

## I. Introduction

1. This annex accompanies the June 2017 report to the Human Rights Council of the Special Rapporteur on the protection and promotion of the right to freedom of opinion and expression (A/HRC/35/22). The main report examines the role of State and non-State actors in the provision of Internet and telecommunications access (or “digital access”) and their human rights obligations and responsibilities respectively. The report provides guidance concerning the responsibility of digital access providers to respect freedom of expression online.

2. Part II of the Annex discusses the **human rights impact of Standards Developing Organization (“SDOs”)**. The report explains that SDOs, while not strictly “industry actors”, nevertheless “establish technical protocols and standards that enable interoperability in the telecommunications and Internet infrastructure” (A/HRC/35/22). Part II thus explores the work and governance of major SDOs, their impact on freedom of expression, and the need to incorporate human rights due diligence into standards development.

3. Part III provides an overview of **the submissions that the Special Rapporteur received** from States, civil society organizations, companies, academics and others. Given space limitations, the main report could not discuss these submissions in detail. Part III thus highlights issues and concerns raised in these submissions and other resources that interested readers may wish to investigate.

4. Part IV provides a summary of a **multi-stakeholder consultation on human rights due diligence and the digital access industry** conducted in preparation of the report. The consultation was held on 24 October 2016 and hosted by the University of Connecticut, one of several meetings that helped inform the report.

5. The Special Rapporteur would like to thank the following for their invaluable assistance in preparing this annex: Calvin Bryne, Sarah Choi, and Adam Lhedmat of the International Justice Clinic at the University of California (“UC”), Irvine, who helped research and draft Parts II and III; Molly Land, Fatimah Belem, Katharina Braun, Dorothy Diaz-Hennessey, Richard Hine, and Komla Matrevi of the University of Connecticut, and Katherine Ells of UC Irvine, who helped compile Part IV; and Amos Toh, who coordinated and edited the annex.

6. This annex should be read as a companion to A/HRC/35/22 and does not intend to endorse or reject any of the input provided during the preparation of the report.

## II. On the Human Rights Impact of Standards Developing Organizations

7. The Special Rapporteur has identified the development of technical standards as a critical area of human rights discourse (A/HRC/35/22; paras. 43-44; A/HRC/32/38, paras. 27-29). The capacity to seek, receive and impart information online relies on an ever-expanding series of standards and protocols that enable the smooth functioning of Internet and telecommunications networks. The TCP/IP protocols, for example, determine how information should be formatted, addressed and routed among devices within a network and between networks.<sup>1</sup>

<sup>1</sup> See “Transmission Control Protocol/Internet Protocol (TCP/IP),” Techopedia *available at* <https://www.techopedia.com/definition/2460/transmission-control-protocolinternet-protocol-tcpip>;

## A. Standards Developing Organizations

8. Internet and telecommunications standards are developed by a wide variety of Standards Developing Organizations (“SDOs”). Some of these SDOs are loosely governed, composed of volunteers and open to anyone to join, while others have more formal membership structures with varying levels of participation. Many of them attract significant participation from the private sector, while academic and other civil society participation is also common. Major SDOs include:

### i. Internet Engineering Task Force (“IETF”)

9. *What they do:* Most commonly known for its role in developing the first iteration of the Internet, IETF’s primary mission is to develop Internet standards. In particular, it “[p]lays a crucial role in managing the logical layer of the Internet, and in designing the standards and protocols that define how information flows across the networks.”<sup>2</sup>

10. *Governance:* IETF has no official membership, and its activities are open to anyone.<sup>3</sup> However, many of those involved in drafting standards and the organization’s governance are affiliated with the private sector.<sup>4</sup> IETF is organized into seven areas of work: Applications and Real-Time Area (focused on Internet applications protocols and architectures), Internet Area (IP layer protocols), Operations and Management Area (network management), Security Area (security protocols), Routing Area (protocols ensuring continuous operation of the Internet routing system), Transport Area (data transport protocols), and General Area (supporting, updating and maintaining the standards development process).<sup>5</sup> Each Area is managed by one or two Area Directors, who ensure that the “Area is well coordinated, that there is coverage for the technologies needed in the area, and that the challenges most important to the Internet in that area are indeed being worked on.”<sup>6</sup> Within each Area, IETF standards are mainly developed through Working Groups (“WGs”) and published in documents known as Requests for Comments (“RFCs”).<sup>7</sup> Anyone may set up a WG, provided that the advice and consent of the relevant Area Director is obtained and the WG complies with the guidelines and procedures for its formation and operation.<sup>8</sup> Standards are adopted through a consensus-building process that seeks to reflect the “dominant view” of the WG in the event that unanimity cannot be achieved (referred to in the IETF as “rough consensus”).<sup>9</sup> WG decisions are frequently made via e-mail on publicly available mailing lists.<sup>10</sup> IETF’s three annual meetings also provide an opportunity for WGs to meet and make decisions, and for the organization as a

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See also DeNardis, Laura, *The Global War for Internet Governance*, Yale University Press (2014) at 67.

<sup>2</sup> ARTICLE 19 submission at 12.

<sup>3</sup> See Internet Society submission at 5; Internet Engineering Task Force, “Getting Started in the IETF” available at <https://www.ietf.org/newcomers.html>.

<sup>4</sup> DeNardis at 66-67, 70.

<sup>5</sup> IETF, “Areas,” available at <https://www.ietf.org/iesg/area.html>.

<sup>6</sup> *Id.*

<sup>7</sup> S. Bradner (ed.), Network Working Group, IETF, “IETF Working Group Guidelines and Procedures,” RFC 2418 (September 1998), 4, 20, available at <https://tools.ietf.org/html/rfc2418#>. The list of active IETF WGs is available at <https://datatracker.ietf.org/wg/>.

<sup>8</sup> RFC 2418 at 4-9.

<sup>9</sup> IETF participants have stressed that “rough consensus” is not majoritarian rule - “51% of the working group does not qualify as “rough consensus” and 99% is better than rough.” Consensus is determined not on the “basis of volume or persistence, but rather a more general sense of agreement.” RFC 2418 at 13. See also P. Resnick, IETF, “On Consensus and Humming in the IETF,” RFC 7282 (June 2014), available at <https://tools.ietf.org/html/rfc7282> (discussing and critiquing the features of “rough consensus”).

<sup>10</sup> ARTICLE 19 submission at 12.

whole to discuss key technical and administrative issues concerning its role in setting Internet standards.<sup>11</sup> During these meetings, consensus is usually determined by humming.<sup>12</sup>

**ii. World Wide Web Consortium (“W3C”)**

11. *What they do:* Another large and well-established SDO, W3C is a membership organization that develops standards and protocols for the World Wide Web, one of the most widely used Internet applications for communication and information exchange (and often synonymous with the Internet for most users).<sup>13</sup> W3C standards include the HyperText Markup Language (“HTML”) and Extensible Markup Language (“XML”), the main language responsible for websites. At the time of publication, W3C is considering the adoption of the Encrypted Media Extensions (“EME”) specification, which would accommodate the use of Digital Rights Management (“DRM”) (software that restricts access to proprietary or copyrighted works) on web browsers.<sup>14</sup> The proposed specification has raised concerns that it will become easier for large media companies to impose onerous restrictions on access to digital content.<sup>15</sup>

12. *Governance:* W3C membership is open to companies, universities, governmental organizations, non-profit entities, and individuals.<sup>16</sup> However, the majority of the active members work for companies whose products employ web standards.<sup>17</sup> W3C is funded by its membership, based on a sliding scale adjusted for factors such as the location in the world and the type of entity.<sup>18</sup> Standards are adopted based on consensus through technical discussion and compromise among relevant members.<sup>19</sup> When there is a deadlock and all available means of consensus have been exhausted, a formal vote is conducted.<sup>20</sup>

**iii. International Telecommunication Union’s Telecommunication Standardization Sector (“ITU-T”)**

13. *What they do:* ITU-T is one of three sectors that comprise the International Telecommunications Union, a specialized UN agency dedicated to the development of

<sup>11</sup> Paul Hoffman (ed.), IETF, “The Tao of IETF: A Novice’s Guide to the Internet Engineering Task Force,” available at <https://www.ietf.org/tao.html>.

<sup>12</sup> RFC 2418 at 13; ARTICLE 19 submission at 12.

<sup>13</sup> While the Web has become synonymous with the Internet, it is one of a diverse range of applications that runs on and facilitates information exchange across the Internet. The Internet is the networking infrastructure that connects computers worldwide – in other words, the network of networks. Other Internet applications include e-mail, VoIP (Voice over Internet Protocol), mobile telephony, and peer-to-peer networks.

<sup>14</sup> See ARTICLE 19 submission at 12.

<sup>15</sup> See Free Software Foundation, “Keep DRM out of Web standards -- Reject the Encrypted Media Extensions (EME) proposal” (24 April 2013), available at [https://static.fsf.org/dbd/Joint\\_Letter\\_on\\_W3C\\_HTML5\\_proposal.pdf](https://static.fsf.org/dbd/Joint_Letter_on_W3C_HTML5_proposal.pdf). However, proponents claim that the specification will merely provide “a simple, easy to use way of putting encrypted content online.” Tim Berners-Lee, “On EME in HTML 5” (28 February 2017), available at <https://www.w3.org/blog/2017/02/on-eme-in-html5/>.

<sup>16</sup> See World Wide Web Consortium, “Membership FAQ,” available at <https://www.w3.org/Consortium/membership-faq#who> (stating “all types of organizations [including commercial, educational and governmental entities] and individuals”).

<sup>17</sup> See W3C, “Current Members,” available at <https://www.w3.org/Consortium/Member/List>; see also DeNardis at 75.

<sup>18</sup> See W3C, “Membership Fees,” available at <https://www.w3.org/Consortium/fees> (stating “W3C fees vary depending on the annual revenues, type, and location of headquarters of an organization”).

<sup>19</sup> See W3C, “World Wide Web Consortium Process Document,” § 3.3, available at <https://www.w3.org/2017/Process-20170301/#Consensus>.

<sup>20</sup> *Id.* at § 3.4.

Information and Communications Technologies.<sup>21</sup> ITU-T develops standards that “define how telecommunications networks operate and interwork”, from landline networks to cable set top box architecture and broadband DSL.<sup>22</sup>

14. *Governance*: While these standards are non-binding and adopted on the basis of consensus, many of them have been widely adopted among States and the private sector. ITU membership comprises 193 States and more than 700 representatives from the private sector, non-governmental organizations, and academic institutions. Only States have voting rights.<sup>23</sup> However, non-State members may seek to influence the organization’s proceedings and recommended standards through participation in each sector’s Study Groups (which generates draft recommendations for adoption) and Sector Conferences (which define each sector’s agenda and desired outcome every four or five years).<sup>24</sup> As the Internet supplants traditional telecommunications networks and systems, ITU’s role in Internet standardization and governance is hotly contested. For example, ITU-T has established Study Groups focused on standardization for cloud computing and Internet of Things infrastructure.<sup>25</sup> Given that the ITU is an intergovernmental organization, however, some argue that its expanding role threatens the multi-stakeholder model of Internet governance that is critical to maintaining a free and open Internet.<sup>26</sup> Furthermore, ITU has drawn criticism for operating “a very exclusive, top-down decision making process”, and lacking “transparency, openness, and inclusiveness”.<sup>27</sup>

#### iv. European Telecommunications Standards Institute (“ETSI”)

15. *What they do*: Unlike IETF, W3C, and ITU-T, which develop standards that apply globally, ETSI is a regional body focused on establishing European protocols for “fixed, mobile, radio, converged, broadcast and Internet technologies.”<sup>28</sup> Nevertheless, these

<sup>21</sup> The other sectors are Radiocommunications (ITU-R), which allocates global radio spectrum and satellite orbits, and Telecommunication Development (ITU-D), which promotes the development of telecommunications infrastructure and services.

<sup>22</sup> International Telecommunication Union, “ITU-T Recommendations,” available at <https://www.itu.int/en/ITU-T/publications/Pages/recs.aspx>.

<sup>23</sup> ITU, “ITU World Telecommunication Standardization Assembly 2016: Background Paper” available at <https://www.internetsociety.org/doc/itu-world-telecommunication-standardization-assembly-2016-background-paper>.

<sup>24</sup> The ability to influence proceedings varies according to membership status. Becoming a non-state member of the ITU requires payment of membership fees, with different fees charged to private-sector, academic members, and non-governmental organizations. The membership fee for NGOs begins at 31,800 CHF. ITU, “Membership Fees,” available at <http://www.itu.int/en/ITU-T/membership/Pages/Categories-and-Fees.aspx>. While there are other membership options available at slightly cheaper rates, these memberships do not afford the same rights as full sector members, and do not grant the right to influence final decision-making. ITU, “Can any company or organization become an ITU-T member?” available at <http://www.itu.int/net/ITU-T/info/answers.aspx?Fp=faqs.aspx&Qn=11&ewm=False>; ITU, “Participation Rights,” available at <http://www.itu.int/en/ITU-T/membership/Pages/Rights.aspx>.

<sup>25</sup> ITU, “ITU-T Recommendations,” available at <https://www.itu.int/en/ITU-T/publications/Pages/recs.aspx>; Telecommunication Standardization Sector of ITU, “Resolution 2-ITU Telecommunication Standardization Sector study group responsibility and mandates,” available at [https://www.itu.int/dms\\_pub/itu-t/opb/res/T-RES-T.2-2016-PDF-E.pdf](https://www.itu.int/dms_pub/itu-t/opb/res/T-RES-T.2-2016-PDF-E.pdf).

<sup>26</sup> See, e.g., Internet Democracy Project, “The ITU and global Internet governance,” available at <https://internetdemocracy.in/issues/global-internet-governance-architecture/the-itu-and-global-internet-governance/>.

<sup>27</sup> ARTICLE 19 submission at 11.

<sup>28</sup> European Telecommunications Standards Institute, “About ETSI,” available at <http://www.etsi.org/about> (last accessed February 28, 2017). ETSI also develops standards that “provide the technical detail necessary” to execute European Commission mandates and directives.

protocols often have global reach and impact. For example, before the advent of 3G and 4G networks, the GSM standard developed by ETSI was the de facto global standard for mobile communications.<sup>29</sup> ETSI also participates in the development of standards for next generation mobile networks as a member of the 3<sup>rd</sup> Generation Partnership Project.<sup>30</sup>

16. *Governance*: ETSI is registered as a non-profit organization composed of more than 800 members, including manufacturers, network operators, service and content providers, national administrators, universities and research bodies, user organizations, and consultancy companies and partnerships.<sup>31</sup> Membership is fee-based and open to “any company or organization, from any part of the world, with a legitimate interest in [ETSI’s] work”.<sup>32</sup> Proposals to create a new standard or to update an existing one may come from members, the European Commission, or the European Free Trade Association, and require the agreement of four members to proceed.<sup>33</sup> Depending on the type of standard involved, adoption may require the approval of a select committee of members, the entire membership, or the European National Standards Organizations.<sup>34</sup> Historically, ETSI has considered both international and national legal bases for human rights obligations when developing particular technical standards.<sup>35</sup>

**v. Institute of Electrical and Electronics Engineers (“IEEE”)**

17. *What they do*: IEEE is the world’s largest technical professional organization, composed of over 400,000 electrical engineers, computer scientists, and related professionals from more than 160 countries. The organization conducts standards development through its dedicated outfit, the IEEE Standards Association (“IEEE-SA”). IEEE standards span a wide range of fields, including aerospace, healthcare, transportation, nuclear power, and wired and wireless communications services.<sup>36</sup> IEEE has also been engaged in the development of standards for artificial intelligence and autonomous systems, and in April 2016, launched a global initiative to address the ethical dimensions of this work<sup>37</sup>.

18. *Governance*: IEEE-SA members submit proposals for standards projects (known as “Project Authorization Requests”), which must gain the approval of a sponsor (usually the IEEE society responsible for the scope and content of a proposed standard) and the IEEE-

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The European Telecommunications Standards Institute, “Different Types of ETSI Standards,” available at <http://www.etsi.org/standards/different-types-of-etsi-standards>.

<sup>29</sup> ETSI, “Our standards,” available at <http://www.etsi.org/standards>.

<sup>30</sup> See discussion *infra*.

<sup>31</sup> ETSI, “Who are our members,” available at <http://www.etsi.org/about/who-we-are>.

<sup>32</sup> *Id.*; see also ETSI, “What Does Membership Cost?,” available at <http://www.etsi.org/membership/fees#Members>.

<sup>33</sup> ETSI, “How does ETSI make standards?,” available at <http://www.etsi.org/standards/how-does-etsi-make-standards>.

<sup>34</sup> *Id.*

<sup>35</sup> See, e.g., ETSI, “Security Techniques Advisory Group (STAG); A guide to the legislative and regulatory environment,” §6.1, available at [http://www.etsi.org/deliver/etsi\\_etr/300\\_399/330/01\\_60/etr\\_330e01p.pdf](http://www.etsi.org/deliver/etsi_etr/300_399/330/01_60/etr_330e01p.pdf); see also ETSI, “Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Security; Identity Protection (Protection Profile),” §5.2, available at [http://www.etsi.org/deliver/etsi\\_ts/187000\\_187099/187016/03.01.01\\_60/ts\\_187016v030101p.pdf](http://www.etsi.org/deliver/etsi_ts/187000_187099/187016/03.01.01_60/ts_187016v030101p.pdf).

<sup>36</sup> Institute of Electrical and Electronics Engineers – Standards Association, “Technology Standards & Resources,” available at <http://standards.ieee.org/findstds/index.html>; see also DeNardis at 76. Note that some of the most widely known IEEE standards—including the Ethernet Local Area Network standards and the Wi-Fi family of standards—concern wired and wireless communications services.

<sup>37</sup> IEEE-SA, “IEEE Standards Association Introduces Global Initiative for Ethical Considerations in the Design of Autonomous Systems,” available at [http://standards.ieee.org/news/2016/ieee\\_autonomous\\_systems.html](http://standards.ieee.org/news/2016/ieee_autonomous_systems.html).

SA Standards Board to proceed.<sup>38</sup> Working groups are subsequently convened to develop and draft the relevant standard.<sup>39</sup> Once the sponsor has determined that “the draft of the full standard is stable,” the standard is submitted for balloting.<sup>40</sup> The goal of balloting is to “gain the greatest consensus”, and a standard will pass if at least 75 percent of all eligible ballots are returned and if 75 percent of these bear a yes” vote.<sup>41</sup> A 60-day public review process, which provides an opportunity for the general public to submit comments on the proposed standard, is initiated simultaneously with the balloting process.<sup>42</sup> After ballot approval, the standard is submitted to the IEEE-SA Standards Board for final approval.<sup>43</sup> While non-members are permitted to participate in certain standards projects, only members are eligible for leadership positions.<sup>44</sup> To participate in balloting, IEEE-SA membership or payment of a “per-ballot fee” is required.<sup>45</sup> Pricing for corporate membership is determined on the basis of annual revenues of the corporation, and each corporation is permitted only one vote on ballots.<sup>46</sup>

vi. **The 3<sup>rd</sup> Generation Partnership Project (“3GPP”)**

19. *What they do:* 3GPP is a collaboration between seven telecommunications standards associations worldwide: The Association of Radio Industries and Businesses, Japan; the Alliance for Telecommunications Industry Solutions, USA; China Communications Standards Association; ETSI; Telecommunications Standards Development Society, India; Telecommunications Technology Association, Republic of Korea; and Telecommunication Technology Committee, Japan (known as “3GPP Organizational Partners”).<sup>47</sup> 3GPP has developed standards for 3G and 4G networks, such as UMTS and LTE specifications respectively.<sup>48</sup> It is a key actor in the development of 5G standards – the next generation of mobile networks and wireless systems at the time of publication.<sup>49</sup>

20. *Governance:* The private sector has significant influence of the work of the 3GPP. Industry groups representing the interests of Telcos, ISPs, and related businesses may, at the invitation of an Organizational Partner, take part in 3GPP’s activities as a Market Representation Partner. While the latter “does not have the capability and authority to define, publish and set [3GPP] standards”, they may nevertheless “offer market advice to 3GPP and ... bring into 3GPP a consensus view of market requirements” relating to

<sup>38</sup> IEEE-SA, “Develop Standards: Submitting A Project Request,” available at <https://standards.ieee.org/develop/par.html>.

<sup>39</sup> IEEE-SA, “Develop Standards: What Is A Working Group?,” available at <https://standards.ieee.org/develop/wg.html>.

<sup>40</sup> IEEE-SA, “Develop Standards: The Balloting Process,” available at <https://standards.ieee.org/develop/balloting.html>.

<sup>41</sup> *Id.*

<sup>42</sup> IEEE-SA, “Develop Standards: The IEEE-SA Public Review Process,” available at <https://standards.ieee.org/develop/publicreview.html>.

<sup>43</sup> IEEE-SA, “Develop Standards: How Is Final Approval Obtained?,” available at <https://standards.ieee.org/develop/finalapp.html>.

<sup>44</sup> IEEE-SA, “IEEE-SA Membership,” available at <https://standards.ieee.org/membership/index.html>. Non-members may participate in the individual standards development process, but not the entity standards development process. See IEEE-SA, “FAQs: The Entity Standards Development Process,” available at <https://standards.ieee.org/faqs/cmm.html>.

<sup>45</sup> IEEE-SA, “Develop Standards: The Balloting Process,” available at <https://standards.ieee.org/develop/balloting.html>.

<sup>46</sup> IEEE-SA, “IEEE-SA Membership,” available at <https://standards.ieee.org/membership/index.html>; *Id.*

<sup>47</sup> 3rd Generation Partnership Project, “Partners,” available at <http://www.3gpp.org/about-3gpp/partners>.

<sup>48</sup> 3GPP, “Specifications Home,” available at <http://www.3gpp.org/specifications/specifications>.

<sup>49</sup> 3GPP, “About 3GPP,” available at <http://www.3gpp.org/about-3gpp>.

relevant telecommunications services, features, and functionalities. Notably, it does not appear that 3GPP provides similar opportunities for civil society, human rights groups, academics and others to provide input on the human rights impact of their work.

## B. Incorporating Human Rights Considerations into Standards Development

21. The Special Rapporteur has joined a growing body of technical, academic and civil society experts calling for in-depth study of the human rights impact of technical standards and how standards development should seek to enable the exercise of human rights. While the current discourse largely focuses on the IETF's protocol design process, the key questions and issues discussed cut across all forms of standards development.

22. A survey of the relevant literature reveals a variety of approaches concerning the role of human rights in standards development, but two are particularly salient.<sup>50</sup> Some argue that the protocol design process should “bak[e]” into the architecture those “key, universal values” reflected in the Universal Declaration of Human Rights.<sup>51</sup> These human rights standards are widely accepted among the international community, even if their interpretation and implementation vary across social, political, and cultural contexts. In particular, values that are most relevant to protocol design and have a “fundamental impact on individual autonomy”, such as freedom of expression and privacy, are “protected in the constitutions of many countries” and have “widespread democratic assent”.<sup>52</sup>

23. Others, however, insist that protocol design should ensure that architecture design is flexible enough to accommodate a range of outcomes, including those that may be inconsistent with human rights, so that “the tussle takes place within the design”.<sup>53</sup> In this view, limited understanding of the precise content of human rights and their accompanying parameters is a critical barrier to instantiating human rights through standards development.<sup>54</sup> Furthermore, since SDOs have neither the expertise nor legitimacy to make

<sup>50</sup> There are at least three other proposed approaches in the field: 1) design that, while not explicitly referencing human rights, nevertheless treats the Internet backbone as a public good and seeks to guarantee its “overall integrity and functionality”; 2) design that proceeds on the basis that Internet access (and potentially other Internet-related capacities) is in and of itself a human right; and 3) a ‘wait-and-see’ approach that supports more human rights education in the technical community but cautions against any definitive claims concerning the design process pending further research. For a fuller summary of these approaches see Niels ten Oever & Corinne Cath, Human Rights Protocol Considerations Research Group, IRTF, “Research into Human Rights Protocol Considerations,” draft-irtf-hrpc-research-13 (May 18, 2017) available at <https://tools.ietf.org/html/draft-irtf-hrpc-research-13>. Additionally, the Human Rights Protocol Considerations Research Group, led by ten Oever and Cath, also proposes its own approach to incorporating human rights into protocol design, which is discussed *infra*.

<sup>51</sup> Ian Brown, David D. Clark, & Dirk Trossen, “Should Specific Values Be Embedded in the Internet Architecture,” (2010) available at [http://conferences.sigcomm.org/co-next/2010/Workshops/REARCH/ReArch\\_papers/10-Brown.pdf](http://conferences.sigcomm.org/co-next/2010/Workshops/REARCH/ReArch_papers/10-Brown.pdf).

<sup>52</sup> *Id.*

<sup>53</sup> David D. Clark, John Wroclawski, Karen R. Sollins, and Robert Braden, “Tussle in cyberspace - defining tomorrow's Internet”, IEEE/ACM Transactions On Networking, Vol. 13, No. 3 (June 2005) at 466, available at <http://dl.acm.org/citation.cfm?id=1074049>.

<sup>54</sup> Corinne Cath & Luciano Floridi “The Design of the Internet's Architecture by the Internet Engineering Task Force (IETF) and Human Rights” L. Sci Eng Ethics (2017) 23: 449, available at <https://link.springer.com/article/10.1007/s11948-016-9793-y>.

or interpret human rights standards, such activity may trigger governments to abandon the current standards process, “effectively cleaving the Internet at the logical layer”.<sup>55</sup>

**i. The human rights impact of technical standards**

24. These concerns require SDOs to tread cautiously, and may counsel against “hard-coding human rights into protocols”.<sup>56</sup> However, they do not diminish the close connection between standards development and the exercise of human rights online. Like any technological development, standards do not simply serve technical functions. Instead, they are shaped by their historical and cultural contexts, reflect the assumptions and values of their respective developers, and influence public policy.<sup>57</sup>

25. Wittingly or not, the protocol design process already incorporates human rights values to varying degrees. For example, standards development focused on Internet accessibility for minorities and other vulnerable groups – such as the W3C’s Web Accessibility Initiative to enhance web access for those with cognitive and physical disabilities – enhances their capacity to exercise freedom of expression online.<sup>58</sup> Edward Snowden’s revelations about mass government surveillance have also prompted deeper scrutiny of the privacy implications of protocol design choices. In 2013, the Internet Architecture Board adopted guidance to “make designers, implementers, and users of Internet protocols aware of privacy-related design choices.”<sup>59</sup> While the guidance approaches privacy breaches as “technical attack[s] that undermin[e] trust in the network”, it nevertheless facilitates the exercise of the right to privacy and related human rights.<sup>60</sup>

26. Conversely, inadequate consideration of human rights has contributed to technical loopholes that render users vulnerable to access restrictions, privacy violations, and other human rights abuses. For example, the visibility of source and destination IP addresses in the IPv4 protocol – a widely used protocol for data communication across different networks – has enabled censors to identify websites and network traffic for blocking or discrimination.<sup>61</sup> The lack of mandated Transport Layer Security (TLS) under HTTP connections has not only exposed users to third party interception of their communications, but also deliberate attempts to compromise the security of their devices.<sup>62</sup>

**ii. Standards development and human rights considerations**

27. While it is not always possible to encode human rights values during the protocol design process, developers and other stakeholders should nevertheless be sensitive to the human rights implications of their work. The perceived lack of expertise and legitimacy is not insurmountable. The business and human rights movement, which has navigated similar challenges, demonstrates that non-State are capable of adopting an incremental and credible approach to human rights accountability. In particular, SDOs may seek guidance from ICT companies that have adopted due diligence and responsibility-by-design measures as part of

<sup>55</sup> Jonah Force Hill, “A balkanized Internet? The uncertain future of global Internet standards,” Georgetown Journal of Int’l Affairs, November 2, 2014, available at [http://journal.georgetown.edu/wp-content/uploads/2015/07/gj12707\\_Hill-CYBER-2012.pdf](http://journal.georgetown.edu/wp-content/uploads/2015/07/gj12707_Hill-CYBER-2012.pdf).

<sup>56</sup> draft-irtf-hrhc-research-13 at 11.

<sup>57</sup> See, e.g., Sandra Braman, “Internet Designers as Policy-Makers,” (February 21, 2017) available at <https://cyber.harvard.edu/events/luncheons/2017/02/Braman>.

<sup>58</sup> DeNardis at 77-82.

<sup>59</sup> A. Cooper, H. Tschofenig, B. Abob, J. Peterson, J. Morris, M. Hansen, R. Smith Janet, Internet Architecture Board (IAB), RFC 6973 (July 2013), available at <https://tools.ietf.org/html/rfc6973>; Internet Society submission at 4.

<sup>60</sup> Cath & Floridi at 458; Internet Society submission at 6.

<sup>61</sup> draft-irtf-hrhc-research-13 at 21-22.

<sup>62</sup> draft-irtf-hrhc-research-13 at 26-27.

their implementation of the United Nations Guiding Principles for Business and Human Rights.

28 In this vein, the Human Rights Protocol Considerations Research Group of the Internet Research Task Force – an IETF affiliate that focuses on longer-term research issues – is developing guidance to facilitate “conscious and explicit design decisions” that take into account human rights considerations.<sup>63</sup> In particular, this guidance poses a series of questions on issues ranging from privacy to content agnosticism and internationalization that developers can take into account at “any point in the design process”.<sup>64</sup> This methodology is similar to Human Rights Impact Assessments that several Internet and telecommunications companies conduct during the design and engineering phase of product development.

29. Policies and practices that facilitate a more transparent and inclusive protocol design process should also be encouraged. Meaningful access to information concerning “the development of a standard and associated deliberations, minutes, and records” provides opportunities for public input, establishing public accountability and oversight.<sup>65</sup> Increasing the participation of engineers with human rights expertise and civil society representatives will also empower SDOs to better identify and address the human rights impact of their work.<sup>66</sup>

### **III. Overview of Submissions Received in Preparation of A/HRC/35/22**

30. The Special Rapporteur’s call for input generated 25 submissions from States; 3 from companies; 22 from civil society, academics and others; and 1 confidential submission. The Special Rapporteur is extremely grateful for the submissions received, each of which informed, in one way or another, the report itself. The submissions referenced in this report may be found at the website of the mandate.

#### **A. The Provision of Internet and Telecommunications Access: Freedom of Expression Issues and Concerns**

##### **i. Internet and Telecommunications Shutdowns**

31. Various submissions discussed the scale, duration, and frequency of shutdowns, as well as the types of services affected. See Bahrain Center for Human Rights at 13, Access Now (“Access”) Part I at 12, and Internet Sans Frontières (“ISF”) at 1. Access’s submission also provides an overview of various domestic legal frameworks concerning the authority to order shutdowns. See Access Analysis of Shutdown Laws.

32. One submission discussed the technical means used to shut down networks or otherwise censor the Internet. In particular, network disconnection or adversarial route announcement, which “withdraws all of the Border (sic) Gateway Protocol (BGP) prefixes routing through the censor’s country”, is “perhaps the crudest of all censorship techniques” and has the effect of “shutting off the network”. See Center for Democracy and Technology (“CDT”) Part III at 16.

<sup>63</sup> Human Rights Protocol Considerations Research Group, <https://irtf.org/hrpc>.

<sup>64</sup> Content agnosticism is defined as the treatment of “network traffic identically regardless of content.” draft-irtf-hrhc-research-13 at 43. Internationalization is defined as the “practice of making protocols, standards, and implementations usable in different languages and scripts.” *Id.* At 44.

<sup>65</sup> DeNardis at 84.

<sup>66</sup> Cath & Floridi at 465.