


Loud Men Talking Loudly: Exclusionary Cultures of Internet Governance

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Abstract

Decisions about internet infrastructure are decisions about the spread, storage, and flow of information and data across networks. They are also decisions about access to computational power, ownership of infrastructure, and to whom the benefits of the internet accrue. These choices always have political heft, so why is it so difficult for the public to weigh in on decisions about the internet's functioning? The large corporations that own and operate most of the massive infrastructure that is today's internet close their doors to civil society. They do, however, send their engineers to internet governance organizations, which present one of the few opportunities for the public to join conversations about infrastructural possibilities and priorities.

This primer investigates how suitable internet governance organizations are as sites for civil society participation. Instead of focusing on the procedural openness of these organizations, this primer asks how accessible internet governance is in practice. Openness, it turns out, is often more a matter of organizational culture than of formal procedures or the (lack of) institutional hurdles. The Internet Engineering Task Force or IETF, one of the oldest internet governance organizations in the field, is renowned for its procedural openness and its distinct culture. Taking the IETF as a case study of internet governance, this primer outlines how distinct organizational cultures – from confrontational and “rough” models of collaboration to the greater respect afforded to participants who work at large corporations – can impede, undermine, and discourage civil society participation.

The exclusionary effect of organizational cultures in internet governance directly impacts the possibilities for an internet that serves the public first and foremost. Internet governance organizations have long been held up as examples of open and accessible governance, but the reality of cultural exclusion should caution the academics and policymakers who take these organizations as a blueprint for global technology governance. More work needs to be done for internet governance to truly become accessible and inclusive. Based on three years of ethnographic fieldwork, this primer outlines both the cultural hurdles that minority voices and civil society participants currently face and how they might be removed.

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Introduction

Internet infrastructure becomes visible when it fails. In June 2021, for example, large internet infrastructure provider Fastly experienced a configuration error that took down major websites: Reddit and PayPal but also the BBC, and various government websites. Including portals for booking COVID-19 vaccinations, at the height of the pandemic. The incident originated from a single company but impacted large swaths of our online ecosystem, including multiple websites with extraordinarily large traffic footprints. One communication breakdown between websites and servers reverberated across online experience, to the point of affecting citizens' ability to access medical care and government services. Such glitches, while rare, remind us of the power internet infrastructure providers wield over our lives.

This primer looks beyond momentary failings and errors to ask the question that should always be raised where power is wielded. To whom are infrastructure providers accountable? How can civil society gain a seat at the table?

These questions are especially pressing in the case of technology companies. Even highly visible companies, whose products we knowingly use daily like Apple, Google, Meta, or Microsoft, purposely create barriers that make it nearly impossible for civil society to question how they function or hold these corporations accountable for harm. These barriers are compounded for internet infrastructure companies. Infrastructural power players are largely invisible to users and can afford to hide behind the often business-to-business nature of their services.⁰¹ Still, there is a unique avenue for civil society to reach these companies: internet governance organizations.

Internet governance organizations emerge where companies need to coordinate. Given the networked nature of the internet, companies that compete in certain areas cannot avoid collaborating in others. The repository of IP addresses, the unique identifiers that allow people to access websites, is a product of such coordination, for example. As is the development of globally standardized protocols that allow disparate corporate and public networks to seamlessly exchange data packages. Big tech also collaborates with the advertisement industry, meeting in organizational settings to agree on web standards that define corporate surveillance and privacy online. The

01 Interestingly, some of the most important players in internet infrastructure provision are the same tech behemoths that own user-focused applications or develop dominant browser and operating systems, like Apple, Google, Meta, and Microsoft do. Their presence across the internet's stack is no coincidence but explaining the political and economic drivers of this trend of 'vertical integration' is beyond the focus of this primer. The internet infrastructure industry also includes less well-known software and hardware development companies like Cisco Systems, Huawei, Akamai, Cloudflare, Fastly, IBM, telecommunication providers like AT&T or Vodafone, and the various companies and consortia involved in internet cables.

technological specifications for these joint efforts are developed in a set of industry-led internet governance organizations: the Internet Corporation for Assigned Names and Numbers (ICANN), the Internet Engineering Task Force (IETF), the World Wide Web Consortium (W3C), and others.⁰²

Internet governance, in these organizational settings, is a matter of corporate collaboration first and foremost. Still, many industry-led internet governance organizations do allow civil society to participate directly in their decision-making, to varying degrees. This sets them apart from their governmental counterparts, such as the International Telecommunications Union (ITU), which is effectively closed to independent civil society participation. This fact underpins the common portrayal of internet governance organizations as ‘accessible to all’. As industry-led ‘multistakeholder’ institutions, they are indeed more accessible than the multilateral government entities that develop policies and technology to keep the internet functional. It is not true, however, that internet governance organizations are open and accessible to all. As part of my Ph.D. research at the University of Oxford, I conducted a three-year ethnographic study of civil society participation in technical internet governance organizations.⁰³ This primer draws on my findings to specify the barriers civil society faces when turning to internet governance organizations as places where the public might hold infrastructural power accountable.

Taking the IETF as a case study, this primer lays out how seemingly open internet governance bodies throw up distinctly cultural hurdles that impede broad and diverse participation, including by civil society. Internet governance organizations may be procedurally open to civil society, but they delimit the possibilities for participation through cultural practices that enact sexism and racism. The exclusionary effects of internet governance cultures should be on the advocacy agenda for civil society actors and their funders: these directly determine how effective they can be. At the same time, this primer should caution policymakers who argue in favor of the blueprint set by internet governance organizations.

This primer begins with a broad introduction to internet governance in practice, making the case for culture as a lens through which to see the challenges civil society actors face in these organizations. Next, the case

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- 02** For more comprehensive information on different internet governance organizations, see, for example: “Global: ARTICLE 19 Launches the Internet Standards Almanac.” 2023. ARTICLE 19. February 9, 2023. <https://www.article19.org/resources/global-article-19-launches-the-internet-standards-almanac/>. Cath, Corinne, Niels ten Oever, and Daniel O’Maley. 2017. “Media Development in the Digital Age: Five Ways to Engage in Internet Governance.” Center for International Media Assistance. <https://www.cima.ned.org/publication/media-development-digital-age-five-ways-engage-internet-governance/>; Uhlig, Ulrike; Knodel, Mallory; ten Oever, Niels; Cath, Corinne. 2020. *How the Internet Really Works: An Illustrated Guide to Protocols, Privacy, Censorship, and Governance*. Illustrated edition. San Francisco: No Starch Press.
- 03** Cath, Corinne. 2021. *Changing Minds and Machines: A Case Study of Human Rights Advocacy in the Internet Engineering Task Force (IETF)*. Ph.D. Dissertation, University of Oxford: University of Oxford. <https://ora.ox.ac.uk/objects/uuid:9b844ffb-d5bb-4388-bb2f-305ddedb8939>. <https://corinnecath.com/wp-content/uploads/2021/09/CathCorinne-Thesis-DphilInformationCommunicationSocialSciences.pdf>

study of the IETF – often hailed as an example of openness and accessibility in internet governance – serves to highlight key characteristics of working cultures in internet governance organizations. The findings section outlines four exclusionary cultural practices at the IETF and demonstrates their alienating effects. In closing, this primer offers concrete suggestions for targeted action to improve civil society access to internet governance. The IETF has long described its operations with the informal mantra of “loud men, talking loudly.”⁰⁴ This primer lays out what “loud men” as an organizational culture cost us in striving for an internet that serves a diverse public’s interest.

04 Cath, Corinne. 2020. “HackCurio: Decoding the Cultures of Hacking.” *What’s Wrong with Loud Men Talking Loudly? The IETF’s Culture Wars* (blog). 2020. <https://hackcur.io/whats-wrong-with-loud-men-talking-loudly-the-ietf-culture-wars/>

Internet Governance in Practice

This primer outlines how internet governance functions in practice. That is an important shift in perspective because it counters a surprisingly common romanticization of internet governance organizations. Policymakers and academics are often enamored with the multi-stakeholder governance model that characterizes organizations like the IETF, but neglect to consider how “embedded power hierarchies (e.g. of culture, gender and geopolitics) could skew global multi-stakeholderism in favor of already privileged circles in world politics.”⁰⁵ Internet governance experts and long-term participants sometimes mistakenly conflate procedural guidelines, such as the open standards and accessible mailing lists that characterize organizations like ICANN and the IETF, with actual accessibility. An organization that is accessible in theory is not necessarily open or welcoming in practice.

By focusing on practice, this primer joins a growing cohort of critical scholars and activists who have pointed out how seemingly neutral or technical contributions can instantiate and perpetuate inequality. Scholar and activist Zara Rahman argues that the UNICODE decision to default to yellow as the standard color for emojis – a seemingly neutral standard – in practice maintains the centrality of whiteness.⁰⁶ This effect appears similarly in technical decision-making and governance. Alondra Nelson, who served as the Deputy Director for Science and Society at the US White House Office of Science and Technology Policy, wrote in 2002 that the liberatory ideologies underpinning the early internet enforced a color-blind racism amongst its architects, which persists today in the governance organizations where these architects gather.⁰⁷ More recently, Charlton McIlwain, professor at New York University (NYU) and coordinator of NYU’s alliance for public interest technology, demonstrated how the architects of internet applications, such as the World Wide Web, replicate structural inequality along racial lines.⁰⁸

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- 05** Scholte, Jan Aart. 2020. “Multistakeholderism Filling the Global Governance Gap?” Research Overview for the Global Challenges Foundation. Stockholm, Sweden: Global Challenges Foundation/University of Gothenburg. <https://globalchallenges.org/multistakeholderism-filling-the-global-governance-gap/>.
- 06** Rahman, Zara. 2018. “The Problem with Emoji Skin Tones That No One Talks About.” The Daily Dot. November 23, 2018. <https://www.dailydot.com/irl/skin-tone-emoji/>; see also the work by Miltner, Kate M. 2020. “‘One Part Politics, One Part Technology, One Part History’: Racial Representation in the Unicode 7.0 Emoji Set.” *New Media & Society* 23 (3): 515–34. <https://doi.org/10.1177/1461444819899623>.
- 07** Nelson, Alondra. 2002. “Introduction: Future Texts.” *Future Text* 20 (2.71): 1–15. https://doi.org/doi:10.1215/01642472-20-2_71-1.
- 08** McIlwain, Charlton. 2019. *Black Software: The Internet & Racial Justice, from the AfroNet to Black Lives Matter*. Oxford University Press.

This dynamic also translates to internet governance organizations. Paul Kurian and Akriti Bopanna, of CIS India, demonstrated in 2018 that while internet governance organization ICANN is procedurally open, it is far from accessible. There is little diversity among attendees in practice; they showed that participants were largely male and hailed from industry, with limited representation from Asia considering the continent's part in the overall population of internet users.⁰⁹ What to make of this gap between the appearance of openness and the realities of practice? And how does it affect civil society participants in particular?

Man Enough: Culture and diversity

The disconnect between procedural openness and actual accessibility stems in part from cultural dynamics. Culture here refers to “a fuzzy set of basic assumptions and values, orientations to life, beliefs, policies, procedures and behavioral conventions that are shared by a group of people, and that influence (but do not determine) each member's behavior and his/her interpretations of the ‘meaning’ of other people's behavior.”¹⁰ Internet governance organizations routinely cater to a particular group of people, taking their assumptions and expectations as the standard and doing too little to accommodate and anticipate different perspectives and needs. For example, English is often the working language and the American orientation toward the market as a primary form of governance is endemic. Meetings occur at different sites across the globe, many of which are difficult to access for people from the Majority World¹¹, i.e. not from the Euro-West, who face visa challenges and a heavier financial burden.

The shared culture at internet governance organizations also excludes in other, less immediately practical ways. Participation heavily skews male, and organizations pride themselves on uniquely harsh or “rough” communication styles. Here, too, there is little willingness to accommodate the possibility of difference. Some, such as the community behind the technical programming language “Python”, do let racial and gender equity instigate cultural changes.¹² They made the conscious decision to stop using several controversial terms (such as “master” and “slave”) in their code. Others, such as the Internet Engineering Task Force (IETF), are less willing, or at least slower, to change cultural practices to become more inviting to a wide

09 Bopanna, Akriti, and Paul Kurian. 2018. “ICANN Diversity Analysis — The Centre for Internet and Society.” July 16, 2018. <https://cis-india.org/internet-governance/blog/icann-diversity-analysis>.

10 Spencer-Oatey, Helen, ed. 2008. *Culturally Speaking Second Edition: Culture, Communication And Politeness Theory*. 2nd Edition. London, UK: Continuum.

11 Silver, Marc. 2015. “If You Shouldn’t Call It The Third World, What Should You Call It?” NPR, January 4, 2015, sec. Goats and Soda. <https://www.npr.org/sections/goatsandsoda/2015/01/04/372684438/if-you-shouldnt-call-it-the-third-world-what-should-you-call-it>.

12 Landau, Elizabeth. 2023. “Tech Confronts Its Use of the Labels ‘Master’ and ‘Slave.’” *Wired*. Accessed March 29, 2023. <https://www.wired.com/story/tech-confronts-use-labels-master-slave/>.

array of potential contributors.¹³ The IETF proudly stands by its informal working mantra of “Loud Men, Talking Loudly,” even though people within and outside of the organization have consistently pointed out that this culture has discriminatory and exclusionary effects.¹⁴

It is concerning that internet governance organizations are reluctant to push for cultural change even against the backdrop of global movements for racial justice, gender equity, decolonization in tech, and the improvement of corporate accountability. This significantly impacts civil society participation in these spaces. When organizations dedicated to civil liberties, human rights, and social justice branch out to work on technical issues in internet governance, they are often surprised by, and unprepared for, the toxicity of internet governance cultures. A hostile culture is an unexpected impediment to civil society participation in important debates about the future of the internet.

Technical Enough: Culture and civil society

Cultural dynamics regularly prevent civil society from contributing to technical discussions. This is a great loss. Civil society participation in these spaces is crucial; internet governance organizations determine the technical functioning of the internet. They are one of the very few places where the public can join discussions about how the internet affects their lives. Technical questions often are political questions. For example: to what extent should the technical infrastructure of the web enable or hinder commercial and government surveillance? Civil society should join in internet governance. But it turns out that procedural openness is not enough to make that possible.

Internet governance organizations do not consider themselves political entities. They focus on technical prowess and proper functioning. Like many other market-centric governance institutions, they downplay the inherently political nature of their work.¹⁵ As a result, internet governance participants express discomfort with discussions deemed too “political”. Or too far outside of the realm of accepted but narrow industry concerns about competitiveness, which mostly revolves around connectivity, latency, security, or the ability to control and sell computational services, such as cloud computing or content delivery networks. Even though these technical decisions direct where and to whom economic benefits accrue, internet governance organizations often decline to see their work as a political matter. This dismissal of politics as an inherent part of technical discussions is a key cultural feature of internet governance organizations.

13 Conger, Kate. 2021. “‘Master,’ ‘Slave’ and the Fight Over Offensive Terms in Computing.” *The New York Times*, April 13, 2021, sec. Technology. <https://www.nytimes.com/2021/04/13/technology/racist-computer-engineering-terms-ietf.html>.

14 Cath, Corinne. 2020. “HackCurio: Decoding the Cultures of Hacking.” *What’s Wrong with Loud Men Talking Loudly? The IETF’s Culture Wars* (blog). 2020. <https://hackcur.io/whats-wrong-with-loud-men-talking-loudly-the-ietf-culture-wars/>.

15 Buller, Adrienne. 2022. *The Value of a Whale: On the Illusions of Green Capitalism*. Manchester: Manchester University Press.

What does this mean for civil society? In practice, the issues brought by civil society participants, which often revolve around human rights and social justice, are always “out of scope,” because they can be dismissed as either “not technical” or “too political,” or both. Civil society participants’ mandate is to raise political concerns; in internet governance organizations, this puts them at an immediate disadvantage. The cultural dynamic that separates politics from technical decision-making is an important hurdle to civil society participation. This exclusionary culture is further exacerbated, however, by the participant base of many internet governance organizations, which is often male, Western, and technically savvy. Research on the effects of such homogeneity demonstrates that participants with these characteristics have a particular sense of politics. To the extent that they are willing to engage in politics, they are predisposed to take on questions of government surveillance and individual freedoms.¹⁶ The kinds of political questions raised by civil society participants, who focus on a broader set of concerns, including commercial surveillance, power consolidation in the tech industry, anti-discrimination, or gender equity, are unlikely to be seen as urgent or even salient in this environment. Internet governance, in short, is not as open as it seems.

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- 16** Cath, Corinne. 2020. “HackCurio: Decoding the Cultures of Hacking.” *What’s Wrong with Loud Men Talking Loudly? The IETF’s Culture Wars* (blog). 2020. <https://hackcur.io/whats-wrong-with-loud-men-talking-loudly-the-ietf-culture-wars/>. ———. 2021a. *Changing Minds and Machines: A Case Study of Human Rights Advocacy in the Internet Engineering Task Force (IETF)*. Ph.D. Dissertation, University of Oxford: University of Oxford. <https://ora.ox.ac.uk/objects/uuid:9b844ffb-d5bb-4388-bb2f-305ddedb8939>. ———. 2021b. “The Technology We Choose to Create: Human Rights Advocacy in the Internet Engineering Task Force.” *Telecommunications Policy*, Norm entrepreneurship in Internet Governance, 45 (6): 102144. <https://doi.org/10.1016/j.telpol.2021.102144>; Milan, Stefania, and Niels ten Oever. 2017. “Coding and Encoding Rights in Internet Infrastructure.” *Internet Policy Review* 6 (1). <https://policyreview.info/articles/analysis/coding-and-encoding-rights-internet-infrastructure>; Miltner, Kate M. 2020. “‘One Part Politics, One Part Technology, One Part History’: Racial Representation in the Unicode 7.0 Emoji Set.” *New Media & Society* 23 (3): 515–34. <https://doi.org/10.1177/1461444819899623>; Myers-West, Sarah. 2017. “Searching for the Public in Internet Governance: Examining Infrastructures of Participation at NETmundial.” *Policy & Internet* 10 (1): 22–42. <https://doi.org/10.1002/poi3.143>; ———. 2018. “Cryptographic Imaginaries and the Networked Public.” *Internet Policy Review* 7 (2): 1–14. <https://doi.org/10.14763/2018.2.792>; ———. 2021. “Survival of the Cryptic: Tracing Technological Imaginaries across Ideologies, Infrastructures, and Community Practices.” *New Media & Society* 00 (0): 1–21. <https://doi.org/10.1177/1461444820983017>; Paris, Britt. 2020. “The Internet of Futures Past: Values Trajectories of Networking Protocol Projects.” *Science, Technology, & Human Values* XX (X): 1–27. <https://doi.org/10.1177/0162243920974083>; Paris, Britt S., Corinne Cath, and Sarah Myers West. 2023. “Radical Infrastructure: Building beyond the Failures of Past Imaginaries for Networked Communication.” *New Media & Society*, February. <https://doi.org/10.1177/14614448231152546>; Scholte, Jan Aart. 2020. “Multistakeholderism Filling the Global Governance Gap?” Research Overview for the Global Challenges Foundation. Stockholm, Sweden: Global Challenges Foundation/University of Gothenburg. <https://globalchallenges.org/multistakeholderism-filling-the-global-governance-gap/>.

Primer Case Study: The Internet Engineering Task Force

This primer fleshes out these reflections on cultural exclusion in internet governance organizations through a case study of one particular organization. The Internet Engineering Task Force (IETF) is an important, industry-led internet governance body. Founded in 1986, the IETF is one of the oldest internet governance organizations involved in networking standards. Its work is key to the internet's functioning. Internet standards are agreed-upon rules that facilitate compatibility between different internet products and enable the exchange of information across its vast infrastructure. Everything online requires connection, and this is what standards facilitate.

Take watching a show, for example. Netflix produces the content that is available on its platform. When users want to see a new episode, this content moves from their servers to consumer devices across a network run by telecom providers (such as British Telecom, Verizon, or Turk Telecom, depending on the country). On its journey from server to device, the content is routed by companies; Cisco and Huawei are major players in this industry. Alternatively, content can be stored and delivered via a Content Delivery Network (CDN), operated by companies like Cloudflare or Akamai, which enable fast loading times for their clients by storing content in servers that are closer to users who request it. Throughout, this movement of content across networks depends on standards, which make it possible for data to travel smoothly across heterogeneous networks and servers, all the way to a consumer device.

The IETF's centrality in internet governance alone makes it a suitable case study. But there is also another reason. The IETF is widely known as a uniquely accessible organization. Its operations are characterized by bottom-up management, open meetings, working groups and mailing lists that anyone can sign up for, and technical standards that are accessible to anyone who wants to implement them, without intellectual property restrictions. Its governance model encourages the development of technology by means of voluntary coordination between technical actors. Some of the biggest global internet hardware and software companies, including Apple, Cisco, Cloudflare, Google, Huawei, and Meta, send participants to the IETF. When they arrive, they dress informally: t-shirts, jeans, and sandals. The relaxed clothing conveys a sense of affable openness. In practice, however, the IETF is far from inclusive – this, too, makes it a suitable case study for understanding the exclusionary effect of culture in internet governance.

The IETF in Practice: Removing the rose-colored glasses?

Public discussion about the IETF follows a familiar pattern of obfuscation. As is common in the broader literature on internet governance, researchers and policymakers present the IETF in an overly generous way. IETF participants overwhelmingly consider their organization to be fair and inclusive, and they find little critique from scholars and policymakers, who take the IETF's standards and procedures to be representative of such fairness and inclusivity.¹⁷ Academics routinely stress the IETF's design principles and informal practices – such as participants' casual dress – as indicative of a progressive organizational culture.¹⁸ This conflation of rules with culture overlooks how IETF culture operates in practice and how it shapes particular participants' experience as they attend.

What do they miss? There is no academic writing that reflects on confrontational working practices at the IETF.¹⁹ IETF participants address each other by their first names. They are often familiar with their colleagues' hobbies, families, and idiosyncrasies. While that may seem informal and accessible, or even welcoming, IETF participants will not hesitate to bring up such personal information in technical debates.²⁰ These debates are frequently aggressive in tone and feature participants roundly dismissing what others have to say. While its informal and direct practices, its lack of top-down regulations for conduct, can be seen as affable and even accessible from one angle, it can also make the IETF a closed-off and thorny place to work.

The IETF has a distinct culture that should not be taken to be representative of all internet governance organizations. Nonetheless, recent research on other internet governance organizations and technical communities suggests that the exclusionary effect of cultural dynamics is not unique

17 Abbate, Janet. 2000. *Inventing the Internet*. 58839th edition. Cambridge, Mass.: The MIT Press; Bygrave, Lee A., and Jon Bing, eds. 2009. *Internet Governance: Infrastructure and Institutions*. 1 edition. Oxford ; New York: Oxford University Press.

18 DeNardis, Laura, ed. 2011. *Opening Standards: The Global Politics of Interoperability*. MIT Press. <https://www.jstor.org/stable/j.ctt5hhmcx>; Lessig, Lawrence. 2006. *Code: And Other Laws of Cyberspace*, Version 2.0. New York: Basic Books; Mueller, Milton. 2004. *Ruling the Root: Internet Governance and the Taming of Cyberspace*. Cambridge MA: MIT Press.

19 The author's Ph.D. research being one exception as their research reflects in-depth on these cultural dynamics in the IETF: <https://corinnecath.com/wp-content/uploads/2021/09/CathCorinne-Thesis-DphilInformationCommunicationSocialSciences.pdf>

20 Cath, Corinne. 2021b. "The Technology We Choose to Create: Human Rights Advocacy in the Internet Engineering Task Force." *Telecommunications Policy*, Norm entrepreneurship in Internet Governance, 45 (6): 102144. <https://doi.org/10.1016/j.telpol.2021.102144>.

to the IETF.²¹ As one of the longest-running organizations, which is often held up as the paradigmatic example of open and accessible internet governance, important lessons can be learned from its everyday functioning. Currently, the overly positive appraisal of the IETF in academic and policy papers encourage activists to start participating in its technical discussions. When they go, however, they find that these descriptions of the IETF are not in step with reality. A more comprehensive description of exclusionary culture at the IETF better prepares civil society for effective participation.

21 Brooke, Sian. 2019. “‘Condescending, Rude, Assholes’: Framing Gender and Hostility on Stack Overflow.” In *Proceedings of the Third Workshop on Abusive Language Online*, 172–80. Florence, Italy: Association for Computational Linguistics. <https://doi.org/10.18653/v1/W19-3519>; Reagle, Joseph. 2013. “‘Free as in Sexist?’ Free Culture and the Gender Gap.” *First Monday* 18 (1): 1–5. <https://doi.org/10.5210/fm.v18i1.4291>; Tanczer, Leonie Maria. 2016. “Hacktivism and the Male-Only Stereotype.” *New Media & Society* 18 (8): 1599–1615. <https://doi.org/10.1177/1461444814567983>.

Findings:

Rough Cultures and Running Code

Central to IETF’s culture is the understanding of internet governance as driven by “rough consensus and running code.” When participants use this phrase, they are referring to the importance of bottom-up processes on the one hand and market-driven, functioning technology development on the other. Roughness is indeed central to the working culture at the IETF. The organization rewards confrontation and abrasiveness. What goes into consensus and code at the IETF – and who does its ostensible roughness exclude?

This primer draws on interviews with IETF participants and years of observation to highlight four key aspects of its internal functioning, each of which presents civil society actors with a distinctly cultural hurdle as they seek to participate in internet governance. The exclusionary effect of culture at the IETF operates through these four intersecting dynamics:

Cultural Dynamics	Exclusionary Effects
Denial of politics in technical discussions	→ Empowers corporations, disempowers civil society
Procedural openness as a distraction	→ Delegitimizes civil society critique of industry influence
Reliance on informal networking	→ Marginalizes minority voices through exclusion from social circles
Abrasive working practices	→ Enables sexism and racism to persist, hindering civil society

These cultural dynamics are present when participants decide between competing technical solutions, but they also – crucially – guide the adjudication of social friction. When civil society actors instigate debates about the political stakes of internet governance, by raising standards’ impact on human rights, for example, IETF participants marshal these cultural dynamics to marginalize or dismiss these contributions. This is not necessarily always an explicit or strategic effort. A focus on culture makes clear that it is often precisely in places where people act reflexively and habitually, where they do not think twice, that an organization’s politics are enacted.

The Denial of Politics in Technical Discussions

“We don’t do politics.” It is an unofficial mantra at the IETF, and a key challenge for civil society, far more so than the technical difficulty of discussions. IETF participants like to emphasize that they are “just engineers” – rather than specialized governors and internet decision-makers – who work on networking, routing, and other technical aspects of internetworking. Many see

their work as devoid of politics altogether, while others claim that politics may exist in their work but do not have a place in governance discussions. This latter standpoint is a given across the IETF; engineers consistently deny that the political and economic drivers propelling the companies that employ and fly them to IETF meetings affect the development of protocols. They describe themselves as neutral facilitators who look for “the best technical solution,” when they could just as easily – and arguably more accurately – describe themselves as contextually situated political brokers for their employers’ interests. Politics are a true taboo at the IETF.

The rejection of politics should not, however, be taken for a flat belief in the neutrality of technology. Engineers do know that their work is political. It is just that denying this fact serves as a cultural self-preservation mechanism. One engineer explained, for example, that dismissing the political is a matter of credibility:

So, for example, I agree it would be wrong for the IETF to start taking positions on economics. Saying that we need an anti-capitalist IETF would be kind of stupid, right? Uhm. It’s never going to happen anyway. So, for the credibility of the organization, for its sponsors, and for the people here who make use of the technologies developed, it would make no sense to do very overtly political things.

Their denial of politics allows engineers to distance themselves from the political and economic social orders shaped through standards and upholds the benefits their employers derive from them. Only because politics “have no place” in IETF decision-making can its governance model be so market-oriented, with large corporations flying in their employees. This apolitical rhetoric protects the stability of the IETF’s current market-centric governance model. There is an unspoken but clearly cultural incentive within the IETF that encourages industry participants to reject politics. It maintains, in short, the interest of its sponsors – those actors to whom the monetary benefits of internet infrastructure accrue.

Another engineer gave a very concrete example of what could go wrong if the IETF were to become more explicit about the political dimensions of its work. Asked to sketch his worst-case scenario, he said:

I think a really good example of what they are afraid of... hasn’t happened yet [at the IETF] but is what happened at World Wide Web Consortium (W3C). W3C now has a competing standards organization called WHATWG that standardizes another chunk of the web.

This engineer worries that being overt about the role of politics could lead to the establishment of a competing organization, which would reduce the IETF’s standing and relevancy. He articulates an existential cultural incentive for collectively eliding the role of politics in the IETF.

Another engineer put it similarly when he noted that “in some sense, it is also a fig leaf to say *we do not do politics*. Or we don’t need to care about this. But we do do politics, we just don’t tell anybody.” The engineers’ hesi-

tancy to speak openly about politics, and their embrace of the fig leaf that there is no politics in engineering, reveals how much the IETF depends on a market power-based governance culture. When engineers frame their work as apolitical or “purely” technical, they are not being naïve. Some may genuinely believe that technology can be fully neutral, but many rhetorically employ a strategic naivety, because they know it allows the IETF to continue to exist, and their employers to continue to benefit from its decisions about internet standards.

This cultural imperative to downplay or sideline politics in technical decisions creates a particularly steep cultural hurdle for civil society. Civil society interventions are prefaced on the assumption that internet governance is political. This difference leads to instant frictions, as the engineers’ cultural orientation to protocol development clashes with that of civil society participants. Even when civil society contributions have clear technical merit, they are often dismissed as political and therefore out of touch with the organization’s proper operation. Alternatively, civil society participants find that they must forcibly restate social concerns in exceedingly narrow technical terms, just to ensure they can remain party to relevant governance decisions. The rhetorical claim to apolitical technology development serves to marginalize the kinds of political interventions civil society puts forward while naturalizing the political status quo of market-centric governance.

Procedural Openness as a Distraction

The IETF prides itself on its openness. Participants often tell each other that “anyone with an email address can participate” in discussions. They constantly repeat that all who join IETF gatherings participate on an equal basis, regardless of their employer or background. This cultural emphasis on openness is codified in its guidance documents and distinct IETF rituals, including – somewhat famously – the hum. The traditional “hum” is a tool for making decisions in IETF working groups.²² Instead of having their votes recorded, IETF participants hum. This allows them to “vote” in the relative privacy of collective resonance. Humming makes it harder to discern which engineers put their voice behind what proposals. This procedure aligns with the cultural emphasis on openness because it seems to enable engineers to participate in the IETF as individuals rather than as corporate representatives. Many engineers praise this procedural openness because it allows them to “vote” against the proposals their companies support when they see fit.

In practice, however, corporate affiliation matters deeply at IETF meetings. The opinions of engineers who work for companies that account for a large percentage of internet traffic (for example, Google) or are dominant in the browser market (again, Google) can decisively sway technical debates. Procedural openness or accessibility proves to be no match for the

²² Some IETF working groups measure consensus in a discussion by asking the group ‘to take a hum’, this involves the group humming on different proposals whereby the relative resonance of the hum indicates the group’s approval, see also: ten Oever, Niels. 2020. “HackCurio: Decoding the Cultures of Hacking.” 2020. <https://hackcur.io/please-hum-now/>.

market dominance of industry heavyweights like Google or Apple. Their engineers' comments are considered differently than those of smaller technical players or civil society. Even though civil society represents a large and significant online constituency, their organizations are not as influential in commercial terms and at the IETF. This means that civil society contributions will be less likely to gain traction. Open though it may be, the IETF is a place where corporate power rules.

Even the hum serves big businesses. Companies benefit from the narrative of open, individual participation that the hum makes possible. As individual participants rather than corporate employees, engineers are not vulnerable to anti-trust litigation and unwanted government interventions. A blog published by the organization in the summer of 2020 explained that "IETF processes and procedures are particularly well-suited to mitigate competition law risks. IETF participation is free and open to all interested individuals. Participants engage in their individual capacity, not as company representatives."²³ One engineer explained about procedural openness that "it avoids the legal scrutiny in participation, it is just a bunch of engineers talking." Obfuscating the importance of industry power through procedural openness – while cementing it through those same procedures – is a key part of the IETF's cultural functioning.

The tight connection between the IETF's cultural commitment to procedural openness and the commercial interests that determine much of its operations has direct ramifications for accountability efforts driven by civil society participants. The focus on individual participation and personal contributions puts civil society at a particular disadvantage, as it makes it hard for them to hold companies to account for the views presented by their engineers in the particular cultural setting of the IETF. Another way to put this dilemma is to say that the IETF's procedural openness presents an opportunity, while its exclusionary culture restricts the possibilities for intervention. A more accurate summary of the IETF's openness would say that yes, everyone with an email address can participate, but not everyone will be listened to equally carefully.

This partial or limited openness puts civil society in a particularly tough spot. On the one hand, civil society participants want to make use of the unique access and opportunities provided by the IETF's procedural openness. On the other hand, their presence can confer unfounded legitimacy on IETF processes. If civil society is in the room where decisions are made but does not have a voice that can match that of industry, the sheer fact of their participation in debates can function as a rubber stamp. Civil society presence at the table is one thing, civil society input being heeded is another. Focusing on openness as a matter of procedure rather than practice makes it dangerously easy to conflate the two, to the exclusion of civil society voices.

23 Livingood, Jason. 2020. "IETF | IETF Administration LLC Statement on Competition Law Issues." November 29, 2020. <https://web.archive.org/web/20201129074308/https://www.ietf.org/blog/ietf-llc-statement-competition-law-issues/>.

The Reliance on Informal Networks

The IETF's work gets done in corridor conversations and outside of the official working group meetings. Being an effective participant in the IETF requires building a social network, which in turn requires attending the meetings in person – in high-end hotels across the world – and while there, being sociable and available in particular ways. The IETF's official schedule always includes numerous social gatherings, like receptions, happy hours, and other sponsored social events.²⁴ After their technical discussions, engineers gather in bars and bond over shared hobbies and interests, like food, scotch, wine, beer and cocktails, running, music, or even socks (both the proxies and the footwear). They introduce colleagues to friends and vice versa, beginning collaborations – often long-term – that revolve around but also exceed the IETF. A good reputation at the IETF frequently begins with a shared beer as much as with a shared discussion about standards. The reliance on informal social networks is an important cultural dynamic in the IETF.

The IETF's intense schedule of social activities is not enjoyable or accessible for everyone. The exclusionary effect of this emphasis on social networks begins on the logistical level. The IETF's thrice-yearly in-person meetings rotate across Europe, North America, and Asia. South America and Africa are largely overlooked as possible hosts. The organizational logic for that exclusion is that the IETF optimizes its location selection for where most of its participants come from or can get to. Setting aside what this decision signals to African and South American participants, the traveling and lodging involved in participation are often prohibitively expensive for engineers from the Majority World, and all the more so for civil society, who lack the resources of their industry counterparts. Many Majority World participants experience visa restrictions on top of costs. As one civil society participant—a human rights advocate from South-East Asia—put it:

They [IETF leadership] do not realize that, for example, I have to apply for a visa a month in advance for every IETF meeting. I have to give a book full of documents, I spend a whole week just getting my documents straight and then spend the better half of a day at the visa center which has, I mean, I won't even start ranting about that, but even just the fact that they don't realize that this is the global reality [extends] to protocols itself.

For this civil society activist, the IETF is only as open as its awareness of the social barriers many participants face. If the “global reality” of travel does not permeate the meetings, that should be a clear sign that the IETF's decisions can only serve the public to the extent that people are actually able to contribute to standards' development. A social network that requires significant travel inherently excludes. This exclusion is especially poignant given it is often civil society, and individuals from the Majority World, who

²⁴ See for example, the schedule for the IETF 116 in March 2023 held in Yokohama here: <https://web.archive.org/web/20230318080026/https://datatracker.ietf.org/meeting/116/agenda/>

are simultaneously most likely to be excluded from travel and feel the harms arising from standards' design, for instance, lacking encryption that enables surveillance of dissidents or journalists.

The reliance on social networking at the IETF also limits access in other ways. IETF participants rarely consider who is excluded from networking activities at meetings and the social networks that result from them. Even though, these activities often include practices that are known to be uncomfortable or impossible for some attendees. For example, individuals who do not drink for religious or personal reasons will have a more difficult time joining fellow participants when they bond over drinks or gather in bars. Women, in particular, have expressed feeling unsafe during informal moments at the IETF, especially when alcohol is involved. For this group, informal social networking also ends up excluding them from important opportunities because they are less likely to attend; social events often conflict with the caretaking tasks this group is more likely to take on. It is, in short, particularly difficult for women and people from some Majority World countries, where alcohol is a less self-evident social opportunity, to build the kinds of informal social connections that successful participation at the IETF requires. This exclusionary dynamic is further exacerbated for civil society participants, who cannot claim commercial clout to get fellow participants interested in their ideas. For this group, engagement in the various socializing events is ever more crucial, and the exclusionary effect of this cultural dynamic is even more pressing.

The IETF is taking several important steps to help those outside the existing "in crowd" join its social networks, but these measures are not necessarily broadly supported. The organization is working to provide fee waivers and childcare for meeting attendees. It has also recently created an Ombudsteam and established new procedures for reporting harassment. Still, some in the IETF are perfectly comfortable with the exclusionary effects of the organization's culture and even encourage it. Asked about opening the IETF to newcomers, one engineer said that "the way to do this is you broaden your outreach, but you do not try to change the selection criteria. You just increase the likelihood that you will find people that will fit. As opposed to saying, we need to change as an organization." His statement reflects a common conviction in the IETF: that the organization should maintain its current culture, precisely because it has an exclusionary effect on non-incumbents. Exclusion, in this vision, is how the IETF can remain what it is.

For many engineers in the IETF, their social networks are only open to newcomers who neatly fit the IETF's existing mould. A good "fit" in the IETF requires commercial backing, specific technical skills, a particular cultural background, and distinct personality traits. The term "cultural fit," as various academics have shown, enables individuals to choose to include only those who resemble them. Pervasive in specialized technological fields, this dynamic presents purposeful homogeneity as a common good, a way to

guarantee continuity.²⁵ In the IETF, the focus on cultural fit is a mechanism for hampering efforts to open the organization up to new perspectives and minority voices. It further cements the IETF's market-centric, anti-political approach to governance. And it works: civil society "misfits" struggle to succeed in the IETF, even if they have the required technical skills and resources because they cannot easily find their way into its social networks.

Abrasive Working Practices

A final cultural dynamic that constricts civil society participation concerns the working practices that are common in the IETF. IETF working groups are characterized by frank exchanges and robust conversations. Confrontation is key. IETF participants readily admit: "Yeah, it can get a little rough." The IETF's guidance document for newcomers warns that participants "can sometimes be surprisingly direct, sometimes verging on rude."²⁶ When veteran IETF participants share advice, they tell new attendees that they should "not take anger personally" because "people are just very passionate." These abrasive working practices persist because the IETF dictates that they are crucial to developing good protocols. Only confrontation, many IETF engineers believe, ensures that all relevant concerns are brought to the table. To let go of confrontation or acrimony, for them, would be to let go of technical excellence. This cultural linkage between confrontation and excellence explains why IETF participants condone behaviors that in any other professional environment would be considered unacceptable.

The IETF's emphasis on confrontation resonates with understandings of masculinity that are salient in Europe and North America: the man who is detached, technically oriented, and not afraid to cause offense is the man who is successful in his work.²⁷ One place to see how masculinity bears on the IETF's culture is in the use of gendered language. The organization describes the internet's original architects as "the internet's grandfathers" and its participant base as "internet greybeards." When newcomers join, this is what they should strive to become. This language makes clear that the IETF participant who is a "cultural fit" either is male or is comfortable with

²⁵ Dunbar-Hester, Christina. 2019. *Hacking Diversity*. Princeton, USA: Princeton University Press; Forsythe, Diana E. 2002. *Studying Those Who Study Us: An Anthropologist in the World of Artificial Intelligence*. 1 edition. Stanford, USA: Stanford University Press; Traweek, Sharon. 1992. *Beamtimes and Lifetimes: The World of High Energy Physicists*. New edition. Cambridge, USA: Harvard University Press.

²⁶ For the full document see: <https://web.archive.org/web/20210318203553/https://www.ietf.org/about/participate/tao/>

²⁷ Brooke, Sian. 2019. "'Condescending, Rude, Assholes': Framing Gender and Hostility on Stack Overflow." In *Proceedings of the Third Workshop on Abusive Language Online*, 172–80. Florence, Italy: Association for Computational Linguistics. <https://doi.org/10.18653/v1/W19-3519>; Ensmenger, Nathan. 2015. "'Beards, Sandals, and Other Signs of Rugged Individualism': Masculine Culture within the Computing Professions". *Osiris* 30: 38–65. <https://doi.org/10.1086/682955>; Reagle, Joseph. 2013. "'Free as in Sexist?' Free Culture and the Gender Gap". *First Monday* 18 (1): 1–5. <https://doi.org/10.5210/fm.v18i1.4291>; Tanczer, Leonie Maria. 2016. "Hacktivism and the Male-Only Stereotype." *New Media & Society* 18 (8): 1599–1615. <https://doi.org/10.1177/1461444814567983>.

masculinized work approaches rooted in “rugged individualism.”²⁸ The IETF draws on the preference for “beards, sandals, and other symptoms of [...] nonconformity” that has long been common among male programmers and expands this form of masculinity to include a deeply abrasive approach to its functioning.²⁹

The cultural emphasis on confrontation as the mark of (male) excellence impacts who can comfortably and safely participate in technical discussions. Scholars who research technology communities have demonstrated that rough approaches to engineering create organizational cultures that are particularly unappealing and hostile to women and individuals with explicit political agendas like civil society, who are unlikely to be read as capable programmers or techies.³⁰ Conversely, confrontation makes the IETF more accessible to the people who comprise its current participant base: English-speaking men who hail from Europe and North America and have technical backgrounds.

The exclusionary effects of IETF culture are reflected in statistics and explained by its confrontational culture. For example, during an average in-person meeting women only make up ten percent of the total participant base.³¹ The majority of standards is developed by participants from Europe and North America who work for industry giants.³² It is clear that only a certain kind of newcomer feels welcomed at the IETF. When IETF engineers seek to explain these worrying statistics, they – interestingly – do not only reach for further numbers and data but also for culture. One European IETF engineer, for example, noted that “the conversation tone is very casual and pretty Western. So that makes it easier for the Americans and Europeans, it is where [this tone] comes from. Plus, it is English.” Another senior IETF member explained that the IETF’s culture “creates a bias, in some sense. It makes it easy for the Europeans and the Americans, and the Western cultures to participate. It makes it super hard for others.” The role of culture in cementing the IETF’s abrasive working practices is evident – including to its powerful incumbent participants.

28 For additional information about the ‘rugged individualism’ of tech communities, see the work of Ensmenger 2015.

29 Ensmenger 2015, p. 50

30 See for instance the work by Dunbar-Hester, Christina. 2019. *Hacking Diversity*. Princeton, USA: Princeton University Press; Ensmenger, Nathan. 2015. “‘Beards, Sandals, and Other Signs of Rugged Individualism’: Masculine Culture within the Computing Professions”. *Osiris* 30: 38–65. <https://doi.org/10.1086/682955>; Reagle, Joseph. 2013. “‘Free as in Sexist?’ Free Culture and the Gender Gap”. *First Monday* 18 (1): 1–5. <https://doi.org/10.5210/fm.v18i1.4291>.

31 The IETF collects information on the gender breakdown of participation at each meeting. This data, however, is not published in the aggregate as other participation statistics related to corporate affiliation or country residence are. My estimate comes from the average gender breakdown presented in the IETF plenary reports of IETF meetings included in my fieldwork period as well as from the data I collected over my fieldwork.

32 See <https://www.arkko.com/tools/recrfcstats/d-contdistr.html> and <https://www.arkko.com/tools/allstats/companies.html>

Even when the drawbacks of confrontation are clear, the cultural linkage between IETF excellence and the ability to withstand confrontation makes IETF participants reluctant to change the practice. One engineer dismissed the idea of cultural change as follows: “We don’t have the resources to engage with the entire planet on the evolution of the internet and talk people through why each individual idea is a bad idea. And so—making people put some effort into coming to us, is important.” Rough culture is a way to deter certain non-incumbents from participating: only those who do not need to be “talked through” existing norms should join. Enduring confrontational working practices, in this view, separates those who are willing to put in effort from those who are not. Confrontation is a test, a way to guarantee high-quality contributions.

But in its focus on confrontation as the main means for achieving excellence, IETF participants overlook that only a limited number of their contributors will be able to shine under these conditions. The IETF’s rough working culture excludes important contributions as much as it encourages them. The repelling effect of confrontation is especially strong for civil society. Civil society participants are not just unlikely to fit the mould of the male programmer. They are also uninterested in passing tests – they are there to represent the public interest. Withstanding confrontation is not a form of effort that is relevant to their mission, which is precisely to “talk through” matters and engage in a back-and-forth that leads to compromise and agreement.

Conclusion

The open “multistakeholder model” of internet governance, in which all different parties joining and using the network contribute to decisions about its functioning, is integral to the internet’s success. This is especially crucial now, as corporate power over internet infrastructure is growing. Internet governance organizations are one of the very few places where the public can still claim a seat at the table. However, more work is needed to ensure that these governance bodies live up to their promise of being open and accessible for “everyone with an email address.” This primer examines why this is currently far from reality. Internet governance organizations may be *procedurally* open but closed-off and unwelcoming *in practice*. This gap between rules on paper and reality in practice can be explained through the exclusionary effect of culture: it is internet governance organizations’ distinct cultures that make it difficult for civil society to join the decision-making processes they so urgently need to join.

This primer outlines the exclusionary effects of cultural dynamics through a case study of the IETF, one of the oldest and most prominent internet governance organizations. Famously procedurally open, the IETF is in practice optimized for a narrow set of participants: Western men who work for tech companies. Four distinct cultural dynamics make it difficult for civil society to participate in internet governance discussions on equal footing with these “ideal” participants.

1. Denial of politics: the IETF depends on corporate funding and buy-in, which gives participants a powerful incentive to consider technical discussions apolitical. Dismissing political critique as irrelevant to technical discussions conflicts with the assumptions of civil society participants, who begin from the notion that technical work is open to political analysis.

2. Procedural openness as a distraction: the claim to total openness distracts from the fact that the voices of participants who work at large corporations carry more weight in IETF meetings. Civil society participants, who have no claim to commercial power or prestige, have difficulty being heard.

3. Reliance on informal social networks: effective work at the IETF depends on one’s access to social networks. The kinds of activities through which these social networks form – travel, socializing and drinking – are difficult to access for minority voices, whether because of visa challenges, religious or cultural needs, caretaking responsibilities, or gendered harassment.

4. Abrasive working styles: work at the IETF is characterized by a linkage between acrimonious confrontation and technical excellence, where the

former is thought to guarantee the latter. This linkage is the product of ideas about masculinity that are prevalent in Europe and North America. For minority voices and civil society, this emphasis on confrontation is difficult to negotiate and nearly impossible to challenge.

Not all IETF engineers hold on tightly to these cultural dynamics. Some long-term participants express concern about their exclusionary effects and advocate for organizational change to ensure that IETF discussions reflect a broad array of societal concerns and voices. This group remains in the minority, however, no matter the urgency with which they voice their concerns.

What can we learn from the IETF? From a public interest perspective, the IETF's limited willingness to change its exclusionary culture is a concerning bellwether. There are few checks on its exercise of power, nor are there obvious avenues to protect the public from the adverse consequences of the cultural impulses that currently drive internet governance more broadly. Procedural openness, in this sense, poses risks as well as opportunities. In the absence of an ethical, legal, or public-mandated set of principles, cultural mores and economic imperatives will fundamentally shape the development of technology in internet governance organizations. Understanding how this plays out should curb the impulse to position internet governance organizations as naturally capable of delivering us an internet that answers to the public. Designations of internet governance organizations as exemplary in this regard often depend on ignoring or disregarding the exclusionary effects of cultural dynamics in favor of surface-level procedural access. We ignore these cultural hurdles at our own peril.

Opportunities for Action

The limited possibilities for the public to weigh in on decisions about the internet's functioning should concern all who currently participate in internet governance. Addressing the cultural dynamics that hamper broad and inclusive participation in internet governance should be central to the advocacy agenda that civil society organizations pursue. Foundations and grant makers, whether corporate or non-profit, should request to see efforts toward healthy organizational cultures in their internet governance and technology portfolios. Here is what comprehensive action toward a more inclusive culture in internet governance organizations might include:

Get an Accurate Picture of Access to Internet Governance Organizations

Support ongoing, novel research and advocacy efforts aimed at comparing procedures at internet governance organizations with the experience of attendees, collecting evidence on the exclusionary effects of their current functioning;

Develop new infrastructures for documenting the challenges to participation faced by civil society and other relevant minority voices in particular;

Contextualize participation statistics in qualitative narratives that make it clear that the dearth of minority voices and civil society participants cannot be explained through lack of interest or effort on their part.

Create Conditions for Civil Society to Flourish in Internet Governance

Foster and encourage coalition building among civil society participants who work on technical governance and other policy areas, so that networks of knowledge exchange, expertise, and sustained pressure can develop;

Broaden the field of funders in internet governance, facilitate the conceptual connection between issues of corporate and commercial surveillance, power consolidation in tech, internet shutdowns and internet governance, and bring in funders who are explicitly focused on bringing Majority World voices and feminist perspectives;

Empower civil society with additional opportunities and resources, including core funding for work on internet infrastructure and governance, fellowships and travel funds, and the professionalization of existing networks between civil society participants in internet governance, like the Public Interest Technology Group (PITG), so that they can participate without industry funding or support.

Target Exclusionary Cultural Practices within Internet Governance Organizations both Procedurally and Socially

Repoliticize internet governance through the development and spread of organizational counternarratives that frame internet governance in general, including seemingly arcane technological development, as a matter of public interest and political deliberation;

Encourage and support the creation of accountability frameworks within internet governance organizations, including codes of conduct, travel and location selection policies, as well as Ombudsteams, in accordance with the experiences of those most impacted by exclusion;

Outline a framework for best working practices that provides concrete and inclusive alternatives for current customs and underline that the development of good technology is fully possible – and in fact more like – in safe and welcoming spaces.

ACK-nnowledgements

To create a reliable connection, the Transmission Control Protocol (TCP) must establish a three-way handshake. It goes like this: SYN, SYN-ACK, and ACK. It is no coincidence that both this primer and network conversations need ACK-nnowledgements. I want to thank the following people for making the connections that made this primer – and the Ph.D. research on which it is based – possible: I am grateful for the funding I received from the Ford Foundation (no. 136179, 2020). I am especially indebted to Dr. Michael Brennan, Lori McGlinchey, and Jenny Toomey. Furthermore, I would like to thank the founders of the Critical Infrastructure Lab for providing me with a new academic home: Dr. Niels ten Oever, Dr. Fieke Jansen, and Dr. Maxigas. A special thanks to the PITG community and my PITG co-chairs, Gurshabad Grover and Mallory Knodel for their feedback on this research. I would also like to thank Dr. Suzanne van Geuns for her invaluable feedback and edits and Ulrike Uhlig for doing the graphic design of this primer. Last but certainly not least, I would like to thank all the IETF participants who contributed to my research – I look forward to continuing our collaboration to ‘make the internet work better’, technically and socially.

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These journals are the most widely read and cited in the field of medicine. They are also the most expensive, with subscription rates for institutions ranging from \$10,000 to \$20,000 per year.

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