IETF usually develops standards used on the Internet, especially on the protocol on the network lines. IETF develops and publishes documents series called RFC; it previously stands for “Request For Comments,” but now simply called RFC.

IETF states its mission in RFC 3935 “A Mission Statement for the IETF”: “The goal of the IETF is to make the Internet work better.” The document also states its principles:

- Open Process
- Technical Competence
- Volunteer Core
- Rough consensus and running code
- Protocol ownership

Also, there is a well-known motto: “We reject kings, presidents, and voting. We believe in rough consensus and running code.”

The challenge of Multi-stakeholder-style discussion first materialized in IETF. As Prof. Jun Murai stated in the interview of this report, he described, IETF is the first body that started a conversation among multi-stakeholder. IETF was the only body that does both standardization and operation. IETF standardizes protocols for communication between multiple computer systems, possibly consists of various components from several potentially different vendors. The interoperability of varying systems is one of the critical topics. Agreeing on the single protocol used by different vendors require mult-stakeholder-style discussion. Operation of a stable, sustainable system is a complex topic; It requires multiple stakeholders to get together to design, implement, deploy, and operate systems.

In the following sections, we describe how IETF works.

1.2.4.1. Organization

Figure 9 depicts the organizational structure of the IETF.

[115] https://ietf.org

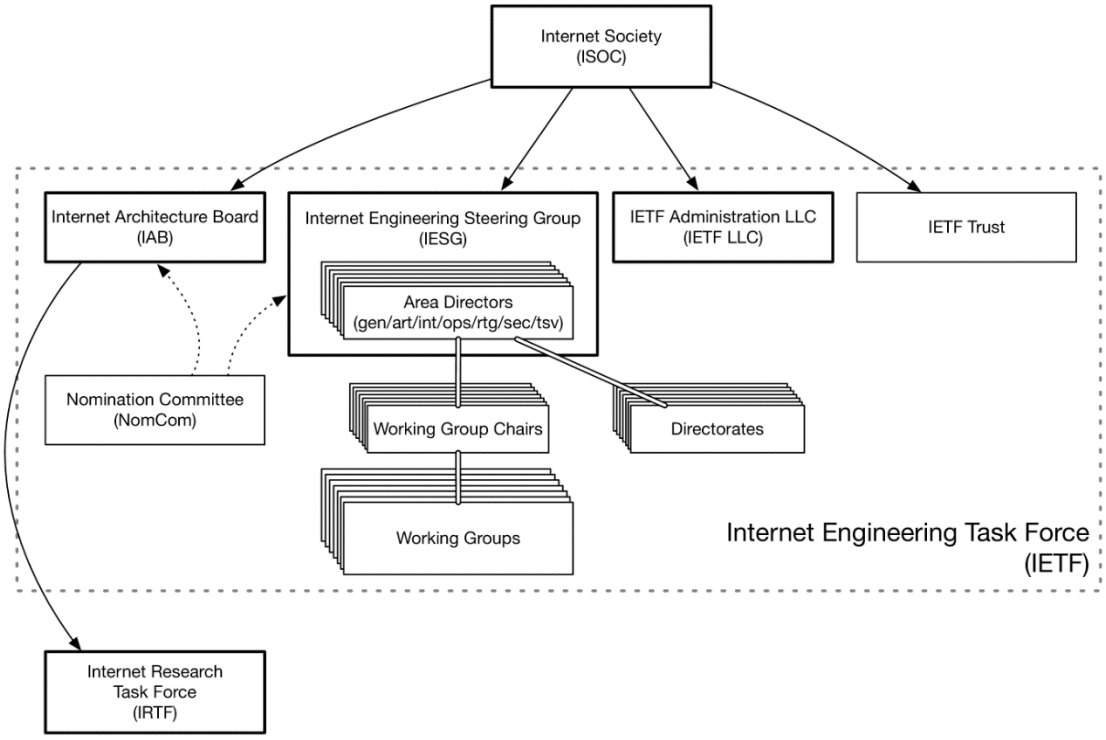


Figure 9: IETF Organization

IETF community consists of Internet Architecture Board (IAB), Internet Engineering Steering Group (IESG), Area Directors (ADs) and Working Group Chairs, Working Group, Working Group members, and Directorate. In addition to the above, there is the Nomination Committee (NomCom). Also, two administrative entities exist for helping organize IETF: IETF Administration LLC (IETF LLC) and IETF Trust. We will discuss them in the following sections.

Internet Architecture Board (IAB)

As stated in the IAB website[116], "The Internet Architecture Board provides long-range technical direction for Internet development, ensuring the Internet continues to grow and evolve as a platform for global communication and innovation."

IETF's Nomination Committee nominates the IAB members. See the section for the NomCom on the process. Consists of thirteen members, also with the liaison members from IRTF, IESG, RFC Editor, IAB Executive Administrative Manager, and ISOC.

[116] https://www.iab.org

IAB is responsible for (from https://www.iab.org/about/iab-overview/):

- Providing architectural oversight of Internet protocols and procedures
- Liaising with other organizations on behalf of the Internet Engineering Task Force (IETF)
- Reviewing appeals of the Internet standards process
- Managing Internet standards documents (the RFC series) and protocol parameter value assignment
- Confirming the Chair of the IETF and the IETF Area Directors
- Selecting the Internet Research Task Force (IRTF) Chair
- Acting as a source of advice and guidance to the Internet Society

Internet Engineering Steering Group (IESG) and Area Directors (ADs)

The IESG is composed of the IETF Area Directors. "The IESG administers the process according to the rules and procedures that have been ratified by the Internet Society trustees. It is directly responsible for the actions associated with entry into and movement along the Internet Standards Track, including final approval of specifications as Internet Standards. "[117]

Currently, IETF works in seven areas:

- General (gen)
- Applications and Real-Time Area (art)
- Internet Area (int)
- Operations and Management Area (ops)
- Routing Area (rtg)
- Security Area (sec)
- Transport Area (tsv)

Each of the areas is headed by one to three Area Directors (ADs). The Area Director of the General Area also acts as IESG Chair. The NomCom selects IESG members for two years term. RFC 7437 "IAB, IESG, and IAOC Selection, Confirmation, and Recall Process: Operation of the Nominating and Recall Committees" details the selection process.

[117] https://www.ietf.org/about/groups/iesg/

Working Group and Working Group Chairs

According to the IETF Website[118] Working Group (WGs) are "the primary mechanism for the development of IETF specifications and guidelines, many of which intended to be standards or recommendations." The list of working groups is available on the Datatracker website[119]. At the time of writing (May 2020) the number of active WGs in each of the areas are:

- General – 2
- Applications and Real-Time Area – 25
- Internet Area – 17
- Operations and Management Area – 14
- Routing Area – 24
- Security Area – 23
- Transport Area – 10

A total of 115 active WGs exists.

RFC 2418 "IETF Working Group Guidelines and Procedures" is the guideline and procedure for creating a working group. The formation of a working group requires a working group charter. Working group charter needs a description of:

- Working Group Name
- Chairs
- Area and Area Directors
- Responsible Area Directors
- Mailing Lists
- Description of the working group
- Goals and Milestones

From the above, it is evident that any individual willing to write a charter to create WG required to communicate and agree on the drafting charter with an Area Director in the specific area charter is trying to be part of. Also, the goal and milestones need to include a description of the particular deliverable as IETF documents.

Directorates

[118] https://www.ietf.org/how/wgs/
[119] https://datatracker.ietf.org/wg/

Directorate, or advisory group[120] is a group assist Area Director focusing in a specific area. Directorates consist of members of IETF who have expertise in a particular area. Area Directors establish Directorate as necessary. RFC 2418 mentioned above details Directorate.

IETF Administration LLC (IETF LLC)

IETF Administration LLC or IETF LLC for short[121] provides the corporate legal home for the IETF, IAB, and IRTF with following responsibilities (the followings come from RFC 8711 "Structure of the IETF Administrative Support Activity, Version 2.0"):

- Operations. The IETF LLC is responsible for supporting the ongoing operations of the IETF, including meetings and non-meeting activities.
- Finances. The IETF LLC is responsible for managing the IETF's finances and budget.
- Fundraising. The IETF LLC is responsible for raising money on behalf of the IETF.
- Compliance. The IETF LLC is responsible for establishing and enforcing policies to ensure compliance with applicable laws, regulations, and rules.

One of the critical aspects to understand IETF LLC is, it has established as "disregarded entity" of the Internet Society (ISOC): the two organizations are treated as a single entity for tax purposes, but as independent entities for all other purposes[122]. IETF LLC established on August 28th, 2018.

IETF LLC is managed by the IETF Executive Director overseen by the IETF LLC Board of Directors. IETF Executive Director is also IETF Administration LLC Executive Director. RFC 8711 “Structure of the IETF Administrative Support Activity, Version 2.0” describes the function and the member selection procedures. The Board chooses IETF Executive Director. It is responsible for managing the day-to-day operation of the IETF LLC.

IETF LLC Board is composed of:

- One IETF Chair or delegate selected by the IESG. The presumption is that the IETF chair will serve on the Board
- One Appointed by the ISOC Board of Trustees
- One Selected by the IETF NomCom, confirmed by the IESG

120 https://www.ietf.org/about/groups/directorates/
121 https://www.ietf.org/about/administration/
122 https://www.ietf.org/blog/evolving-administrative-arrangements/

- Up to two Appointed by the IETF LLC Board itself, on an as-needed basis, approved by the IESG

IETF Trust

According to the website of IETF Trust[123]: IETF Trust is a legal entity which acquiring, holding, maintaining and licensing specific existing and future intellectual property and other property used in connection with the Internet standards process and its administration, for the advancement of the science and technology associated with the Internet and related technology.

All of the deliverables of IETF activities will belong to IETF Trust to achieve the above goals. For example, all newer RFCs use the same copyright boilerplate to state both the IETF Trust and the author shares the RFC copyright.

NomCom

The Nominating Committee[124] exists to review open IESG (in other words, Area Directors), IAB, IETF LLC Board, and IETF Trust positions and to nominate a candidate for each. RFC 7437 “IAB, IESG, and IAOC Selection, Confirmation, and Recall Process: Operation of the Nominating and Recall Committees” describes the selection and confirmation process. As it read, this RFC also includes the process of recalling a member of them.

The NomCom composed of 10 voting volunteers selected from the IETF community by using a random selection process described in RFC 3797 “Publicly Verifiable Nominations Committee (NomCom) Random Selection.” Liaison from of IESG, IAB, one optionally from ISOC are also part of the NomCom. The NomCom Chair is appointed by the Internet Society President and does not vote for candidates' selection.

The NomCom Chair will be appointed between the first and the second IETF meetings of the year, and the NomCom term begins when the voting volunteers are selected.

1.2.4.2. IETF Standards Process

123 https://trustee.ietf.org/index.html
124 https://https://trustee.ietf.org/index.html/about/groups/nomcom/

BCP 9, alongside with BCP 78, BCP 79, and BCP 92 describe current IETF standards process[125]:

BCP 9 “The Internet Standards Process -- Revision 3” consists of multiple RFCs:

- RFC 2026: The Internet Standards Process -- Revision 3
- Updates/Addendum for RFC 2026 includes:
    - RFC 5657: Guidance on Interoperation and Implementation Reports for Advancement to Draft Standard
    - RFC 6410: Reducing the Standards Track to Two Maturity Levels
    - RFC 7100: Retirement of the “Internet Official Protocol Standards” Summary Document
    - RFC 7127: Characterization of Proposed Standard
    - RFC 7475: Increasing the Number of Area Directors in an IETF Area

BCP 78 is RFC 5378 “Rights Contributors Provide to the IETF Trust.”

BCP 79 is RFC 8179 “Intellectual Property Rights in IETF Technology.”

BCP 92 is RFC 5742 “IESG Procedures for Handling of Independent and IRTF Stream Submissions.”

IETF maintains two repositories: Internet-Drafts, which keeps Internet-Drafts (or often called “I-D”), and repository for published RFCs. In addition to RFC publication, some of the RFCs treated as "Standard" is marked and bundled as Best Current Practice, or BCPs.

[125] https://www.ietf.org/standards/process/

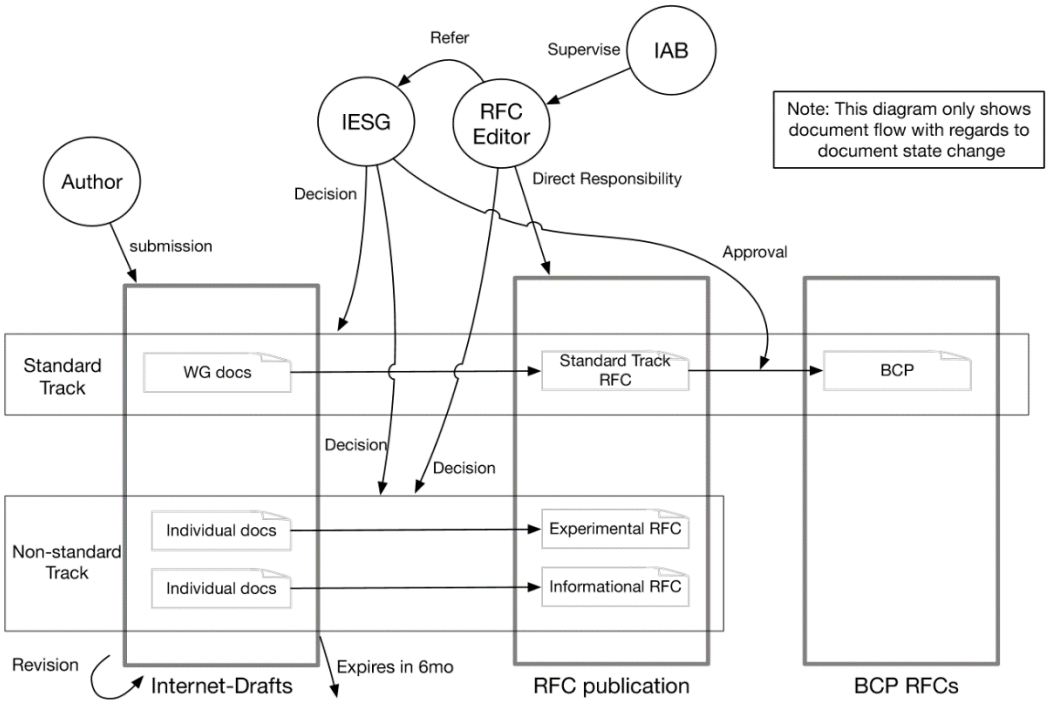


Figure 10: IETF Document Lifecycle

Figure 10 shows a bird's eye view of the IETF Standards Process.

Internet-Drafts repository accepts submission from any authors. The submitted draft stamped with the submission date, and it will be in 'expired' status in six months. The authors of I-D can publish a subsequent revision to the I-D before the expiry date.

Some of the I-Ds will be published in the RFC publication repository as an RFC document. Either IESG or RFC Editor decides publication depends on the type of the I-D or RFC. Once published as RFC, it will not expire automatically. Some of the RFCs may supersede by providing additional information by follow-up RFCs developed in the same manner.

There are two kinds of process track: Standard Track and Non-standard Track. Standard-Track is a track for the Internet Standards, submitted from Working Groups as Working Group documents. Non-standard Track is for documents that do not fit in Standard-Track, including Informational, Experimental, Historical, and Best Current Practice documents.

IESG decides on I-D to RFC transition on all documents, approves the change of Standard-

Track document to BCP. RFC Editor, supervised by IAB, refers to IESG and makes decisions on I-D to RFC transition on Non-standard Track documents. RFC Editor also has direct responsibility for managing the RFC publication repository.

Budgets

IETF Budget is available at web-site:[126].

IETF's revenues consists of the followings:

- ISOC Contribution
- Administrative in-Kind Contribution
- Meeting Revenue, consists of:
    - Registration Fees
    - Sponsorship
    - Sponsorship - in-kind
    - Hotel Commissions
    - Rebates and Compensations
    - others

IETF's expenses consist of the followings:

- Meeting Expenses consists of:
    - Venue Costs
    - Meeting Support
    - NOC (Network Operation) Support
    - Other
- Operating Expenses includes:
    - RFC Services
    - IETF Secretariat
    - Administration
    - IETF Trust Contribution
- RFP Management Expenses
- Special Projects

[126] https://www.ietf.org/about/administration/financial-statements/

1.2.5. W3C

The World Wide Web Consortium (W3C)[127] is an international community that develops open standards to ensure the long-term growth of the Web. Web technology consists of various networking technologies and browser technologies. IETF is also developing some of the protocol standards used for Web technology. Put merely, W3C's primary role is to design Web Browser technology standards, such as HTML5 technology, the standard of how to express the content of Web pages. W3C also standardizes internal structure, data model, and Application Programming Interfaces (APIs) for Web Browsers.

1.2.5.1. Organizational structure of W3C

W3C community consists of W3C Member Organization, W3C Staff (called W3C Team), and individuals or organizations attending the public part of the community. Figure 11 shows the overview of the W3C Community.

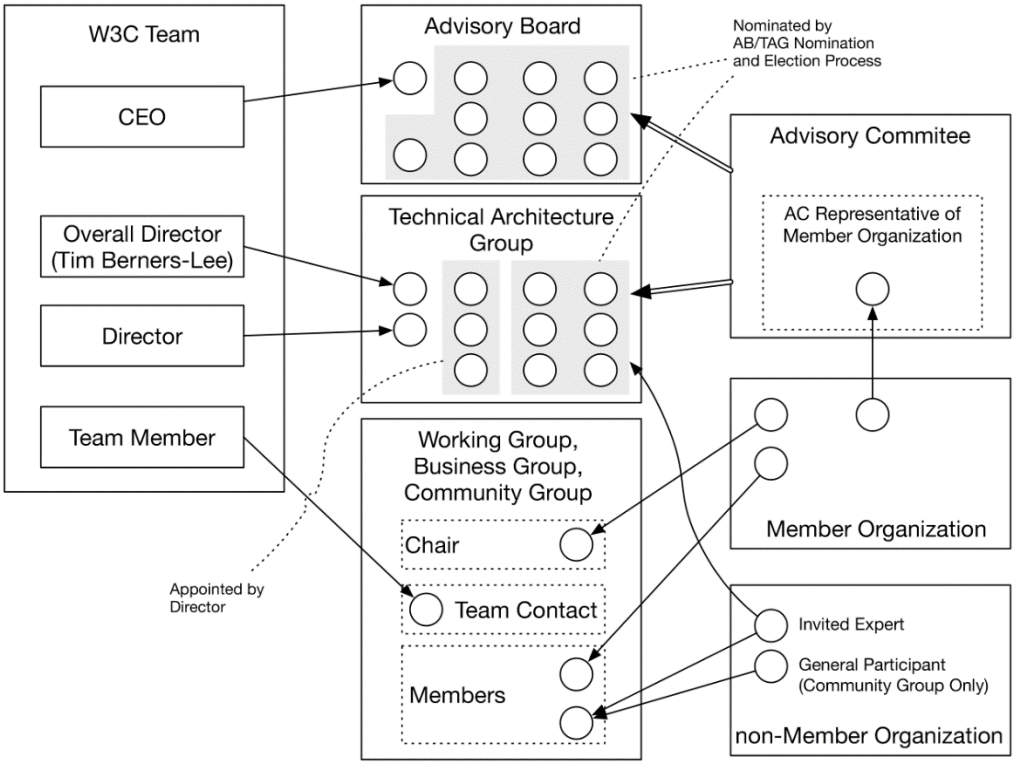


Figure 11: W3C Organization

[127] https://www.w3.org

Member Organizations

Corporate or individual can attend W3C as Member Organization. Member Organization will help W3C by the membership fee.

Member Organization has a voting right on various decision-making situations. Since part of the standardization step requires decisions by a vote of Member Organization thorough AC, Member Organization owns great deals of influential power to W3C's standards and its processes.

Advisory Committee (AC)

Advisory Committee is a group that consists of each member organization's representatives (called AC representative). ACs participate in the decision making of the W3C Process.

Working Groups (WGs), Business Groups (BGs) and Community Groups (CGs)

W3C standards are outcomes from working groups. W3C members or W3C Team propose working group creation with a charter. The charter specifies the outcomes of the WG: The W3C Standard documents.

The formation is decided among AC by a ballot. Since whether the vote is successful or not depends on the AC's ballot, AC's interest strongly affects the decision of creating WGs.

Business Group and Community Groups are groups to incubate a new idea. Since these groups have smaller requirements to start, it is more accessible to form. While Community Group is open to the public, Business Group only allows attendance from W3C Members, not from the public.

W3C Team

W3C's Staff, or called W3C Team, belong to either of four W3C host organizations. W3C does not have a single place for the office. W3C's office and team member span on four host organizations to work, namely, Massachusetts Institute of Technology's Computer Science and Artificial Intelligence Laboratory (MIT), European Research Consortium for Informatics

and Mathematics (ERCIM), Keio University, and Beihang University.

Team has the following job functions:

- Administration and Operations
- Architecture and Technology
- Business Development
- Community Management
- Industry
- Legal
- Management
- Marketing and Communications
- Member Relations
- Project
- Strategy
- Systems

A person in charge, called Team Contact assigned to each of Working Groups, Community Group, and Business Group.

Advisory Board (AB)

The Advisory Board provides ongoing guidance to the Team on strategy, management, legal matters, process, and conflict resolution[128].

AB, nine to eleven members, consists of:

- Chair of AB, generally CEO of W3C, appointed by Team
- AB Participants elected by AC following AB/TAG nomination and election process. One of W3C Team member act as a Team Contact for AB.

World Wide Web Consortium Process Document[129] describes the nomination and election process of AB.

Technical Architecture Group (TAG)

[128] https://www.w3.org/2019/Process-20190301/#AB
[129] https://www.w3.org/2019/Process-20190301/#AB-TAG-election

The Technical Architecture Group is stewardship of the Web architecture[130]. Its missions are:

- Document and build consensus around principles of Web architecture and to interpret and clarify these principles when necessary
- Resolve issues involving general Web architecture brought to the TAG
- Help coordinate cross-technology architecture developments inside and outside W3C

TAG members consist of followings:

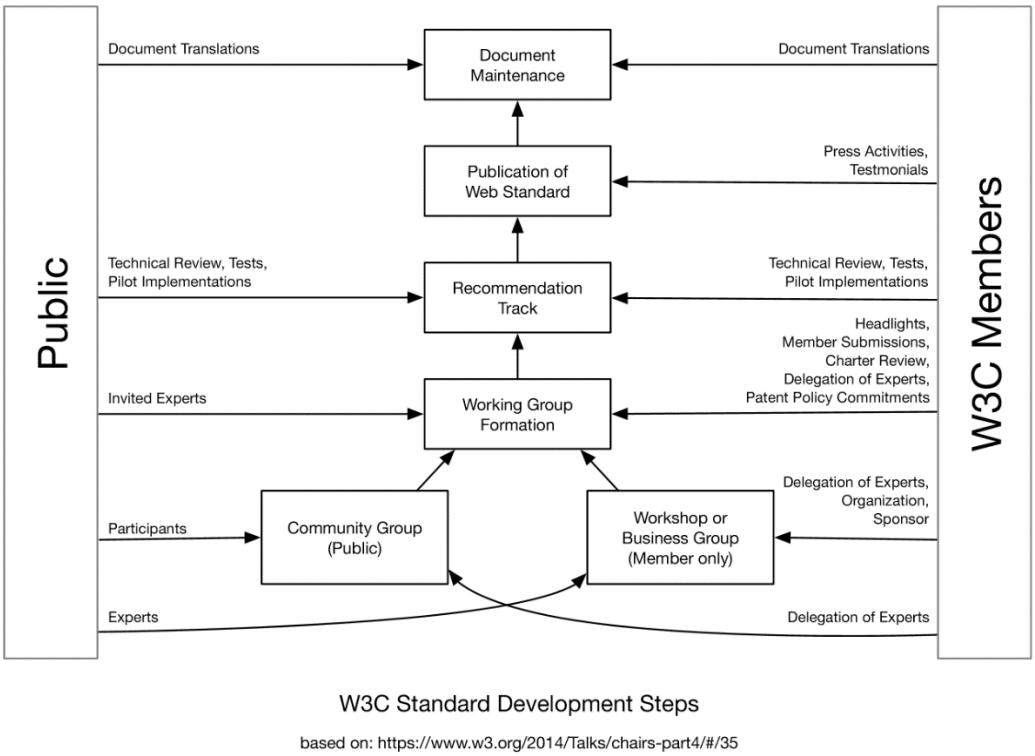
- Tim Berners-Lee, who is a life member
- The Director, sitting ex officio
- Three participants appointed by the Director
- Six participants elected by the Advisory Committee following the AB/TAG nomination and election process

World Wide Web Consortium Process Document[131] describes the nomination and election process of TAG.

1.2.5.2. Standard Development Process and groups

Figure 12 (based on Web site[132]) depict the stream of idea to web standard. Detail of the process is described in World Wide Web Consortium Process Document[133].

130 https://www.w3.org/2019/Process-20190301/#TAG
131 https://www.w3.org/2019/Process-20190301/#AB-TAG-election
132 https://www.w3.org/2014/Talks/chairs-part4/#/35
133 https://www.w3.org/2019/Process-20190301/



W3C Standard Development Steps

based on: https://www.w3.org/2014/Talks/chairs-part4/#/35

Figure 12: W3C Standard Development Process

1.2.5.3. Meetings and Communications

The discussion runs on the group's mailing lists, teleconferences, and in-person meetings. W3C runs several in-person meetings:

- Technical Plenary and Advisory Committee meeting (TPAC) - yearly, includes Advisory Committee meeting
- Advisory Committee Meeting (AC Meeting) - twice a year, one of them is part of TPAC.
- Various Workshops

1.2.5.4. Budget

W3C's details of funds and expenses are not available in public. W3C's funds come from the following sources:

- W3C Member Dues
- Research grants and other sources of private and public funds
- Individual donations of money and equipment

Membership fee is presented on the W3C website[134]. It depends on the member locates, the type of organization, and annual gross revenue. If the member's location in Japan, the following is the membership fees for 2020 (note, the text below presented as-is):

For-profit organization that has annual gross revenue, as measured by the most recent audited statement, of greater than or equal to 100,000,000,000 JPY.	7,400,000 JPY
For-profit organization that has annual gross revenue, as measured by the most recent audited statement, of greater than or equal to 50,000,000,000 JPY and less than 100,000,000,000 JPY.	6,200,000 JPY
Introductory Industry Membership, available for two years to a for-profit organization that has annual gross revenue, as measured by the most recent audited statement, of greater than or equal to 5,750,000,000 JPY. Participation limited to one Interest Group	3,100,000 JPY
For-profit organization that has annual gross revenue, as measured by the most recent audited statement, of greater than or equal to 5,750,000,000 JPY and less than 50,000,000,000 JPY.	2,720,000 JPY
All other organizations, including non-profit organizations and government agencies.	850,000 JPY
Enterprises and non-profits with 10 or fewer employees, with revenues below 250,000,000 JPY, who have not been W3C Members in the previous two years. This fee is not applicable to membership organizations generally, but is available to non-profit organizations of individual members. This fee applies for the first two years of W3C Membership.	215,000 JPY

1.2.5.5. Notable Observation on W3C

There is a pointed perspective on the governance of the W3C.
Let us describe just facts:

- The highest decision-making body of W3C is the Steering Committee, which consists of representatives of the four hosts, including Keio University in Japan. W3C, on the

[134] https://www.w3.org/Consortium/fees

other hand, is funded by membership fees from its member organizations.

- Advisory Committees' membership is restricted to Member Organizations
- The decision-making body for most of the day-to-day operation of the W3C's standardization activities is the Advisory Committee (AC). It is here that decisions are made not only on the ratification of standards, but also on the creation of working groups.

In short, only paid members has direct influence on the W3C Standards. For example, working group creation is possible if ACs agreed to do it. If there was a need for or interest in a WG on the part of the W3C or among the general public, there would need to be an interest by many of the ACs in the topic of the proposed WG.

1.3. The role played by the IMSG

IMSG's role and effectiveness in the Evolution of the Internet

According to professor Jun Murai, the beginning of multi-stakeholder governance maybe started inside Internet Engineering Task Force (IETF). The professor said that it was around the time Operational Technology (OT)[135] community start coming to IETF to develop protocols. At that time, operators, developers, users in addition to protocol designers were there, to establish an initial form of mult-stakeholder community. Without properly balanced investment among these stakeholders, system may stop, or even critical event might happen. According to professor Murai, this was crucial finding at that time.

As mentioned in Sec. 1.1 on the history of the evolution of the Internet, Multi-stakeholder Governance on the Internet (IMSG) were evolved alongside with the evolution or extending of the use of the Internet. The history of the evolution of the multi-stakeholder governance on the Internet with and around ICANN can be described in five phases:

1. Beginning of Network Resource Allocation Management (1972-1994)
2. Discussions on gTLD towards establishment of ICANN (1996-1998)
3. Evolve of ICANN (1998-2014)
4. ICANN left form the US oversight (2014-2016)
5. Refinement of ICANN activities (2016 to now)

The needs of resource allocation control initiate the discussion to having resource an allocation management entity. The entity started with a single person -- czar -- act and manage it in top-down manner. Within an oversight of a government, the management becomes functional entities, then part of the function started run by a business. In the first phase, we observe the born of the Internet resource management, and its (partial) business under the oversight of the U.S. Government. The resource was not controlled in mult-stakeholder style -- the resource was allocated by first come first serve basis.

Then, at the beginning of the dotcom bubble era, businesses demand the management of resource to have a way to resolve various conflicts, or find a way to fairly allocated scarce

[135] In this context, Operational Technology (OT) is the hardware and software dedicated to monitor and control hardware equipment like pumps or bulbs in manufacturing site.

resources, or extend the allocatable spaces. This demands and actual conflicts caused pressure on the management and the operational community of the resources. Finally, the concerning parties got together to find a way to solve the issue. After several reports the published by related parties, finally, multi-stakeholder body ICANN was born. Since then, ICANN's role is fair management of the resources as described in the ICANN bylaws.

ICANN is keep evolving afterwards, without losing initial concept or spirit documented in the first set of documents written in the above phase two. While it has an ultimate decision-making body ICANN board, the ICANN community always strive to keep the power balance of entire community by balancing number of votes, or by having mechanisms which monitor entire ICANN to satisfy its commitments and the core value described in the ICANN Bylaws.

In summary, the major effects of multi-stakeholderism of ICANN for the Internet were:

- Established an Alternative Dispute Resolution (ADR) mechanism on domain names, by implementing an efficient and cost-effective Unified Domain Name Dispute Resolution Policy (UDRP)
- Established reasonable market competition for generic Top-Level Domain names (gTLDs)
- Development of guidelines for Internationalized Domain Name (IDN) deployment which allow the introduction of internationalized name, which demanded from various countries

To establish the single Internet for the everywhere in the world, using only one namespace for the domain name system is crucial. Thus, the system should support every language, can be usable around the world while with reasonable competition. To have such system, multi-stakeholder style discussion was a crucial component of the entire Internet community.

1.4. Model of Internet Multi-stakeholder Governance

As we discussed in the previous sections, multi-stakeholder style governance started in the early days of the Internet. Through the establishment and refinement of ICANN, mult-stakeholder style governance has been evolved.

As we also seen in the previous sections, ICANN is an extremely complex entity. It is far more complicated than we discussed in this report. The readers may be surprised at the complexity of the ICANN Bylaws. But from a bird's eye view, we can describe the entire system more easily.

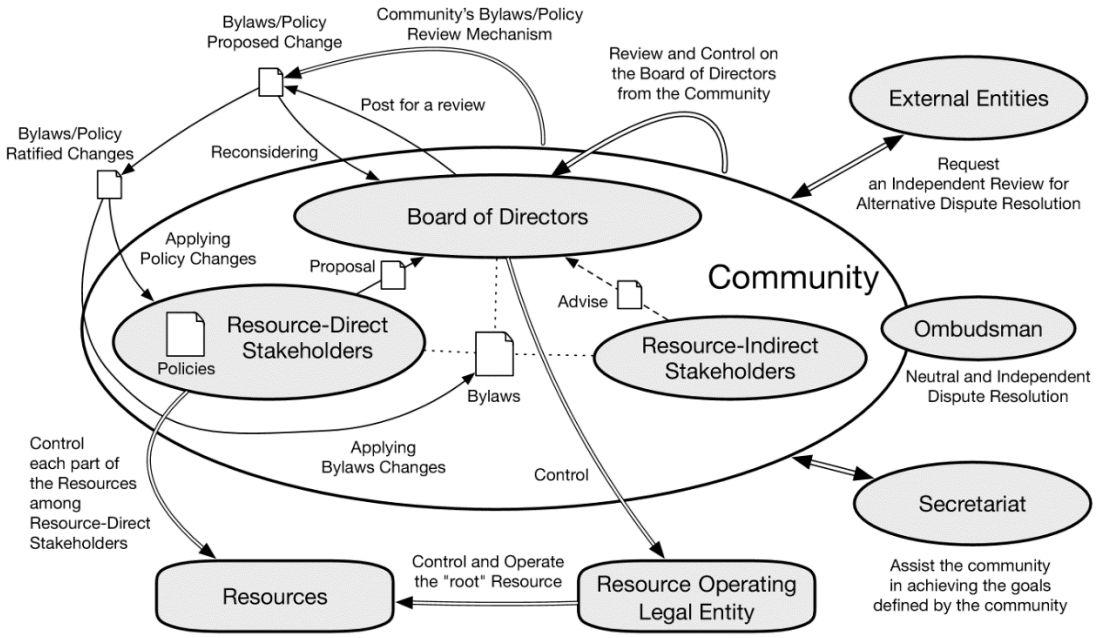


Figure 13: IMSG Structure

Figure 13 shows the simplified Internet Mult-stakeholder Governance model based on ICANN. While we try to reduce the number of entities and the relationships, this simplified model still looks complex.

There are eight entities appeared in the figure:

- “Community,” which consists of three entities:

        - “Board of Directors” which is the ultimate decision-making entity
        - “Resource-Direct Stakeholders,” which has stakes directly related to the resource shared and controlled among the Community.
        - “Resource-Indirect Stakeholders” which has no direct stakes to the resources itself, but it has indirect stakes to the resources.
    - “Resources” is the resource shared and controlled among the Community.
    - “Resource Operating Legal Entity” which control and operates the resource itself
    - “Secretary” which assist the community in achieving the goals
    - “External Entities” which may request Independent Review to the Community
    - “Ombudsman” which provide neutral, independent resolution for the Community

There are several documents circulates among entities:

- “Bylaws” which applied to the entire Community, documenting current rules agreed within the Community
- “Policy” which applied within the scope of specific resource within resource-direct stakeholders, documents current practices decided within the Community
- “Proposal” which resource-direct stakeholders create and send for consideration
- “Advice” which resource-indirect stakeholders create and submit for consideration
- “Proposed Bylaw/Policy Changes” which document changes under the review of the Community
- “Ratified Bylaw/Policy Changes” which document ratified amendments which passed the community review

There are several relationships, which accompanied the flow of documents:

- Proposal Flow
    - Resource-Direct stakeholders send a proposal to the Board of Directors
    - Resource-Indirect stakeholders send advises to Board of Directors
    - Board of Directors consolidate the proposals/advises, internally discuss, possibly communicate with stakeholders to finalize the changes, post the change for a review by the Community. If community requests to reconsider the change, board with the help of stakeholders update and repeat the review cycle.
    - The proposed change agreed among the Community, it becomes ratified changes.
    - The ratified amendment either change the Bylaws or the Policy.
- Resource Control

- The board of Directors control the Resource Operating Legal Entity
- The Resource Operating Legal Entity control and operates the “root” resource.
- Resource-direct stakeholder controls Resources.

- Review
  - The Community reviews Bylaw/Policy change proposals
  - The Community reviews the activity of the Board of Directors and control it
  - External Entities may request an Independent Review for the purpose of Alternative Dispute Resolution

2. Multi-stakeholder Governance

In this chapter, we firstly discuss the example architecture of Multi-stakeholder Governance in general. Then, discuss governance on decentralized finance.

2.1. Example Architecture of Multi-stakeholder Governance

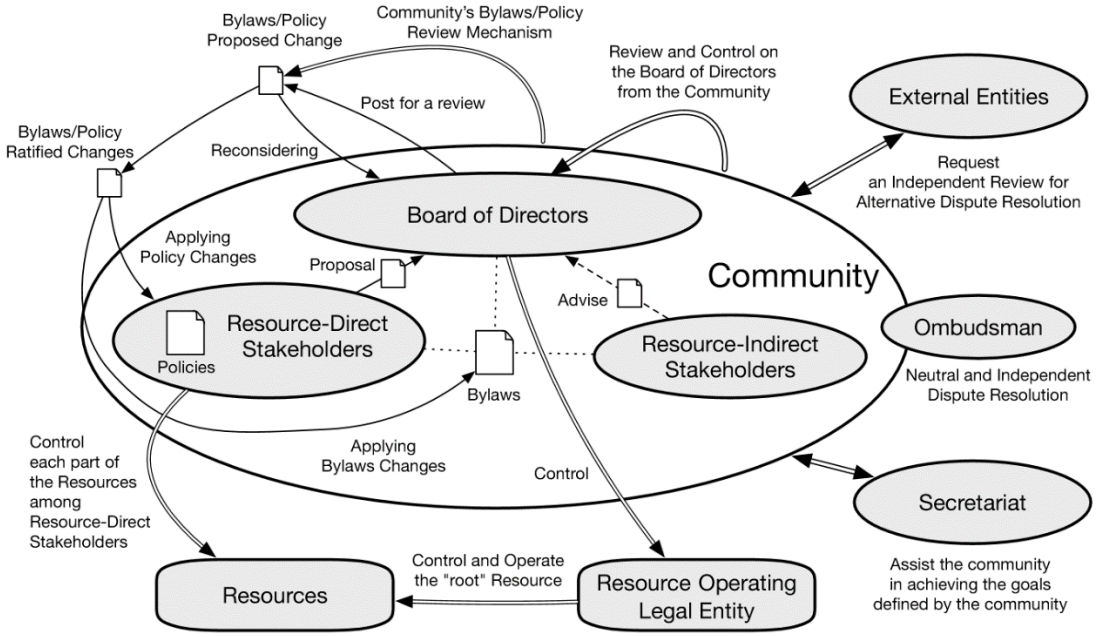
For the Internet Multi-stakeholder Governance (IMSG), ICANN is maintaining a few resources allocated and shared among stakeholders. Since the resource is limited in some way, there are possible conflicts. As mentioned in the previous sections, IMSG initially started to resolve such disputes.

When we look at the Decentralized Financial Governance situation, there are no resources we see conflicts yet due to the lack of the resources that we share and have some competition to have control. But, for example, if we start relying only on a single, only world-wide blockchain backbone network, we presume to observe some disputes. I.e., how we upgrade the blockchain data format, update the network protocols, or even upgrade the blockchain code itself, etc. If we want to use such a single system with interoperability, we need some governance mechanism on it.

In the initial startup phase of the mult-stakeholder governance, we may not need “resources,” which require governance. But let us assume such exists here to present how we can design the governance mechanism on a resource that needs governance mechanism.

Entities

Let us present a figure which we introduced already in Sec. 1.4. again.



There are eight entities in the model: Community, Board of Directors (BoD), Resource-Direct Stakeholders (RDS), Resource-Indirect Stakeholders (RIS), Resources (RSRC), Resource Operating Legal Entity (ROLE), Secretariat (SEC), and External Entities (EXT).

Board of Directors (BoD)

The Board of Directors is a body to make decisions of the Community. The Community adjusts the balance of power by the distribution of the number of directors seats among stakeholders. RDSs will have voting seats, and RISs will have non-voting seats.

The Community may implement the board of directors' review and control mechanisms to achieve the Community's goals.

Stakeholder Communities (SCs)

The Community in either Resource-Direct or Resource-Indirect stakeholder communities (here, we describe them as “Stakeholder Communities” -- SCs) have multiple attendees. The attendees in each of SCs may have different stakes. Each SCs may have its governance mechanism, and possibly, it may have a very similar structure as the above figure. Computer scientists capture the type of construction as a “recursive structure.” Each of SCs applies its

internal policy, with outer Community's Policy and Bylaws, to achieve each of the SCs' objectives or commitments.

RIS is likely to contain two unique kinds of community. One of them is representing the end-user community. The other one is advising from the point of the governments of each of the participating countries. In addition to these two communities, organizations that have a relationship with the Community may participate as a liaison. As ICANN GNSO has a group for non-commercial entities, each of RDS communities may need a similar community.

Resources (RSRC) and Resource Operating Legal Entity (ROLE)

The ROLE and RDSs jointly control the resource. This document assumes that the resource consists of a single "root" entity which may affect entire resources, and possibly multiple control delegate-able partial entity. The ROLE controls "root" entity in the resource, and each of the RDSs controls each part of delegated partial resources in the resource.

Secretariat (SEC)

Secretariat assists the Entire Community in achieving the Community's goals stated in the Bylaws. The Secretariat functions, includes, but not limited to the following items:

- Prepare and maintain the place to discuss in both digital and in-person form
- Assist the creation and circulation of the documents share among entities
- Act as a gateway of communication between the public and the Community
- Act as a legal entity to delegate some of the work to some contractee
  - Help BoD to pursue its function
- Treasurer functions including planning budget
- Office functions for the secretariat itself

Documents

There are many documents required, including, but not limited to: Policies and Bylaws, multiple documents describe proposal and advice, reports on various topics including but not limited to review reports.

Policies and Bylaws

First and foremost, there will be Bylaws and Policies. Bylaws define how the entire Community organized, and how the Community makes decisions to control the resources, including the "root" resource. Policies describe how each RDSs make decisions to control each of the delegated resources.

Proposal and Advises

When the RDSs want to change Bylaws or any Policies, they will prepare a change proposal. When the RISs want to provide advice for ongoing activities or proposals, they will prepare advice.

Reviews

The Bylaws and Policies define review mechanisms. There will be a control and review process for BoD from the Community. There will be a public review mechanism for the changes to Bylaws or Policies.

Reports

Bylaws optionally define periodical review mechanisms. The review result will publish as reports.

Processes

Process flow for Policy

When preparing proposals on Policies and Bylaws, or advice are ready, RDSs or RISs submit it to the BoD.

The board consolidates the proposals and advice from stakeholders. The change to Bylaws and Policies compiled as a proposal then posted in public to be reviewed. If the review is successful, the proposed plan will be ratified and will be in effect. If the review is not successful, the proposal will be returned to the board for reconsideration.

Process for Independent Review

External entities may request an independent review to find resolutions for a specific issue in the Community.

Secretariat will process the independent review by the process defined in Bylaws.

2.2. Governance of Decentralized Financial System

2.2.1. Use cases

Challenges posed by a decentralized financial system

Fundamental Issues

Regardless of the approach of decentralization and centralized, if the financial system seems to be a “mechanism for the value exchange using the medium based on the public consensus,” a decentralized financial system has several challenges in principle due to the nature of its structure in the comparison with the centralized financial system.

First, relative instability can be pointed out in a decentralized financial system concerning stability as a value exchange system. In particular, the existing centralized financial system, which is centered on the settlement services provided by the central bank has been built and operated with an extremely robust system structure since the centralized financial system is historically oriented toward governance that emphasizes the maintenance of stability. In addition, the modern financial system is based on computer-based information systems, but financial systems generally require the highest level of RASIS, or reliability, availability, serviceability, integrity, and security for information systems, compared to any industry sector, and the stability of such systems is extremely high.

On the other hand, the current group of decentralized financial systems has not been constructed by applying indicators such as RASIS. This may be due to the lack of consensus-building for such governance in the first place, as there are not enough shared ideals and values of stability. Therefore, if we simply compare the two based on criteria such as RASIS, we believe that the current decentralized financial system falls short of the stability of a centralized system.

Of course, as an evaluation of the architecture of a fundamental information system, there is, for example, a stability risk that a centralized system may lose its function as a whole if the central part of the system fails due to a natural disaster, etc. In contrast, a distributed system can acquire so-called "persistence" robustness, such as not falling into dysfunction despite delays if the system is maintained in some way (cf. during the Great East Japan Earthquake, the mobile phone network based on the centralized architecture was out of service for a long time, but the Internet relying on the distributed architecture continued to function at a minimum). However, we are not currently in a position where a decentralized financial system

can immediately replace the stability associated with the value exchange functions provided by the current centralized financial system in the operation of the system during normal times.

Next, in terms of alignment with existing systems of order, we believe that decentralized financial systems are not sufficiently aligned with existing systems of law and law enforcement, and as a result, have not established the system of governance that they envision. In particular, while the existing centralized financial system, which is centered on the payment services provided by the central bank, has increased the reliability of the system as an industry as a whole by keeping pace with the existing orderly system, the decentralized financial system is at a stage where the need to build relationships with the government and existing industry groups is only beginning to be understood by some, and even that understanding is not sufficiently agreed upon.

On the other hand, the government and existing industry groups are still in the developmental stage in terms of understanding the actual situation and building theories based on this understanding to position the decentralized financial system within their own disciplinary system. In recent years, it has finally gained momentum, and the multi-stakeholder consensus to raise issues and promote consideration at the G20 Finance Ministers and Central Bank Governors meeting in Fukuoka, hosted by Japan in 2019, was a very historic moment in that regard. However, it is only the first step towards a discussion between the existing orderly system and decentralized financial system, and it is only the beginning.

In addition, today's decentralized financial system is based on the blockchain technology derived from Bitcoin, which is a combination of cryptography, authentication technology, and network technology. However, the underlying technologies underpinning the blockchain are sufficiently advanced and complex on their own, and each has evolved independently with different dynamics than the blockchain.

Efforts to integrate these technologies and advance the blockchain are based on a combination of different approaches, such as basic and applied, single and combined, but it is extremely difficult to integrate them and raise the level of technology. Therefore, as a practical matter, the technological development of the blockchain is subdivided and pluralistic, depending on the difference in architectural ideas and implementation forms. While this has the advantage of technological diversity, it also has the disadvantage of slowing the resolution of issues due to the dissipation of development resources and inhibiting innovation (technology diffusion) due to different approaches checking each other.

Challenges for the financial system

In terms of its social position, a decentralized financial system has several challenges as follows.

First, a decentralized financial system does not have an adjustment mechanism, such as the international transactions assumed by the existing legal tender system, i.e., the equilibrium of values through transactions between legal currencies determined by the respective countries and regions. This derives from the fact that a decentralized financial system does not have a place in the legal tender system and therefore, does not have the concept of legal tender.

In this case, the impact is limited if a decentralized financial system and the legal tender system remain completely independent systems, not exchanging each other. However, in reality, since the exchange is conducted between the two sides, there are always arbitrage opportunities between the two sides and there is a risk that the arbitrage opportunities may become uncertain, such as the occurrence of unexpected volatility for both sides (especially the legal tender). In addition, where previously the value of the two sides was balanced by related transactions between legal currencies, a decentralized financial system plays the role of a so-called bypass, which could lead to an imbalance in value between the two sides.

Secondly, a decentralized financial system does not have a well-functioning audit mechanism for it at the moment. It is also related to the inconsistency with the existing order system mentioned above, but the sophisticated audit system in the existing centralized financial system is not yet established in a decentralized financial system. As a result, there is currently no established assurance that all stakeholders are participating in the market fairly and equitably.

In response to these challenges, and moreover, the potential for systemic risk in the current decentralized financial system is considered to be a relative concern in comparison to the existing centralized financial system. For example, in the event of some kind of failure or incidental event, the existing centralized financial system would be able to identify the problem and identify the responsibility relatively quickly and isolate the failure, thereby ensuring the credibility of the entire system and maintaining the legal tender system.

On the other hand, a decentralized financial system is one in which the rights and responsibilities of the stakeholders who participate in it (including the end consumers) are unclear. As a result, there is the potential for imbalances and distortions among stakeholders, as well as the possibility of criminal acts that exploit these imbalances in advance. In fact,

many of the economic crimes associated with Bitcoin attack the lack of trust in these systems through technological means, and much of the damage is often passed on to the end consumer.

Consumers' issues

The existing centralized financial system and the legal tender system on which it is based have refined the nature of consumer protection over the course of their long history and experience. Especially since the 1970s, the principle of conformity and the Know Your Customer (KYC) philosophy have been spread throughout the financial industry, and in recent years, the credibility has been further enhanced with FATF’s stricter standards of mutual evaluations.

On the other hand, a decentralized financial system, including these regulatory efforts, is not well positioned within the existing system of order. Therefore, measures such as KYC or KYCC (Know Your Customer's Customer) to confront the risks associated with AML/CFT or antisocial forces in recent years have not functioned sufficiently.

This reduces the stability and legal compliance of the financial system while also increasing the risk to the final consumer (end-user). In fact, while the KYC/KYCC approach prevents consumers from becoming involved in crimes, the protection of financial institutions facilitates mechanisms such as reinsurance and, in some cases, government bailouts, thereby contributing to the preservation of consumers' property. However, the current decentralized financial system does not have these mechanisms in place, leaving consumers fairly exposed to high and volatile risks.

Moreover, the existence of such risks from the consumer's perspective means that, on the other hand, consumers are less likely to use a decentralized financial system as a real-world means of value exchange, i.e., a means of settlement. Therefore, currencies on a decentralized financial system that are difficult to use as a means of settlement are more likely to be subject to speculation. It has a structure that leads to a vicious cycle of further risk expansion and destabilization, which does not increase its credibility as a value exchange system and further leads to a relative weakening of its settlement function.

In recent years, decentralized financial systems have been trying to solve this vicious cycle by taking a collateral-like approach. However, it is not mature and must be assessed as underdeveloped in its current state, at least in terms of its direct effect on consumer protection.

Identification of issues

Taken together, the fundamental challenges, the challenges as a financial system, and the challenges of consumers, the following can be pointed out as the challenges of a

decentralized financial system

First, a decentralized financial system, in general, does not have well-defined parties. Moreover, since the parties have not been defined, they have not been clearly positioned within the existing system of order. As a result, there is a great deal of inconsistency with the existing legal system and law enforcement, and a decentralized financial system has no choice but to position itself as an unstable entity in the social system.

Second, the responsibility of the parties is unclear. For example, when the parties are tentatively divided into those responsible for the technical development of a decentralized financial system, those directly engaged in business related to the system, those engaged in some form of indirect business, end-users, the press, and the government, etc., the roles of each are not clear and the responsibilities to be assumed are not defined. Hence, each party is forced to assume unrelenting risks in a precarious state. At the extreme, there are a number of cases in which even the government fails to perform its regulatory role to the fullest extent with respect to functions and areas where the legal basis is shaky and has to actively invite the intervention of investigative authorities.

In conclusion, a decentralized financial system is in a state of total lack of credibility in the social sense. Therefore, in order to remedy this situation, it is essential to define the parties, consult between them, and accumulate experience in solving problems between them.

As a result, various effects can be expected if a consensus can be formed on what a decentralized financial system should look like while building a mutual trust relationship. For example, it may be possible to align the direction of technological innovation and increase technical credibility. In addition, the expansion of fair and equitable transactions through the audit mechanism and the dissemination of insurance-like mechanisms in a broader sense, including the government’s contribution, are expected to lead to the avoidance of systemic risk and enhance the stability of the financial system.

The rationale for considering multi-stakeholder governance is effective

Definition of multi-stakeholder governance

There are several definitions of multi-stakeholder governance, but in Japan, the Cabinet Office presents the multi-stakeholder process as follows.

> This grand process is by no means complete with government policy alone. It is essential that organizations and individuals in various positions in society, including companies, consumers, investors, workers, and NPOs, participate in the process, learn, collaborate, and play their roles.
>
> The organizations and individuals who hold the key to resolving these issues are called "stakeholders." The "multi-stakeholder process" is a framework for consensus building in which a wide variety of stakeholders participate on an equal footing and work together to solve problems.
>
> Source: Cabinet Office, "Multi-Stakeholder Perspectives"[136]

In light of the discussion of Internet multi-stakeholder governance in the previous chapter, this section will be use the definition organized as the following.

> Multi-stakeholder governance is a governance mechanism with continuity that consists of three or more stakeholders (interested parties) of the decentralized financial system with an emphasis on diversity and balance, and through meetings where each party can participate and discuss on an equal footing, to communicate through consensus-building and other means to resolve issues that are difficult to resolve by a single party or two.

The advantages of multi-stakeholder governance

To achieve multi-stakeholder governance, it is first necessary to form a multi-stakeholder conference body. In addition, the conference body needs to be structured with an emphasis on diversity and balance.

On the other hand, in order for the diversity and balance of the stakeholders that make up the conference body to be ensured, at least (1) the direct interests of the stakeholders, (2)

[136] https://www5.cao.go.jp/npc/sustainability/concept/index.html

the social attributes of the person in charge, (3) the competence (capability) of the person in charge, etc. must be clearly categorized. In particular, for the items (1) and (2), a balance (state of balance in distribution) is expected to be achieved across the entire conference body, and for the item (3), a certain level or higher must be achieved.
In other words, an orientation towards multi-stakeholder governance means that the parties' roles need to be clarified. Therefore, it is necessary to agree in advance that the definition of the parties mentioned in "Identification of issues" in the previous section ("Challenges posed by a decentralized financial system"), will be clarified. In other words, agreeing to the introduction of multi-stakeholder governance in a decentralized financial system implies that the parties of the decentralized financial system agree to relativize their roles and clarify their positions in the envisioned overall system in advance.
On the other hand, the relative clarity of definitions and roles would allow the followings:

- Decomposing the responsibilities to be taken (or avoided)
- Setting the parties' culpability for liability and limiting domain (distinguishing between infinite and finite)
- Setting the dividing line between the parties based on decomposed liability

If these roles and responsibilities are identified, we expect to see (1) a division of labor based on mutual respect, (2) improved ability to solve problems based on the division of labor, and (3) greater incentives to contribute to multi-stakeholder governance.
Specifically, when some kind of incident occurs, for example, the engineers, business operators, and the government can solve the problem efficiently by dividing the roles and responsibilities of each of them. At the same time, if a consensus is reached among stakeholders, including consumers, on the finitude of the scope of liability (setting of immunity), incentives will be formed for all stakeholders, including businesses, to contribute to multi-stakeholder-type governance, and industrialization based on such forms of governance is expected.

Expectations for multi-stakeholder governance

When multi-stakeholder governance is realized, in light of the experience of Internet multi-stakeholder governance, which is the main reference for this study, the following effects can be expected.
First, technological development will be accelerated and innovation (promotion) based on it will advance. This is the effect of a shared governance infrastructure that allows for a horizontal division of labor compared to when each party is working individually and vertically

on system development and problem-solving. Specifically, it is expected that each stakeholder will be able to maximize their capabilities in their area of expertise, thereby promoting technological development. This is also the history of the development of the Internet itself.

Second, this acceleration of technological development and innovation will encourage the sequential improvement of a decentralized financial system and consequently contribute to the improvement of reliability, especially the formation of trust in the social context as well. From the perspective of the centralized system paradigm, a distributed system appears to be a structure with little stability, to begin with, but if simple modifications and incident response are carried out quickly and stably, the system will be dynamically balanced and consequently stable. If we assume that one of the sources of trust is stability, then any mechanism that contributes to stabilization, even if it is a dynamic equilibrium, will consequently be able to solve the underlying problem. Indeed, the Internet, too, has won trust even with localized obstacles, thanks to a culture of rough consensus and running codes (provisional agreements and rapid implementation).

Moreover, if these technological developments and innovations are realized through a democratic process that ensures diversity rather than a top-down approach by specific decision-makers, there will naturally be a consensus for fairness. In particular, when decentralized financial systems become more widespread and the number of stakeholders, including users, becomes large, ensuring fairness will be very important from the perspective of ensuring the reliability of the system as a whole. Equity, on the other hand, is a very relative concept, and without some kind of agreement and governance based on it, it is impossible to implement both in terms of architecture and operations. The development of the Internet has shown that multi-stakeholder governance is an effective method of resolving these contradictions.

In summary, multi-stakeholder governance is effective in three ways: (1) accelerating technological development (innovation), (2) improving reliability (trust), and (3) ensuring fairness.

Relationship with existing financial system governance

Differences in philosophy

Existing financial system governance covers domestic centralized financial systems based on legal tender systems established in each country and region, as well as international transactions between countries and regions, i.e., adjustment mechanisms such as the equilibrium of values through transactions between legal tender established by each country and region.

In this case, a centralized financial system in each country and region would have governments in each country and region acting as regulators in accordance with national law, while a legally-backed central bank would be responsible for actual currency circulation and settlement, with both parties assuming responsibility for the financial system on the basis of independence and coordination. Based on the above, in transactions with other countries, etc., governance will be established by ensuring an international enforcement framework, including international organizations, and by taking a relative (bilateral) or multilateral (multilateral) approach, as necessary. Such a method will be referred to here as the "international approach."

A decentralized financial system, on the other hand, does not have such a legal tender system or the concept of the respective countries and regions on which it is based. Specifically, transactions and settlements would take place without being located in a country and region system, as long as the Internet is available. As a result, governance tends to be the responsibility of only the stakeholders directly involved in the decentralized financial system, and the proper involvement of national governments is not easy to achieve. Such a method is referred to here as the "global approach."

The international and global approaches are quite different in terms of governance (Table 2). Specifically, most requirements differ on the definition and type of constituent stakeholders, as well as the roles and responsibilities based on them, and even on specific enforcement methods.

Table 2: International Approach v.s. Global Approach

	International Approach	Global approach
Main Targets	Existing centralized financial system	Decentralized financial system
Premise	Law systems and law enforcement in the respective countries and regions	Regulations and enforcement by the entity operating the system

Trust Anchor	Government and the central bank	System operator
The Role of the Government and the Central Bank	Clearly stipulated by law	Unclear
International Transactions and Settlements	Relative and multilateral transactions and settlements based on international enforcement frameworks that comply with the respective legal systems	There is no concept of international; everything is a transaction and settlement between entities called users
Stakeholder	Governments (regulators), international organizations, financial institutions, auditors, end-consumers, press, etc.	Developers, operators, indirect operators and users of the system

Therefore, the main parties to existing financial system governance, such as governments, need to fully understand the differences between international and global approaches when considering decentralized financial system governance based on their experiences. In addition, since multi-stakeholder governance requires stakeholder diversity and equal relationships, it is necessary to show a certain respect for the global approach while accepting, as far as possible, the different roles expected from that of government in the international approach.

The philosophy to be understood in this context is the value that “decentralization” brings, and it is necessary to deepen the understanding of the following three concepts as requirements to constitute the philosophy.

- Trustless: a state in which the trust is constituted in a decentralized manner
- Polycentric: the state of having more than one center, or allowing it
- Diversity: a state in which stakeholders are diverse, fair and equal

All of these concepts are always important in today's decentralized financial systems, and the fulfillment of all of them is a prerequisite for the construction of multi-stakeholder governance based on a global approach.

Issues to be addressed in a global approach

Multi-stakeholder governance based on a global approach, and the bodies that embody it, are strongly required to address at least the following issues

First, it is essential to establish a channel for dialogue, i.e., a system of constant consultation of stakeholders. While meeting bodies in multi-stakeholder governance are naturally permanent, it is expected that they will not only meet statically or intermittently but that some agenda will be considered 24/7. This is because the expected requirement, especially in multi-stakeholder governance, is to resolve issues in a coordinated and collaborative manner when incidents occur. With these experiences, the parties themselves become more confident in this governance mechanism itself.

Secondly, it is necessary that no other role or behavior be brought in governance by any party. In government, for example, the roles of regulators in the international approach are strongly expected to be “forgotten” once in multi-stakeholder governance, both in terms of performing the role and building trust. This, of course, does not negate their experience in the international approach and the potential for contribution based on that experience. Still, it is more strongly noted that the form of governance, and of course the assumptions, are very different. Of course, this stance is not limited to the government, but engineers and businesses are also required to take a similar stance.

It is also expected that resources will be brought in wherever possible to ensure that there is sufficient cooperation between stakeholders. The scope of cooperation, in this case, can be divided into “normal response,” such as building up engineering and improving governance, and “emergency response,” such as systemic risk reduction and coordinated intervention in the market (or support for that). The priority is to be able to carry out the former at all times, and based on that performance, and the latter effort will make progress.

New opportunities for the development of the financial system

As mentioned earlier, the governance of a decentralized financial system is very different from the governance of an existing financial system. Therefore, the challenge to the governance of a decentralized financial system is, to put it plainly, a difficult one. However, we believe that there are also some fruits to be gained by the existing financial system as a result of its challenges and overcome.

For example, gaining greater knowledge of decentralized financial systems can lead to the acquisition of new paradigms and experiences in engineering (or access to such advanced engineering). This could contribute to financial system stability in the broadest sense of the term, as it would ensure positive alternatives (alternatives at the architectural level) in the

event of serious flaws in the existing financial system.

It also provides a deeper understanding of the ideas and challenges of “architecture” as posed by the American constitutional scholar Lawrence Lessig.[137] The architecture proposed by Lessig shows that it takes a pre-emptive action control approach from the design stage, rather than the suppression of action through post-event repetition and that the regulator may be the designer (architect) of the architecture of information systems, rather than the law, norms, or the market.

While Lessig's point has already been more clearly demonstrated as a real challenge in decentralized financial systems, there is a possibility that the de facto regulator of existing centralized financial systems may not necessarily be the government or financial services providers, due to the promotion of cloud computing and other factors. Such awareness will also help in dealing with the existing financial system.

[137] Lawrence Lessig, *CODE version 2.0*, Basic Books(2006)

2.2.2. Designing Communities to Establish Decentralized Financial Governance

2.2.2.1. Identify stakeholders who need to be involved

Types of stakeholders that need to be involved

According to the provisional definition of multi-stakeholder governance mentioned in the previous section, in order to establish a multi-stakeholder type of governance for a decentralized financial system, it is necessary to establish “a governance mechanism with continuity that consists of three or more stakeholders (interested parties) of the decentralized financial system with an emphasis on diversity and balance, and through meetings where each party can participate and discuss on an equal footing, to communicate through consensus-building and other means to resolve issues that are difficult to resolve by a single party or two.”

Therefore, it is necessary to have a balanced and diverse stakeholder structure, with (1) stakeholders engaged in the existing centralized financial system and (2) stakeholders engaged in the decentralized financial system.

However, multi-stakeholder governance is not necessarily the norm today. Therefore, it is necessary to have a person who understands the philosophy and has experience in establishment and management techniques, that is, a person who (3) has knowledge of multi-stakeholder governance and (4) can contribute risk money to the conference body in accordance with the philosophy.

In summary, the following types of stakeholder involvement are at least necessary for the finalization of a multi-stakeholder type of governance for a decentralized financial system.

1. Stakeholders engaged in the existing centralized financial system
2. Stakeholders engaged in a decentralized financial system.
3. Persons with knowledge of the multi-stakeholder type of governance
4. Funders and sponsors who can contribute risk money to the conference body

Stakeholders engaged in the existing centralized financial system

It is expected that at least some of the existing centralized financial systems, as well as those engaged in the following, will also play a stakeholder role in decentralized financial systems.

1. Governments and government agencies
2. Financial institutions
3. Industry associations
4. Engineers
5. Users (consumers)

First, “governments and government agencies” are expected to play a role in aligning the existing order system, i.e., the legal and law enforcement framework, with the decentralized financial system, and in designing the system, including new legislative measures as necessary. However, this is not an attempt to position the decentralized financial system in the existing orderly system through a coercive approach, but rather a strong need to understand the value of the decentralized financial system and to promote it in a coordinated manner while paying a certain amount of respect to it. This is also the premise for directing multi-stakeholder governance in the first place, and if a coercive approach is adopted, then multi-stakeholder governance is not required in the first place.

Therefore, it is expected that the central government of each country or region will be involved, as well as international government agencies such as the Organisation for Economic Co-operation and Development (OECD), the Bank for International Settlements (BIS) and the Financial Stability Board (FSB), as well as the Group of 20 Finance Ministers and Central Bank Governors (G20). Since these government agencies and conferences are oriented towards consultation-based problem solving even in existing centralized financial systems, it is assumed that multi-stakeholder governance will also be understood more easily to some extent, and that will contribute to the deepening of the consideration.

Next, “financial institutions” and “industry associations” are the leading business operators in the existing centralized financial system and can be said to be the direct representatives of interests in that system. As a result, conflicts of interest may be most intensified as the businesses have positions aimed at maximizing the present value as assessed in the existing framework. However, it is important that these so-called expressions of interest are not excluded to ensure diversity in multi-stakeholder governance, and these positions should not

be excluded.
On the other hand, as with the aforementioned “governments and government agencies,” a multi-stakeholder type of governance cannot be achieved if the coercive approach attempts to position the decentralized financial system within the existing framework or forcibly excludes the decentralized financial system. Therefore, they are expected to be active and favorable to the decentralized financial system that can identify business opportunities and assess future value in the system.

In addition, today’s financial systems, whether centralized or decentralized, are built on a foundation of computer engineering. For this reason, it is desirable to have “engineers” who play a direct role in structuring the financial system. In particular, engineers have a direct role in ensuring that existing centralized financial systems have engineering alternatives, i.e., proactive alternatives (alternatives at the architectural level) in the event of a serious flaw in the existing financial system. This will be one of the direct motivations for the existing centralized financial system to cooperate with the decentralized financial system. Therefore, the exchange of engineering between the two systems is expected to further enhance the robustness of the overall financial system and potentially bring significant social value.
On the other hand, the industrial structure of the existing centralized financial system has become more rigid as the market matures, and the engineers engaged in it have the same interests as the financial institutions and industry associations. Therefore, as with financial institutions and industry associations, engineers are expected to be proactive and favorable to the decentralized financial system that can identify business opportunities and assess future value in the system.

Futhermore, “users (consumers)” are also important stakeholders. The user (consumer) here is essentially the final user (final consumer), regardless of whether the system they use is centralized or decentralized. Therefore, regardless of the type of system (centralized and decentralized), they should be treated and protected equally. However, since the decentralized financial system is immature as an industry, the consumer protection concepts and mechanisms premised on a decentralized financial system are also not sufficiently mature at this time. Therefore, current consumer protection can only be achieved to the extent that consumer protection measures in the existing centralized financial system are applied with modifications.
The concept of consumer protection cannot be sustained by attempting to protect consumers unilaterally. It is necessary to have a management system like a PDCA cycle under a certain framework, so to speak, in which the entire industry bears the cost and effort, and constantly

seeks to improve consumer protection measures to the highest possible level within a feasible range.

Therefore, it is desirable that users (consumers) in the multi-stakeholder governance of a decentralized financial system have an incentive to consider the position of consumers and the way consumer protection should be rooted in the structure of the decentralized financial system, rather than merely demanding the interests by expanding and applying the consumer protection used in the existing centralized financial system with modifications. And in that sense, given that the study is still in its infancy, it is not necessarily expected to be involved from an early stage.

Stakeholders engaged in a decentralized financial system

In a decentralized financial system, at least those engaged in the following are expected to play a stakeholder role.

1. The cryptocurrency community (e.g. minor, exchange, engineer, etc.)
2. Standardization bodies (e.g. ISO/TC307, IETF, etc.)
3. Blockchain community (e.g. researcher, engineer, etc.)

First, the “cryptocurrency community” refers to all stakeholders involved in the circulation and trading of cryptocurrencies (or virtual currencies). This will include Bitcoin and all other currencies such as Altcoin (a Bitcoin derivative).

The types of stakeholders in the community include, directly, miners, exchanges, software engineers, users (consumers), and indirectly, data center (and the server farms that makeup them) operators, hardware operators, electric power providers, and the engineers associated with each. Of these, it is the direct stakeholders who are expected to be involved in multi-stakeholder governance, especially in the early stage.

In particular, software engineers are responsible for directly configuring the architecture of the cryptocurrency itself. Without even needing to cite Lessig's “architecture theory,” it is clear that the role of designing architecture in cryptocurrencies is similar to the role of, i.e. institutional design in traditional social systems. Not only that, but the design of the architecture also dictates the de facto enforcement regime and interest coordination mechanisms. For this reason, the participation of engineers is essential.

Note that users (consumers) are also stakeholders in the cryptocurrency community who are expected to be involved in consideration of a decentralized financial system. In particular, consumer protection in a decentralized financial system is not sufficiently mature at the

moment, as well as consumer protection concepts and mechanisms premised on a decentralized financial system, due in part to the immaturity of the decentralized financial system as an industry, as mentioned above. Also, consumer protection in a decentralized financial system can only be achieved to the extent that consumer protection measures in the existing centralized financial system are applied with modifications. Therefore, there is a need to consider a new form of consumer protection that should be called “native to the decentralized financial system,” but it is undeniably still considered at this point. Therefore, it does not negate involvement in the consideration, but it does not necessarily call for involvement at an early stage.

Next, “standardization organizations” are organizations and communities (including national committees) that promote standardization efforts for blockchain technologies based on cryptocurrency technologies in general. Specifically, ISO/TC 307 (Blockchain and distributed ledger) and IETF/IRTF are examples.
These organizations/communities have some overlap in human resources with the cryptocurrency community, mainly from an engineering perspective. Therefore, while there may be more engagement as a result, it is hoped that a clearer organization-community liaison will be built rather than a bypassed approach by individuals, especially with regard to liaison between conference bodies and organizations.

In addition, the “blockchain community” is a community that aims to separate blockchain from cryptocurrency as a technology base and to apply blockchain technology as one of the implementation forms of distributed computing. Specifically, it is expected to be applied to supply chain management, intellectual property management, etc., and technology development is underway.
There is a sharp distinction between the blockchain community and the cryptocurrency community, and the latter is envisaged as a more direct stakeholder in a decentralized financial system, so it is not necessarily expected to be involved at an early stage. However, this does not negate their participation, as each community has some overlapping human resources, mainly from an engineering perspective, and in the future, multi-stakeholder governance of decentralized financial systems may become a reference model for governance in blockchain applications.

Other stakeholders who are expected to be involved from an early stage

In addition to stakeholders engaged in existing centralized and decentralized financial systems, other types of stakeholders expected to be involved from an early stage include

“researchers with knowledge of the multi-stakeholder type of governance.” Multi-stakeholder governance is not necessarily the norm today. Therefore, it is expected that all parties will learn the experience of the techniques of its creation and operation and that the parties involved in the decentralized financial system will improve it.
Areas that already practice multi-stakeholder governance include the Internet, data privacy, and urban development. This report shows that the Internet, in particular, also has always been strongly oriented towards multi-stakeholder governance and that it has a deep understanding and experience of the social impact of engineering and architecture. Therefore, researchers with knowledge of multi-stakeholder governance are assumed to be Internet governance researchers or Internet engineers and researchers with experience as a party to it.

In addition, the practice of multi-stakeholder governance and its meeting bodies requires "funders and sponsors who can initially contribute risk money". This means that the stakeholders who need to be involved, as shown in this paper, could be initial candidates, but on the other hand, the fact that a stakeholder also serves as an investor may raise questions about the neutrality of the consideration, so sufficient explanation and consensus-building are required when accepting it. Therefore, it is desirable to recruit third party investors who are not directly involved as stakeholders, but who share the philosophy and significance of the area in question, or sponsors based on a business model that achieves this.

2.2.2.2. Specific mechanisms to reach a solution by applying MSG

ICANN Case Study

We examine the application of multi-stakeholder governance to a decentralized financial system from the Internet's actual operation. This section examines the mechanism, referring to the governance of ICANN, in terms of the nature of the issues to be addressed and the structure of liaison with related organizations.

As described in Chapter 1 (1.2.1. ICANN), ICANN's multi-stakeholder model consists of an ICANN Board of Directors, three Supporting Organizations (SOs), four Advisory Committees (ACs), one Technical Liaison Committee, two Governance Accountability Entities, and an Empowered Community. In addition to these stakeholders, the Ombudsman and ICANN staff support the organization's work.

Decision-making at ICANN is a bottom-up process that involves discussion and advice among ICANN groups and participation from around the world. The final decision-making body, the Board of Directors, makes decisions with relevant advice.

In the bottom-up process, the supporting organizations develop the policy and, the Advisory Committee provides advice. Each development process follows similar but slightly different steps, such as identifying issues, scoping issues, forming working groups, preparing and reviewing reports, and sending reports to the ICANN Board of Directors. The policy is voted on by the ICANN Board of Directors.

The recently introduced Empowered Community (EC) influences over the decisions of the Board and may reject decisions. Specifically, it is made up of five decision-makers - three SOs (ASO, ccNSO, and GNSO), ALAC, and GAC - who monitor how the Board runs ICANN's operations; the EC can appoint and remove individual directors, recall the Board as a whole, approve matters requiring EC approval, and veto decisions of the ICANN Board. On some topics, the Board may deny a request from the EC, but there is a scheme to mitigate.

ICANN has developed policies (DNS policies, operational policies) and general practices. Policies are developed through a formal Policy Development Process (PDP), defined in the bylaws, for the development and operation of DNS, which is the original purpose of ICANN's establishment. In addition, operational policies define how ICANN operates and are not required to follow a PDP.

ICANN, on the other hand, has stakeholders to advise the Board in parallel. Specifically, the At-Large Advisory Committee (ALAC), the Government Advisory Committee (GAC), the Root Server System Advisory Committee (RSSAC), and the Security and Stability Advisory Committee (SSAC) will advise on their respective areas of responsibility.

In this way, ICANN is working to solve a variety of problems through the cooperation of

several organizations that have been set up according to their areas and agendas. In peacetime, the main procedures for resolving technology development issues and standardizing procedures are (1) policy and practice development by supporting organizations, (2) checking and advice by committees, and (3) approval by the Board of Directors. These will be done in accordance with the provisions of the process. In addition to these peacetime processes, we respond to emergencies by collaborating with external organizations such as the IETF, with whom we are in constant contact. In addition, the operation of ICANN itself will be reviewed as necessary, with external advice and audits from the Ombudsman and others, and without being bound by regulations.

Simulation in the governance of decentralized finance

As a simulation of the ICANN mechanism applied to multi-stakeholder governance of a decentralized financial system, we analyze two cases, peacetime response, and emergency response.

Peacetime actions

Issues related to decentralized financial systems in peacetime include (1) technology development, (2) technology standardization, (3) security, (4) privacy, (5) harmonization with national legal systems, and (6) consumer protection.

Since each of these can be set as an independent theme in principle, a working group related to each of them has been established, and a director is assigned to each of them to discuss and summarize the deliberations in the assigned areas (Figure 14).

Theme	Agenda	outcome	director	member
technological development	…	…	…	… …
technology standardization	…	…	…	… …
security	…	…	…	… …
privacy	…	…	…	… …
Harmonization with national legal systems	…	…	…	… …
consumer protection	…	…	…	… …

Figure 14: An example of a working group structure

The working group meets regularly (e.g., every two to three months) to 1) confirm the progress of ongoing issues, 2) identify and evaluate new issues, and 3) share other overall activities (Figure 15).

Agenda	progress	Schedule	WG Director's Review
1. …（continued）	…	…	…
2. …（continued）	…	…	…
3. …（continued）	…	…	…
4. …（new）	…	…	—

Figure 15: Example of a working group progress check

The members of the working group will consider ongoing issues in the working group to resolve the issues. In this case, the definition and division of the roles of the members will be determined according to the theme of each working group, and therefore, no uniform rules will be established but will be structured according to each theme and activity. However, a director must be in place, who is responsible for putting the discussions together at their authority and proceeding with the process thereafter.

The findings of the working groups are then subjected to certain reviews for technical

relevance, reasonableness, and legal compliance by working groups and independent organizations such as advisory boards. However, the Advisory Committee shall only advise and, in principle, review the decisions made by the working group on the premise that they are respected.

The results of the reviewed considerations will ultimately be disseminated externally as a result of the community reviewing the decentralized financial system. In addition to general publicity, explanations at liaison organizations, etc. should be given to promote understanding.

Emergency actions

As emergency issues related to decentralized financial systems, for example, (1) instability of the cryptocurrency market (e.g., extreme increases in volatility), (2) emergence of technological issues (e.g., the occurrence of serious security incidents and economic crimes), and (3) weakening of order systems in accordance with the legal systems of each country, can be raised.

Since each of these will occur suddenly and require some kind of agile response (e.g., the release of a statement as a minimum), the head of the conference body, or the body that advises it (e.g., an advisory committee) will examine and discuss how to respond.

From the perspective of emphasizing mobility, it would be desirable to have a system in place that (1) allows the person in charge to recognize an emergency, (2) provides discretion to make emergency decisions through the authority of those in charge, (3) at a minimum, advisory committees should be consulted, and (4) minutes of all such processes should be maintained.

In addition, when such flexible and strong authority is granted to a responsible person, it is necessary to include external verification at a later date. Therefore, it is necessary to establish in advance the framework of a system and conditions for verification, the formulation of the process, and the method of publication.

It is also necessary to be able to introduce a new audit system when the system is deficient. For example, the consensus-building process for this purpose should also be predetermined, referring to ICANN's Empowered Community introduction process.

Points to keep in mind for the application of MSG

As a result of the simulation described in the previous section, the following is a list of issues that should be considered and, if possible, resolved from the outset when creating a multi-stakeholder governance system for a decentralized financial system using ICANN as a reference.

The basic composition of the conference body

Firstly, due to the nature of the ideals it aims to achieve, a conference body oriented towards multi-stakeholder governance is difficult to define its organizational structure and roles as an organization with a hierarchical structure (e.g., military or bureaucracy) and is considered to approximate a form of so-called “teal organization”[138] in terms of organizational theory. Therefore, it is necessary to have an approach in which the members of the organization are aware of their roles and, at the same time, dynamically change those roles as necessary.

What is important then is not to bring “all” of the role that multi-stakeholder governance has to the outside into the conference body. For example, if the government's role in the existing centralized financial system remains the same, but a similar role is self-defined in multi-stakeholder governance, it may not be able to overcome the differences in governance structure and issue awareness that underlie the role, and the consideration may be derailed. Naturally, beyond an orientation towards multi-stakeholder governance, it is important to understand the interests in terms of roles and positions in the existing centralized financial system. However, if that interest is brought in as is, it will only serve the role and function of an interest representative based on a different paradigm than multi-stakeholder governance. On the other, dynamic changes in organizational structure and role definitions require parties to mutually express and understand the aspects of changes compared to parties in the organizations with static structures. However, there is an upper limit to the expressive and cognitive abilities of humans, and cognitive differences inevitably arise. The director of the working group will be asked to absorb these differences, and this will require a high level of management skills and capabilities, including the ability to cope with the increased workload. Therefore, a certain job description is required for the requirements of the director and, more to the point, some compensation is expected to occur.

Peacetime actions

In ordinary response, each of the working group considerations is highly specialized. As a result, there is a risk of the study becoming specialized and losing coordination with other studies, so-called “silos.” As siloing progresses, the coherence of the study becomes less consistent when looking at the conference body as a whole, which may lead to a decline in the contribution of the conference body to the outside world and, as a result, to a weakening in centripetal force.

Along with that case, to share information and harmonize deliberations among the working

[138] Frederic Laloux『Reinventing Organizations』(Lightning Source Inc, 2014)

groups, a role such as an area director across multiple working groups, in addition to the director of the working group itself, can be established and can participate in the regular meetings of each working group to prevent silos of deliberations (Figure 16). Efforts should be made to establish such an area director to ensure the professionalism and coordination of the working group while maintaining the consistency of the conference body.

Agenda	progress	Schedule	WG Director's Review	Area Director's Review.
1. … (continued)	…	…	…	…
2. … (continued)	…	…	…	…
3. … (continued)	…	…	…	…
4. … (new)	…	…	—	—

Figure 16: An example of the review structure with an area director

In addition, there is a need for a function to review the results of the working group and a role (assumed as an advisory board in the simulation). However, how to position and empower such a review function in the governance of a conference body is always a challenging task from the perspective of balancing both freedom in reviews and quality assurance of the results. Ultimately, some kind of decision-making based on consensus is necessary, but as a practical solution, it is expected that the process, role, and strength of the authority of the review function will be reviewed in a certain cycle.

Requirements for establishing governance

Up to the previous section, we have outlined the components and requirements for a conference body with multi-stakeholder governance to proceed with the consideration of resolving issues in a decentralized financial system. On the other hand, to maintain and expand such a review system in a stable manner, it is expected to meet at least the following characteristics.

- Relativity
- Diversity
- Continuity

First, "relativity" does not unconditionally bring in the existing social order and hierarchical structures in multi-stakeholder governance. And it refers to reconfiguring the definition and structure according to the situation while understanding the characteristics of the decentralized financial system under consideration.

If we think logically in the first place, multi-stakeholder governance is unnecessary if we bring in the existing order and structure, and it is more reasonable to consider it according to such an existing system. If, on the contrary, it is considered necessary to consider multi-stakeholder governance, it would be appropriate to introduce definitions and structures that refer to the characteristics of such governance and previous cases in the context of such background.

Such logical consistency is a critical requirement when inviting stakeholders who do not currently feel the need to take the form of a majority of stakeholder consensus to participate in the process of resolving the challenges of a decentralized financial system. Above all, engineers with a keen interest in cryptocurrencies are influenced by Timothy C. May's The Crypto Anarchist Manifesto[139], Eric Hughes' A Cypherpunk's Manifesto[140], etc., and have a high affinity for so-called cypherpunk culture. In this culture, there is a tendency to downplay or deny the existence of not only the government in the external sense but also of the parties

[139] May, Timothy C. (1994), The Crypto Anarchist Manifesto, http://groups.csail.mit.edu/mac/classes/6.805/articles/crypto/cypherpunks/may-crypto-manifesto.html

[140] Hughes, E. (1993), A Cypherpunk's Manifesto, https://www.activism.net/cypherpunk/manifesto.html

in the existing centralized financial system in the first place. In order to deepen the understanding of participation in the consideration of multi-stakeholder governance framework, it is essential to articulate a state of affairs consistent with this form of governance.

Next, "diversity" is a core concept in multi-stakeholder governance, which is an approach to solving challenges where stakeholders are multiple or multipolar. Since there are multiple or multipolar stakeholders, it is necessary to understand the characteristics of such stakeholders in as much detail as possible and to compose the types that represent each of these characteristics as evenly as possible. In order to do so, it is necessary to ensure diversity while evaluating various perspectives, including external typologies such as generation, gender, race, and nationality.
Indeed, the membership of ICANN, the primary reference for this study, is highly conscious of this diversity. This is evident from the fact that the term diversity appears eighteen times in ICANN's bylaws, and is especially emphasized in the core values.

In addition, "continuity" is a continuous activity and a constant dialogue. One of the characteristics of multi-stakeholder governance is that the organizational structure and role definitions change dynamically, but a certain amount of activity needs to be sustained to maintain a certain level of equilibrium while dynamically changing. Otherwise, the dynamic change would become immediately obsolete, and the state once considered to be in equilibrium would no longer be in equilibrium.
It is the reason why the dialogue must be continuous. The state of dialogue and the state of being in dialogue is the reality of the activities of the conference body, and at the same time, it serves as a meta-information that indirectly expresses the current state and interests of the participating stakeholders. In particular, unlike a conference body with a hierarchical structure, multi-stakeholder governance may not have a clear static position or role. Therefore, it is desirable that they are kept in a state where they are understood by others about their current interests and values, and it is reasonable that there should be a continuous dialogue.

2.2.2.3. Models and Mechanisms

Practice of multi-stakeholder governance for decentralized finance

As result of this study, the interdisciplinary community which works for decentralized finance based on multi-stakeholder governance was established. This part describes the circumstance of how that community has been developed, and the outline of the expected structure of its governance.

Establishment of BGIN

On March 10, 2020, the Blockchain Governance Initiative Network (BGIN) was established based on the results and knowledge gained from this project, then this project was involved as a party to the project. The organization was constituted as a network-oriented conference body to practice multi-stakeholder governance by bringing together governments, cryptocurrency parties, and blockchain parties around the world, including Japan's FSA, researchers, and businesses.

The founding members include the following engineers, governments (regulators), academia, blockchain operators, the financial industry, standards bodies, intellectuals, civic groups, etc., and the lineup signifies the value of diversity and balance.

Julien Bringer (Kallistech)
Brad Carr (Institute of International Finance)
Michele Finck (Max Planck Institute for Innovation)
Joaquin Garcia-Alfaro (Institut Mines-Télécom / Institut Polytechnique de Paris)
Byron Gibson (Stanford Center for Blockchain Research)
Hui Li (Huobi Blockchain Academy)
Philip Martin (Coinbase)
Shin'ichiro Matsuo (BSafe.network / Georgetown University)
Jumpei Miwa (Financial Services Agency, JAPAN)
Katharina Pistor (Columbia Law School)
Nii Quaynor (Ghana Dot Com Ltd)
Jeremy Rubin
Danny Ryan (Ethereum Foundation)
David Ripley (Kraken)
Nat Sakimura (OpenID Foundation)
Kazue Sako (Sovrin Foundation)
Mai Santamaria (Ireland Department of Finance)

Yuji Suga (Internet Initiative Japan Inc. / CGTF)
Shigeya Suzuki (BSafe.network / Keio University / WIDE Project / BASE alliance)
Yuta Takanashi (Financial Services Agency, JAPAN / ex-Georgetown University)
Robert Wardrop (Cambridge Center for Alternative Finance)
Pindar Wong (VeriFi (Hong Kong) Limited)
Aaron Wright (Cardozo Law School)

The founding document of BGIN announced on the date of its establishment states the purpose of the document as follows[141].

> A group of people from various blockchain stakeholder groups agreed on the establishment of a new global network named Blockchain Governance Initiative Network (BGIN - pronounced 'BEGIN'). Japan led the discussion at the G20 in 2019 as the presidency on the governance for decentralized finance in accordance with the experiences against high profile hacking incidents and of forming regulatory frameworks. Building on this background, this network aims at providing an open and neutral sphere for all stakeholders to deepen common understanding and to collaborate to address issues they face in order to attain sustainable development of the blockchain community. As an open network, we are now actively and widely seeking interested parties to join this initiative, so as to accommodate diverse opinions from a wider range of blockchain stakeholders.

Similarly, the objectives and immediate goals of BGIN are also described as follows.

> As blockchain could affect a wide range of social and economic activities, the way we fulfill
> social interests in the financial system, which we currently depend on through regulation and its enforcement, may have to change as well. At this early stage of development, we ought to start designing a new mechanism to ensure the sustainable development of our new ecosphere by involving various stakeholders.
>
> The Blockchain Governance Initiative Network (BGIN), pronounced 'BEGIN', will take a leading role to design healthy governance where stakeholders develop a common understanding, enhance dialogue, and work together and make a real positive impact for the ecosphere and society at large.

[141] https://bgin.team/press_releases/20200310_press_release_bgin.pdf

To serve the above purpose, BGIN tentatively aims at

1. Creating an open, global and neutral platform for multi-stakeholder dialogue
2. Developing a common language and understandings among stakeholders with diverse perspectives
3. Building academic anchors through continuous provision of trustable documents and codes based on an open source-style approach

A conference body for multi-stakeholder governance in a decentralized financial system established with such a structure and purpose has probably never been established before, and this is probably the first time it has been established. In addition to advocating a multi-stakeholder stance, this report also refers to actual Internet governance and analyzes its actual status and historical background. Therefore, BGIN is not just a challenge, but already has the character of a model to refer to when taking similar issue-awareness approaches in related fields in the future.

・Governance to be addressed by BGIN

There are some of the near-term mechanisms for BGIN as follows.

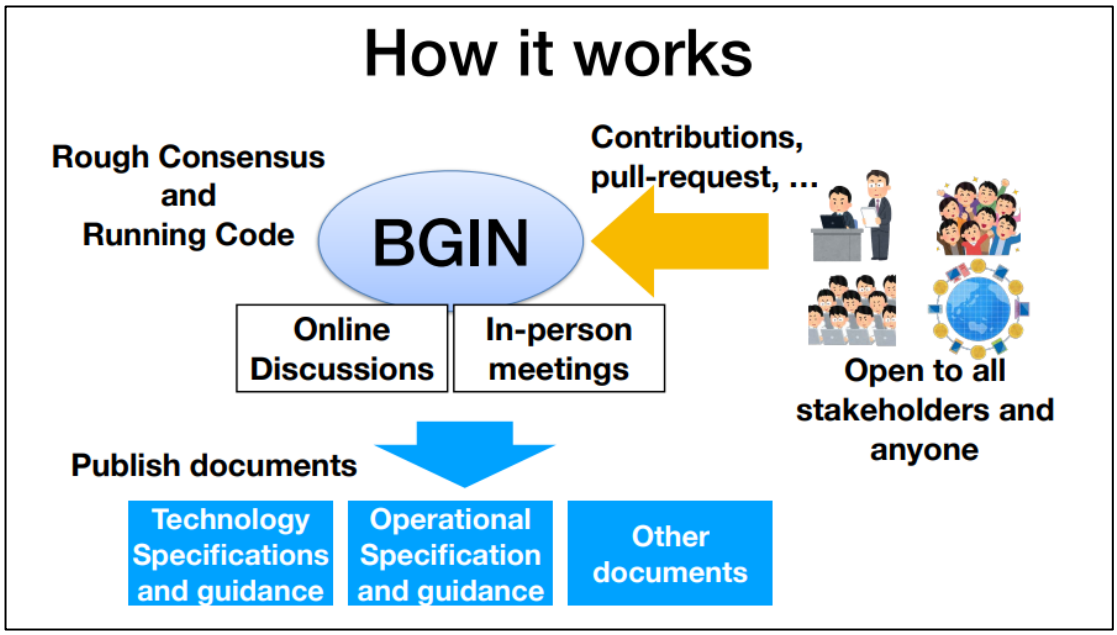


Figure 17: Mechanism of BGIN

(Source: https://bgin.team/presentations/20200310_BGIN_Declaration.pdf)

When this project ends at the end of May 2020, contributions (soliciting opinions) and pull requests (a kind of review function derived from the function of GitHub) from all stakeholders, including founding members will be accepted, and results through online discussions and, face-to-face meetings will be obtained. The results are organized into (1) technical specifications and guidance, (2) operational specifications and guidance, and (3) other documents. The study and results advocate a rough consensus and a running code (provisional agreement and rapid implementation), suggesting that the study and results follow the culture of the IETF.

Because BGIN has recently been launched, and has been affected by a new type of coronavirus infection since its establishment, it was difficult to proceed with the study. Therefore, at the end of the project, no more than the aforementioned has been set forth with respect to the governance structure and the division of roles of the parties. However, during the preliminary consultations with the founding members, it was explained that the conference body would be oriented towards the operation of the conference body based on its experience with Internet governance as a reference point, and a certain understanding was obtained. In addition, as quoted in the establishment announcement document above, the results of the G20 Finance Ministers and Central Bank Governors Meeting held in Fukuoka in 2019 have been followed. In the future, it is expected that these principles will be further verbalized in order to share them, while at the same time promoting the implementation of governance based on these principles with reference to ICANN and other multi-stakeholder governance of Internet governance.

How to obtain funds

As we have discussed above, multi-stakeholder governance is likely to be cumbersome and costly by its very nature. On the other hand, given the principles and background of this governance-oriented philosophy, it is not easy to set up a for-profit organization that pursues specific interests. If we follow the example of ICANN and other leading conference bodies, the basic revenue structure (revenue stream) could be (1) donations, (2) sponsorship of the event and associated income, (3) provision of documents for a fee, etc.

With regard to “donations,” it is assumed that donations will be solicited from individuals and companies that share the idea of having a conference body based on multi-stakeholder governance to solve the problems of the decentralized financial system. On the other hand, it is necessary to design the system that maintains operational independence so that these donations do not affect the operation and consideration of the conference body.

Secondly, with regard to “sponsorship of the event and associated income,” regardless of governance, it is often the case for events hosted by non-profit organizations to divide the conference itself into (1) closed events only for related parties, (2) paid open events, (3) free (or partially paid) sponsored events, etc., and use (2) and (3) as revenue opportunities. In fact, BGIN plans to hold the first event in August 2020 and the second in early 2021, so it is possible to position these opportunities as revenue opportunities. However, as with the aforementioned “donation,” it is necessary to design the system that maintains operational independence so that these sponsorships do not affect the operation and consideration of the conference body.

As for the “provision of documents for a fee”, ISO/IEC, for example, sells documents related to standardized technologies for a fee, which is positioned as one of the revenue sources. However, the scale of the business by itself is not likely to be sufficiently profitable, and there are some issues such as the circulation of documents is hindered by charging for the documents, the sharing of results is not progressed, and in some cases the significance of the existence of the conference body may be weakened. Therefore, it is reasonable to consider this revenue opportunity as a complementary position, as it is subordinate to other measures.

Although each of these business models is different, they are all designed to provide some value to the outside world and to be compensated for it. Therefore, it is necessary to clarify

the value that can be enjoyed by the people outside of the conference body, describe the value to the target, and provide a package that can be reliably delivered. In other words, such organizational management requires marketing thinking and public relations measures based on marketing strategies.

In this regard, it is hard to be said that ICANN, which preceded it in this regard, has done enough to develop marketing strategies and public relations efforts. In fact, what issues are being discussed at ICANN, how they are being considered, and what results are being achieved is not enough to be readily accessible in English as well as Japanese, and the documents that have been made public need to be considered for interpretation. For this reason, BGIN needs to improve its marketing strategy and public relations system in order to increase the certainty of revenue opportunities

Secretariat function

The functions that can be externally analyzed for multi-stakeholder governance bodies and Internet governance organizations, such as ICANN, which were referred to in this project, were mostly clarified through this project as summarized in Chapter 1. Based on these results, the secretariat functions (back-office functions) required by BGIN should be identified based on the outline of ICANN and other references, as well as the functions envisaged at present.

Some of the key functions expected of the secretariat include the following.

- Develop an environment for the stable execution of the conference body and its activities
- A primary point of contact for external inquiries
- Management of intellectual property rights and personal information, etc.
- Accounting

First of all, “develop an environment for the stable execution of the conference body and its activities” can be broadly divided into online and offline, considering the reality of BGIN's activities. In terms of online discussions, there should be a mailing list, web server, storage, and cloud services that allow for constant discussion. These are expected to be in a state where sensitive information can be handled. For this reason, a highly effective data management system must be introduced. For example, it is expected that data management, such as defining data and user types in terms of LoA (Levels of Assurance) and setting management categories, should be introduced.
On the other hand, with regard to offline operations, considering that BGIN's secretariat will be located in Tokyo, it will be necessary to improve the office environment in the city, as well as handle corporate registration and tax procedures. In addition, since face-to-face events are expected to be offline activities, preparations, and arrangements for such meetings and related logistics are expected to be handled.

Along with the development of the environment, the “a primary contact point for external inquiries” is expected to function as a point of contact for BGIN's external communications, as well as for liaison and coordination with external organizations. In this case, it is necessary to set up and operate the primary contact point itself, as well as to manage the contacts, etc. It is also possible that BGIN will increase its cooperation with related overseas organizations in the future, so it will be necessary to provide foreign-language support at these contacts.

Then, “management of intellectual property rights and personal information” is necessary to perform not only management as a system but also procedures and legal responses related to the protection of rights and privacy (data protection) as well as the data management mentioned earlier, In particular, since BGIN is expected to have participants from various countries and regions, it is expected that the BGIN will be managed with the cooperation of experts and practitioners as necessary, such as lawyers, who are well versed in the legal systems of each country, and that a system of management and procedures will be put in place that is consistent with the philosophy of the conference body.

In addition, “accounting” requires audit correspondence along with the usual disbursements and records. Since BGIN is expected to have participants from various countries and regions, as well as a variety of revenue opportunities, it is expected to develop and operate an accounting system that is consistent with the philosophy of the conference body, with the cooperation of accountants and other experts and practitioners who are familiar with the legal and accounting systems of each country, as needed. Furthermore, it is expected that the results of the audit should be made public, but it is also necessary to consider the content and method of the public announcement, taking into account the diversity of the stakeholders surrounding BGIN and the differences in their values.

The functions, mentioned above, necessary for the secretariat have not yet been fully implemented in the latest BGIN at this time, and the minimum preparations for the “accounting” system have been made, while “an environment for the stable execution of the conference body and its activities” is being promoted. Thus, it is expected to improve its accounting structure to ensure that it can handle revenue in anticipation of the event being held in August 2020 and strengthen its primary contact point and public relations structure as necessary.

The necessity of a legal entity

In academic conferences and initial consortia, the secretariat is sometimes managed by a voluntary organization because of the light administrative burden. However, for the entity that serves as the secretariat to perform its functions properly, it is desirable for the secretariat to become an independent legal entity from the following three points of view.

（1） A perspective that ensures neutrality from all stakeholders

- To avoid benefitting particular stakeholders.
- To discuss operations and accounting and disclose the information that needs

to be provided, without being bound by the policies of individuals and organizations on which they depend if they did not form a legal entity.

（２） Perspectives on common property management and archiving

- To manage intellectual properties, including archiving of discussions.
- To play central roles in property management and resource utilization management when the outcome of the discussion produces economic benefits.
- To mitigate the risk of loss of common property and archives due to external factors, such as the movements of individuals and organizations on which they would depend if they did not form a legal entity.

（３） To play central roles in managing the operation of the international conferences and to act as the accounting entity

- To be the primary entity in arranging services such as securing venues, hiring or outsourcing staff, and meeting systems.
- To acquire and manage web domains, etc.

However, to establish a legal entity, it is necessary to design the governance of the entity itself and to secure human and material resources for the operation of the entity, such as accounting, so making a financial plan in advance is necessary.

2.2.2.4. Time schedule of works

From the actual bootstrapping, we illustrate the process of MSG's congress formation through congress formation activities (Figure 18).

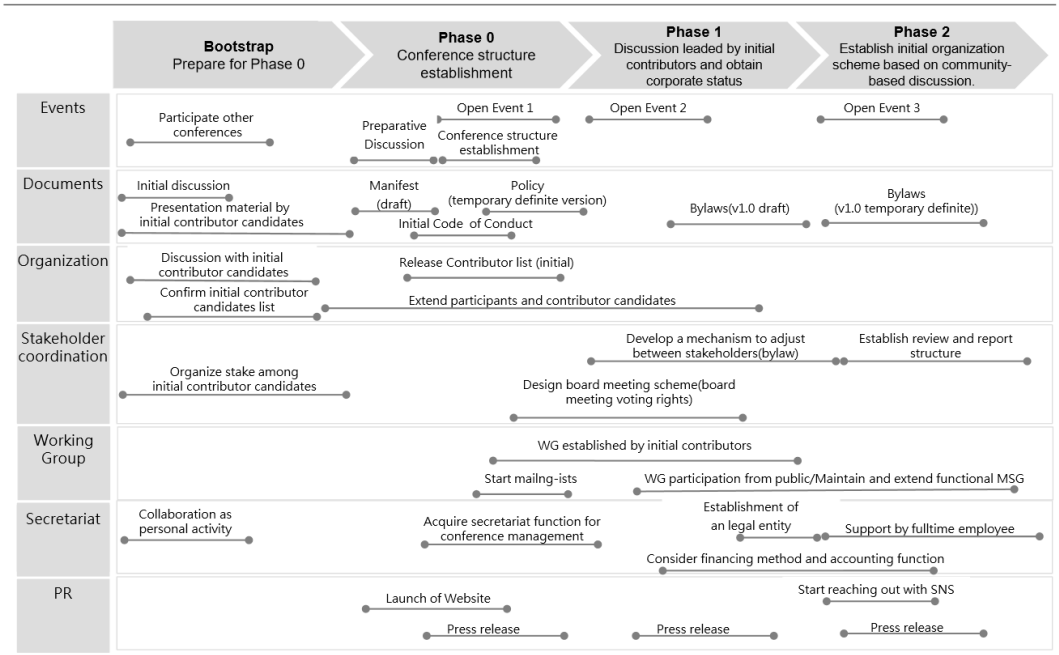


Figure 18: Time schedule of works

2.2.2.5. Early challenges and anticipated obstacles

Some of the initial challenges and anticipated obstacles to building a multi-stakeholder governance structure through procedures such as those outlined in the process chart are listed below.

(1) Initial issues

- Bootstrap period: challenges during preparation for phase 0
  - During the preparatory activities for the establishment of the conference body, one of the major issues is that the entire activity depends on the personal activities (amount of activity) of the initial founders.
  - Ensuring the diversity of the founders at the time of the launch is a particularly important issue. In order to demonstrate the feasibility of being able to implement multi-stakeholder governance discussions, there is a need to

involve stakeholders to the point where there is no bias towards specific areas at the time of the establishment announcement.

- Phase 0: Challenges in establishing a conference body
  - One of the challenges to the formation of the initial conference body is the large difference in the amount of activity between the initial and recruited founders. While maintaining a tentative system, it is essential to discuss the initial state of the document and the organization, and in the process of discussing it, it is necessary to enlighten and motivate the founders who have joined the organization, and therefore, the leadership of the founders is very important. In particular, there is a need for clear awareness and unambiguous enlightenment because of the difficulties in reaching a common goal among the various members.
  - In addition, it is necessary to make important adjustments, such as drawing up “a prospectus” while the secretariat is still in its infancy, and in the absence of an accounting entity, it is necessary to set up a website and discussion forums (such as a mailing list).
- Phase 1: Discussions led by the group of founders and issues related to the establishment of the legal entity
  - In this phase, it is necessary to discuss the method of coordination among stakeholders within the founder group (how to set up the WG, division of responsibilities, allocation of voting rights at higher-level meetings, etc.). This is the skeleton of the conference body and requires careful discussion, but the difficulty of building consensus among members with different interests and backgrounds is expected to be very high. For this issue, it would be effective to use the previous examples of multi-stakeholder conference bodies (the results of this study) to build consensus on this issue.
  - Also, it is necessary to carefully consider the location of the establishment and the form of the corporation, which is deeply related to taxation, because the initial financing and the consideration of the establishment of the corporation are assumed to be global activities.
- Phase 2: The challenges of establishing the first form of organization based on community discussion
  - It is necessary to operate the WG concurrently with the formulation of the bylaws and to establish a system for reviewing the results of the compilation. The chair's strong leadership is needed in a precarious structure of making rules and moving forward with resolutions.

- Since the external influence of the content of a resolution has a significant impact on the ability to mobilize participants and implement the next discussion, it is necessary to have a small but effective resolution and the ability to publicize its results.
- By this time, administrative work by full-time staff will be required, and obtaining funding for this will be a challenge.

(2) Anticipated obstacles

- Lack of resources for proactive and sustained action by founders

  The multi-stakeholder governance debate cannot take hold without the founders staying motivated and providing leadership. A suitable founder would be someone who can represent multiple stakeholders, but such a person is often busy and lacking in resources, making it difficult for the conference body to be up and running.
- Obstacles to the establishment of a multi-stakeholder participation system and the allocation of voting rights
  - The more diverse the stakes become, the more complex the structure of documents and resolutions becomes, and the more problematic the workload on staff and full-time directors becomes.
    - There is an enormous amount of work involved in how to meet diversity and equity.
      - As discussed in the previous sections on ICANN, a great deal of effort is needed to meet transparency, diversity, and equity.
      - Lack of attention to the balance of coordinating the voice of participants who provide funding can lead to a lack of funding or a loss of motivation among participants.
    - Even if the content is simple, the process of obtaining consensus before making it public takes time (even seemingly simple matters such as the name of an organization or the name of a department of an organization require detailed discussion).
- Duplication of agendas with similar conference bodies
  - There is a risk that the agenda will overlap with other conference bodies in the target or adjacent sectors such as the financial sector, internet technology, blockchain technology, etc., coupled with the relationship with the attributes of each stakeholder will be confusing, and the conference body will lose its centripetal power.
  - In order to have a presence as a place for multi-stakeholder decision-making,

early identification of sources of benefit and value that motivate people to continue participating in complex discussions, such as address resource management at ICANN, is needed.

- Coordination and differentiation with the existing conference bodies need to be coordinated early.
- Participants who can represent each stake need to be able to commit both to the conference body in their area of expertise and the said conference body.

- Barriers to building a presence externally and among participants

  Since there are no journalists or information media who have knowledge of the decentralized financial system and a deep understanding of the significance and value of MSG at this stage, media education is required.

- Obstacles caused by delayed fund management, fundraising or underfunding

  The current funding method is considered to be through the right to participate in the meeting, but there are challenges in raising funds before the meeting takes place. However, on the other hand, stalled fundraising will hinder preparatory activities in the run-up to the meeting.

2.2.2.6. Discussions and issues to be addressed initially

The discussions and issues to be addressed initially were agreed upon throughout the actual launch as follows.[142]

Terms of Reference

Note: The information in this document is on an interim basis and will be modified as needed.

Purpose

As blockchain could affect a wide range of social and economic activities, the way we fulfill social interests globally, which currently largely depends on regulation and its enforcement, may have to change as well. At this early stage of development, we should start designing new mechanisms to ensure the sustainable development of this new ecosphere by involving a wide range of stakeholders.

The Blockchain Governance Initiative Network (BGIN) will take a leading role to develop healthy governance where stakeholders cultivate common understanding, enhance dialogue, and work together to make a significant positive impact on the ecosphere and society at large.

Tentative goals

To serve the above purpose, BGIN tentatively aims at

1. Creating an open, global and neutral platform for multi-stakeholder dialogue
2. Developing a common language and understandings among stakeholders with diverse perspectives
3. Building academic anchors through continuous provision of trustable documents and codes based on open source-style approach

Key activities

Taking into the above purpose and tentative goals, the BGIN:

[142] https://github.com/bgin-global/genesis-documents/blob/master/TermsOfReference.md

- Provides open, global, and neutral fora for discussion of issues that affect the development of the ecosystem in technical, business, regulatory, societal, and other contexts.
    - (At the inaugural meeting, setting up the Working Group on Governance issues of BGIN was decided and Aaron Wright and Shigeya Suzuki were appointed as acting co-chairs.)
- Hosts regular, ad hoc meetings and events to enhance dialogue, cultivate common understanding, and promote cooperation among stakeholders
- Actively outreaches to a variety of stakeholders and works together with affiliated organizations to foster well-balanced discussions
- Creates material outcomes that influence the way people design, use, and manage blockchain/DLT based on fair, academic and technology-driven discussions within Working Groups: Proceedings/Reference documents/Working papers with contribution from all stakeholders
    - (At the inaugural meeting, setting up the Study Group on Key management, Identity and Privacy issues were decided and Katharina Pistor and Nat Sakimura were appointed as acting co-conveners.)
- Contributes to public policy design and implementation through constructive communication with global standard-setters and jurisdictional regulatory, supervisory and enforcement authorities

Note: BGIN would operate under a non-profit organization with a healthy and sustainable organizational structure and sound governance mechanism.

Roadmap and tentative future plans

- March 2020: Blockchain Global Governance Conference (BG2C) in Tokyo as “Genesis block” of BGIN: Announcement of the establishment of the Network on March 10[143]
- April 2020: Ad hoc online preparatory meeting for “BGIN Block 01”[144]
- Autumn 2020: 1st BGIN meeting “BGIN Block 01”
- Early 2021: 2nd BGIN meeting “BGIN Block 02”

[143] It has been implemented and is described in Chapter 3 of this report.
[144] Original plan. In order to prevent the spread of the new coronavirus infection, the planned

3. Conducting multi-stakeholder meetings

In this chapter, we present the results of the multi-stakeholder meetings we carried out, with a planning material. Then, briefly introduce the establishment of Blockchain Governance Initiative Network (BGIN) as a part of the outcome.

3.1. Meeting Design and Preparation

This article organized a list of objectives, considerations, timelines, and documents to be prepared for implementing a multi-stakeholder meeting.

Discussions in this article were held between late 2019 and January 2020, but as part of the response to the COVID-19 epidemic, we were unable to hold an international meeting event of the planned scale, so we held an internal meeting online with interested parties and an online panel discussion that was also published on the FSA website, as detailed in 3.2.

Purpose

Establish a system that allows for constant online discussion until the official launch of Block #1 (expected to take place around September 2020).

Matters to be considered

- We will provide founders with the option to express their intention to participate in person, remotely, or not to participate.
- Even if they can't participate in either of these ways, there should be a way to express your intention (FSB-like method, etc.) (important because they may lose interest if they can't participate at all)
- Establishment of WG and decision of the chair
  - Decide on WG charter, chair, and secretariat
  - Determine the means of communication (e.g., ML)
- Explanation and discussion on incorporation
  It will be reported/agreed upon to set up a working group to discuss the organizational structure.

Timeline

By early February

- On-site research of the venue (consideration of creating a remote participation environment)

- Create a list of related parties (staff registration)

By the end of February (one week before)

- Sending materials to the founders in advance
  - Sending out information about the Call For New Project
  - The initial founders presented the project (WG) currently under consideration
- Distribution of information for Remote Participation
  - Presentation of the method of expressing the intention of the absentee
  - Instructions to participate remotely in a video conference

By the day of the event

- Distribution of Agenda
- Create an attendee list (for distribution → confirm necessity)
- System preparation, including website and ML registration methods

List of documents to be prepared

Handouts to be distributed in advance (one week in advance)

- Call for New Project announcement (for the establishment of WG)
  - Contact: Keio University
  - Summary: A document to ask for a proposal for the establishment of WG
    WG name, brief WG charter, keywords, etc.
- Project Proposal#1: Governance on BG2N
  - Responsible Party: Keio University, Discussion on whether announcements should be made by the founders
  - Summary: WG proposal on the governance of BG2N
- Project Proposal#2: Identity and Key management
  - Responsible Party: TBD
  - Overview: First WG launch
- Interim Discussion Scheme
  - Responsible Party: TBD (FSA as a candidate)
  - Abstract: Discussion method at the time of BG2C, following the FSB method. Explained the mechanism of how to express written intention in case of absence.

Materials handed out on the day (by the day)

- Agenda
  - Responsible Party: Keio / FSA
  - Summary: The current proposal
    - Presentation by the founder (40 minutes + 20 minutes of Q&A)
    - Discussion (60 minutes)

    - On communication/discussion methods
    - Establishment of the WG and decision of the chair
    - About the next meeting

Attendee List

- Responsible Party: FSA takes the lead in the development, Keio supports
- Abstract: A form for attendees to fill in their names with a column for which stake they belong to, like the IETF's blue sheet

List of things to be decided by September

- Responsible Party: Keio / FSA
- Summary: Make a list of things to be decided by September
    - Disclosure should be done with caution.
    - Start publishing in the Governance on BG2N WG accordingly.

3.2. Meeting results

BG2N Inaugural Meeting（13:00-15:00 UTC, March 9, 2020）

BG2N Inaugural Meeting Summary

1. Welcome Remarks: After the manifesto, terms of reference (ToR), and the concept of BG2N were introduced, the following issues were discussed:
    a. The Concept and ToR:
        i. The manifesto should include more specific examples of whom we are asking to participate.
        ii. Providing examples of stakeholders might give an impression of excluding certain groups, and careful wording of our concepts is essential.
        iii. Finding the areas of interest of stakeholders might be needed, such as privacy, rather than trying to specify specific stakeholders.
        iv. The members will continue polishing the document.
    b. Name of the Group:
        i. The issue of the word “governance” was raised, referring to some groups in the cryptocurrency community that reject the self-proclaimed governance groups.
        ii. The idea of this group is about self-governance, not governing others, and the term "governance" is essential from a credibility point of view.
        iii. All agreed with the idea of “BGIN” as a tentative name, which represents the “Blockchain Governance Initiative Network.” It is also a way to convey the message that it is an initiative, and the aim is not to become a governance body.
        iv. The appropriate and available domain will be purchased.
    c. Role and Labeling of “Founding Members”:
        The issue was how we invite people after orientation, especially high-profile people. The ideas such as “Members,” “Founding Members,” “Fellow,” “Senior Fellow,” and “Research Fellow” came up. Then “Initial Contributors” was chosen as a label of founding members.
    d. Positioning and Contribution of This Initiative Relative to Other Activities Around the Globe

i. There has to be a repository where different ideas can be brought to the table to discuss, almost like the marketplace.
ii. The clear distinction from other initiatives is that unlike other top-down initiatives, BGIN has a bottom-up, open, and inclusive approach. This should be reflected in the manifesto.
iii. There is the issue of the absence of core developers in other initiatives. Participation from engineers is essential to produce a useful document and software code.
iv. Positioning and communication with other initiatives, interest groups will be further discussed on the mailing list.

2. Selection of Acting Chair
    i. The roles of the acting chair are handling administrative tasks, being an active listener, and drawing out the best from the team.
    ii. A rotating role and having multiple co-chairs from each time zone, a council with multiple members, rather than a single chair were suggested.
    iii. There is a great credibility gain from having a public sector or official capacity (i.e., JFSA) in the chairing role.
    iv. Two members from the initial contributors assumed a role as co-chairs.
    v. There is no member of the southern sphere and one member will look for the right person from Chile.
3. Organizational and Governance Matters
    a. Governance Working Group
        i. The following topics for the process to discuss organizational matters were presented:
            1. What is the output going to be?
            2. What should the legal structure be or where the entity for the organization should be formally formed?
            3. How should the fundraising method be?
        ii. To discuss these particular issues, the group needs to form working groups, having one or two people taking a leading role in formulating the proposal as well as leading the discussions on the mailing list.
        iii. Two members with expertise in internet governance agreed to take this role.
    b. Views on “Fully Online Meetings” vs. “Face-to-Face Meetings”

i. Considering the current state of COVID-19, the question of how we should structure the meeting and lead to some consensus was raised.
ii. The group should make this an opportunity and apply new technologies (i.e., VR).
iii. There is a concern about not having face-to-face meetings. A hybrid approach was proposed.
iv. The discussion will continue within the working group.

4. Call for Mock-Up Discussion
    a. It is important to create a solid and narrowly focused scope and concrete problems.
    b. This might take a half a year with a sufficiently narrow, concrete, and tangible TOR scope.
    c. Topics that have been discussed: key management, privacy, and blockchain.
    d. Picking a new area where the group can make progress, such as automated key management through a machine or algorithm was proposed.
    e. A policy description language would be another area to focus on, which is a balance between having policy goals and running code.
    f. From a regulatory perspective, the issues of automatic machine-based control without any legal identifier, AML, and terrorist financing were raised, and writing ToR from regulators' perspective was suggested.
    g. Two members were agreed to become co-conveners of a study group.
5. Public Communication

    The issues and general strategy of public communication, the documentation, and rights management strategy were outlined, and IETF models were cited as examples.
    a. IPR Management
        i. The issue is how to own our documentation legally while allowing others to use them.
        ii. Ideas to creating a blockchain patent pool, non-aggression exploratory round table discussion, establishing a new legal entity were brought up.
        iii. Some members named a few IP related experts.
        iv. Start from articulating some areas where the group needs help and asking contributors.
        v. Further discussions will be held in the governance working group.
    b. Press release on March 10

i. A press release and press briefing scheduled on March 10.
ii. Including the legitimacy of Japan, such as bitcoin became legal since 2017, Japan experience (i.e., the cyber threat to G20) in the press release was suggested.

6. Next Steps
    a. The BG2C online panel is scheduled on March 20, in which the establishment of BGIN will be announced.
    b. Some of the sessions were postponed from March to April.
    c. The plan for the first official meeting of BG2N in Autumn in Dublin was introduced, referring to the benefits of the place (e.g., proximity ecosystem, reachable to developers, private sectors, regulators, and diverse engineers).
7. Any other business

    The administrative secretariat of BGIN was introduced.

3.3. Summary of BGIN's current status

BGIN in action

Blockchain Governance Initiative Network - BGIN - has established and announced, as described in the previous section. It has passed two and half months since the establishment.

Press Release: https://bgin.team/press_releases/20200310_press_release_bgin.pdf

Currently, only a few documents published. The discussion is going on among the inital contributors. The initial contributors published "The Genesis Document" on GitHub: https://github.com/bgin-global/genesis-documents/blob/master/Genesis.md

We also shared *interim* Terms of Reference for the starting point of the discussion: https://github.com/bgin-global/genesis-documents/blob/master/TermsOfReference.md

Minutes of the "Inaugural Meeting" is also avaialble here: https://github.com/bgin-global/genesis-documents/tree/master/MeetingMinutes

4. Conclusion

This project aimed to deepen understanding of multi-stakeholder governance (MSG), which is considered necessary to build the capability of the technology towards the financial and the economic development, with harmonizing social cooperation and a decentralized financial system together, and to explore the direction of possible initiatives that will be necessary.

Specifically, this project took up the Internet and Internet governance as examples of how the requirements of decentralization, autonomy, anonymization, and globalization made it difficult to achieve regulatory objectives, and conducted a literature survey and interviews with parties involved in the formation of the MSG from the beginning in order to clarify the mechanism. This also analyzed the MSG as evaluated from the different mechanisms such as the government and government-related organizations, and the possibility of cooperation by these organizations.

As a result, it was discovered that MSG is effective in realizing the sophistication of a distributed financial system. This project also found that MSG might be different from the governance structure of existing centralized financial systems, and that MSG itself is not yet a common governance method, so it is expected to foster a culture that tolerates trial and error.

Therefore, in order to fully demonstrate the effectiveness of the MSG, it is essential that the MSG is fully understood by the relevant parties (stakeholders) themselves with respect to its application to distributed financial systems, and in particular, that a detailed understanding of the consensus-building process of the MSG and the mechanisms by which the MSG enables the developed governance of the entire distributed financial system.

Particularly among parties to the decentralized financial system, there is a sense of caution against the existing centralized financial system and its stakeholders in the context of historical background. On the other hand, it is undeniable that on the side of the existing centralized financial system, there are also scattered parties who, against the backdrop of the instability of the decentralized financial system, seem to despise it. Therefore, it is expected that both those currently involved in the decentralized financial system and the existing centralized financial system together will maintain their own incentives (motivations) to work on building governance in common.

Along with the results of this research, the project also contributed significantly to the establishment of the Blockchain Governance Initiative Network (BGIN) in March 2020 and was involved as a party to the project. It has been clear from the document announcing the

establishment of the organization that it was composed as a network-oriented conference body to practice MSG, where governments, cryptocurrency and blockchain parties around the globe, including Japan's Financial Services Agency, researchers, and businesses, gathered as volunteers. Although BGIN is still in the early stages of establishment, the significance of advocating MSG from the outset is great, as it can be expected to deepen the sharing of values and understanding based on it.

On the other hand, the results of this project and the implementation of MSG by BGIN have revealed some issues. For example, as mentioned above, MSG is itself a developing mechanism, and it needs to be developed, including a process for stakeholders to deepen their own understanding. That is also observed in the field of Internet governance, including ICANN, which this project referred to as a prior example.

Finally, based on such characteristics of MSG, in order to maintain and expand MSG as a distributed financial system, this project has concluded that the development of MSG has to obtain some kind of centripetal force by actors who understand both the distributed financial system. Given the experience of Internet governance, especially in the early stages of governance construction, these centripetal forces are often realized through individual leadership. Therefore, it is expected that there will be leaders who can always take a positive attitude toward various issues, and that leaders with these qualities will be willing to listen tenaciously to the opinions of stakeholders.

Furthermore, in the early stages of governance construction, the business model may not be sufficiently established, and organizational operations may not be stable due to changes in the circumstances of the stakeholders involved. In order to solve these problems, it is desirable to combine various business models to secure a variety of revenue opportunities, as well as to continue fundraising by investors who understand the social value of stabilizing the diversified financial system through MSG, especially as public interests.