
Technological Determinism and Democracy in the Governance of the Logical Layer of the Internet

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Abstract

The article focuses on the relationship between the Internet Governance and democracy in the governance of the logical layer of the Internet. Due to the impactful role and the normative effects of standards, protocols and technical decisions for the Internet and Internet users, and the centrality of the Internet in almost every aspect of the social, financial and political life, it argues that we ought to examine the ideologies, narratives and assumptions that have informed and shaped key governance arrangements. It explores the influence of technological determinism as a technocratic governing mentality, applying the argument of Taylor Dotson in the context of Internet Governance, and more specifically in the governance of the logical layer, focusing on standard-setting and technical decision-making by the Internet Engineering Task Force (IETF). It argues that technological determinism has been pervasive in Internet Governance discourse since the early days of the Internet, while standard-setting and technical decision-making are technocratically organized and non-democratic procedures, considering also how the technical community takes decisions, as well as how itself frames its tasks and perceives standard-setting and technical decision-making. It concludes arguing that we need to review the way governance on the logical layer is organized, dispelling technological determinism, while introducing social considerations and democratic principles.

Keywords

Internet Governance; Technological Determinism; Governing Mentalities; Technocracy; Logical Layer.

Determinismo tecnológico e democracia na governança da camada lógica da Internet

Resumo

O artigo aborda a relação entre Governança e democracia na camada lógica da Internet. Devido ao impacto e aos efeitos normativos dos padrões, protocolos e decisões técnicas para a Internet e para os seus usuários, e à centralidade da Internet em quase todos os aspectos da vida social, financeira e política, argumenta-se que devemos examinar as ideologias, narrativas e suposições que informaram e moldaram os principais arranjos de

governança. Explora-se a influência do determinismo tecnológico como uma mentalidade governante tecnocrática, aplicando o argumento de Taylor Dotson no contexto da Governança da Internet e, mais especificamente, na governança da camada lógica, com foco na definição de padrões e na tomada de decisões técnicas pela *Internet Engineering Task Force* (IETF). Argumenta-se que o determinismo tecnológico tem sido difundido nos discursos de Governança da Internet desde os primeiros dias da Internet, enquanto padronizações e tomadas de decisão são procedimentos tecnocraticamente organizados e não democráticos, considerando como a comunidade técnica toma decisões, bem como ela mesma define suas tarefas e percebe a definição de padrões e a tomada de decisões técnicas. Conclui-se argumentando que precisamos revisar a forma como a governança na camada lógica é organizada, dissipando o determinismo tecnológico, e introduz-se considerações sociais e princípios democráticos.

Palavras-chave

Governança da internet; Determinismo tecnológico; Mentalidades governantes; Tecnocracia; Camadas de lógica.

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Introduction

The field loosely defined as “*Internet Governance*” is a constantly expanding area of interdisciplinary research, policy and governance competition, public debate, and ideological quarrel. It also constitutes a global arena where various rights and interests conflict and different stakeholders struggle for power and authority.¹ Although principally focused on the Internet, it commonly involves or interferes with key public policy issues, ranging from national security, taxation, and commerce to content regulation, while it affects fundamental rights and freedoms, such as privacy, freedom of expression, or freedom of association in both direct and indirect, apparent and less obvious ways. Moreover, the global reach of the network, its design

¹DeNardis, Laura. *The Global War for Internet Governance*. New Haven: Yale University Press, 2014. (p. 1)

characteristics and the distributed control over most of its key components has arguably shifted the historic control over a wide variety of public interest issues and human rights-related areas “from traditional nation-state bureaucracy to private ordering and new global institutions”.² Even though it has been almost thirty years since the question “who controls the Internet?” was firstly asked, and more than fifteen since Internet Governance was defined in terms of World Summit on Information Society (WSIS), Internet Governance remains still a highly contested, notoriously complex and still unresolved issue,³ as the priorities rapidly change, and new challenges emerge regularly.

Today the Internet is governed through a variety of hybrid, multi-stakeholder arrangements, by national governments, and an array of private entities and non-governmental institutions,⁴ including media industries, markets, various Content and Application Providers (CAPs), telecommunication companies, Internet Service Providers (ISPs), the five Regional Internet Registries (RIRs), the Telecommunication Union (ITU), the Institute of Electrical and Electronics Engineers (IEEE), and a variety of private Internet-specific institutions and standards setting bodies, such as the IGF, the Internet Engineering Task Force (IETF), Internet Assigned Numbers Authority (IANA), the Internet Corporation for Assigned Names and Numbers (ICANN), the Internet Society (ISOC), the Internet Architecture Board (IAB), the World Wide Web Consortium (W3C) etc. In such a mazy ecosystem, Internet governance is enacted through national laws and policies, multinational or international treaties, but mostly via private ordering and thick web of agreements in the form of Terms of Service (ToS), End User License Agreements (EULAs), corporate policies, private arrangements, technical design decisions and standard-setting. In practice, there are also an almost infinite number of mundane to the point of invisibility, actors and actions that also regulate various aspects of the Internet, even if formal, narrow definitions tend to overlook them.⁵

As it is gradually becoming evident, also from a public policy point of view, Internet Governance essentially interferes with a variety of public policy issues, including users’ fundamental rights and freedoms, the existing arrangements are increasingly questioned. We are also increasingly witnessing the coordinated efforts of individual states as well as intergovernmental organizations to limit the authority and power of private regulators, introducing new legal instruments, in an effort to regain control in key aspects of Internet

²DeNardis, Laura. *The Global War for Internet Governance*. New Haven: Yale University Press, 2014. (p. 1)

³Radu, Roxana. *Negotiating Internet Governance*. Oxford University Press, 2019. (Foreword)

⁴DeNardis, Laura. *The Global War for Internet Governance*. New Haven: Yale University Press, 2014. (p. 12)

⁵ Epstein, Dmitry, Christian Katzenbach, and Francesca Musiani. "Doing Internet Governance: Practices, Controversies, Infrastructures, and Institutions." *Internet Policy Review* 5. Issue 3 (2016).

Governance.⁶ A lot of attention is often focused on critically examining the top layer of Internet Governance, namely the content and applications layer, which is practically the one end-users are mostly exposed to, while it is closely related with issues of freedom of expression and privacy. However, beneath the content layer, and generally outside average user's view, lies a complex technical architecture, comprised of standards, protocols and processes central to the functionality of the network.⁷ In contrast with the technical standards for international telephony, which are set out in the International Telecommunications Regulations (ITRs),⁸ and the International Telecommunications Union (ITU), Internet's technical standards are not, in general, mandated by law, nor set through the conventional channels for other international standards in telecommunications. On the contrary, they are the product of private planning and decision, organized and executed within Internet-specific standard-setting institutions,⁹ most of which date back to the early days of the Internet.

Considered "*mundane to the point of boredom*"¹⁰ standard-setting, design and technical decision-making is commonly overlooked. Yet Several STS and science, technology, and society scholars have underlined the socioeconomic, political and cultural implications of architectural and design choices of the Internet, not only for the network itself but also for the users of the Internet and the society at large.¹¹ Apart from the famous "*code is law*" and the highly influential scholarship of Lawrence Lessig on the regulatory potential of design and technical decisions,¹² DeNardis has noted that "*[i]nfrastructure design and administration internalize the political and economic values that ultimately influence the extent of online freedom and innovation.*"¹³ Moreover, Janet Abbate has stressed that technical decisions may have significant and extensive economic and social implications, altering the balance of power, while standards essentially

⁶Suzor, Nicolas P. *Lawless: The Secret rules That Govern Our Digital Lives*. Cambridge University Press, 2019.

⁷Denardis, Laura. "HIDDEN LEVERS OF INTERNET CONTROL: An Infrastructure-based Theory of Internet Governance." *Information, Communication & Society* 15.5 (2012): 720-738 - DeNardis, Laura. *Opening Standards: The Global Politics of Interoperability*. Cambridge, Mass.: MIT Press, 2011.

⁸ Malcolm, Jeremy. *Multi-stakeholder Governance and the Internet Governance Forum*. Perth: Terminus Press, 2008.

⁹Musiani, Francesca, Derrick L. Cogburn, Laura. DeNardis, and Nanette S. Levinson. *The Turn to Infrastructure in Internet Governance*. Basingstoke: Palgrave Macmillan, 2016.

¹⁰ Star, Susan, et al. "The Ethnography of Infrastructure." *American Behavioral Scientist* 43.3 (1999): 377-392.

¹¹ See for example the scholarship of Laura DeNardis - Abbate, Janet. *Inventing the Internet*. Cambridge, MA: MIT Press, 1999.- Nissenbaum, H. "How Computer Systems Embody Values." *Computer* 34.3 (2001): 120-119. -

¹²Lessig, Lawrence. *Code: And Other Laws of Cyberspace*. [New York, N.Y.]: Basic Books, 1999

¹³Denardis, Laura. "HIDDEN LEVERS OF INTERNET CONTROL: An Infrastructure-based Theory of Internet Governance." *Information, Communication & Society* 15.5 (2012): 720-738 - Denardis, Laura. "Multi-Stakeholderism: The Internet Governance Challenge to Democracy." *Harvard International Review* 34.4 (2013): 40-44.

constitute “*politics by other means*”.¹⁴ Aside from their social impact,¹⁵ their governing potentials and normative power, the intersection between the logical infrastructure of the Internet and human rights is increasingly acknowledged,¹⁶ also beyond academia. The gradually growing introduction of “*legal protection by design*” (LPbD),¹⁷ particularly in the case of human rights, is indicative of a turn, not only to the physical but also to the logical infrastructure as a proxy for regulation.

In this article, wishing to contribute to the critical approach towards the assumptions and narratives underpinning the current governing arrangements, as well as to the strand of Internet Governance literature that focuses on governance arrangements on the logical layer of the Internet, from a legally informed Science and Technology (STS) point, I claim that *technological determinism* was and remains pervasive in Internet Governance theory and practice, significantly affecting thinking and acting regarding Internet Governance, while establishing and normalizing non-democratic structures in the governance of the logical layer of the Internet. As a persistent assumption and a prominent narrative, I argue that technological determinism has influenced the way governance is arranged on the code layer of the Internet. Applying Taylor Dotson’s argument, that technological determinism constitutes a technocratic governing mentality that hampers the democratization of technology governance,¹⁸ I argue that technological determinism has led to technocratic governing arrangements in the way the Internet’s logical infrastructure is governed today, normalizing non-democratic structures and arrangements.

The article is divided into two parts. Part I starts presenting the argument of Taylor Dotson, briefly explaining his view, as articulated in his contribution “*Technological Determinism and Permissionless Innovation as Technocratic Governing Mentalities: Psychocultural Barriers to the Democratization of Technology*”, focusing on the technological determinism aspect of his point. Thereafter the key components of the argument, namely *technological determinism*, *governing mentalities* and *technocracy* are discussed. Part II applies the argument in the context of Internet Governance. Firstly, the influence of technological determinism in the Internet Governance discourse is explored, along with the existence of technocratic arrangements. Subsequently, the significance of standard setting is addressed from an STS point of view.

¹⁴ Abbate, Janet. *Inventing the Internet*. Cambridge, MA: MIT Press, 1999.(p. 179)

¹⁵ Morris, John, and Davidson, Alan. *Policy Impact Assessments: Considering the Public Interest in Internet Standards Development*. Submitted to the 31st Research Conference on Communication, Information and Internet Policy 2003.

¹⁶ Cath, Corinne, and Luciano Floridi. "The Design of the Internet’s Architecture By the Internet Engineering Task Force (IETF) and Human Rights." *Science and Engineering Ethics* 23.2 (2017): 449-468

¹⁷ Hildebrandt, Mireille. "Saved By Design? The Case of Legal Protection By Design." *NanoEthics* 11.3 (2017): 307-311.

¹⁸ Dotson, Taylor. "Technological Determinism and Permissionless Innovation As Technocratic Governing Mentalities: Psychocultural Barriers to the Democratization of Technology." *Engaging Science* 1 (2015): 98-120.

Thereafter the standard setting process of the Internet is discussed, focusing also on how the standard-setting bodies, and most prominently the Internet Engineering Task Force, perceive their task and their attitude towards democratic procedures, as articulated in Requests for Comments (RFCs). Finally, I review RFC 8280 as a sign of a shift.

Part I: Technological Determinism as a Technocratic Governing Mentality

1. The argument of Taylor Dotson

Dotson observed that *“the barriers standing in the way of democratizing technology have yet to receive much attention.”* Combining the findings of various different STS discourses and the remarks of many pioneering STS scholars, he focused on one established and one emerging barrier, namely *technological determinism* and *permissionless innovation*, even though he acknowledged that there is a wide variety of social, cultural and political reasons contributing to the perpetuation of a non-democratic regime in decision-making about crucial technology-related issues and technology governance. More specifically, he identified technological determinism, a relatively old and well-established theory in the field of technology theory, and the demand for permission less innovation, premised on the idea that for humanity to benefit the most from technology, technological innovation should remain unregulated, as *“cognitive or psychocultural barriers”*, claiming that the views, beliefs and assumptions underpinning them constitute *“governing mentalities that shape discourse, thinking and action regarding technological innovation”*. Furthermore, he argued that since they assist in *mobilizing bias* that renders conscious democratic steering and decision making as impossible or incompetent, they can be perceived as *technocratic governing mentalities*.

According to Dotson, emphasizing either on the *technological imperative* or on the *innovation imperative*, both technological determinism and permissionless innovation promote the idea of adaptation to technological change and innovation, without questioning the incentives of consequences, and without any requirements of participation or representation of the citizenry in decision-making about technology. Dotson examined them as *normative phenomena* that essentially encourage *“an anti-democratic, non-intervention”* prejudice in technology and technological innovation governance. He argued that introducing, normalizing and justifying the separation of technology governance and innovation from oversight and

control, and the decoupling of technology from political accountability and democratic representation they present the conscious democratic control of technology and innovation either as futile, in the case of technological determinism, or as redundant and counterproductive, in terms of permissionless innovation. As such, they have significant and impactful influence on the current technology governance model, since *governing mentalities* are constituents of broader political processes that are ultimately crystalized in specific modes of governance.

Building upon the remarks of Langdon Winner and Jacques Ellul, who perceived technological determinism as a normative phenomenon, Dotson addressed it as a *technocratic governing mentality* that, through its underlying views, beliefs and assumptions, presents several hurdles to the democratization of technology governance, informing and influencing technology-related decision-making in a way that ultimately legitimates and perpetuates “*anti-democratic sociotechnical policy regimes via its influence on citizens’ patterns of thought.*” “*The internalization of the ideas and beliefs underlying technological determinism*” he claimed, frames the scope of technology governance “*as consisting in simply obeying and adapting its citizenry to the perceived logic of technological evolution.*”

2. Exploring the components of the argument

2.1 Technological Determinism

Technological determinism constitutes a multifaceted concept encompassing “*a variety of distinctive views about the relationship of technological enterprise to other aspects of human activity*”¹⁹ premised upon several “*different theoretical assumptions and explanatory approaches*”.²⁰ The term, commonly ascribed to the American sociologist Thorstein Veblen,²¹ is primarily employed to denote a distinctive approach towards the relationship between technology and society, and the impact of technology on societal change.²² Broadly defined,

¹⁹Bimber, Bruce. "Karl Marx and the Three Faces of Technological Determinism." *Social Studies of Science* 20.2 (1990): 333-351

²⁰ Ibid.

²¹ Beard, Charles A. "Time, Technology and The Creative Spirit In Political Science." *Bulletin of the American Association of University Professors* 13.6 (1927)

²²Paul S. Adler draft entry for *The International Encyclopedia of Organization Studies*, edited by Stewart Clegg and James R. Bailey (Sage)

technological determinism identifies technology as a central causal agent of social change,²³ while it implies that technology advances independently from the society, following its own predetermined path, beyond cultural, social or political influence, based on an irresistible, self-directed, technical logic.²⁴ It largely regards technology and technological developments “as the central causal element in process of social change,”²⁵ essentially suggesting that “the course of human history is determined by technological developments”.²⁶ Moreover, it “rests on the assumption that technologies have an autonomous functional logic that can be explained without reference to society”,²⁷ since “technology is presumably social only through the purpose it serves” even though it has “immediate and powerful social impacts.”²⁸ According to this view, technology is perceived as an external force bringing forth change in the society, via a series of “ricochet effects”,²⁹ whereas it advances following its own fixed trajectory. As Ronald Kline observed, currently the term is mainly employed to criticize the more hard and extreme aspects of a theory suggesting that “technological change determines social change in a prescribed manner”, defining human history and dictating users’ behavior.³⁰

The controversies around the use of nuclear energy, the production and usage of the atomic bomb and the atrocious human experimentation conducted by the Nazis brought the first signs of skepticism towards technological determinism, and the overly optimistic approach towards technology,³¹ especially since gradually the increasing desire for greater control of technology made the deterministic narrative less persuasive. The argument regarding the “internal logic of technology”, the tale of the fixed sequence and the implied rigid linearity were no longer sufficient to explain technological development and social adaptation convincingly, while the influence of the society and the broader cultural, political and economic context to technological progress became a popular research enquiry.³² The shift to an alternative way of

²³ Croteau, David, and William Hoynes. *Media Society: Industries, Images, and Audiences*. 3rd ed. Thousand Oaks, CA: Pine Forge Press, 2003. (pp. 305 – 307)

²⁴ Hamlett, Patrick W. "Technology Theory and Deliberative Democracy." *Science, Technology, & Human Values* 28.1 (2003): 112-140.

²⁵ Croteau, David, and William Hoynes. *Media Society: Industries, Images, and Audiences*. 3rd ed. Thousand Oaks, CA: Pine Forge Press, 2003. (p. 305)

²⁶ Bimber, Bruce. "Karl Marx and the Three Faces of Technological Determinism." *Social Studies of Science* 20.2 (1990): 333-351

²⁷ Feenberg, Andrew. "Subversive Rationalization: Technology, Power, And Democracy." *Inquiry* 35.3-4 (1992): 301-322.

²⁸ Ibid.

²⁹ Croteau, David, and William Hoynes. *Media Society: Industries, Images, and Audiences*. 3rd ed. Thousand Oaks, CA: Pine Forge Press, 2003. (p. 306)

³⁰ Kline, Ronald. "Technological Determinism." in *International Encyclopedia of the Social and Behavioral Sciences*, 3rd ed., edited by N. J. Smelser and P. B. Baltes, 15495-98. Elsevier, 2001. (p. 15495)

³¹ Marx, Leo. "Does Improved Technology Mean Progress?" *Technology Review* 90.1 (1987): 32.

³² See for example Wiebe E. Bijker, "The Social Construction of Bakelite: Toward a Theory of Invention" in Bijker, Wiebe E., Thomas Parke Hughes, and T. J. Pinch. *The Social Construction of Technological Systems:*

reviewing technology and society was marked by the turn to empirical study³³ and the contribution of several remarkable constructivists, largely belonging to the Social Construction of Technology (SCOT) school of thought. Scholars such as Wiebe Bijker, John Law, Trevor Pinch, Madeleine Akrich and Bruno Latour shed light to the multiple ways society and technology interact and co-evolve.

Given that the democratization of technological innovation and technology governance are two of the main objectives of STS, STS scholars have significantly contributed in promoting the relevant research. Emphasizing that science and technology are profoundly social and deeply political,³⁴ they adopted a critical stance towards the previous theories and narratives. Building upon constructivists' observations but significantly expanding the scope and methodologies, they eagerly engaged in exploring the politics, power and authority struggles and asymmetries behind technology, innovation and technological development. They focused equally on reviewing the interactions and mutual influence between technology and society, as well as on studying the political aspects of technology, revealing seats of power and authority in design choices and standard setting, the existence of particular trends and specific mindsets in technological development and innovation, while challenging the *black box* approach and the idea that technology is necessarily *value-neutral*.³⁵

In one of her most noteworthy observations regarding technological determinism, Wyatt stressed that in essence it "*absolves us from responsibility for the technologies we make and use*",³⁶ imposing the idea that we have little, if any, ability to shape or influence it, and control or affect its impacts. If we embrace the idea that technology develops detached from the social and cultural context, dictated by an independent, inherently a-social logic, "*we have very limited options about the use and effects of these technologies*" and consequently, we may deny responsibility about how technology is deployed and used.³⁷ Accordingly, the "*inexorable path*" narrative and the image of "*autonomous technology*" imply that it is the inner technical logic of technology itself that ultimately regulates technology, allowing little room for legal or other

New Directions in the Sociology and History of Technology. Cambridge, Mass: MIT Press, 1987. - Bijker, Wiebe E. *Shaping Technology/building Society: Studies In Sociotechnical Change*. Cambridge, Mass.: MIT Press, 1992.

³³ Verbeek, Peter-Paul. *What Things Do: Philosophical Reflections On Technology, Agency, and Design*. University Park, Pa: Pennsylvania State University Press, 2005.

³⁴ Woolgar, Steve. "The Turn To Technology In Social Studies Of Science." *Science, Technology, & Human Values* 16.1 (1991): 20-50

³⁵ Dotson, Taylor. "Technological Determinism and Permissionless Innovation As Technocratic Governing Mentalities: Psychocultural Barriers to the Democratization of Technology." *Engaging Science* 1 (2015): 98-120.

³⁶ Wyatt, Sally. "Technological determinism is dead; long live technological determinism" in Hackett, Edward J. *The Handbook of Science and Technology Studies*. 3rd ed. Cambridge, MA: The MIT Press : Published in cooperation with the Society for the Social Studies of Science, 2008

³⁷ Ibid.

intervention. Moreover, it suggests that in case of technical decision-making, the choices should be taken based on strictly technical principles and values, following the objectives dictated by efficiency, effectiveness, performance, progress and similar technical imperatives.

It seems that the mindset behind technological determinism, at least in its hard version, apart from vastly disempowering towards the society, in general, and individuals in particular, introduces, naturalizes and perpetuates specific objectives and values that are beyond the question regarding the place and the influence of technology on history and social change, having impactful consequences for technology governance. Along with establishing the assumption that individuals have no agency, influence or choice in the course of technological development and social change, hard technological determinism discourages political action and legal intervention presenting technological change as irreversible, fixed and predetermined.³⁸ In *Subversive Rationalization*, Feenberg noticed how technological determinism rationalizes the rejection of democratic governance in technology, normalizing the establishment of powerful technocratic elites and *technocracy*³⁹. Crystallized as the dominant understanding about the relationship between technology and society, technological determinism leads to the establishment and acceptance of certain organizational and governing structures inevitable, natural, or given. Moreover, the widespread trust in technological imperatives along with the firm belief that technological development equals social progress legitimates and enables the establishment of technocracy and technocratic ideals.⁴⁰

2.2 Governing Mentalities

There are multiple conceptualizations and ways to frame governing mentalities, from Michel Foucault's *governmentality*⁴¹ to Martti Koskenniemi's *mindsets*,⁴² or the *political fictions* and the necessary *imaginaries* of Yaron Ezrahi.⁴³ Dotson in his argument followed the interpretation of Nancy Campbell. Campbell defined *governing mentalities* as "sets of assumptions, knowledge,

³⁸Dafoe, Allan. "On Technological Determinism: A Typology, Scope Conditions, and a Mechanism." *Science, Technology, & Human Values* 40.6 (2015): 1047-1076.

³⁹Feenberg, Andrew. "Subversive Rationalization: Technology, Power, And Democracy." *Inquiry* 35.3-4 (1992): 301-322. See also Chenou, Jean-Marie. "Multistakeholderism Or Elitism? The Creation Of A Transnational Field Of Internet Governance." *SSRN Electronic Journal* (2010)

⁴⁰ Winner, Langdon. *Autonomous Technology: Technics-Out-Of-Control As A Theme In Political Thought*. MIT Press, 1977. (p. 258)

⁴¹ Burchell, Graham. *The Foucault Effect: Studies in Governmentality : With Two Lectures By and an Interview With Michel Foucault*. London: Harvester Wheatsheaf, 1991.

⁴²Koskenniemi, Martti. "Constitutionalism As Mindset: Reflections On Kantian Themes About International Law and Globalization." *Theoretical Inquiries in Law* 8.1 (2006): 9-36.

⁴³Ezrahi, Yaron. *Imagined Democracies: Necessary Political Fictions*. Cambridge ; New York: Cambridge University Press, 2012.

claims and appeals to authority, expertise, obligation and responsibility that structure the guiding rationale of public policy."⁴⁴ Asserting that such interpretative frameworks and images affect both the legislation and the public response, she emphatically underlined the significance of knowledge, notions and ideas that we take for fact. Stressing that the knowledge we consider real and valid matters, she made a point about how what is perceived as true or right, along with a large number of views, ideas, compulsions or prejudices inform, shape or influence governance. Her argumentation regarding the political rationalities and governing mentalities in governance, particularly viewed under the light of the powerful example she uses, namely the way women users of illegal drugs were pictured and addressed by illicit drug policy in the U.S. in the late 1980s and early 1990s, illustrates how opinions and appeals to "scientific truth" form attitudes which in turn shape governance.

My own interpretation lies somewhere between Campbell's usage of the term, as "*images that rule policy-makers mind*" and Jan Kooiman's concept of governing images, embracing also elements of the Foucauldian concept of governmentality. Similarly to Campbell, Kooiman asserted that "*governing is inconceivable without the formation of images*" explaining that such images may be the result of thorough analysis and research, or merely informed by personal experiences and intuition, formed by inner or outer data, "*visions, knowledge, facts, judgements, presuppositions, wishes, goals, hypotheses, theories, convictions, and even metaphors or parables*".⁴⁵ He claimed that they are built upon "*more or less implicit ideas of man and society*"⁴⁶ equally influenced by theories, philosophies of life and emotions, as well as of assumption and knowledge, containing "*factual and evaluative elements*".⁴⁷ Most importantly, he argued that they "*have an important, even decisive, influence on the unfolding of governing processes,*" particularly given that "*images are also the point of departure for the selection of governing instruments and taking governing action*".⁴⁸ These images, practically affect governance, creating attitudes in the sense of *governing mentalities*. As such, governing mentalities may serve as a starting point in understanding the dynamics and the reasons, the views, expectations and ideas behind a given model of governance, challenging the arrangements we consider given.⁴⁹

⁴⁴ Campbell, Nancy D. "Regulating "Maternal Instinct": Governing Mentalities of Late Twentieth-Century U.S. Illicit Drug Policy." *Signs* 24.4 (1999): 895-923

⁴⁵Kooiman, Jan. *Governing as Governance*. London: Sage, 2003. (p.29)

⁴⁶ Ibid.

⁴⁷Kooiman, Jan. *Governing as Governance*. London: Sage, 2003. (p.30)

⁴⁸Kooiman, Jan. *Governing as Governance*. London: Sage, 2003. (p.29)

⁴⁹ See also Dean, Mitchell. *Governmentality: Power and Rule in Modern Society*. 2nd ed. Thousand Oaks, CA: SAGE Publications, 2010 (pp.19-25)

2.3 Technocracy

Technocracy is a relatively loosely used term, mainly connected with the theory of Howard Scott and the *technocratic movement* of the early 1930's in the U.S. Winner in "*Autonomous Technology*" defined it as the "*manifestation of two influences upon public life*", namely the technological imperative and reverse adaptation, along with "*the force of overwhelming necessity*."⁵⁰ He claimed that under the influence of technocracy governance decisions "*cope with necessities arising from an existing configuration of technical affair*."⁵¹ Centeno in "*The New Leviathan*" defined it as "*the administrative and political domination of a society by a state elite and allied institutions that seek to impose a single, exclusive policy paradigm based on the application of instrumentally rational techniques*."⁵² He argued that "*the technocratic mentality concentrates on shaping patterns of problem recognition, option generation, and agenda placement that largely determine the eventual final choice of outcomes*," is mostly an "*ideology of method: a belief in the ability to arrive at the optimal answer to any discussion through the application of particular practices*."⁵³

In "*Agency and Citizenship in a Technological Society*" Feenberg noted that *technocracy* perceives technical questions as similar to mathematical or scientific, asserting that there is one objective truth, independent from personal beliefs and value neutral, while claiming that "*agency is impossible where specialized technical disciplines such as engineering exist*."⁵⁴ Broadly, *technocracy* is model in which decision-making is strictly premised upon knowledge and expertise, while decision-makers are selected based on their expertise, and derive their power, authority and legitimacy from their scientific and/or technical knowledge. It may be approached as the mere diffusion and domination of *technocratic elites* into the higher ranks of administration, or measured based on three key criteria, namely the extent to which organizations and institutions dominated by *technocrats* are central in crucial policy areas, the degree to which *technocratic elites* and/or institutions dominated by *technocrats* are involved in the promulgation of policies, and the extend in which policies or governance modes reflect a bias toward technocratic methods and interpretations.⁵⁵

⁵⁰Winner, Langdon. *Autonomous Technology*. MIT Press, 1977. (p. 258)

⁵¹ Ibid.

⁵² Centeno, Miguel. "The New Leviathan: The Dynamics and Limits of Technocracy." *Theory and Society* 22.3 (1993): 307-335

⁵³ Centeno, Miguel. "The New Leviathan: The Dynamics and Limits of Technocracy." *Theory and Society* 22.3 (1993): 307-335. – See also: Brint, Steven. "Rethinking the Policy Influence of Experts: From General Characterizations to Analysis of Variation." *Sociological Forum* 5.3 (1990): 361-385.

⁵⁴Feenberg, Andrew. "Agency and Citizenship in a Technological Society." *La Revue Du MAUSS* 1.43 (2014): 169-180.

⁵⁵ Centeno, Miguel. "The New Leviathan: The Dynamics and Limits of Technocracy." *Theory and Society* 22.3 (1993): 307-335

The most common approach to *technocracy* is the one regarding it as a variant of elite theory, focusing on the concept of an “*oligarchy of technocrats*” that essentially controls or otherwise meaningfully influences the administrative, economic and political branches of a state, impactfully affecting law and policy-making,⁵⁶ either directly, through positions of authority within the governing structures, or through mediation and various indirect ways.⁵⁷ It is founded on the “*faith in the applicability and superiority of scientific and technical methodologies and paradigms*”⁵⁸, the firm belief that instrumental rationale, scientific and technical expertise and scientific methods may provide with better outcomes than politics, frequently presented as inefficient or corruptive, while it derives its legitimacy from the appeal to scientific knowledge and technical expertise.⁵⁹ From that perspective, it may be perceived as a subset of paternalism, as it is substantially premised on the idea that one can reach “*the optimal answer to any discussion through the application of particular practices deriving from the technical or scientific world.*”⁶⁰

The concept of “*technocrats*,” comprising the “*experts*” who act as the main agents of governance in *technocracy*, is relatively elusive and vague, as in most cases the definition depends on the perspective, the focus and the underpinning ideologies. They derive their authority and legitimacy from scientific and technical knowledge, value-free, objective rationality, optimization and alternative or innovative approaches to social problems.⁶¹ Considered above “*lay persons*” they are entrusted to address difficult social dilemmas treating them as engineering problems and applying technical and scientific methods. There are several ways in which *technocrats* may be involved in governance, governing structures and procedures, and multiple forms and instances of *technocracy*, some apparent and some others less obvious. They are all premised on similar narratives that can be summarized as the assumption that “*technocrats know better*”. Consequently, as an attitude towards governance, *technocracy* regards knowledge and expertise as the major foundations of legitimacy, granting power and authority to plan,

⁵⁶Centeno, Miguel. "The New Leviathan: The Dynamics and Limits of Technocracy." *Theory and Society* 22.3 (1993): 307-335. – See also: Brint, Steven. "Rethinking the Policy Influence of Experts: From General Characterizations to Analysis of Variation." *Sociological Forum* 5.3 (1990): 361-385.

⁵⁷Sadowski, Jathan. "Creating a Taxonomic Tool for Technocracy and Applying It to Silicon Valley." *Technology in Society* 38.C (2014): 161-168

⁵⁸Centeno, Miguel. "The New Leviathan: The Dynamics and Limits of Technocracy." *Theory and Society* 22.3 (1993): 307-335.

⁵⁹ Ibid.

⁶⁰Sadowski, Jathan. "Creating a Taxonomic Tool for Technocracy and Applying It to Silicon Valley." *Technology in Society* 38.C (2014): 161-168

⁶¹Sadowski, Jathan. "Creating a Taxonomic Tool for Technocracy and Applying It to Silicon Valley." *Technology in Society* 38.C (2014): 161-168

decide and rule.⁶² Under a *technocratic governing mentality* decision-making authority ought to be premised on scientific knowledge and/or technical expertise. In the purest form of *technocracy*, legitimacy, representation and participation, in the sense of democratic governance, are deemed irrelevant or unnecessary, replaced by the criteria of expertise, efficiency, effectiveness, performance and productivity, along with any other values and principles related to science and technology rationale.

The role of technical experts in political process and governance as well as the influence of *technocracy* in a democratic polity have been a recurring topic of debate, starting from the image of the "*Philosopher King*", to the scholarship of Weber,⁶³ Marcuse,⁶⁴ Habermas,⁶⁵ Horkheimer,⁶⁶ and others. As Centeno remarked, several philosophers, social or political scientists did not perceive *technocracy* as a challenge to democratic governance, either asserting that technocratic elites do not pose an actual threat to democracy nor to traditional political leadership,⁶⁷ or arguing that technocratic ideology, premised on sound logic, reasoning and objectivity may be in practice beneficial for democratic practices, solving social conflict.⁶⁸ Going a step further, there were also those who argued that governance by appointed experts would be more preferable, compared to the manipulated, interest-driven, corrupted, and distorted rule of politicians.⁶⁹ However, especially hard core *technocracy* seems largely contrasting with the concept of representative democratic governance, since it promotes the idea of appointed experts, *technocrats*, instead of elected representatives, stressing the requirements of efficiency, effectiveness productivity and performance, instead of the traditional values of democratic representation.⁷⁰ Legitimacy is largely presumed through the appeal to expertise, which in turn provides the *technocrats* with the power and the authority to plan, decide and rule.⁷¹ Within this

⁶²Dale, Brigit. "Governing Resources, Governing Mentalities. Petroleum and the Norwegian Integrated Ecosystem-based Management Plan for the Barents and Lofoten Seas in 2011." *The Extractive Industries and Society* 3.1 (2016): 9-16.

⁶³Schechter, Darrow. *The Critique of Instrumental Reason From Weber to Habermas*. New York: Continuum International Pub. Group, 2010.

⁶⁴ Marcuse, Herbert. *One Dimensional Man*. Beacon Press, 1964.

⁶⁵ Habermas, Jürgen. *Toward a Rational Society: Student Protest, Science, and Politics*. London: Heinemann, 1971. - For an interesting discussion about Marcuse and Habermas' approaches to technology see Feenberg, Andrew. "Marcuse Or Habermas: Two Critiques Of Technology." *Inquiry* 39.1 (1996): 45-70.

⁶⁶ Horkheimer, Max. *Critique Of Instrumental Reason*. Seabury Press, 1974.

⁶⁷ Centeno, Miguel. "The New Leviathan: The Dynamics and Limits of Technocracy." *Theory and Society* 22.3 (1993): 307-335

⁶⁸ Burnham, James. *The Managerial Revolution*. Harmondsworth: Penguin, 1960.

⁶⁹ Fischer, Frank. *Democracy and Expertise: Reorienting Policy Inquiry*. Oxford: Oxford University Press, 2009. (p.3)

⁷⁰ Centeno, Miguel. "The New Leviathan: The Dynamics and Limits of Technocracy." *Theory and Society* 22.3 (1993): 307-335.

⁷¹ Ibid.

technification of governance and *scientification*⁷² of the politics there is little place or concern for accountability and transparency, due process, participation and the values and principles of rule of law. As a steadily increasing number of key policy issues began to involve complicated scientific elements,⁷³ or refer to complex technical decisions, *technocracy* and the “*rule of knowers*” grew within a wide variety of governance and policy domains, including finances, foreign and security policy, medicine, and technology governance.

Nevertheless, the involvement of all kinds of “experts” in the provision of public policy is in most cases beneficial, as they bring valuable insights and expertise in the decision-making procedure. The problems arise when the balance between appointed experts and elected representatives of the people is distorted, the strictly advisory role of experts is reversed and the relationship between expertise and decision-making authority is inverted,⁷⁴ and appointed experts have more power and authority to act based on their own agenda, compared to the elected representatives of the citizenry and the policies that have been legitimized through parliamentary positions and in accordance to the principles of rule of law. In other words, provided that *technocracy* does not prevail as the dominant governing *mentality*, and as long as the elected representatives of the people are those who define the ends in governance and policy, the role of experts is perfectly compatible with democratic governance. However, as a continuously increasing portion of governance is delegated to *technocrats*, expert groups and private institutions, it is hard to determine who designates the ends and the means, who makes the calls and where true power and authority reside.

2.4 Technocracy and the De-democratization of Technology Governance

Frank Laird remarked that under the influence of technological determinism and *technocracy*, technology governance and technical policy decision-making procedures are commonly exceptions to democratic practice.⁷⁵ The problem of *technocracy* is a problem of power relations and power asymmetries, while the most problematic aspect of it, as he observes, is that it significantly disempowers the citizens, as essentially “*technocracy is not the rise of experts, it is*

⁷² On *scientism* and *scientification* of politics see Crick, Bernard. *In Defence of Politics*. 4th ed. London: Penguin Books, 1993. (Particularly p. 93)

⁷³ See for example, Sanford Lakoff, “Scientists, technologists, and political power.” in Spiegel-Rösing, Ina, and Derek de Solla Price. *Science, Technology And Society: a Cross-Disciplinary Perspective*. London: Sage, 1977.

⁷⁴ Gilley, Bruce. “Technocracy and Democracy As Spheres of Justice in Public Policy.” *Policy Sciences* 50.1 (2017): 9-22.

⁷⁵ Laird, Frank. “Participatory Analysis, Democracy, and Technological Decision Making.” *Science, Technology & Human Values* 18.3 (1993): 341.

*the decline of citizens*⁷⁶, making it necessary to focus not only on who gains power but also on who and how loses it. It is noticeable that decision-making and policy about technology are increasingly presented to be conflicting with the traditional democratic values, while this approach is increasingly becoming institutionalized, widely accepted as normal or inevitable.⁷⁷ Studying the Domestic Policy Review (DPR) of solar energy in terms of Carter Administration, Laird stressed that there are important social and political aspects behind any technical issue, yet *technocracy*, structuring such issues in strictly technical terms, removes them from popular politics, making them difficult to comprehend for regular people. He concluded that *“as long as issues are defined technocratically citizens will be excluded”* and even the most *“vigorous programs of public participation will have little effect on the outcome.”*⁷⁸

Similarly, in the *“Critique of Power”*, Feenberg pointed out that *“modern societies are dominated by ever-more powerful organizations legitimated by their technical effectiveness”*⁷⁹ while proper functioning and efficiency of technologies are key considerations.⁸⁰ Acknowledging the *“strategic role of technology”* in modern society, he stresses that *“the technical, as it is embodied in particular machines and systems (...) is intrinsically normative”*, emphasizing the significance of technical choices as they may have normative consequences and incorporate specific values, which should not be considered neutral. Referring to Latour and the notion of *delegation* as well as to *technical mediation* and the deeply normative elements of artifacts, he argued that *“social bond is mediated by technical objects”* and *“that mediation supports a sui generis form of normativity”* highly influenced by the values and principles of *technocracy*. He also asserted that technology governance has profound impacts for citizens lives, yet the conventional wisdom of technological determinism suggests that the complexity of the technical issues and the requirement of specialized technical knowledge renders citizens’ agency impossible,⁸¹ assuming simultaneously that *“technical experts know everything relevant and rational in their domain”*⁸² thus citizens’ input would contribute next to nothing in the procedure.

⁷⁶ Laird, Frank N. "Technocracy Revisited: Knowledge, Power And The Crisis In Energy Decision Making." *Industrial Crisis Quarterly* 4.1 (1990): 49-61.

⁷⁷ Ibid. - Feenberg, Andrew. "Agency And Citizenship In A Technological Society." *Lecture presented to the Course on Digital Citizenship, IT University of Copenhagen, 2011* (2011)

⁷⁸ Laird, Frank N. "Technocracy Revisited: Knowledge, Power And The Crisis In Energy Decision Making." *Industrial Crisis Quarterly* 4.1 (1990): 49-61

⁷⁹ Feenberg, Andrew. "The Technocracy Thesis Revisited: On the Critique Of Power." *Inquiry* 37.1 (1994): 85-102.

⁸⁰ Ibid.

⁸¹ Eriksen, Erik Oddvar. "Governance between Expertise and Democracy: The Case of European Security." *Journal of European Public Policy* 18.8 (2011): 1169-1189. - Feenberg, Andrew. "Agency and Citizenship in a Technological Society." *La Revue Du MAUSS* 1.43 (2014): 169-180.

⁸² Feenberg, Andrew. "Agency And Citizenship In A Technological Society." *Lecture presented to the Course on Digital Citizenship, IT University of Copenhagen, 2011* (2011)

Yet the focus on expert technical or scientific knowledge as the primary criterion and legitimating basis for governing and decision-making authority may seem entirely reasonable in some occasions, particularly in terms of technology and technology governance, since the assumption that only those who can deeply understand the specificities of technology should have the authority to decide about it may sound legit. However, such an approach necessarily excludes certain groups from technology governance, nullifies the significance of other types of knowledge and insights, and largely denies agency and direct participation to no-expert citizens, in areas that have significant and far reaching effects on their lives,⁸³ in striking contrast with the values and principles of modern democracy. Moreover, the commonly invoked element of complexity, allegedly inherent in technology governance related issues, obscures citizens' agency, as well as their meaningful representation and potential participation in decisions related to technology governance.

In cases of appointment or delegation, the citizens do not elect the experts, therefore citizens' representation becomes problematic as the democratic chains of representation and accountability are broken, while citizens have essentially little, if any, control or influence on the decision-making. Additionally, as Martin Shapiro observed, "*by virtue of the very specialization of knowledge required for the achievements of high technological skills, experts are themselves a special interest group*", thus, their own interests and biases "*render them non-representative of the demos as a whole.*"⁸⁴ Problematic representation means that the views, considerations, values, fears, hopes and expectations of the citizens may not be adequately represented by those who make choices having significant impact on their lives, overturning a crucial element of legitimacy according to the rule of law, requiring that those affected by certain decisions should be able to participate or otherwise influence them. Simultaneously, the complexity of the questions and decisions involved in technology governance dismisses citizens' involvement in decision-making procedures, both in terms of participation and of representation, and by obscuring the provision of justifications for the decisions taken.

The provision of justifications is closely related to accountability and transparency in decision-making; however, *technocracy* allows for lack of transparency and accountability in technical and design choices. Broadly, accountability describes the dialogical, deliberative relationship between citizens and their elected representatives and the possibility that decision-

⁸³ Dale, Brigit. "Governing Resources, Governing Mentalities. Petroleum and the Norwegian Integrated Ecosystem-based Management Plan for the Barents and Lofoten Seas in 2011." *The Extractive Industries and Society* 3.1 (2016): 9-16

⁸⁴ Shapiro, Martin. "'Deliberative,' 'Independent' Technocracy V. Democratic Politics: Will the Globe Echo the E.U.?(Global Administrative Law)." *Law and Contemporary Problems* 68.3 4 (2005): 341.

makers can be held responsible to the citizenry, in accordance to the principles of democracy.⁸⁵ Combined with transparency and openness, it primarily rests on the fundamental right of citizens to receive information, arguments and proper justifications for the actions and the decisions of their representatives.⁸⁶ Nevertheless, accountability through delegation is particularly difficult to achieve, given that expert bodies or individuals enjoy a considerable amount of autonomy and discretion in decision-making,⁸⁷ while the complexity, objective or deliberate, of the technical issues further complicates the provision of justifications, commonly making it hard to distinguish between facts and values.⁸⁸ Finally, the requirement of transparency is hard to attain, given that regardless declarations of openness, technology governance related decisions commonly occur behind closed doors.⁸⁹

Representation, transparency and accountability are significantly obscured also due to the influence of technological determinism, underpinning *technocracy* as a *governing mentality*. According to the autonomous technology narrative and the concept of technological imperatives, choices and decisions by *technocrats* are based on instrumental rationality and scientific reasoning following technical necessity, therefore they are automatically correct, unbiased, uncontroversial objective and value-free. Conveying an image of autonomous technology following its own rationality, technological determinism as a *technocratic governing mentality* implies that technology would anyway develop following its inherent logic. This approach renders the efforts of conscious democratic technology governance largely futile, diminishing agency and representation, while it may downgrade the responsibility of those involved in crucial decisions.⁹⁰ Simultaneously, instilling deeply disempowering views and presenting the technological imperative as superior to the social, it allows for anti-democratic practices to be accepted as inevitable, reducing law to a mere instrument of applying and enforcing technical choices.

Part II: Applying the Argument on Internet Governance on the

⁸⁵Mansbridge, Jane. "A "Selection Model" of Political Representation." *IDEAS Working Paper Series FromRePEc* 2008. - Mansbridge, Jane. "Clarifying the Concept of Representation." *American Political Science Review* 105.3 (2011): 621-630.

⁸⁶ Eriksen, Erik Oddvar. "Governance between Expertise and Democracy: The Case of European Security." *Journal of European Public Policy* 18.8 (2011): 1169-1189.

⁸⁷ Ibid.

⁸⁸ Eriksen, Erik Oddvar. "Governance between Expertise and Democracy: The Case of European Security." *Journal of European Public Policy* 18.8 (2011): 1169-1189.

⁸⁹ More on this topic will be discussed in the following pages

⁹⁰Wyatt, Sally. "Technological determinism is dead; long live technological determinism" in Hackett, Edward J. *The Handbook of Science and Technology Studies*. 3rd ed. Cambridge, MA: The MIT Press : Published in cooperation with the Society for the Social Studies of Science, 2008

Logical Layer

1. Technological Determinism in Internet Governance discourse and technocracy in Internet Governance on the logical layer is arranged

Technological determinism was central in Internet Governance discourse since the beginning of the discussions regarding the characteristics, the legal status and the regulatory future of the Internet. It might have been concealed under other ideologies or blended with a variety of viewpoints and lines of argumentation, yet it was underpinning most of the descriptions about the network, and several of the arguments about whether and how it should be regulated. Particularly the tale of an *inherently unregulable* network and the narratives conveying an image of a governance-resistant medium, with freedom and independence hardwired in its protocols, are profoundly deterministic in their premise. In the public discourse the Internet was commonly framed as an autonomous, unstoppable force that would continue to advance following its own innate rationality, irrespective of the attempts by the “weary giants of flesh and steel” to regulate it.⁹¹ Technological determinism commonly equally underpins the narratives of *cyberutopians* and *cyberpessimists*, sinceas Alison Colman remarked, “both utopian and dystopian perspectives of technology reflect a particular technological determinism that positions technology as a determinant of social forms and processes”⁹² molded in narratives focusing either on “technology as liberator” or on “technology as threat.”⁹³

Soon after its commercialization, the Internet was closely associated with a variety of hopes and expectations, as well as with a variety of threats and dangers. As James Curran remarks, “[i]n the 1990s, leading experts, politicians, public officials, business leaders and journalists predicted that the internet would transform the world.”⁹⁴ Indicative of the widespread enthusiasm is Nicholas Negroponte’s highly celebrated “*Being Digital*”, which placed the Internet in the heart of what he framed as democratizing digital revolution.⁹⁵ Particularly during the years

⁹¹ Barlow, John Perry. "A Declaration Of The Independence Of Cyberspace." Electronic Frontier Foundation, 1996. <https://www.eff.org/cyberspace-independence>

⁹² Colman, Alison. "Un/Becoming Digital: The Ontology of Technological Determinism and Its Implications for Art Education." *The Journal of Social Theory in Art Education* 25 (2005): 278-305.

⁹³ Barbour, Ian G. *Ethics In An Age Of Technology*. [Cambridge]: International Society for Science and Religion, 2007.

⁹⁴ Curran, James, Natalie Fenton, and Des Freedman. *Misunderstanding the Internet*. Abingdon: Routledge, 2012. (p. 3)

⁹⁵ Negroponte, Nicholas. *Being Digital*. Hodder and Stoughton, 1995. (p. 204)

of the “Internet boom” it was generally assumed that the presumably distinctive characteristic of the network combined with its exceptional nature and alleged unregulability, would essentially change the world, reconfiguring all environments, challenging power relationships and revolutionizing social, economic and political life.⁹⁶ Moral panics were also soon to arise and spread, primarily focused around concerns over the dissemination of pornographic material, and the protection of minors, presenting the Internet as “*the stranger danger*”⁹⁷ as well as around the obliteration of privacy and the enhanced surveillance the Internet would enable.

However, has technological determinism affected the way Internet Governance is arranged today in a way that may confirm the argument of Dotson? In other words, is there a technocratic governing mentality institutionalized in the way the Internet is governed? To answer the question, focusing on governance on the logical layer, I will try to highlight how the fact that the standard-setting authority for the Internet is entrusted on purely technical institutions without any form of formal oversight or control on behalf of governments is a reflection of the idea that “*technocrats know better*” even though standard-setting and design choices may in fact have normative implications, affecting users’ rights and freedoms. From a democratic point of view this is particularly problematic, as the democratic principle requires at a minimum that those who are benefit or suffer from a governing/regulatory decision should be at least able to somehow meaningfully influence the decision-making process, either directly or via their elected representatives. Moreover, I will try to illustrate the significance and normative implications of the standards, protocols and technical-design related decisions. Finally, reviewing RFC, I will try to point out that the technical community so far was ignoring the social implications of standard-setting, while there are indications that it consciously rejected democratic processes.

2. The Normative Impacts of Protocols and Technical Standards and the idea that experts should govern

As standards are essentially invisible, standard-setting is often equally ignored, possibly also because standardization is perceived as a purely technical issue, that sometimes requires increased familiarity with the field and considerable investment in terms of time and effort to follow the developments. As such, standard setting was only fairly recently recognized as a

⁹⁶ Ibid.

⁹⁷ Dutton, Bill. Moral Panics Over the Internet (Oxford Internet Institute (OII) University of Oxford www.ox.ac.uk, Presentation to Google EU, Chaussee d’Etterbeek 180, 1040 Brussels, Belgium, based on research supported by the Oxford Internet Survey, eHarmony, and the EC’s Socio-Economic Services for European Research Projects (SESERV).

“regulative technique”⁹⁸, integral in technology governance,⁹⁹ while standards have been for a long time both “ubiquitous but underappreciated tools of regulating and organizing social life.”¹⁰⁰ Similarly, design choices – including architectural principles – are equally overlooked and hardly recognized as exercise of normative power, impactful both for the artifact and for its users. Design choices, protocols and standards are commonly taken for granted.¹⁰¹ Additionally, standard-setting was largely perceived as a value and politically neutral process, and a purely technical in nature task.¹⁰² From the same perspective, standards were largely perceived to provide the optimal technical solution for a problem framed in technical terms,¹⁰³ resulting in normative and social impacts to be overlooked.

However, standardization often poses significant ethical¹⁰⁴ and political dilemmas, including questions of democratic legitimacy and issues regarding the role of experts in making regulatory choices,¹⁰⁵ especially in cases of choosing between different alternatives, when motives and justifications can be challenged, not only from a scientific or technical maturity point. The variety of standards may determine not only the form and the characteristics of various artifacts, determine issues concerning interoperability, and compatibility but also directly regulate users’ behavior and rights.¹⁰⁶ Moreover, as Stefan Temmermans and Steven Epstein highlighted, “the choice of one standard over another signals a preference for specific logic and set of priorities, so the choice of standards of any sort implies one way of regulating and coordinating social life at the expense of alternative modes.”¹⁰⁷ As such, standards are far from objective, or value-neutral. On the contrary, they embody and reflect particular choices and design principles. Reviewing the history behind their adoption one may realize that standard

⁹⁸Benoliel, Daniel. "Cyberspace Technological Standardization: An Institutional Theory Retrospective." *Berkeley Technology Law Journal* 18.4 (2003): 1259-1339.

⁹⁹ Thoreau, François. "One to Rule Them All"? - The Standardisation of Nanotechnologies." *European Journal of Risk Regulation: EJRR* 2.3 (2011): 421-426.

¹⁰⁰ Timmermans, Stefan, and Steven Epstein. "A World of Standards but Not a Standard World: Toward a Sociology of Standards and Standardization *." *Annual Review of Sociology* 36.1 (2010): 69-89.

¹⁰¹ Busch, Lawrence. *Standards: Recipes for Reality*. Cambridge, Mass.: MIT Press, 2011. (p.2)

¹⁰² Timmermans, Stefan, and Steven Epstein. "A World of Standards but Not a Standard World: Toward a Sociology of Standards and Standardization *." *Annual Review of Sociology* 36.1 (2010): 69-89.

¹⁰³ Timmermans, Stefan, and Steven Epstein. "A World of Standards but Not a Standard World: Toward a Sociology of Standards and Standardization *." *Annual Review of Sociology* 36.1 (2010): 69-89.

¹⁰⁴ Biddle, Brad, et al. "The Expanding Role and Importance of Standards in the Information and Communications Technology Industry." *Jurimetrics Journal of Law, Science and Technology* 52.2 (2012): 177.

¹⁰⁵ Timmermans, Stefan, and Steven Epstein. "A World of Standards but Not a Standard World: Toward a Sociology of Standards and Standardization *." *Annual Review of Sociology* 36.1 (2010): 69-89.

¹⁰⁶ Biddle, Brad, et al. "The Expanding Role and Importance of Standards in the Information and Communications Technology Industry." *Jurimetrics Journal of Law, Science and Technology* 52.2 (2012): 177.

¹⁰⁷ Timmermans, Stefan, and Steven Epstein. "A World of Standards but Not a Standard World: Toward a Sociology of Standards and Standardization *." *Annual Review of Sociology* 36.1 (2010): 69-89.

setting is far from uncontroversial, since alternative ways always exist, as technologies, “*can be constructed in different ways and with different normative implications*”.¹⁰⁸

In the context of the Internet, though, the normative implications of standards and their capacity to influence, channel or shape users’ behavior was, compared to other fields of technology, was relatively early recognized and highlighted. In terms of the Internet Governance debate, Reidenberg and Lessig brought to the forefront the normative aspects of code and the logical layer of the Internet.¹⁰⁹ Reviewing Internet Governance STS scholars emphatically stressed the regulatory aspects of protocols and standards, stressing their real world implications, the regulative and constitutive role, the enabling and restrictive power they may have on users’ behavior. For instance, DeNardis has pointed out that there are several layer-specific governance questions at the logical layer of the Internet, that are central in the Internet Governance theory and practice. Namely, issues related to standard-setting and infrastructure management, the coordination of DNS, cybersecurity issues and the management of Critical Internet Resources (CIRs),¹¹⁰ since “*infrastructure design and administration internalize the political and economic values that ultimately influence the extent of online freedom and innovation.*”¹¹¹ She stressed that routine technical governance functions on the logical layer are simultaneously technical and normative, both in their nature and in their effects.

STS scholarship has shed light to the centrality of governance on this layer for the entire Internet and Internet Governance, highlighting that “*functions carried out at critical and often invisible Internet control points through technical design decisions*”¹¹² not only shape the network, but also establish *ex ante* Internet policies, essentially *constituting* and/or *regulating* behavior online.¹¹³ Constructing the digital sphere and having de facto normative effects, governance of the logical layer arguably represents a central position of power and authority within the heart of the Internet, that crucially relates with the mediation of societal values, rights

¹⁰⁸ Hildebrandt, Mireille. "A Vision of Ambient Law." From the Selected Works of Mireille Hildebrandt (2008). 6 Feb. 2019

¹⁰⁹Reidenberg, Joel R. "Lex Informatica: The Formulation of Information Policy Rules through Technology." Texas Law Review 76.3 (1998). - Lessig, Lawrence. *Code: And Other Laws of Cyberspace*. [New York, N.Y.]: Basic Books, 1999. - Lessig, Lawrence. *Code 2.0*. New York: Basic Books, 2008.

¹¹⁰DeNardis, Laura. "HIDDEN LEVERS OF INTERNET CONTROL: An Infrastructure-based Theory of Internet Governance." *Information, Communication & Society* 15.5 (2012): 720-738. - DeNardis, Laura. *The Global War for Internet Governance*. New Haven: Yale University Press, 2014.

¹¹¹DeNardis, Laura. "HIDDEN LEVERS OF INTERNET CONTROL: An Infrastructure-based Theory of Internet Governance." *Information, Communication & Society* 15.5 (2012): 720-738.

¹¹²DeNardis, Laura. "HIDDEN LEVERS OF INTERNET CONTROL: An Infrastructure-based Theory of Internet Governance." *Information, Communication & Society* 15.5 (2012): 720-738.

¹¹³DeNardis, Laura. "HIDDEN LEVERS OF INTERNET CONTROL: An Infrastructure-based Theory of Internet Governance." *Information, Communication & Society* 15.5 (2012): 720-738.- Musiani, Francesca, Derrick L. Cogburn, Laura. DeNardis, and Nanette S. Levinson. *The Turn to Infrastructure in Internet Governance*. Basingstoke: Palgrave Macmillan, 2016. (pp. 9 -15)

and freedoms with technical and economic efficiency.¹¹⁴ Even though it may not be *prima facie* conceivable, technical coordination, in the form of standard-setting, and public policy are closely connected in the case of the Internet, which, given the highly privatized and broadly technocratically organized governance of the logical layer, raises questions about what is to be considered “*as adequate conditions of accountability, transparency and oversight*”¹¹⁵. But most importantly, for our discussion here, the fact that this omnipotent position is exclusively and unquestionably reserved for technical private institutions enjoying, apart from the authority to govern the logical layer and arguably shape the Internet, considerable amounts of autonomy, makes the governance of the logical layer an excellent example of the ever-pervasive influence of technological determinism as a technocratic governing mentality in Internet Governance.

With the exception of ICANN, most of the technical, standard-setting Internet-specific bodies hardly ever had their authority to govern the logical layer of the Internet challenged, even though they were making impactful technical and standard-setting choices, with taking consequential decisions.¹¹⁶ The success of their efforts in enhancing and further developing the network had led to the widespread idea that the Internet as a whole could be also governed in an equally informal, decentralized and emergent way, without the intervention of state law. Given the standardization was considered as a purely technical issue, ignoring the dialectical relationship between technology and society and overlooking the significant impacts of technical code to real life, the technical standard-setting bodies hardly ever got to the spotlight having their place questioned. On the contrary, as their unconventional structure and their decision-making procedures made a lasting impression to the users, they were commonly invoked as an example of how the Internet as a whole should be governed.

3. Governance on the Logical layer of the Internet and technocratic mentality

Brutally simplified, the logical layer of the Internet, also referred to as “*code layer*,” including numerous sublayers, comprises of all the protocols and standards that define the function requirements of the network, they safeguard the connectivity, flow of information and the broader operation of the Internet. The logical layer encompasses the necessary software

¹¹⁴ Ibid.

¹¹⁵ DeNardis, Laura, Raymond, Mark. "Thinking Clearly About Multistakeholder Internet Governance." *SSRN Electronic Journal* (2013).

¹¹⁶ The obvious exception is ICANN, yet I perceive ICANN more as a coordination body rather than a strictosensu standard-setting body.

components, protocols and technical standards that collectively constitute the intangible infrastructure of the Internet that allows the transmission, circulation and storage of data across the network. A protocol is practically a sum of rules that a software program follows in exchanging messages, allowing different devices to interconnect and communicate, functioning essentially as a common machine language.¹¹⁷ They are the invisible and intangible blueprints that enable flow of information and interoperability.¹¹⁸¹¹⁹ According to RFC 1310 an Internet standard is “*a specification that is stable and well-understood, is technically competent, has multiple, independent, and interoperable implementations with operational experience, enjoys significant public support, and is recognizably useful in some or all parts of the Internet.*”¹²⁰

Internet Governance, in the form of management, steering and control of the technical aspects of the Internet, was well-established, albeit informal and distributed, well before the phrase became a popular, as “*governance of the Internet and its predecessor networks (for example, ARPANET, NSFNET) has existed since 1969.*”¹²¹When the Internet was commercialized it already had its own standard setting bodies, and soon a consortium specifically focused on standards for the Web was also established.¹²²Governance of the Internet’s infrastructure was deep-rooted way before Internet Governance got into the spotlight as a public policy issue,¹²³ while contrast to the standards for the broader telecommunication sector, the standards of the Internet are not mandated by law, on the contrary they are almost exclusively set through private institutions founded during the nascent years of the Internet, mostly under the stewardship of the U.S. National Science Foundation (NFS). Some of them eventually became large, independent global entities that still operate broadly unchanged.¹²⁴ My focus here is on IETF, one of the most prominent bodies, central to the Internet Governance practice on the logical layer.

¹¹⁷ For the definition of protocols see Christensson, Per. "Protocol Definition." *TechTerms*. Sharpened Productions, 29 March 2019. Web. 23 October 2019. <<https://techterms.com/definition/protocol>>.

¹¹⁸DeNardis, Laura. *Protocol Politics: The Globalization of Internet Governance*. Cambridge, MA: MIT Press, 2009. (p. 6)

¹¹⁹DeNardis, Laura. *Protocol Politics: The Globalization of Internet Governance*. Cambridge, MA: MIT Press, 2009. (p. 6)

¹²⁰Network Working Group, RFC 1310, by Lyman Chapin, *The Internet Standards Process*, March 1992, available at <https://www.rfc-editor.org/rfc/rfc1310.txt>

¹²¹DeNardis, Laura. *The Global War for Internet Governance*. New Haven: Yale University Press, 2014. (p. 18)

¹²² W3C constitutes a non-traditional standard-setting body, and should be referred to as a consortium, yet in this research I call it a standard-setting body, focusing on its centrality for the Web and the Internet at large. This terminological choice is without reference to its specific institutional or operational characteristics, and it does not intend to imply that it is similar to other traditional standard setting bodies.

¹²³DeNardis, Laura. *The Global War for Internet Governance*. New Haven: Yale University Press, 2014. (p. 18)

¹²⁴ Radu, Roxana. *Negotiating Internet Governance*. Oxford University Press, 2019. (p. 66) - DeNardis, Laura. *Protocol Politics: The Globalization of Internet Governance*. Cambridge, MA: MIT Press, 2009. (pp. 25-28)

More specifically, the ICCB, which, after changing its title – Internet *Advisory* Board in 1984, became the Internet *Activities* Board in 1986 – constitutes today the Internet *Architecture* Board (IAB). Milton Mueller remarks that this was the first step in the establishment of some form of governance hierarchy in the technical community managing the development and coordination of the Internet.¹²⁵ In 1986, in response to the growing need for new Internet protocols and standards, the IAB founded the IETF, as a subsidiary institution, tasked with the development of Internet protocols. The IETF along with a governance body called the Internet Engineering Steering Group (IESG), comprised by the chair of the IETF and the area directors (AD) of each IETF working group presents the draft standards to IAB. The IETF was soon perceived as the institutional manifestation of the “Internet community” and the open, participatory, bottom-up ideology of the cyber-culture, as it was strikingly different from the traditional standard setting organizations. Its membership basis was comprised by individuals, not representatives of states, governments or other intergovernmental organizations, without any kind of formal participation requirements.¹²⁶ Their view on the deliberation process regarding the standardization of a protocol could be summarized in the rather famous phrase attributed to David Clark “[w]e reject presidents, kings and voting; we believe in rough consensus and running code” reflecting the idea, as Jeanette Hofmann observed, “that the value of technical ideas should not be decided by vote, but by technical proof of feasibility, or, in the language of engineers, by running code”¹²⁷ which may be considered rather deterministic and technocratic in its core.

The IETF is responsible for the bulk of Internet standards development, including the dual protocol suite, therefore it constitutes the standard setting organization that makes the most vital decisions about the logical layer of the Internet.¹²⁸ It emerged under IAB as a voluntary, open standard-setting group, aiming to assist in the development of standards and the broader technical coordination of the Internet, funded by the U.S. Since 1991 it became an independent body, overseen by ISOC. RFC 2028 described IETF as “an open international community of network designers, operators, vendors and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet” engaging in “the development of

¹²⁵ Mueller, Milton. *Ruling the Root: Internet Governance and the Taming of Cyberspace*. Cambridge, Mass.: MIT Press, 2002. (p.90)

¹²⁶ Network Working Group, RFC 1391, by G. Malkin, *The Tao of IETF A Guide for New Attendees of the Internet Engineering Task Force*, January 1993. available at <https://www.rfc-editor.org/rfc/rfc1391.txt>

¹²⁷ Hofmann, Jeanette. "Topological Ordering in Cyberspace". *Paper Presented at European Association for The Study Of Science And Technology (EASST) Conference, Lisbon, 1998*.

¹²⁸ Morris, John, and Davidson, Alan. *Policy Impact Assessments: Considering the Public Interest in Internet Standards Development*. Submitted to the 31st Research Conference on Communication, Information and Internet Policy 2003.

*new Internet Standard specification.*¹²⁹In RFC 3233, the authors pointed out that albeit IETF is mentioned in multiple RFCs, they mention it *“as if it were an already-defined entity. However, no IETF document correctly defines what the IETF is.”* Proceeding to correct this omission the IETF is defined as *“an unincorporated, freestanding organization”, “partially supported by the Internet Society (ISOC).*¹³⁰It is also clarified that *“there is no board of directors for the IETF, no formally signed bylaws, no treasurer, and so on.”* Since October 1998 ISOC/IETF cooperates officially with ITU-T,¹³¹

Comparing the IETF with a traditional standard-setting body from the broader ICT sector, one may identify several differences, in structure, organizational culture, working principles, employed methods, budget, membership requirements, fees, funding and size.¹³² The RFC 3935 of 2004 described the mission of the IETF, identifying as its primary goal *“to produce high quality, relevant technical and engineering documents that influence the way people design, use, and manage the Internet in such a way as to make the Internet work better. These documents include protocol standards, best current practices, and informational documents of various kinds”* in adherence to two cardinal principle, open processes and technical competence.¹³³ Participation is set on a voluntary basis, while *“rough consensus and running code”* are used to briefly describe the way protocols and standards are developed and adopted, setting as the premise of decision-making *“the combined engineering judgement of our participants and our real-world experience”*.

Standard-setting for the Internet occurs via the RFCs, a series of documents that, apart from the standardization of the Internet and the technical development of the network, also record the history of the Internet, detailing the standard-setting and the broader institutional developments related to the Internet-specific bodies and technical community since 1969. They also include stories, jokes and anecdotes,¹³⁴ and, especially the early ones, are indicative of the interpersonal, informal way that Internet Governance, in its technical sense, was organized at the beginning of the RFCs project. The state of standardization of protocols as determined by the IAB is described in RFC 1083, of 1989, that was obsolete and revised furtherly in the process of the

¹²⁹ Network Working Group, RFC 2028, by R. Hovey and S. Brander, *The Organizations Involved in the IETF Standards Process*, October 1996, available at <https://www.rfc-editor.org/rfc/rfc2028.txt>

¹³⁰ Network Working Group, RFC 3233, by P. Hoffman and S. Bradner, *Defining the IETF*, February 2002, available at <https://www.rfc-editor.org/rfc/rfc3233.txt>

¹³¹Network Working Group, RFC 2436, by R. Brett, S. Bradner and G. Parsons, *Collaboration between ISOC/IETF and ITU-T*, October 1998, available at <https://www.rfc-editor.org/rfc/rfc2436.txt>

¹³²Asscher, Lodewijk. Coding Regulation: Essays On The Normative Role Of Information Technology. T.M.C. Asser Press, 2006. (p.46)

¹³³Network Working Group, RFC 3935, by H. Alvestrand, *A Mission Statement for the IETF*, October 2004, available at <https://www.rfc-editor.org/rfc/rfc3935.txt>

¹³⁴DeNardis, Laura. *Protocol Politics: The Globalization of Internet Governance*. Cambridge, MA: MIT Press, 2009. (pp. 25-27)

development of the Internet.¹³⁵ The process for setting, developing, evaluating and adopting Internet standards is introduced through the RFC 1310 of 1992, by the then chair of IAB, Lyman Chapin,¹³⁶ and has been multiply amended and updated. The original main goals of standardization set in RFC 1310 were “*high quality, prior implementation and testing, openness and fairness, and timelessness.*”¹³⁷

Whereas the overall procedure and the decision-making process are laid out in many Informational RFCs, especially those focused on best practices, the RFC 7282 of 2014 stands out both for explaining in detail the consensus building process, explicitly condemning the “*majority rule philosophy*”, and for putting forward a set of principles for the IETF operations.¹³⁸ In the introduction, the famous phrase of Dave Clark is quoted,¹³⁹ while Paul Resnick reaffirms the commitment of the IETF in “*rough consensus and running code*” rejecting voting, full consensus and unanimity. It is argued that the requirement of full consensus would jeopardize the process, risking delays or even inaction, while the RFC explained also the “*humming tradition*” as a decision-making method, and a way for the chair of a working group to get “*a sense of the room*” in a face-to-face meeting. The document is indicative of the distaste towards democratic procedures, while stressing that “[i]n the presence of an objection, the chair can use their technical judgement to decide that the objection has been answered by the group and that rough consensus overrides the objection” emphasized technical expertise and competence as a decisive factor and a legitimating source of decision-making authority.¹⁴⁰

Generally, the technical community has been relatively vocal in that they perceive standardization and technical decision making as a purely technical tasks, in terms of which no other considerations should interfere. Issues related to standardization and protocol designed are approached in problem solving mentality, while as mentioned before, participation to the process is open to anyone who has the *expertise* to follow the processes and contribute. Particularly the IETF has been very strict about not including social considerations in process of planning and deciding upon the new protocols and standards, even though they define the

¹³⁵Network Working Group, RFC 1083, by Internet Activities Board, *IAB Official Protocol Standards*, December 1988, available at <https://www.rfc-editor.org/rfc/rfc1083.txt>

¹³⁶Network Working Group, RFC 1310, by Lyman Chapin, *The Internet Standards Process*, March 1992, available at <https://www.rfc-editor.org/rfc/rfc1310.txt>

¹³⁷ Ibid.

¹³⁸Internet Engineering Task Force (IETF), RFC 7282, by P. Resnick, *On Consensus and Humming in the IETF*, June 2014, available at <https://www.rfc-editor.org/rfc/rfc7282.txt>

¹³⁹ The exact phrase reads “*We reject: kings, presidents and voting. We believe in: rough consensus and running code.*”

¹⁴⁰Internet Engineering Task Force, RFC 7282, by P. Resnick, *On Consensus and Humming in the IETF*, June 2014, available at <https://www.rfc-editor.org/rfc/rfc7282.txt>

Internet and commonly have far reaching normative implications.¹⁴¹ Moreover, whereas there are indications that the technical and standard-setting community realizes the crucial role of their decisions not only in shaping the Internet but also in affecting the users' behavior, also involving their rights, the community has been very clear and strict that standard-setting and technical decision-making should be conducted on purely technical and technology-related criteria.¹⁴² Even when privacy is addressed, or privacy considerations are mentioned, privacy-relevant standard-setting is frequently solely considered as a technical solution to a flaw that allows interception or mass surveillance.¹⁴³

Finally, apparently, the governance of the logical layer is technocratic also judging by the participants and the contributors to the RFCs. As evident from their affiliations, mentioned under their names, most of the contributors have a technical background. Since the early days of the network, the members of the IETF were mostly engineers, communication network experts, and computer scientists who initially undertook the task of discussing, experimenting and coordinating the procedures related to Internet protocols from the innate interest in it. However, with the establishment of the current Internet Governance model, these largely informal arrangements became institutionalized, along with the *technocratic* mentalities underpinning them. Within that context, it is hardly surprising that participation is associated with expertise, and legitimation to set standards for the Internet is premised on technical capacity. Similarly, citizens are mainly framed as *users* or mere *consumers*, loosely represented and hardly present in the decision-making procedures, as they have no expertise to offer and they lack the ability to follow and understand the discussions and the grounds upon decisions are taken, while formal democratic requirements are rarely established, as they are considered irrelevant or even cumbersome.

4. RFC 8280 and a new way ahead

After a very long and rigid stance on behalf of the technical, standard-setting community, that standard-setting, protocol designing and the broader technical coordination of the Internet should be separated from social considerations, RFC 8280 of October 2017, constitutes a

¹⁴¹DeNardis, Laura. *Protocol Politics: The Globalization of Internet Governance*. Cambridge, MA: MIT Press, 2009. (p. 7) DeNardis, Laura. *Protocol Politics: The Globalization of Internet Governance*. Cambridge, MA: MIT Press, 2009. (p. 67))

¹⁴²Braman, Sandra. "THE INTERPENETRATION OF TECHNICAL AND LEGAL DECISION-MAKING FOR THE INTERNET." *Information, Communication & Society* 13.3 (2010): 309-324.

¹⁴³Rachovitsa, Adamantia. "Engineering and Lawyering Privacy By Design: Understanding Online Privacy Both As a Technical and an International Human Rights Issue." *International Journal of Law and Information Technology* 24.4 (2016): 374-399.

milestone sign of change in the so far prominent mentality.¹⁴⁴The RFC is issued by the Internet Research Task Force (IRTF), which according to RFC 2014 of 1996, “*has responsibility for organising groups to investigate research topics related to the Internet protocols, applications, and technology.*” It is comprised by several different, small, focused, long-term Research Groups, each devoted on specific aspects of long-term research on internet protocols and architecture. The remarkably extended, for an RFC, text represent arguably the first indication on behalf of the technical and standard-setting community of the human rights impacts that technical design and decision-making may have for the users of the Internet.¹⁴⁵ Whereas there have been previous RFCs addressing mainly privacy considerations in terms of technical design,¹⁴⁶ protocol decision-making and standard-setting, those ones used to primarily frame the issue in to purely technical term, without signifying any specific approach, or broader consideration of the normative impact or the human rights-related implications of the power and authority wielded by the prominent logical layer bodies. Following the wider LPbD trend, the RFC may hint a renewed understanding and the prospect of a new relationship between legal and technological normativity on the logical layer of the Internet, centered around human rights.

Of course, the shift did not emerge overnight. Since 2015 there has been a new Working Group within IRTF, primarily tasked to examine the relationship between protocols and human rights, majorly focusing on freedom of expression and freedom of assembly, to propose guidelines to preserve the role of the Internet as a human rights-enabling environment via the future protocol development and standard-setting, and to increase awareness in the technical and human rights community about the intersection of technical decisions and human rights.¹⁴⁷The RFC produced through this process signifies a shift in the way standard-setting communities perceive their role and the influence of their authority in the society, which may in turn mean that more social considerations will find their way in the process of technical decision-making and standardization. Similarly, this might mean that they may review their processes towards more democratic procedures and transparency measures that will make their processes

¹⁴⁴Internet Research Task Force (IRTF), RFC 8280, by N. ten Oever and C. Cath, *Research into Human Rights Protocol Considerations*, October 2017, available at <https://www.rfc-editor.org/rfc/rfc8280.txt>

¹⁴⁵ See also Krishnamurthy, Vivek. "Are Internet Protocols the New Human Rights Protocols? Understanding 'RFC 8280 - Research Into Human Rights Protocol Considerations. (Research Task Force).'" *Business and Human Rights Journal* 4.1 (2019): -169.

¹⁴⁶ Internet Architecture Board (IAB), RFC 6973, by A. Cooper, H. Tschofenig, B. Aboba, J. Peterson, J. Morris, M. Hansen, R. Smith, *Privacy Considerations for Internet Protocols*, July 2013, available at <https://www.rfc-editor.org/rfc/rfc6973.txt> - Internet Architecture Board (IAB), RFC 7624, by R. Barnes, B. Schneier, C. Jennings, T. Hardie, B. Trammell, C. Huitema, D. Borkman, *Confidentiality in the Face of Pervasive Surveillance: A Threat Model and Problem Statement*, August 2015, available at: <https://www.rfc-editor.org/rfc/rfc7624.txt> – Internet Engineering Task Force (IETF), RFC 7626, by S. Bortzmeyer, *DNS Privacy Considerations*, August 2015, available at: <https://www.rfc-editor.org/rfc/rfc7626.txt>

¹⁴⁷ For more information on the Human Rights Protocol Considerations Group, see the section of the Group in IETF website, available at <https://datatracker.ietf.org/rg/hrpc/about/>

accessible to non-expert users of the Internet, who would have an interest in understanding how technical choices govern the Internet affecting them as well, or even contributing their vision about the network, not necessarily expressed in technical terms nor having a problem-solving approach.

Concluding Thoughts

As Professor Bowker noticed, *“If the governance of the internet is a key sociotechnical issue of our times, then we need to be able to explore both the choices we have made and the roads not taken.”*¹⁴⁸ My focus here was not exactly centered on *“the roads not taken,”* rather on *“the choices we have made”* concentrating on the impactful influence of technological determinism in the conceptualization and framing of Internet Governance, particularly related to the technical decision-making about the Internet, leading to the establishment of a technocratic governing arrangement on the logical layer of the Internet that is problematic from a democratic governance point of view. Premised on the view that experts should govern, the logical layer of the Internet, comprising crucial decision-making that affects not only the network as a technological artifact, but has normative impact on the users of the Internet, is exclusively entrusted to technocrats, technical experts who make their choices largely ignoring the social impact they may have. Standard-setting bodies largely employ processes and procedures that reject democratic decision-making and hamper the participation of non-experts, albeit design choices and standardization often encompass social considerations and dilemmas. Even though the *“average user”* based on the democratic principle should have the right to participate or to be at least meaningfully represented, given that due to the centrality of the Internet and the normative effects of standards have an effect on her, protocol, standards and technical decisions are in principle taken away from democratic forums.

My purpose was not to challenge the legitimacy of the current structure, nor to question the competence or the motives of the technical community, but rather to emphasize how deeply rooted the idea that technical experts should govern the logical layer of the Internet is, and how technocratic mentality has molded our understanding of governance on this layer, diminishing the value of democratic procedures in technical decision-making. Broadly speaking, it can be argued that the technical community derives its legitimacy from what Max Weber had termed as *traditional authority*, since it has been central to the development of the Internet since the

¹⁴⁸ Bowker, G. C. (2013). Musiani, F. ed. Preface. Nains sans géants. Architecture décentralisée et services internet. Paris: Presses des Mines, pp. 7–8, *from Giants Dwarfs and Decentralized Alternatives to Internetbased Services: An Issue of Internet Governance*, Francesca Musiani.

beginning of the project. However, those tasked with the duty of standardization and design derive their authority and legitimacy solely from their expertise, while the standard-setting bodies justify their choices and decisions based on explanations premised on technology, efficiency and effectiveness, principally ignoring their implications and normative effects while refusing to consider their societal impact. In the same context, decisions are taken in a process that explicitly rejects traditional democratic procedures, substituting them with other ritual-like methods, while objections are resolved with reference to expertise. Simultaneously, non-experts have little if any opportunity to participate in the process, while users have no formal meaningful way to affect it, hold those in charge accountable or contest their decisions.

As we are increasingly realizing the far-reaching normative effects of standards and protocols, new values, principles and criteria should be injected to these bodies. Starting from realizing and embracing the impact of standard-setting beyond the realm of technology, while including social considerations in routine technical and protocol decision-making processes would be a positive step. RFC 8280 might be an indication that there is a shift in the way the technical community perceives its role and the impact of their technical decisions. However, to democratize governance on the logical layer it is essential to dispel the influence of technological determinism and critically examine the assumptions that technocratic mentality has introduced. Bridging the technical community with the society might be also important first step in inducing the technical community to start a democratic experiment.

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