TILEC

TILEC Discussion Paper

DP 2019-011

**Governance of ICT Standardization: Due
process in technocratic Decision-making**

By

Olia Kanevskaia

May 2019

ISSN 1572-4042

ISSN 2213-9419 <http://ssrn.com/abstract=3400838>

GOVERNANCE OF ICT STANDARDIZATION: DUE PROCESS IN TECHNOCRATIC DECISION-MAKING

OLIA KANEVSKAIA*

ABSTRACT: In the world of continuous globalization, technical standards and industry norms play a crucial role in transnational economic development. For the past few decades, increased digitalization and emergence of new technologies gave due prominence to ICT standards: our future is closely linked to the Internet of Things and 5G technologies that are expected to penetrate an enormous range of economic sectors and by this means affect our quotidian life. At the same time, the introduction of these new technologies is accompanied by concerns such as privacy and security. Especially the latter has been recently subjected to a wider political debate, which was largely fueled by national security concerns voiced by Western governments regarding the involvement of China-based companies, Huawei and ZTE, in standardization of 5G technologies. In this context, the paper discusses whether the current regulatory landscape can address the variety of concerns raised in relation to the development of ICT standards through the well-established procedural principles for standard-setting, such as openness, transparency and consensus, and whether these principles ensure that ICT standardization, while delivering cutting-edge technological solutions, remains balanced and inclusive.

I INTRODUCTION	2
II TRANSNATIONAL DIMENSION OF INDUSTRY STANDARDIZATION	3
A. REGULATION BY INDUSTRY AND PRIVATE ACTORS.....	3
B. NORMATIVE RELEVANCE OF INDUSTRY STANDARDS	7
III TRENDS AND CHALLENGES OF ICT STANDARDIZATION	11
A. INTELLECTUAL PROPERTY	11
1. Patents Essential for Standards' Functioning	11
2. Copyright of standards that exert normative obligations	14
B. NON-TECHNOLOGICAL INTERESTS IN ICT STANDARDIZATION	17
C. THE NEED TO ADDRESS THE IMBALANCE IN STANDARDIZATION	18
IV REGULATING SSOs VIA PROCEDURAL LEGAL FRAMEWORKS	19
A. STANDARDS UNDER DIFFERENT REGULATORY REGIMES.....	19
1. The WTO	19
2. The US	22
3. The EU	25
B. GOVERNANCE PRINCIPLES AND PROCEDURAL SAFEGUARDS IN STANDARDIZATION.....	28
1. Decoding procedural principles for standards development.....	28

* Tilburg Law and Economics Center (TILEC), Tilburg University, the Netherlands. TILEC's research program on economic governance has received funding from public authorities such as NMa, NZa, ACM or the European Commission as well as private companies such as Microsoft and Qualcomm and is conducted in accordance with the rules set out in the Royal Dutch Academy of Sciences (KNAW) Declaration of Scientific Independence. An early version of this article was presented at the University of Cambridge in April 2016; updated drafts were presented at the Postgraduate and Early Professionals/Academics Network of the Society of International Economic Law in Tilburg in April 2017; conferences of the European Academy for Standardization in Berlin in June 2017, and in Dublin in June 2018, and at the annual research forum of the American Society for International Law in Saint Louis in October 2017. All hyperlinks were updated in May 2019. The author would like to thank in particular, Panos Delimatsis, Paul Verbruggen, Jorge Contreras, Knut Blind, Harm Schepel, Justus Baron, Enrico Partiti and Francisco Costa-Cabral for their insightful comments.

2. Observations on procedural safeguards	39
V CHALLENGES IN REGULATING AND ENFORCING DUE PROCESS IN THE CURRENT LANDSCAPE OF ICT STANDARDIZATION	40
A. SCOPE OF APPLICATION OF REGULATORY REGIMES TO SSOs	41
1. WTO law	41
2. US and EU law	44
3. US and EU Antitrust Law	44
B. RELEVANCE OF THE PROCEDURAL PRINCIPLES TO ICT STANDARDIZATION	46
VI CONCLUDING REMARKS	48

I INTRODUCTION

Industry regulation through voluntary standards has been sparking the interests of lawyers and political scientists for quite some time. In general, standards reign in the domains characterized by scientific complexity and weak State-regulation: in the Information and Communications Technologies (ICT) sector, traditionally driven by high-tech companies and business associations, standards prescribe methods applied in electronic devices and enable connections between networks, interfaces and products of different vendors.¹ Examples include standardization of Internet and web protocols, development of wireless connectivity standards and deployment of cellular mobile networks. In spite of their intrinsic voluntary nature, ICT standards serve as blueprints for manufacturers to achieve compatibility with other products, and by this means lead to economies of scale and generate network effects.²

Notwithstanding their commercial and practical advantages, ICT standards may sometimes result in economic or administrative burdens by pushing up compliance costs for companies:³ measures related to the prevention of cyber-attacks or espionage, such as mandatory security certification of network elements,⁴ or recommendations to prohibit governmental agencies to use hardware supplied by certain foreign manufacturers,⁵ are gradually entering into the wider arena of international trade. More recently, a number of Western governments raised serious security concerns regarding participation of Huawei, China-based manufacturer of consumer electronics, in the development of the 5th Generation standards for cellular mobile communications (5G).⁶ These concerns are aggravated by the fact that 5G networks will form

¹ Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CALIF. L. REV. 1889, 1898 (2002); Raymund Werle, *Standards in the International Telecommunications Regime*, HWWA Discussion Paper 157, Hamburg Institute of International Economics (HWWA), 8 (2001); A WORLD OF STANDARDS, at 4-5 (Nils Brunsson & Bengt Jacobsson eds, 2000).

² Patrick D. Curran, *Standard-Setting Organizations: Patents, Price Fixing, and Per Se Legality*, 70 U. CHI. L. REV. 983 (2003) at 987

³ See Robert W. Staiger & Alan O. Sykes, *International Trade, National Treatment and Domestic Regulation*, 40 J. LEGAL STUD., 149 (2011).

⁴ Minutes of TBT Committee, March 2016, para 2.2.3.3 (on India's deviation from the Common Criteria Recognition Arrangements (CCRA) for testing procedures).

⁵ H.R. 4747, 115th Cong. (2018).

⁶ Among the most recent discussions, see Kiran Stacey and Yuan Yang, *Huawei to sue US government over equipment ban*, FINANCIAL TIMES, March 4, 2019, <https://www.ft.com/content/c14e07d6-3e8e-11e9-9bee-efab61506f44>; *America and its allies disagree on Huawei*, THE ECONOMIST, FEBRUARY 21, 2019, <https://www.economist.com/business/2019/02/21/america-and-its-allies-disagree-on-huawei>.

a cornerstone of the Internet of Things – a digitalized system of interconnected hardware devices, networks and objects, expected to restructure and replace current economic and social synergy – placing ICT standardization at the forefront of Western political agendas.⁷

Discussions around Huawei's involvement in 5G standardization fit into the wider debate on whether and how the development of ICT standards takes into account the growing variety of interests affected by emerging technologies. In a broader sense, it prompts the question whether the current regulatory landscape is sufficient to address concerns of legitimacy, accountability and validity arising from the increased regulatory and practical importance of industry governance - a question that is especially intriguing from a legal standpoint.

Against this backdrop, this paper aims to explore the prospects of addressing balance of interests in ICT standardization through the applicable procedural principles. Building upon the relevant scholarship in the field of transnational private regulation, the paper preliminary restates the role of industry associations and their voluntary standards in transnational rule-making (section II), and proceeds with shedding light on the challenges currently encountered in ICT standardization (section III). The main part of this paper is devoted to analyzing procedural safeguards that apply standard-setting and are derived from the three major legal frameworks for standards development offered by the World Trade Organization (hereinafter: WTO), the United States (hereinafter: US) and the European Union (hereinafter: EU) (section IV). Ultimately, the paper evaluates whether the current procedural safeguards for industry standardization are indeed relevant in the context of ICT standardization and are capable of addressing the challenges of modern standard-setting faced by the industry, governments, and civil society (section V).

II TRANSNATIONAL DIMENSION OF INDUSTRY STANDARDIZATION

A. REGULATION BY INDUSTRY AND PRIVATE ACTORS

The idea of rule-making as a myriad of global and transnational regulatory schemes operating in the shadow of traditional legislative arrangements has for a long time appealed to legal scholars.⁸ Rules, practices and processes laid down by sector-specific communities and that produce strong distributional effects between private and public stakeholders are commonly referred to as transnational private regulation.⁹ While relying on general consent, participatory commitment and mutual monitoring, transnational private regulation is marked by reallocation of the regulatory power from domestic governments to private actors operating at the global level.¹⁰ In this regard, it contrasts starkly with the traditional Westphalian outset

⁷ See, for instance, the European Digital Single Market Strategy and the Federal Communications Commission's strategy to "Facilitate America's Superiority in 5G Technology (the 5G FAST Plan)."

⁸ See Colin Scott et al., *The Conceptual and Constitutional Challenge of Transnational Private Regulation*, 38 JOURNAL OF LAW AND SOCIETY 1, 1 (March 2011); Kenneth W. Abbott & Duncan Snidal, *Hard and Soft Law in International Governance*, 54 INT'L. ORG. 3, 421 (2000).

⁹ Fabrizio Cafaggi, *New Foundations of Transnational Private Regulation*, 38 JOURNAL OF LAW AND SOCIETY 1, 20 (2011) at 20.

¹⁰ *Id.* at 21.

of law, where the role of private actors was significantly limited,¹¹ but also diverges from other forms of private rules, including custom.¹²

Design and enforcement of transnational regulatory norms takes place in voluntary organizations or industry associations, commonly not subjected to governmental control.¹³ Arising concerns of democratic deficit, illegitimacy and unaccountability of transnational private regulation are addressed by peer-monitoring mechanisms or market-driven and reputational measures.¹⁴ Once moved into global regulatory arena, transnational private regulation can arguably be “legitimized” through the establishment of institutional and procedural settings:¹⁵ to that end, and similarly to global rule-making, it often relies on procedural principles rooted in national administrative laws, such as due process, transparency, participation and review.¹⁶

The enormous benefit of transnational private regulation is its aptitude to solve collective action failures and to find compromises between conflicting interests.¹⁷ Since transnational regulation offers more advantages than an uncoordinated action by all actors, it is also prone to escape governmental influence and to be guided by technocratic decision-making.¹⁸ Over the past decades, transnational private regimes grew in importance due to emergence of new policy areas and advancement of industry domains that have typically been under hegemony of private actors, or where States fall short on knowledge and expertise. Examples range from the diamond industry and private prisons to professional societies and Internet-routine.¹⁹ Implementation of such normative schemes yet depends on a large number of factors, including the balance of power in a particular sector and the willingness of stakeholders to reach compromises.²⁰

Against this backdrop, standardization is considered a form of transnational private regulation since specifications created by industry-driven Standard-Setting Organizations (hereinafter: SSOs) are often transformed into norms that serve public purposes.²¹ By and large, technical

¹¹ See by analogy Benedict Kingsbury, et al., *The Emergence of Global Administrative Law*, 68 LAW & CONTEMP. PROBS. 15 (2005) 15, at 23.

¹² Cafaggi, *New Foundations of Transnational Private Regulation* (2011), at 22.

¹³ Kingsbury, et al., *The Emergence of Global Administrative Law* (2005), at 16.

¹⁴ Cafaggi, *New Foundations of Transnational Private Regulation* (2011), at 47.

¹⁵ See Gralf-Peter. Callies & Moritz Renner, *Between Law and Social Norms: The Evolution of Global Governance*, 22 RATIO JURIS 2, 260 (2009).

¹⁶ Carol Harlow, *Global Administrative Law: The Quest for Principles and Values*, 17 EJIL 187 (2006), at 201.

¹⁷ Cafaggi, *New Foundations of Transnational Private Regulation* (2011), at 48-49.

¹⁸ Cf. Martin Shapiro, “Deliberative,” “Independent” Technocracy v. Democratic Politics: Will the Globe Echo the EU? 68 LAW & CONTEMP. PROBS. 341 (2005), at 349 (on comparison of transnational regimes to cartels, where members join and stay because the existence of a joint initiative offers more advantages, despite a constant temptation to seek self-interest).

¹⁹ E.g. Panagiotis Delimatsis, *The Future of Transnational Self-Regulation Enforcement and Compliance in Professional Services*, 40 HASTING INT’L. & COMP. L. REV. 1 (2017); Oliver Hart, et al., *The Proper Scope of Government: Theory and an Application to Prisons*, 112 QJE 4, 1127 (1997); Lisa Bernstein, *Opting out of the Legal System: Extralegal Contractual Relations in the Diamond Industry*, 21 J. LEGAL STUD. 1, 115 (1992).

²⁰ Cf. Tim Bertley, *Institutional Emergence in an Era of Globalization: The Rise of Transnational Private Regulation of Labor and Environmental Conditions*, 113 AJS 297 (2007), at 300 (on forest certification and labor standards).

²¹ See Fabrizio Cafaggi and Agnieszka Janczuk, *Private Regulation and Legal Integration: The European Example*, 12 B&P 3, 1 (2010).

standards adopted by SSOs represent a collective economic decision that seeks to strike a balance between profit maximization of standardization drivers and pursuing public interests of technical compatibility. At the same time, standards may both support the provision of public goods and diminish welfare through suppression of efficient variation and regulatory competition, depending on the particular type of product, and the preferences of individuals and states.

Scholarship generally identifies two types of SSOs: organized private or semi-public bodies and loosely arranged industry consortia. The former maintains a formalized governance structure (i.e. through decision-making at the level of the General Assembly) and tends to favor consensus-based processes that allow contributions from all members, or even the general public. SSOs of this type sometimes operate following national delegation model, where States are represented in an SSO's membership through designated national bodies (e.g. International Organization for Standardization (ISO), International Electrotechnical Commission (IEC): European Committee for Standardization (CEN) and European Committee for Electrotechnical Standardization (CENELEC)), or a hybrid model that supports contributions from national bodies and private corporations (e.g. International Telecommunications Union (ITU), European Telecommunications Standards Institute (ETSI)); they may as well be based on entity-based membership (e.g. American Petroleum Institute (API)), individual-based membership (e.g. American Society of Mechanical Engineers (ASME)), or a combination of both (e.g. International Bar Association (IBA), American Society for Testing and Materials (ASTM) and IEEE). Such SSOs are typically well-established in standardization ecosystem and even widely referred to in applicable legal frameworks.²²

In turn, industry consortia have come to the forefront in recent past as a response to bureaucratic and stagnant standard-setting processes.²³ They typically embody technical groups comprised of companies sharing a particular interest in a narrow scientific field and, similarly to formal SSOs, exist in a variety of forms: some consortia differentiate between members who develop ("promoters") and implement ("adopters") technical specifications or standards (Bluetooth SIG, ZigBee Alliance),²⁴ while others open their membership for entities (OASIS, World Wide Web Consortium (W3C)) or both corporations and individuals (Mortgage Industry Standards Maintenance Organization (MISMO)). Informal SSOs may also adopt completely different institutional settings:²⁵ Internet Engineering Task Force (IETF), for instance, is a consensus-driven "loosely self-organized group of people who contribute to the engineering and evolution of Internet technologies."²⁶ It should not surprise the reader that due to their faster processes, industry consortia are preferred standardization platforms in the realm of ICT technologies:²⁷

²² For the detailed explanation of the US standardization system, see Section IV.A.2 of this paper.

²³ Tim Pohlmann, *The Evolution of ICT Standards Consortia*, 93 DIGI WORLD ECON.J 17 (2014).

²⁴ See Biddle et al., *The Expanding Role and Importance of Standards in the Information and Communications Technology Industry* (2012).

²⁵ *Id.* at 183-190 (on the different types of consortia).

²⁶ *The Tao of IETF: A Novice's Guide to the Internet Engineering Task Force* (Paul Hoffman ed., 2 November 2012) < <https://www.ietf.org/tao.html> >.

²⁷ See, among others, Henry L. Delcamp & Aija Leiponen, *Innovating Standards through Informal Consortia: The Case of Wireless Telecommunications*, 36(C) IJIO 36 (2014); Biddle et al., *The Expanding Role and Importance of Standards in the Information and Communications Technology Industry* (2012) (on the increasing role of technical consortia in the field of ICT); Knut Blind & Stephan Gauch, *Trends in ICT standards*

the smaller and the more homogeneous is a deliberation group, the faster will be its decision-making,²⁸ and the earlier will the standard be brought on the market – which is an enormous advantage in a highly competitive and innovative environment of technology standardization. Moreover, informal institutional models, such as open source initiatives, have become even more relevant with the development of new global networks, such as 5G and technologies supporting the Internet of Things.

The choice of a standards development platform largely depends on stakeholders' ambition for standardization project. Companies wishing to rapidly promote their technology typically opt for informal committees,²⁹ while those pursuing bigger network externalities or seeking a formal endorsement would carry out their projects in larger organizations.³⁰ In a similar vein, companies that attach more weight to the quality of a standard than to the pace of its development, are likely to join SSOs that follow consensus-based procedures.³¹ Loosely organized groups with lower institutional costs may attract less internationally competitive firms aspiring to develop regional standards, whereas formal organizations are considered to provide fertile ground for the establishment of global standards.³² It may also occur that recognized SSOs, despite the alleged weaknesses of their processes, yield better results than informal groups: for instance, the ITU managed to complete standardization of 56K modems, initially carried out in two competing consortia, due to the support from all major market players and successful resolution of patent issues.³³

That said, industry consortia are commonly presumed to fall short on the level of procedural and substantive guarantees compared to their formal counterparts.³⁴ Standards development in informal groups often lack consensus and dispute resolution mechanisms.³⁵ Moreover, the clear separation between promoters and other members suggests limited participation opportunities for stakeholders who may be interested in a particular standardization activity or become

in European standardization bodies and standards consortia, 32 TELECOMMUNICATION POLICY 503 (2008) (on the fact that narrow consortia are more often found in the telecom and e-commerce industry, while manufacturing usually has a broader focus).

²⁸ See Magnus Böstrom & Kristina Tamm Hallström, *Global Multi-Stakeholder Standard Setters: How Fragile Are They?* 9 JOURNAL OF GLOBAL ETHICS 93 (2013).

²⁹ Henry L. Delcamp & Aija Leiponen, *Innovating Standards through Informal Consortia* (2014); Pohlmann, *The Evolution of ICT Standards Consortia* (2014); Biddle et al., *The Expanding Role and Importance of Standards in the Information and Communications Technology Industry* (2012).

³⁰ See Josh Lerner & Jean Tirole, *A Model of Forum Shopping*, 96 AM. ECON. REV. 4, 1091 (2006); Nils Brunsson & Bengt Jacobsson, *The Contemporary Expansion of Standardization*, in A WORLD OF STANDARDS (Nils Brunsson et al., eds., 2000), at 1; Martin B.H. Weiss & Marvin Sirbu, *Technological Choice in Voluntary Standards Committees: an Empirical Analysis*, 1 ECONOMICS OF INNOVATION AND NEW TECHNOLOGY 1-2, 111 (1990).

³¹ Timothy Simcoe, *Standard Setting Committees: Consensus Governance for Shared Technology Platforms*, 102 AM. ECON. REV. 1, 305 (2012).

³² Marc T. Austin & Helen V. Milner, *Strategies of European Standardization*, 8 JEPP 3, 411 (2001).

³³ Shane M. Greenstein & Marc Rysman, *Coordination Costs and Standard Setting: Lessons from 56K Modems*, Center for the Study of Industrial Organization, Working Paper # 0056 (2004) <<https://www.econstor.eu/handle/10419/38700>>, at 23.

³⁴ Henry L. Delcamp & Aija Leiponen, *Innovating Standards through Informal Consortia* (2014), at 38 - 39.

³⁵ *Id.*; Benjamin Chiao et al., *The Rules of Standard-Setting Organizations: An Empirical Analysis*, 38 RAND J. ECON. 4, 905 (2007).

affected by it.³⁶ Because informal SSOs can only afford limited due process, standards they create also lack legitimacy.³⁷ It is yet the question whether such informal standards can be “legitimized” by a formal endorsement of a recognized SSO, such as ISO or a national designated body, or by their wide market acceptance.

Concerns that informal standards will outpace formal initiatives in many areas and will penetrate the regulatory environment are not uncommon in the EU: Commission’s proposals in 2011,³⁸ although indeed implemented into Regulation 1025/2012, to recognize and reference technical specifications developed by consortia in its public procurement procedures gained quite some critique.³⁹ In a pessimistic scenario, promulgation of consortia standards may result in a set-up where global regulation is founded on opaque requirements that are tilted towards a single group of actors and where firms cannot compete on a level playing field. More realistic however is a situation when procedural shortcomings of consortia will irreversibly undermine standards’ quality by not being submitted for testing and approval of a broad scope of actors – processes that can be implemented by consortia as a means to compensate for the lack of consensus procedures. The question of whether and how should such informal initiatives be addressed by national and global legislation, remains open.

B. NORMATIVE RELEVANCE OF INDUSTRY STANDARDS

Although standards developed by transnational SSOs may exert normative pull, distinction between “laws” and “standards” is evident even for a layperson: in the Western world, at least ideally, law-making process is run by people’s representatives, who are entitled to set binding legal norms on behalf of the citizens of a nation-State. Voluntary schemes driven by industry and business actors clearly do not fit this concept: the opposite would undermine the whole idea of parliamentary representation and result in a substantial democracy deficit. Hence, standards are in no way equivalent to legislation, and are not deemed as such under any national or international legal order: take, for instance, the difference between the notions of “technical regulation” and “standard” supported by the European Union and the World Trade Organization.⁴⁰ In a similar vein, US legislation commonly refers to “voluntary consensus

³⁶ Biddle *et al.*, *The Expanding Role and Importance of Standards in the Information and Communications Technology Industry* (2012) at 184.

³⁷ Cf. Magdalena Bexell, *Global Governance, Legitimacy and (De-) Legitimation*, 11 GLOBALIZATION 3, 289 (2014) at 291 (on the belief that legitimacy rest on open and transparent procedures that follow the generally accepted principles of “right process” and take into account the views of stakeholders).

³⁸ Proposal for a Regulation of the European Parliament and of the Council on European Standardisation and amending Council Directives 89/686/EEC and 93/15/EEC and Directives 94/9/EC, 94/25/EC, 95/16/EC, 97/23/EC, 98/34/EC, 2004/22/EC, 2007/23/EC, 2009/105/EC and 2009/23/EC, COM (2011) 315 final, at 2.

³⁹ E.g. *Recognition of Standards Developed by industry fora and consortia for use in public procurement procedures in the EU – the importance of keeping the process simple*, European Committee for Interoperable Systems, http://www.ecis.eu/wp-content/uploads/2012/03/ECIS_statement_on_the_recognition_of_fora_and_consortia_specifications.pdf.

⁴⁰ Agreement on Technical Barriers to Trade, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization [hereinafter WTO Agreement], Annex 1A 1868 U.N.T.S. 120 [hereinafter TBT Agreement] Annex 1: Terms and their Definitions for the Specific Purposes of this Agreement; Regulation 1025/2012 of the European Parliament and of the Council (Oct. 25, 2012) O.J. (L 316) 12 [hereinafter: EU Regulation 1025/2012], art. 2.

standards” developed by private SSOs.⁴¹

Following the strand of legal scholarship, standards are “microcosms of social practices, political preferences, economic calculations, scientific necessity and professional judgment,”⁴² or “grey zone of law, morals, economics and politics”⁴³ and may even exert a practical effect of “hard legal obligations.”⁴⁴ Indeed, in lengthy discussions, bargaining, deliberation and the compromise process, standards development strongly resembles law-making (although this does not imply that standards mirror laws):⁴⁵ for instance, designers of Internet specifications for different levels of network architecture are sometimes compared to law-makers, as they affect the behavior of actors in a way similar to the legislators: the idea that “code is law” is not unfamiliar among the scholars of Internet governance.⁴⁶ Hence, despite the wide acknowledgement of their voluntary nature, standards may still impose practical obligations on business and societal actors.

As such, there are several routes for transnational voluntary standards to metamorphize into mandatory requirements. First and foremost, standards acquire binding force when referenced, cited or incorporated in a State’s legislation.⁴⁷ Such transformation is acknowledged by ISO/IEC Guide 2, which described the term “technical regulation” as “regulation that provides technical requirements, either directly or by referring to or incorporating the content of a standard, technical specification or code of practice.”⁴⁸ In the EU, harmonized standards are referenced in the *Official Journal of the European Union* (OJEU)⁴⁹ and are often incorporated into legal contracts⁵⁰ (note however that their use remains voluntary, at least in theory). The US standardization system, in turn, endorses adoption of private model codes by semi-public organizations as well as a direct reference to private standards by federal authorities. Unlike it is the case in the EU system, the application of referenced standards in the US is not voluntary: rather, the requirement of “voluntary consensus” applies to standards development process.⁵¹

Due to the specifics of the US standardization environment, further outlined in the remainder of this paper, many US industry practices rely on rules set by private SSOs. Federal building, construction and mechanical model codes for a long time have been representing a mixture of

⁴¹ See the terminology used by the Office of Management and Budget (OMB) and the National Technology Transfer and Advancement Act of 1995, which will be discussed *infra*.

⁴² Harm Schepel, *THE CONSTITUTION OF PRIVATE GOVERNANCE - PRODUCT STANDARDS IN THE REGULATION OF INTEGRATING MARKETS* (2005), at 6.

⁴³ NON-STATE ACTORS AS STANDARD SETTERS (Anne Peters et al. (eds.) 2009), at 13.

⁴⁴ Schepel, *THE CONSTITUTION OF PRIVATE GOVERNANCE* (2005), at 12-13.

⁴⁵ Kingsbury, et al., *The Emergence of Global Administrative Law* (2005), at 15.

⁴⁶ See L. Lessig, *CODES AND OTHER LAWS OF CYBERSPACE* (1990).

⁴⁷ See Tim Büthe, *Engineering Uncontestedness? The Origins and Institutional Development of the International Electrotechnical Commission (IEC)*, 12 B&P 1 (2010), at 3.

⁴⁸ ISO/IEC Guide 2:2004, *Standardization and Related Activities – General Vocabulary*, updating Guide 2:1991 [hereinafter ISO/IEC Guide2], art. 3.6.

⁴⁹ On this topic, see Case C-613/14, *James Elliott Constr. Ltd. V. Irish Asphalt Ltd.*, ECLI:EU:C:2016:821 (2016) [hereinafter James Elliot]; Barend Van Leeuwen, *EUROPEAN STANDARDIZATION OF SERVICES AND ITS IMPACT ON PRIVATE LAW. PARADOXES OF CONVERGENCE* (2017), at 17 (on publication of the reference to harmonized standards as a “coordination of soft law rules at European level”).

⁵⁰ Van Leeuwen, *EUROPEAN STANDARDIZATION OF SERVICES AND ITS IMPACT ON PRIVATE LAW* (2017), at 17-18.

⁵¹ Petros C. Mavroidis & Robert Wolfe, *Private Standards and the WTO: Reclusive No More*, 16 WORLD TRADE REVIEW 1 (2017).

industry standards, semi-public codes and public law.⁵² The US Consumer Product Safety Act (CPSA) instructs the Consumer Product Safety Commission to use voluntary consumer product safety standards to eliminate or reduce the risk of injury. The American Bar Association's Model Code of Professional Responsibility has been adopted by many State Supreme Courts. Standards established by the Gas Industry Standards Board are embedded in regulations of the Federal Energy Regulatory Commission.⁵³ In 2013, the US Food and Drug Administration (FDA) recognized three categories of private interoperability standards to support its mobile application policy that oversees apps functioning as medical devices (but does not cover their performance as personal health record system) and listed twenty-five private standards to serve as a guidance for manufacturers.⁵⁴ Voluntary consensus standards developed by industry-driven bodies thus form a cornerstone of the US industry regulation, despite that federal agencies do not exactly follow a democratic process when implementing private standard, and the control of standards' adoption is entrusted to technical or procurement bodies, and not— as it may be expected in democratic rule-making – to enforcement agencies.⁵⁵

Second, private sector standards may be transformed into binding obligations once they are endorsed *ex post* in a fast or “fast-track” process of an SSO whose standards are widely recognized as best practices, such as the ISO or IEC: in this case, a technical document is directly submitted for the (final) approval of a working group or even the whole membership, side-stepping the initial stages of standards development.⁵⁶ The examples are the Linux' standard for operating system, which was formally adopted by the ISO/IEC; the Portable Document Format (PDF) developed by Adobe and incorporated into an ISO standard; and specifications drafted by the International Color Consortium that were used as a basis for the IEC 61966-series of “color management” standards.⁵⁷

Last, standards may become compulsory when they ensure the functioning of the market in the absence of other regulatory alternatives.⁵⁸ The obligatory nature of standards then stems from industry-mediated processes and reflects the requirements of specific markets.⁵⁹ And while the market pressure is not sufficient to realize convergence in law,⁶⁰ standards that are widely accepted by the industry may still considerably influence firms' capacity to innovate and conduct business overseas.⁶¹ Companies that do not comply with these standards also risk

⁵² Schepel, *THE CONSTITUTION OF PRIVATE GOVERNANCE* (2005), at 153.

⁵³ For further examples of incorporated standards see, among others, Schepel, *THE CONSTITUTION OF PRIVATE GOVERNANCE* (2005); Jonathan L. Rubin, *Patents, Antitrust and Rivalry in Standard-Setting*, 38 *RUTGERS LAW JOURNAL* 509 (2007).

⁵⁴ Ron Schneiderman, *MODERN STANDARDIZATION: CASE STUDIES AT THE CROSSROADS OF TECHNOLOGY, ECONOMICS AND POLITICS* (2015) at 133 -134, providing the full list of examples of these standards recognized by the FDA.

⁵⁵ Schepel, *THE CONSTITUTION OF PRIVATE GOVERNANCE* (2005), at 266.

⁵⁶ See *ISO/IEC Directives Part 1, Consolidated ISO Supplement – Procedures specific to ISO*, (7th edition 2016), art. F2.

⁵⁷ For further reading, see Büthe, *Engineering Uncontestedness* (2010).

⁵⁸ Schepel, *THE CONSTITUTION OF PRIVATE GOVERNANCE* (2005).

⁵⁹ Büthe, *Engineering Uncontestedness* (2010), at 2.

⁶⁰ Van Leeuwen, *EUROPEAN STANDARDIZATION OF SERVICES AND ITS IMPACT ON PRIVATE LAW* (2017), at 20.

⁶¹ According to the European Commission, this especially applies to small and medium-sized enterprises (SMEs), which are not always involved in standards development processes and often lack any operational interest in using a particular, standard; see Independent Review of the European Standardization System: Final Report of

tarnishing their reputation. On a global scale, such standards may serve as indirect trade instruments and are likely to bear similar practical consequences as mandated standards, being prerequisites for market access and reshaping the reality of international commerce.⁶²

This type of transformation is particularly witnessed in technical interoperability standards, whose market power is cemented in their network effects as well as the willingness of consumers to use certain technology.⁶³ Interoperability of technological platforms is crucial for achieving a critical mass of actors to expand the size of the market.⁶⁴ Take an example of technical specifications for Wireless Local Area Networks (WLAN), developed by industry experts in IEEE 802.11 working group and commonly known as Wi-Fi: there exist no law that obliges a device manufacturer to implement this standard; and yet, selling of a smartphone that does not support Wi-Fi connection is doomed to failure. Similar logic applies to Bluetooth and USB specifications and standards for cellular mobile networks, which for a long time have been endorsed by telecoms and ICT industry. Even a single-actor scheme may gain popularity amongst the industry,⁶⁵ as long as a group of actors sharing interest or preference for a certain standard is established: for instance, prior to its acknowledgement by the ISO, the aforementioned PDF standard developed by Adobe has already become *de facto* requirement on the relevant market.⁶⁶

In the context of transnational standardization, ICT standards hold a special place. Being technical specifications that codify technological components and prescribe common methods applied in electronic devices,⁶⁷ these design and performance standards embody technical solutions that enable interoperability and necessary interference among various elements of technological systems. ICT standards provide compatibility between complex electronic mechanisms, coordinate radio frequencies and encryption software, and support data transmission across the Internet,⁶⁸ creating invisible interconnections between hardware pieces,

the European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (March 2015).

⁶² *Trade and public policies: A closer look at non-tariff measures in the 21st century*, WTO (World Trade Report 2012), <https://www.wto.org/english/res_e/booksp_e/anrep_e/world_trade_report12_e.pdf> at 21.S; Steven Bernstein & Erin Hannah, *Non-State Global Standard-Setting and the WTO: Legitimacy and the Need for Regulatory Space*, 11 JIEL 3, 575 (2008), at 586.

⁶³ Lucio Fuentelsaz et al., *Switching Costs, Network Effects, and Competition in the European Mobile Telecommunications Industry*, 23 INFORMATION SYSTEMS RESEARCH 1, 93 (2012), *But see* Luis Cabral & David Salant, *Evolving technologies and Standards Regulation*, 36 IJIO 48 (2014) at 52. (suggesting that consumers are more concerned with prices rather than with network effects).

⁶⁴ *See* Everett M. Rogers, *DIFFUSION OF INNOVATIONS: MODIFICATIONS OF A MODEL FOR TELECOMMUNICATIONS* (1995), at 245 (on the example of cellular phone users).

⁶⁵ Kraig A. Jakobsen, *Revisiting Standard-Setting Organizations' Patent Policies*, 3 NJTIP 43 (2004), at 59.

⁶⁶ Erik Wijkstrom & Devin McDaniels, *International Standards and the WTO TBT Agreement: Improving Governance for Regulatory Alignment*, (WTO Staff Working Paper ERSD-2013-06, 2013) <https://www.wto.org/english/res_e/reser_e/ersd201306_e.pdf> at 17.

⁶⁷ *See* Rahgu Garud & Arun Kumaraswamy, *Changing Competitive Dynamics in Network Industries: An Exploration of Sun Microsystems' Open Systems Strategies*, 14 STRATEGIC MANAGEMENT 5, 351 (1993) at 353; Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, at 1898.

⁶⁸ *See*, among others, Michael L. Tushman & Lori Rosenkopf, *On the Organizational Determinants of Technological Change: Towards a Sociology of Technological Evolution*, 14 RESEARCH IN ORGANIZATIONAL BEHAVIOUR (1992); Tim Weitzel, Daniel Beimbom and Wolfgang König, *A Unified Economic Model of Standard Diffusion: The Impact of Standardization Cost, Network Effects, and Network Topology*, 30 MIS QUARTERLY

networks and interfaces. Next to the above-mentioned for specifications short range wireless communication technology and cellular networks, examples of the prominent ICT standards include Transmission Control Protocols (TCP) for sending data packets over the Internet, and Hypertext Markup Language (HTML) protocol for designing web pages and web applications. Against this general background, the next section will shed some light onto the modern landscape of ICT standardization by discussing a number of the recent challenges faced by the industry, SSOs and civil society actors involved in the development and implementation of interoperability and Internet standards.

III TRENDS AND CHALLENGES OF ICT STANDARDIZATION

A. INTELLECTUAL PROPERTY

Matters related to intellectual property are intrinsic to ICT standardization. Due to their technical complexity, ICT standards often rely on proprietary solutions to enable their functioning and implementation: examples are “closed source” codes⁶⁹ protected by copyright, or technologies essential to manufacture of standardized products protected by patents. Furthermore, with the practice of referencing private standards in governmental regulation becoming increasingly common on the both sides of the Atlantic, the issue of access to copyrighted standards that effectively impose legal obligations has come to the forefront of recent discussions on standardization.⁷⁰ And while the debate on copyright of standards that exert normative power goes beyond the ICT sector, it becomes highly relevant in the context of legitimacy and transparency of SSOs’ governance.

Intellectual property concerns related to standards in essence present a challenge to achieve the balance of different, often conflicting, interests – either those of standards’ users (access to regulatory documents) and SSOs (exclusive use of one’s intellectual property), or those of product manufacturers (building on standardized technology) and patent holders (monetizing their patents). This balance, however, is crucial for standards’ global acceptance, which in turn enables their network effects and improves their functionality.⁷¹ To the end, this section introduces the widely discussed issues related to intellectual property embedded in standards.

1. Patents Essential for Standards’ Functioning

Standards for technical interoperability run on various proprietary technologies, and the number of these technologies increases as standards evolve.⁷² Accordingly, in order for their

489. (2006); Paul A. David and Shane Greenstein, *The Economics of Compatibility Standards: an Introduction to Recent Research*, 1 ECON. INNOV. NEW TECHN. 3 (1990).

⁶⁹ As opposite to “open source” software.

⁷⁰ To illustrate, see *American Society for Testing vs. PublicResourceOrg, Inc.*, No. 17-7035 (D.C. Cir. 2018) [hereinafter *ASTM v. PRO*].

⁷¹ It is the functionality and global acceptance of ICT standards that also ensure their output legitimacy, see Raymund Werle and Eric J. Iversen, “Promoting Legitimacy in Technical Standardization” 3 *Science, Technology & Innovation Studies* 1 (2006) 19.

⁷² IPlytics Report “Who is leading in the 5G patent race? Analysis on declared standard essential patents, 3GPP contributions and attendance data” (February 2019) (on file with the author).

products to interact within the global connectivity networks, device manufacturers have to use patented technologies embedded into such interoperability standards, meaning that they should obtain a license from patent holders against a royalty payment – else, the property rights of the patent holders would be infringed. Access to standards and interoperability is thus conditional upon access to these technologies.

SSOs prefer to take a neutral position in the discussions surrounding the licensing of patents essential for the functioning of the standard (hereinafter: standard essential patents (SEPs)): royalties' negotiations between the licensor and licensee typically take place outside standard-setting platforms. Nevertheless, each SSO maintains a Patent Policy requiring its members to commit to disclose and/or license their essential patents.⁷³ Disclosure obligation requires participants of standard-setting to reveal their existing patents and patents applications that might become essential to the standard in development process:⁷⁴ in that sense, patent disclosure is a continuous process aimed to offer SSOs members more clarity while as well risking to create even more uncertainties due to over and under disclosure.⁷⁵ Licensing obligation requires patent holders to license their SEPs either on (fair), reasonable and non-discriminatory terms (F/RAND),⁷⁶ or on royalty-free basis, the latter being a common practice in Internet and software SSOs.⁷⁷

Patent Policies generally aim to strike the balance between the interests of patent holders and patent users. They alleviate the risks of SEP owners abusing their technological supremacy by strategically concealing their essential technology during standard-setting negotiations⁷⁸ or by setting excessive licensing fees (a situation referred to as “patent hold-up”)⁷⁹ and seeking injunctions against implementers not willing to agree on royalty rates, thereby aiming to ensure

⁷³ See Jorge L. Contreras, *An Empirical Study of the Effects of Ex Ante Licensing Disclosure Policies on the Development of Voluntary Technical Standards*, GR-11-934 (June 27, 2011) <https://www.nist.gov/sites/default/files/nistgr_11_934_empiricalstudyofeffectsexantelicensing2011_0.pdf> (on SSO's Patent Policies). Often it is both disclosure and licensing.

⁷⁴ *Id.*

⁷⁵ Neil Gandal & Pierre Régibeau, *Standard-Setting Organizations*, in *THE LAW, ECONOMICS AND POLITICS OF INTERNATIONAL STANDARDIZATION* 394 (Panagiotis Delimatsis, ed., 2015) CUP (2015), at 401. See Marc Rysman & Timothy Simcoe, *Patents and the Performance of Voluntary Standard-Setting Organizations*, 54 *MANAG. SCI.* 1920 (2008).

⁷⁶ While “RAND” is preferred terminology in the US, “FRAND” and “RAND” are often used interchangeably. Under US doctrine, F/RAND terms are akin to a contractual commitment, see Jorge L. Contreras, *Patent pledge enforcement theories*, in *PATENT PLEDGES. GLOBAL PERSPECTIVES ON PATENT LAW'S PRIVATE ORDERING FRONTIER* 101 (Jorge L. Contreras & Meredith Jacob, eds., 2017) (on FRAND commitments under US law); Timothy S. Simcoe and Allan L. Shampine, *Economics of Patents and Standardization: Network Effects, Hold-up, Hold-out, Stacking*, in *THE CAMBRIDGE HANDBOOK OF TECHNICAL STANDARDIZATION LAW. COMPETITION, ANTITRUST AND PATENTS* 100 (Jorge L. Contreras, ed., 2018), at 111 (on SSOs' licensing policies as “incomplete contracts”). The meaning of FRAND is not widely agreed through the industry, and may be interpreted differently in different jurisdictions.

⁷⁷ See Thimo P. Stoll, *Are you still in? The Impact of Licensing Requirements on the Composition of Standards Setting Organizations*, Max Planck Institute for Innovation and Competition Research Paper No. 14 (2014) <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2535735>.

⁷⁸ As it was argued in *re Rambus, Inc.*, No. 9302, 2006 WL 2330117 (F.T.C. Aug. 2, 2006), *rev'd*, 522 F.3d 456 (D.C. Cir. 2008).

⁷⁹ Luis Cabral & David Salant, *Evolving technologies and Standards Regulation*, 36 *IJIO* 48 (2014); J. Farrell *et al* “Standard Setting, Patents, and Hold-Up” 74 *Antitrust Law Review* (2007) 603; M. Lemley and C. Shapiro, “Patent Holdup and Royalty Stacking” 85 *Texas Law Review* (2007), 1992.

access to essential technologies. At the same time, Patent Policies serve as protection for innovators against free-riding on their creations and, ideally, ensure their appropriate rewarding.⁸⁰ The existence of Patent Policies, however, does not always prevent the disputes arising in the context of patent licensing terms, rendering the balancing of different interests even more challenging.

Most patent-related issues revolve not so much around specific patents, but rather their application. Unregulated licensing practices may result in abusive behavior by technology-owners and fuel uncertainties among implementers; in turn, low royalty-rates may disincentivize innovative contributions from firms that have heavily invested in their R&D. Antitrust investigations of the past two decades, conducted by the Federal Trade Commission (FTC) (i.e. *Dell*;⁸¹ *Rambus*⁸²) and the European Commission (*Samsung*;⁸³ *Motorola*;⁸⁴ *Qualcomm*⁸⁵) largely addressed the abusive or deceptive licensing practices by holders of SEPs.

It should not surprise the reader that the potential of hold-up, ambiguity of FRAND terms and lack of transparency in SEP disclosure have been explicitly addressed by regulators. The Antitrust Division of the Department of Justice (DOJ), for instance, seems to oscillate between advocating for patent policies that aim at preventing potential hold-up situations⁸⁶ and addressing potential collusive behavior of competitors within SSOs.⁸⁷ In its Communication of 2017, the European Commission emphasized that licensing terms should “bear a clear relationship to the economic value of the patented technologies” and not with the value which resulted from the inclusion of the technology in a standard; furthermore, the Commission suggested that royalty-rates should be calculated based on the overall added value of patented technology, and not the market success of products running on a particular standard.⁸⁸ A global

⁸⁰ Luis Cabral & David Salant, *Evolving technologies and Standards Regulation*, 36 IJIO 48 (2014) at 51.

⁸¹ *In re Dell Comput. Corp.*, 121 F.T.C. 616 (1996).

⁸² *In re Rambus, Inc.*, No. 9302, 2006 WL 2330117 (F.T.C. Aug. 2, 2006), *rev'd*, 522 F.3d 456 (D.C. Cir. 2008).

⁸³ Press Release, European Commission, Antitrust: *Commission Sends Statement of Objections to Samsung on Potential Misuse of Mobile Phone Standard-Essential Patents*, IP/12/1448 (Dec. 21, 2012) <http://europa.eu/rapid/press-release_IP-12-1448_en.htm>.

⁸⁴ Press Release, European Commission, Antitrust: *Commission Sends Statement of Objections to Motorola Mobility on Potential Misuse of Mobile Phone Standard-Essential Patents*, IP/13/ 406 (May 6, 2013) <http://europa.eu/rapid/press-release_IP-13-406_en.htm>.

⁸⁵ Press Release, European Commission, Antitrust: *Commission Closes Formal Proceedings Against Qualcomm*, MEMO/09/516 (Nov. 24, 2009), <http://europa.eu/rapid/press-release_MEMO-09-516_en.htm>.

⁸⁶ Renate Hesse, *Six “Small” Proposals for SSOs before Lunch*, <<https://www.justice.gov/atr/file/518951/download>> at 6. These suggestions were later taken up by the US-based IEEE, which in the following years amended its patent policy and became the first SSO defining the FRAND terms, J. Gregory Sidak, *The Antitrust Division’s Devaluation of Standard Essential Patents*, 104 GEO. L.J. ONLINE 48 (2015).

⁸⁷ Asst. Atty. Gen. Antitrust Div., U.S. Dept. Justice, Makan Delrahim, *Take it to the Limit: Respecting Innovation Incentives in the Application of Antitrust Law – Remarks as Prepared for Delivery at the USC Gould School of Law* (Nov. 10, 2017) <<https://www.justice.gov/opa/speech/file/1010746/download>>.

⁸⁸ Setting out the EU Approach to Standard Essential Patents: Communication from the Commission (2017) ¶ 2.1

approach among the regulators to patent licensing within SSOs is yet still missing, in a similar way that it is absent in Courts' decisions and industry practice.

Concerns around SEP licensing are expected to grow with the deployment of 5G not only due to the increasing number of patents, but also as a result of arising cross-border and cross-sectoral licensing issues. The integrated infrastructure of the IoT, expansion of patents to sectors other than ICT (i.e. agriculture) and increased cooperation among SSOs will contribute to uncertainties around access to standards and should be addressed in the interests of society.⁸⁹

2. Copyright of standards that exert normative obligations

As explained in section II, referencing private standards or codes in law is not uncommon among regulators. Intuition suggests that when metamorphizing into legal requirements, standards should be accessible to those bound by their mandatory force; the reality, however, is that the majority of private standards is protected by the copyright held by the creators of those standards – the SSOs. Reproduction or distribution of standards document is thus effectively prevented by their private ownership: this implies that placing private standards referenced in law into public domain (where the law belongs) risks violating SSOs copyright over these standards.

Due to the increased reliance of US law on private codes, it is not surprising that most of the cases dealing with copyrighted standards were brought before US Courts. In *BOCA*⁹⁰ and *CCC*,⁹¹ the judges were reluctant to provide a definite statement regarding the legal value of private codes, but concluded that an author loses the copyright over its standard once it was referenced in a legal act, following the established case law that judicial and legislative works are free of copyright claims.⁹² In *Practice Management*, the American Medical Association was granted the right to claim copyright over its standards since they were easily available to public, and because the Court believed that the opposite decision would provoke controversy about the copyrights of other private model codes and standards.⁹³ The landmark decision on the issue of copyright of standards incorporated into law was issued by the US Court of Appeals in *Veeck*,⁹⁴ where the Court confirmed that once put into public domain, the code in question was transformed into law and hence fell outside the purview of copyright provisions.⁹⁵

⁸⁹ Axel Waltz e.a., FRAND ADR Case Management Guidelines, IDPR Munich IP Dispute Resolution Forum (2018) < <http://www.ipdr-forum.org/guidelines/>>; Chryssooula Pentheroudakis and Justus A. Baron, Licensing Terms of Standards Essential Patents. A Comprehensive Analysis of Cases. JRC Science For Policy Report (2017).

⁹⁰ Bldg. Officials v. Code Tech., Inc., 628 F.2d 730 (1st Cir. 1980).

⁹¹ CCC Info. Servs. Inc. v. MacLean Hunter Mkt. Rep., Inc., 44 F.3d 61 (2nd Cir. 1994).

⁹² E.g. Wheaton v. Peters, 33 U.S. (8 Pet.) 591 (1834).

⁹³ Practice Mgmt. Info. Corp. v. Am. Med. Ass'n, 121 F.3d 516 (9th Cir. 1997), *amended by* 133 F.3d 1140 (9th Cir. 1998). *cen. denied*, 524 U.S. 952 (1998).

⁹⁴ *En banc*, Veeck v. S. Bldg. Code Cong. Int'l, Inc., 293 F.3d 791 (5th Cir. 2002) *cert. denied*, 539 U.S. 969 (2003) [hereinafter Veeck v. SBCCI].

⁹⁵ *Id.* 293 F.3d ¶ 26.

In the recent dispute *ASTM v PRO*, four SSOs have initially obtained permanent injunctions against any authorized use of their incorporated standards by PUBLIC.RESOURCE.ORG (hereinafter: PRO), a non-profit organization concerned with availability of governmental materials.⁹⁶ In appeal process, PRO questioned the validity of SSOs' property rights over the standards in the light of prohibition to copyright the work of US Government.⁹⁷ To that end, it observed that US government employees may have taken part in drafting processes of standards at issue and suggested that incorporation by reference renders private standards "a part of the law."⁹⁸ Most intriguing, however, was PRO's critique on current standardization system, alleging that by lobbying to have their standards adopted into law and then limiting access to the standards document with copyright, SSOs ignore the right to access the text of the law.⁹⁹ The Court of Appeal restated that binding laws should be available free of charge to US citizens,¹⁰⁰ but was cautious with drawing any further conclusions regarding public access to copyrighted standards, merely stating that standards incorporated by reference into law are "at the outer edge of 'copyright's protective purposes.'"¹⁰¹ The Court thus refused to address broader constitutional issues that arise from permitting private ownership of standards referenced in law, suggesting a case by case approach.¹⁰²

In the EU, legal skirmishes on private ownership of incorporated standards were mostly dealt with by national courts of Member States. The German Federal Court of Justice (*Bundesgerichtshof*) stated that standards created by the German NSO – *Deutsches Institut für Normung* (DIN) – are excluded from copyright protection granted by the applicable German law, as the reference in a legislative act pulls those standards into the public domain.¹⁰³ The Court found that public interest of free access prevailed over copyright protection.¹⁰⁴ In turn, when deciding the legal status of private SSOs and the accessibility of their technical standards, the Dutch District Court (*Gerechtshof*), followed by the Supreme Court of the Netherlands, (*Hoge Raad*) found that the Building Decree which referred to the particular standard of the Dutch Standards Body (Nederlands Normalisatie Instituut (NEN)) was not published following the procedure specified in applicable Dutch law: hence, the Courts held, the standard was not legally binding, meaning that NEN was entitled to charge fees for and collect copyrights from the selling of the standard.¹⁰⁵

To this day, the EU Court of Justice (CJEU) has not yet been presented with the opportunity to elaborate on the matters related to the copyright of harmonized standards supporting the EU

⁹⁶ *American Society for Testing & Materials v. Public.Resource.org, Inc. (ASTM)*, No. 1:13-cv-01215 (TSC), 2017 WL 473822, (D.D.C. Feb. 2, 2017), *amended by* No. 17-7035 (D.C. Cir. 2018).

⁹⁷ *ASTM*, 2017 WL 473822, at 15 *et seq.*

⁹⁸ *Id.*, at 19-20.

⁹⁹ *Id.*, at 28.

¹⁰⁰ *ASTM*, 2018 No. 17-7035, at 24, quoting *Howell v. Miller*, 91 F. 129, 137 (6th Cir. 1898).

¹⁰¹ *Id.*, at 24.

¹⁰² *Id.*, at 19.

¹⁰³ *Bundesgerichtshof [BGH] [Federal Court of Justice]*, GRUR 1984 (June 30, 1983).

¹⁰⁴ *Bundesverfassungsgericht [BVerfGE] [Federal Constitutional Court]* ZUM 1998 (July 29, 1998).

¹⁰⁵ *Hoge Raad [Supreme Court of the Netherlands]*, LJN: BW0393 (June 22, 2012). For further comparative case law analysis, see Rob Van Gestel & Hans-W. Micklitz, *European Integration Through Standardization: How Judicial Review is Breaking Down the Club House of Private Standardization Bodies*, 50 CMLR 145 (2013).

legislation and policy. In the past decade, however, the CJEU has demonstrated a consistent trend towards submitting voluntary standards to fundamental principles of EU law, effectively pulling private standards into domain of law.¹⁰⁶ In *Fra.bo*, the Court found that a private body could *de facto* regulate market access “in the light of inter alia the legislative and regulatory context in which it operates.”¹⁰⁷ In *James Elliott*, it ruled that, given the publication of a reference in the Official Journal of the EU (OJEU), harmonized standards were measures implementing or applying an act of EU law, and hence should be viewed as part of it.¹⁰⁸ Whether and how the CJEU will address private ownership and sale of incorporated standards in the context of constitutionalizing of industry regulation heightens the sense of curiosity in the European standardization system.¹⁰⁹

Similarly to the issue of SEP licensing, a global approach to copyright of incorporated standards appears to be missing. The decisions of US Courts lack legal certainty, proposing a “case by case” approach when deciding on access to those standards that became a part of the law;¹¹⁰ meantime, the deafening silence of the EU institutions on copyright of harmonized standards, together with the balkanized approach across standardization and copyrights laws of the EU Member States, add to the ambiguities about the access to standards documents. However, a global approach to standards' copyright is necessary in the light of the growing tendency of globalized, multi-stakeholder standard-setting, where national industries rely on each other's' standards¹¹¹ and where efforts are channeled into creating universal standards – with 5G being the most prominent example of cooperation between a broad range of industries, regulators and SSOs. The issue of access in fact lies deeper than the copyright of standards or codes referenced in legal acts: since even those standards that are not incorporated in regulation can exert compliance pull,¹¹² should they not be freely accessible to parties subjected to the normative obligations imposed by such standards? And if so, should these parties be limited to industry players having commercial interests in complying with these standards, or should they also include civil society, or all players will have to comply with rules created in processes that are outside of their control? In this regard, the issue of different interests in ICT standardization needs further elaboration.

¹⁰⁶ See Paul Verbruggen & Barend Van Leeuwen, *The Liability of Notified Bodies Under the EU's New Approach: The Implications of the PIP Breast Implants Case*, 43 E.L. REV. 3, 394 (2018).

¹⁰⁷ C-171/11 *Fra.bo SpA v Deutsche Vereinigung des Gas- und Wasserfaches*, ECLI:EU:C:2012:453 [hereinafter *Fra.bo*]

¹⁰⁸ Case C-613/14 *James Elliott*, ¶¶ 32 – 40.

¹⁰⁹ *CEN and CENELEC position on the consequences of the judgment of the European Court of Justice on James Elliott Construction Limited v Asphalt Limited*, CEN-CENELEC position paper (May 2017). Yet, accessibility of private standards and their copyrights was addressed by two European Standards Bodies, CEN and CENELEC, who stressed the importance to preserve current EU standardization system, including the copyright and distribution policy of harmonized European standards.

¹¹⁰ This may arguably be explained by endeavor of the US Courts to strike a balance between dual policy objectives: on the one hand, the incentives of regulators to produce law and on the other, public domain considerations on due process and free access. Lawrence A. Cunningham, *Private Standards in Public Law: Copyright, Lawmaking and the Case of Accounting*, 104 MICH. L. REV. 291 (2005), at 296-297.

¹¹¹ For instance, many standards of the American Petroleum Institute (API) are used by the European oil & gas industry.

¹¹² See section II.B.

B. NON-TECHNOLOGICAL INTERESTS IN ICT STANDARDIZATION

The above described conflict between property rights and access to standards and technologies essential for their implementation is but one of many cases illustrating how fragile the balance in standard-setting can be. Standardization affects a wide range of interest groups, including governments, commercial actors and civil society; this specifically applies to ICT standardization, whose direct impact on quotidian life is often eclipsed by multi-dimensional and technologically complex narrative. Concerns voiced by non-technical actors of ICT standardization are however not uncommon, notably as the Internet of Things and rolling out of 5G are rapidly approaching.

The most vivid example is the allegation that participation of China-based companies in standardization of 5G network equipment poses a national security threat to Western governments.¹¹³ This statement, arguably, should not be viewed as a distrust towards Chinese firms, but rather as a distrust in Chinese regulatory system under which these firms operate.¹¹⁴ Since 5G infrastructure is expected to become critical for future economy, concerns around its deployment go beyond the somewhat more “traditional” matters of quality and performance of mobile networks and enter the political arena, where the threat of Chinese economic espionage is ever-present.¹¹⁵ At the same time, given the limited amount of manufacturers of 5G equipment,¹¹⁶ one may not help but place this debate in the context of growing technology competition between different economies.

Non-technological concerns that gained less media attention arose with regard to increased exposure to radio frequency radiation as a consequence of 5G deployment.¹¹⁷ Although sporadically addressed by applicable regulatory tools,¹¹⁸ the potential danger of 5G networks to environment and public health has not been thoroughly discussed by SSOs involved in 5G

¹¹³ Kiran Stacey and Yuan Yang, *Huawei to sue US government over equipment ban*, FINANCIAL TIMES, March 4, 2019, <https://www.ft.com/content/c14e07d6-3e8e-11e9-9bee-efab61506f44>; *America and its allies disagree on Huawei*, THE ECONOMIST, FEBRUARY 21, 2019, [HTTPS://WWW.ECONOMIST.COM/BUSINESS/2019/02/21/AMERICA-AND-ITS-ALLIES-DISAGREE-ON-HUAWEI](https://www.economist.com/business/2019/02/21/america-and-its-allies-disagree-on-huawei).

¹¹⁴ Jan-Pieter Kleinhans, *5G vs. National Security. A European Perspective* (February 2019) < www.stiftung-nv.de/sites/default/files/5g_vs._national_security.pdf>. The report also notes that due to the lack of technical tool to guarantee trustworthiness of 5G equipment, device manufacturers have the ultimate burden to prove that their products are secure, while acting under regulatory restrictions of the country in which they are established.

¹¹⁵ *Id.*, at 9.

¹¹⁶ *Id.*, at 4.

¹¹⁷ As examples of these initiatives, see *International Appeal. Stop 5G on Earth and in Space* < <https://www.5gspaceappeal.org/>>; letter to The Honorable Brendan Carr, FCC Commissioner, Dec. 3, 2018, < <https://www.jrseco.com/wp-content/uploads/2018-1203-Sen-Blumenthal-Rep-Eshoo-to-FCC.pdf>>. In this regard, see also International Commission on Non-Ionizing Radiation Protection, *Revision of the HF Guidelines*, Dec. 7, 2017, < <https://www.icnirp.org/en/activities/news/news-article/revision-of-hf-guidelines-2017.html>>; ITU-T, *The impact of RF-EMF exposure limits stricter than the ICNIRP or IEEE guidelines on 4G and 5G mobile network deployment*, Supplement 14 to ITU-T K-series Recommendations (May 2018), < <file:///Users/oliakanevskiaia/Downloads/T-REC-K.Sup14-201805-I!!PDF-E.pdf>>.

¹¹⁸ It should however be noted that the concerns were met skeptically by EC, which delegated the responsibility to the Member States, European Parliament, Answer given by Mr Andriukaitis on behalf of the European Commission (September 6, 2018) < http://www.europarl.europa.eu/doceo/document/E-8-2018-003975-ASW_EN.html>.

standardization. The question thus remains whether the current framework of ICT standardization allows actors other than industry or governmental stakeholders to protect their interests and voice their concerns in technocratic decision-making processes.

In this regard, many SSOs, while operating in complex technical domains, also include societal interests in their mission statements. For instance, IEC aspires that its standards will not only “ensure the safety, efficiency, reliability and interoperability of electrical, electronic and information technologies” but also “enhance international trade, facilitate broad electricity access and enable a more sustainable world;”¹¹⁹ IEEE’s aim is “fostering technological innovation and excellence for the benefit of humanity”¹²⁰ and advancing different scientific fields;¹²¹ and W3C is guided by the idea that the Web should be accessible and beneficial to all people and should be built up upon trust and confidence within both social and technological sense.¹²² Moreover, some SSOs allow general public to comment on the final draft of their standards, albeit against a fee (i.e. IEEE).¹²³ SSOs whose working groups function through the mailing list may also set a very low threshold for joining technical discussions, encouraging wide contributions from different societal actors (i.e. IETF).

But even when standards procedures open avenues for contributions from societal actors, decision-making in SSOs’ governance bodies often allows only limited participation or, as it is the case in industry consortia, does not even include all SSO membership. Yet, such governance rules, including membership requirements, voting quorum and patent policies, effectively underpin the functioning of SSOs and their standard-setting procedures, ensuring that all relevant interests are taken into account. Additionally, the fact that societal contributions are welcomed in technocratic fora does not necessarily entail that those representing the interests of civil society indeed possess the necessary procedural tools to partake in standard-setting activities of the given organizations.

C. THE NEED TO ADDRESS THE IMBALANCE IN STANDARDIZATION

While the abovementioned challenges were discussed in the context of ICT standardization, they can be traced in other type of industry-driven standard-setting¹²⁴ and should be viewed in the context of larger dynamics of increased private rule-making. In this regulatory setting, standardization activities that ignore the wide range of interests and are driven by technocratic reasoning are likely to give rise to a number of fundamental concerns, including the legitimacy and validity of standards. These concerns cannot be ignored,

¹¹⁹ *Our Values – Vision & Mission*, IEC < <http://www.iec.ch/about/values/vision.htm>>.

¹²⁰ *About IEEE*, IEEE, <www.ieee.org/about>.

¹²¹ IEEE, IEEE Constitution and Bylaws, art. 1 Sec. 2 (2018) [<https://www.ieee.org/content/dam/ieee-org/ieee/web/org/ieee-constitution-and-bylaws.pdf>].

¹²² *W3C Mission*, W3C < <https://www.w3.org/Consortium/mission#vision>>.

¹²³ IEEE Standards Association [hereinafter IEEE-SA], IEEE Standards Association Standards Board Operations Manual § 5.4.5 (2018) [hereinafter IEEE-SA Standards Board Operations Manual] < http://standards.ieee.org/develop/policies/opman/sb_om.pdf>.

¹²⁴ I.e. standards for good agricultural practices (GAP), discussed in Khalid Nadvi, *Global Standards, Global Governance and the Organization of Global Value Chains*, 8 J. ECON. GEOGR. 323 (2008), at 330.

especially in the view of the globalized networked society of the future, where different sectors, technologies and services will be intertwined and the issue of balance of interests will grow even stronger. The problem presented in this this part of the paper is as much technical, societal and political as it is legal, since representation of various interests is ensured through procedural safeguards provided for by the regulatory frameworks in which technical SSOs operate. In view of this, the next section observes how non-technical concerns can be accommodated in SSOs' decision-making under the current legal framework governing industry standardization.

IV REGULATING SSOs VIA PROCEDURAL LEGAL FRAMEWORKS

Despite the fact that most standards are developed in a self-regulatory environment, private-sector standardization has not been completely overlooked in most of international and national legal systems. In particular, while the complexity of standards' contents is entrusted to technical experts in SSOs' working groups, regulatory frameworks attempt to curb standardization activity by introducing several procedural principles to which SSOs have to adhere in order to benefit from a certain treatment. Standards developed according to these principles are deemed not to unduly restrict international trade or to raise antitrust concerns and can be referenced in national laws. Drawing upon the applicable legislation, case law and scholarship, this section explores how private standardization is regulated under the WTO rules, on which most procedural frameworks for standards development are built and which are implemented by numerous SSOs. It then compares the WTO standardization principles with the corresponding requirements in US and EU law by offering an overview of regulatory tools available for performing procedural scrutiny of SSOs' processes.

A. STANDARDS UNDER DIFFERENT REGULATORY REGIMES

1. The WTO

The WTO system attaches cardinal importance to regulatory consistency in Members' trade policies. The requirements of eliminating disproportional protectionists regulations, avoiding arbitrary discrimination and treating "like cases alike" are widely employed in WTO Agreements and case law.¹²⁵ While the General Agreement on Tariffs and Trade (GATT) holds a broad expectation that parties to the Agreement will cooperate for the purpose of harmonizing international rules affecting production, transportation and marketing,¹²⁶ it is the Agreement on Technical Barriers to Trade (TBT) that contains provisions governing standardization activities.

¹²⁵ Alan O. Sykes, *Regulatory Consistency Requirements in International Trade*, 49 ARIZ. ST. L.J. 821 (2017).

¹²⁶ General Agreement on Tariffs and Trade, Oct. 30, 1947, 61. Stat. A-11, T.I.A.S. 1700, 55 U.N.T.S. 194 [hereinafter GATT], art. XXXVIII(2)(c).

The TBT Agreement entered into force in 1995, replacing the – comparatively limited – plurilateral “Standards Code” of 1979. Obligations imposed by TBT are supplementary to those arising from the GATT:¹²⁷ as such, TBT does not only provide Members with a framework to evaluate whether a certain measure constitutes an unjustifiable trade obstacle, but also deals with preparation and application of international standards.¹²⁸ Essentially, the Agreement aims to balance Members’ right to adopt measures pursuing legitimate objectives of its Article 2.2 with the WTO’s objective to promote liberalization of international trade.¹²⁹ To that end, it provides Members with certain flexibility to develop restrictive policies while acting in accordance with the Agreement,¹³⁰ and ensures that such policy space is not abused by Members seeking to protect their own markets.

Next to the general Most-Favored Nation (MFN) Treatment and National Treatment obligations,¹³¹ the TBT Agreement encapsulates elements of negative integration, requiring Members *not* to design technical regulations that aim to frustrate trade and are more trade-restrictive than necessary for fulfilling legitimate policy objectives,¹³² and *not* to maintain restrictions in case the objective of circumstances have changed.¹³³ The crucial provision of the Agreement is Article 2.4, which calls upon Members to use existing relevant international standards (*voluntary*) as a basis for their technical regulations (*mandatory*),¹³⁴ meaning that there should be a “very strong and substantial relationship between a regulation and the substance of the international standard.”¹³⁵ The distinction between a “technical regulation” and a “standard” is explained in Annex 1,¹³⁶ which also specifies that an *international* standard within the meaning of the TBT Agreement should be approved by an international body or system offering its membership to all WTO members.¹³⁷ Domestic measures based on such

¹²⁷ Appellate Body Report, European Communities – Measures Affecting Asbestos and Products Containing Asbestos, WTO Doc. WT/DS135/AB/R (Mar. 12, 2001), para 80. Technical regulations discussed under the TBT Agreement should also be dealt with under Article XX(b) of the GATT when they relate to health concerns, see Mitsuo Matsushita et al., *THE WORLD TRADE ORGANIZATION: LAW, PRACTICE, AND POLICY* (3rd edition 2015) at 488, citing Appellate Body Report, European Communities – Regime for the Importation, Sale and Distribution of Bananas WTO Doc. WT/DS27/AB/R (Sep. 9, 1997). However, when a technical regulation constitutes an SPS measure, it is considered under the SPS Agreement pursuant to TBT Agreement, art. 1.5.

¹²⁸ This is unlike the SPS Agreement, which does not offer best practice guidelines for standards development.

¹²⁹ Appellate Body Report, United States – Measures Affecting the Production and Sale of Clove Cigarettes [hereinafter US – Clove Cigarettes], WTO Doc. WT/DS406/AB/R (Apr. 4, 2012), para 96.

¹³⁰ Wijkstrom & McDaniels, *International Standards and the WTO TBT Agreement* (2013), at 4.

¹³¹ TBT Agreement, art.2.1.

¹³² TBT Agreement, art. 2.2; for the definition of necessity under Article 2.2, see Appellate Body Report, US – Certain Country of Origin Labelling (COOL) Requirements [hereinafter US- COOL] WTO Doc. WT/DS384/ARB, WT/DS386/ARB (June 29, 2012), paras 374 – 379.

¹³³ TBT Agreement, Article 2.3.

¹³⁴ Except when those are ineffective to achieve the legitimate objective. According to Howse, this requirement should be understood in terms of reasonableness, meaning that there must be a reasonable relationship between the international standard and the domestic regulation, see Robert Howse, *A New Device for Creating International Legal Normativity: The WTO Technical Barriers to Trade Agreement and “International Standards*, in *CONSTITUTIONALISM, MULTILEVEL TRADE GOVERNANCE AND INTERNATIONAL ECONOMIC LAW* 383 (Christian Joerges & Ernst-Ulrich Petersmann eds., 2011). Note however that the notion of reasonable relationship was been rejected by the Appellate Body in Appellate Body Report, European Communities – Trade Description of Sardines, WT/DS231/AB/R (Sep. 26, 2002) [hereinafter EC – Sardines], paras. 247-248.

¹³⁵ EC-Sardines, para 245. The burden of proof in this case lies on complainant(s).

¹³⁶ TBT Agreement, Annex 1.1 and 1.2.

¹³⁷ TBT Agreement, Annex 1.4.

relevant international standards enjoy a rebutted presumption of not impeding international trade.¹³⁸

It is the Appellate Body's interpretation of the term "relevant international standard" that added a sense of confusion to the global trade community. Drawing upon the definitions of Annex 1 and earlier case law,¹³⁹ the Appellate Body held in *US –Tuna II* that even when not based on consensus (as required in Annex 1.2), *international* standards still fall under the scope of Article 2.4 TBT.¹⁴⁰ Such reasoning of the Appellate Body is unsettling not only due to its departure from entrenched consensus-based nature of standards, but also because it opens avenues for those organizations whose standards are not widely used, to be considered as relevant standards bodies,¹⁴¹ aggravating concerns of legitimacy of international standards regimes.

Likewise, the Appellate Body in *US-Tuna II* confirmed that whether or not a measure can be classified as a "relevant international standard" to a great extent depends on its drafting process:¹⁴² more specifically, "international standards" are those standards that are crafted in SSOs with "recognized standardization activities."¹⁴³ To that end, it referred to the TBT Committee Decision¹⁴⁴ as to a tool for interpretation and application of the TBT Agreement to international standards.¹⁴⁵ It should be mentioned at this point that while the Committee Decisions was fueled by the *lacunae* of the TBT Agreement and concerns of standards' effectiveness and relevance for the global trade development, which were frequently raised at TBT Committee meetings,¹⁴⁶ it is also believed to be largely driven by the US a counterweight to the alleged domination of the EU in international standardization time.¹⁴⁷ The six procedural principles for international standards development set forth by the Committee Decision (transparency, openness, impartiality and consensus, effectiveness and relevance, coherence

¹³⁸ TBT Agreement, art. 2.5; note that the wording is different from 2.4: "in accordance" instead of "as a basis."

¹³⁹ EC-Sardines extended the scope of the TBT Agreement beyond standards crafted in ISO and IEC, but nevertheless referred to the ISO/IEC Guide 2 for the definition of a standard, *EC-Sardines*, paras. 219 – 233, and 255.

¹⁴⁰ Appellate Body Report, United States – Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products, WTO Doc. WT/DS381/AB/R (June 13, 2012) [hereinafter *US – Tuna II*], para 353; in this regard, see also TBT Agreement, Annex 1.2, explanatory note.

¹⁴¹ *US-Tuna II*, para 360; see also Howse, *A New Device for Creating International Legal Normativity* (2011).

¹⁴² Which was first stated in *EC-Sardines*.

¹⁴³ *US-Tuna II*, para 376.

¹⁴⁴ Committee on Technical Barriers to Trade, Second Triennial Review of the Operation and Implementation of the Agreement on Technical Barriers to Trade, Annex 4: Decision on Principles for the Development of International Standards, Guides and Recommendations with Relation to Articles 2, 5 and Annex 3 of the TBT Agreement, WTO Doc. G/TBT/9 (Nov 13, 2000) [hereinafter TBT Committee Decision].

¹⁴⁵ As pursuant to the Vienna Convention of the Laws of the Treaty, art. 31(3)(a).

¹⁴⁶ E.g. Committee on Technical Barriers to Trade, First Triennial Review of the Operation and Implementation of the Agreement on Technical Barriers to Trade, WTO Doc. G/TBT/5 (Nov. 19, 1997).

¹⁴⁷ Panagiotis Delimatsis, *Global Standard-Setting 2.0: How the WTO Spotlights ISO and Impacts the Transnational Standard-Setting Process*, 28 DUKE J. COMP. & INT'L L. 273 (2018), at 284. It should be noted that the Decision did not eliminate frictions between the US, the WTO Secretariat and other Members; see, for instance, the letter of 23 June 2006 from the US Permanent Mission to the WTO to Director-General Singh expressing concerns of the broad interpretation of the term "standard" and the lack of identification of standard-setting bodies in the TBT Agreement.

and develop dimension) are widely implemented in national legal requirements and operational frameworks of SSOs.¹⁴⁸

Next to the Committee Decision, procedural framework for standards development is provided by Code of Good Practice of the TBT Agreement,¹⁴⁹ that applies to (non)-governmental bodies within the territory of WTO Members.¹⁵⁰ Requirements introduced by Code of Good Practice to be followed by SSOs somewhat mirror TBT provisions addressing WTO Members: for instance, SSOs should arrange for their activities to be in line with MFN and national treatment principles,¹⁵¹ and for their standards not to result in unnecessary trade barriers¹⁵² and to be based on international standards, unless those are ineffective or inappropriate.¹⁵³

It is for WTO Members to ensure that their central standardization bodies accept the Code of Good Practice and comply with its provisions¹⁵⁴ - even when SSOs have not accepted the Code - which is a prerequisite for SSOs to act in conformity with TBT.¹⁵⁵ With regard to regional, local, but also non-governmental standardizing bodies within their territories, Members are required to take *reasonable measures* to ensure acceptance and compliance of these bodies with the provisions of the Code of Good Practice.¹⁵⁶ Yet, no Member has hitherto notified the acceptance of the Code of Good Practice by a non-governmental body within its territory, or explained any “reasonable measures” it has taken to ensure that these bodies fulfil the requirements of Article 4.1 and Annex 3 of the TBT Agreement.¹⁵⁷ At the same time, Article 4.1 TBT stipulates that Members’ obligation to monitor SSOs’ compliance with the Code of Good Practice applies regardless whether or not these bodies have actually accepted the Code.

2. The US

As noted earlier,¹⁵⁸ Standardization framework of the US is largely based on decentralization and public-private partnership, where standards development activities are delegated to industry-driven bodies. Circular A-119, enacted by the Office of Management and Budget (OMB) in 1982,¹⁵⁹ [hereinafter: OMB Circular], encouraged private sector to develop voluntary standards, and instructed federal governments to incorporate the reference to private

¹⁴⁸ E.g. EU Regulation 1025/2012, Rec. 2.

¹⁴⁹ TBT Agreement, Annex 3.

¹⁵⁰ In contrast to the TBT Committee Decision that applies to international standards bodies.

¹⁵¹ TBT Agreement, Annex 3(D).

¹⁵² TBT Agreement, Annex 3(E).

¹⁵³ TBT Agreement, Annex 3(F).

¹⁵⁴ TBT Agreement, art. 4.1 and Annex 3 (B).

¹⁵⁵ TBT Agreement, Article 4.2.

¹⁵⁶ TBT Agreement, art. 4.1 and Annex 3(B).

¹⁵⁷ Vera Thorstensen et al., *Private Standards – Implications for Trade, Development and Governance*, E15 Initiative on Regulatory Systems Coherence (2015) < <http://e15initiative.org/wp-content/uploads/2015/07/E15-Regulatory-Thorstensen-et-al.-final.pdf>>, at 2. The only exception is CalConnect, a US-based consortium that accepted the Code in December 2018 < <https://www.calconnect.org/news/2019/01/21/calconnect-now-listed-official-international-standards-body-wto>> < <https://tbtcode.iso.org/sites/wto-tbt/contents/json/185.html> >

¹⁵⁸ See section II.B.

¹⁵⁹ OMB, Circular No. A-119, *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities* (revised version, Feb. 10, 1998).

standards into legislative documents.¹⁶⁰ Since the original Circular provided little guidance as to how the standards should be implemented,¹⁶¹ it was practically ignored until 1995, when the National Institute of Standards and Technology (NIST) of the Department of Commerce gained control over standardization and conformity assessment policy and mandated agencies to use voluntary consensus standards developed by private organizations *in lieu* of governmental standards to achieve their policy objectives.¹⁶²

While implementing the provisions of the US National Technology Transfer and Advancement Act of 1995 (hereinafter:NTTAA) and the related executive orders of the US Government,¹⁶³ the updated OMB Circular clarified the role of federal agencies in US standardization activities, addressing the issue of national implementation of private voluntary schemes. Additional guidance was offered by the revision in 2016 and addressed, among other things, agencies' participation in private standards development activities as well as factors that should be considered by agencies when referencing a standard in regulation,¹⁶⁴ such as effectiveness and suitability of that standard for agency's needs, the extent to which it falls under the definition of voluntary consensus standard and whether it is "reasonably available." The last-mentioned factor generated a wide-ranging discussion during the revision of the OMB Circular, which prompt a number of questions concerning standards' accessibility in a non-regulatory context, availability for "the class of persons affected" and the necessity of a "freely available, non-technical summary."¹⁶⁵

Although the definition of "reasonable availability" falls outside the purview of the OMB Circular and is a matter of the Office of the Federal Register (OFR),¹⁶⁶ OMB nevertheless clarified certain factors that can assist agencies (but should not be necessarily followed by them) in determining whether a standard is indeed reasonably available to interested parties, including: accessibility of a read-only version of a standard during the comment period; costs associated with the access to a standard and incorporated materials; the degree to which such access is required to achieve agency's policy goals; and availability of a summary explaining the content of a standard to those lacking relevant technical expertise.¹⁶⁷ Remarkably, the issue of standards' copyright did not play a significant role in deliberations on standards' availability.

Industry-driven SSOs gain formal recognition when accredited by the American National Standards Institute (ANSI). Being the only national body of the US that signed the TBT Code

¹⁶⁰ *Id.*

¹⁶¹ Schepel, *THE CONSTITUTION OF PRIVATE GOVERNANCE* (2005), note 49 at 88.

¹⁶² US National Technology Transfer and Advancement Act of 1995, Public Law 103-13, 110 STAT. 775 (1996) [hereinafter NTTAA], Sec. 2 (1) and Sec.11.

¹⁶³ Those were adopted after 1998 revision of the Circular: Exec. Order No. 13563, 76 Fed. Reg. 3821 (Jan. 18, 2011); Exec. Order 13609, 77 Fed. Reg. 26413 (May 24, 2012) and Exec. Order No. 13610, 81 Fed. Reg. 4213 (May 2, 2010).

¹⁶⁴ OMB, Circular A-119, *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*, (revised version, Jan. 27, 2016).

¹⁶⁵ This is a "reasonably available" requirement of the Freedom of Information Act (FOIA), 5 U.S.C. Sect. 552 (a) (1), as amended by Public Law No. 104-231, 110 Stat. 3048.

¹⁶⁶ U.S.C. §552(a)(1). The statutory obligation of OFR on reasonable availability is balanced with U.S. copyright law, U.S. international trade obligations, and agencies' ability to substantively regulate under their authorizing statutes, see 79 Fed. Reg. 66267.

¹⁶⁷ OMB, Circular A-119, para 5(f).

The US Federal Agencies have often acknowledged potential antitrust risks stemming from coordinated standards development.¹⁷² But although R&D activities have traditionally benefited from the “rule of reason” treatment under National Cooperative Research and Production Act of 1993 (NCRPA)¹⁷³ and were only found illegal when “their effect is to unreasonably trade restrictive,”¹⁷⁴ separate provisions addressing antitrust liability of private voluntary SSOs did not exist until 2004, when Standards Development Organizations Advancement Act of 2004 (SDOAA)¹⁷⁵ extended the protection of US antitrust laws to SSOs by expanding the scope of the rule of reason to private standards development organizations.¹⁷⁶

¹⁶⁸ See WTO, *List of Standardizing Bodies that have accepted the Code of Good Practice*. <
[https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Language=ENGLISH&SourcePage=FE_B_009
 &Context=Script&DataSource=Cat&Query=\(\(%40Symbol%3DGG%2FTBT*\)+AND+\(%40Title%3Dlist+AND+
 %40Title%3Dstandard*+AND+%40Title%3Dbodi*\)\)&DisplayContext=popup&languageUIChanged=true#](https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Language=ENGLISH&SourcePage=FE_B_009&Context=Script&DataSource=Cat&Query=((%40Symbol%3DGG%2FTBT*)+AND+(%40Title%3Dlist+AND+%40Title%3Dstandard*+AND+%40Title%3Dbodi*))&DisplayContext=popup&languageUIChanged=true#) >

¹⁷⁰ ANSI Essential Requirements, Sec 1.0 and 2.0.

¹⁷² See Asst. Att. Gen. Antitrust Div., U.S. Dept. Justice, Renate Hesse US Department of Justice, Antitrust Division, Can There Be a "One-World Approach" to Competition Law? - Remarks at the Chatham House Conference on Globalization of Competition Policy (June 23, 2016), <<https://www.justice.gov/opa/speech/principal-deputy-assistant-attorney-general-renata-b-hesse-delivers-remarks-chatham-house>> (on the near unanimity around the world about the importance of discovering and prosecuting cartels).

¹⁷⁴ The agreements on market sharing or price fixing are considered *per se* illegal; other agreements which may be covered by Sherman act, must be analyzed under the rule of reason, see *Addyston Pipe and Steel Co. v. United States*, 175 U.S. 211 [1899].

¹⁷⁶ Standards Development Organization Advancement Act of 2004 (2004), Public Law 108 – 237, 188 Stat. 661 (2002) [hereinafter SDOAA 2004], sec. 102 (8). In practice, however, SSOs were using the NCPRA even before the amendment since the definition of “research” was very wide and could cover activities of SSOs, Lundqvist, *STANDARDIZATION UNDER EU COMPETITION RULES AND US ANTITRUST LAWS* (2014), at 151.

Electronic copy available at: <https://ssrn.com/abstract=3400838>

long as the agents have acted under the “apparent authority” of the organization.¹⁷⁸ SDOAA 2004 further implements the requirements of the OMB Circular and, similar to ANSI, introduces a set of procedural principles SSOs have to comply with to fall within the scope of the SDOAA and hence, to benefit from the rule of reason treatment.¹⁷⁹ It also addresses matters related to the inclusion of proprietary technology in private voluntary standards, such as patent disclosure and proposed licensing terms by patents-holders.

In the course of time, several SSOs’ were subjected to scrutiny against antitrust provisions. In *Allied Tube*,¹⁸⁰ the Federal District Court stated that private standard-setting programs should be based on the merits of objective expert judgement and follow procedures that prevent standard-setting processes from being biased by members with economic interests in stifling competition. Remarkably, the Court also held that “statutory adoption of private standard does not determine whether that private entity’s conduct is immune from the antitrust laws.”

But the conduct of an SSO was found not to violate the applicable antitrust provisions on a different occasion. For instance, when the Open Software Foundation (OSF), an SSO entrusted with developing of an alternative UNIX operating system (OFT-1), did not select an expensive and complex software offered by a security software developer Adamaxx to be included in the standard, both the District Court and the Circuit Court agreed that under the rule of reason and on the facts, Adamaxx’s loss was not caused by the conduct of the SSO; hence the OSF was not found to be excluding competitors and creating monopsony.¹⁸¹ In the Golden Bridge saga, lawsuits were filed against members of the 3GPP who allegedly restricted the 3G standard in such way that the essential technology of the plaintiff could not anymore be included in the standard, which resulted in lost revenues due to the delisting of SEPs.¹⁸² Despite the submitted evidence of members’ discussions outside the Technical Committees, the District Court did not establish any conspiracy. On a side note, large number of technologies that were claimed “essential” for the 3G standards is often suggested as the reason underlying Court’s verdict in Golden Bridge.

3. The EU

Unlike the US, the EU maintains a centralized standardization system. From the outset, technical standards were specified in the patchwork of Directives, whose complexity and ineffectiveness, together with political challenges to achieve consensus among Member States, impeded technical harmonization.¹⁸³ Meanwhile, the European markets maintained balkanized by national standards and regulations, which posed major obstacles for intercommunity trade and precluded the completion of Internal Market.

¹⁷⁸ *ASME v. Hydrolevel*, 456 U.S. 556.

¹⁷⁹ SDOAA 2004, Sec 102 (5).

¹⁸⁰ *Allied Tube v. Indian Head, Inc.* 486 U.S. 492 [1988].

¹⁸¹ *Adamaxx Cor v. Open Software Found.*, 152 F.3d 48 (1st Cir. 1998).

¹⁸² *Golden Bridge Technology v Motorola Inc.*, 547 F.3d 266 (5th Cir. 2008).

¹⁸³ Schepel, *THE CONSTITUTION OF PRIVATE GOVERNANCE* (2005), at 63; Jacques Pelkmans, *New Approach to Technical Harmonization and Standardization*, XXV J. COMMON MARK. STUD. 3, 249 (1987), at 251.

The response to these inadequacies followed in 1985 with the introduction of the “New Approach,” which aimed to accelerate technical harmonization at the Council level while offering sufficient flexibility for the industry. Akin to the US, the new EU policy provided a regime of co-regulation between European and national regulatory institutions and private technical bodies, whereby private standards are used to support EU legislation and policy goals. From that moment onwards, European Directives merely cover general requirements, such as health, safety and protection of consumers or environment, and technical standards that *can* be used to comply with these requirements are established by the three private European Standardization Organizations (ESOs): CEN, CENELEC and ETSI.¹⁸⁴ Member States can participate in these ESOs through their National Standards Organizations (NSOs) which they are obliged to notify to the Commission; this, however does not require an adoption of a national legal act explicitly recognizing those bodies as NSOs.¹⁸⁵

Standards development, administration and other related activities of the ESOs (and, occasionally, NSOs) are co-financed by the European Union.¹⁸⁶ Funding becomes especially relevant when it comes to the issue of accessibility and availability of standards. From the three ESOs, only ETSI puts its standards in public domain, since its members are prepared to pay higher membership dues to compensate for the “loss of income” from standards’ selling; such financial model would not work for CEN and CENELEC, where different standardization activities are run by different types of members.

Where US federal agencies are merely encouraged to take part in private standards development, the European Commission is empowered to request development of European standardization deliverables and to determine content requirements of these documents.¹⁸⁷ For manufacturers, compliance with such mandated standards grants products a “free movement pass” and allows their unrestricted circulation in all Member States. References to harmonized European standards mandated by the European Commission (ENs) are published in the OJEU.¹⁸⁸ Except where objections to harmonized standards can be raised under a different EU act, the Regulation allows Member States and the European Parliament to initiate a formal objections procedure, under which the Commission may decide, upon consultations with experts, whether to publish or maintain a harmonized standard.¹⁸⁹ Recently, a formal objection against EN ISO 19085-3:2017 proposing safety requirements for woodworking machines was raised by Germany who stated that publication of the standard in the OJEU should be accompanied by a declaration that compliance with the standard at issue does not result in a

¹⁸⁴ For the list of New Approach Directives and Regulations see <<http://www.newapproach.org/Directives/DirectiveList.asp>>; for the list of harmonized standards, see <https://ec.europa.eu/growth/single-market/european-standards/harmonised-standards_en>.

¹⁸⁵ EU Regulation 1025/2012, rec. 15.

¹⁸⁶ EU Regulation 1025/2012, art. 15 and 16.

¹⁸⁷ EU Regulation 1025/2012, art.10 and rec 14.

¹⁸⁸ EU Regulation 1025/2012, art.10 (6). Note that under the old approach, publication was merely informative.

¹⁸⁹ EU Regulation 1025/2012, art.11.

presumption of conformity with the essential health and safety requirements of the EU Machinery Directive (2006/42/EC).¹⁹⁰

Similarly to the US, the EU legislation addresses antitrust concerns related to the work of SSOs. Economic advantages of standardization agreements are recognized under the guidelines for horizontal cooperation agreements (“Guidelines”),¹⁹¹ adopted in 2001 and updated in 2011 to a document that is less formalistic and more dynamic. The Guidelines provide that standardization agreements that do not restrict competition by object by having the risk of creating market power, would *normally* fall outside the scope of 101(1), as long as they comply with the four cumulative conditions of the ‘safe harbor’ of the Guidelines: “where participation in standard-setting is unrestricted and the procedure for adopting the standard in question is transparent, standardization agreements which contain no obligation to comply with the standard and provide access to the standard on fair, reasonable and non-discriminatory terms will normally not restrict competition within the meaning of Article 101(1).”¹⁹²

Since the Guidelines do not identify a specific threshold to assess the market power, the *safe harbor* is not based on market share.¹⁹³ However, the Guidelines specify that the failure to fulfil the conditions of *safe harbor* do not directly lead a presumption of anticompetitive conduct:¹⁹⁴ an effect-based assessment is required to establish whether the agreement at issue falls under 101(1) TFEU, and whether it can be “saved” by the 101(3).¹⁹⁵ Furthermore, as it may be reasonably expected, the Guidelines prohibit to use standards development in a discriminatory manner or as a tool for exclusion of actual or potential competitors:¹⁹⁶ these types of abusive agreements do not benefit from the safe harbor and should be dealt with under the Article 101(3) TFEU.

The principles of the *safe harbor* were tested by the CJEU in *EMC Development*,¹⁹⁷ where the Court accepted the possibility to scrutinize CEN’s processes against the procedural requirements of the EU Horizontal Guidelines, intentionally bypassing the analyses on alleged cartelization.¹⁹⁸ Accordingly, it is only the process of drafting a standardization agreement, not its effects, which were subject to scrutiny under competition law. This case illustrates that standards crafted within European standards body could be potentially addressed under the 101

¹⁹⁰ European Commission, DG for Internal Market, Industry Entrepreneurship and SMEs, A notification under Article 12 of Regulation (EU) No 1025/2012 (Jan. 16, 2018).

¹⁹¹ European Commission, *Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements* C 11/1 [2011] [hereinafter Horizontal Guidelines].

¹⁹² European Commission, *Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements* C 11/1 [2011] [hereinafter Horizontal Guidelines] para 280.

¹⁹³ Frank Wijckmans and Filip Tuytschaevers, VERTICAL AGREEMENTS IN EU COMPETITION LAW (2nd edition 2011), at 420.

¹⁹⁴ Horizontal Guidelines, para 279.

¹⁹⁵ Horizontal Guidelines, para 273; see also Damien Geradin, *The European Commission Policy towards the Licensing of Standard-Essential Patents: Where Do We Stand?* 9 JCLE 4, 1126 (2013), at 1135.

¹⁹⁶ Horizontal Guidelines, para 273. In other words, the Guidelines prohibit so-called “fraud” standardization agreements, Lundqvist, STANDARDIZATION UNDER EU COMPETITION RULES AND US ANTITRUST LAWS (2014), at 199.

¹⁹⁷ Case C-367/10 P, *EMC Development AB v European Commission*, ECLI:EU:C:2011:203 [hereinafter *EMC Development*].

¹⁹⁸ *EMC Development* [2010], ¶¶ 94 – 104.

(1), despite that the earlier case law found CEN to be an ESO entrusted with general economic interest.¹⁹⁹

B. GOVERNANCE PRINCIPLES AND PROCEDURAL SAFEGUARDS IN STANDARDIZATION

1. Decoding procedural principles for standards development

a) Transparency

Perhaps one of the most common principles encountered in applicable regulatory frameworks is the principle of transparency. In a transnational setting, transparency is used as a tool to provide stakeholders with a grip on accountability and is essential for the functioning of a multi-stakeholder organization.²⁰⁰ Being one of the main facets of administrative law, transparency is realized by providing timely access to the relevant information,²⁰¹ such as decisions of an organization and its committees and resources that underpin them.²⁰²

In the multilateral trading system, transparency facilitates harmonization and coherence of technical requirements across the WTO Members. The general provision on transparency in standardization activities, namely Article 2.9 TBT Agreement, is implemented by the TBT Committee Decision, which in turn specifies steps to be taken by SSOs to achieve greater transparency, such as publishing of work programs,²⁰³ notifying standardization activities, allowing access to the relevant information *at least* to the interested parties and providing opportunities to comment on standards' drafts.²⁰⁴ The Code of Good Practice clarifies that a copy of a draft standard should be provided in a non-discriminatory manner to any interested party requesting it,²⁰⁵ and that an "adequate period of time" for submitting comments amounts to at least 60 days.²⁰⁶ When publishing their working programs or (draft) standards, SSOs should also consider technical means available in different countries.²⁰⁷ In recent years, a number of steps have been taken by the TBT Committee to facilitate Members' implementation of the principle of transparency: examples include TBT Notification Submission System (TBT NSS), exchanging regional experiences and improving the functioning of TBT enquiry points.

¹⁹⁹ Case T-4/92, Evangelos Vardakas v Commission, 1993, E.C.R. II-359, ¶47.

²⁰⁰ See Böstrom & Tamm Hallström, *Global Multi-Stakeholder Standard Setters* (2013).

²⁰¹ Monica Blagescu & Rober Lloyd, *Accountability of Transnational Actors: Is There Scope for Cross-Sector Principles?* in NON-STATE ACTORS AS STANDARD SETTERS 270 (Anne Peters et al., eds., 2009) at 278.

²⁰² *Id.*; Elizabeth Fisher, *Transparency and Administrative Law: A Critical Evolution*, 63 CLP 1, 272 (2010) at 272.

²⁰³ TBT Agreement, Annex 3(J). The 7th Triennial Review elaborates on this requirement, see Committee on Technical Barriers to Trade, Seventh Triennial Review of the Operation and Implementation of the Agreement on Technical Barriers to Trade Under Article 15.4, WTO Doc. G/TBT/37 (Nov. 6, 2015), para 4.

²⁰⁴ TBT Committee Decision, Annex 4, para B (4).

²⁰⁵ TBT Agreement, Annex 3(M) and (P).

²⁰⁶ TBT Agreement, Annex 3(L).

²⁰⁷ TBT Committee Decision, Annex 4, para B (3).

In the US regulatory framework, transparency applies both to federal agencies, which should announce their participation in standardization activities related to the issues of national priority or (international) regulation,²⁰⁸ and to SSOs, which should notify their work on current and new standards and make written procedures available to all stakeholders.²⁰⁹ In a similar vein, requirements to notify all parties affected by the particular standardization activity and to allow access to information are laid down in the SDOAA 2004.²¹⁰ Other elements of transparency are encapsulated in the ANSI's principle of "openness" and include providing information on parties' affiliation and notifying stakeholders of particular development activities.²¹¹

Transparency also sits at the center of procedural requirements stipulated by the EU. Horizontal Guidelines mention that standardization platforms should implement procedures informing stakeholders in "good time" of on-going, finalized, and future standardization work at each stage of standards development.²¹² Similarly to the TBT framework, where the role of "notifications hub" is entrusted to the ISO and the WTO TBT facility, Regulation 1025/2012 provides that notifications of NSOs and informal SSOs whose standards may be used by the Commission for procurement purposes should be submitted to the ESOs.²¹³ Yet, where Regulation 1025/2012 obliges SSOs to make their work programs publicly available,²¹⁴ TBT Committee Decision does not speak in terms of "public availability", but rather, "easy accessibility" of information regarding SSOs' current work programs.

In practice, however, transparency is not always present in SSOs. Especially industry consortia appear to score low on transparency, since most of them prefer to remain a closed group of technical experts and not to publish information relevant to their ongoing and future standards development. For instance, SSOs as VXI bus and the Open Geospatial Consortium, while providing information on their recent products or sometimes even putting their standards into public domain, do not publish their work program, which is required under the notion of transparency. This fact has also been indicated as preventing effective communication and – sometimes necessary – information exchange among standardization platforms.²¹⁵

It should be considered, however, that many standards developed by consortia and informal interest groups may be endorsed through fast-track processes of formal SSOs; in some cases, this would mean that a technical document is directly submitted for the (final) approval, depriving interested stakeholders of opportunities to participate in at the earlier stages of standards development. Although theoretically, the outcome of the standard can still be modified in the review and approval process, comments provided at the final stage of standards development may turn out less efficient: in some SSOs, voting outcomes and negatives

²⁰⁸ OMB, Circular A-119, para 6(e).

²⁰⁹ ANSI Essential Requirements, sec. 1.5, 1.9 and 2.5. Note that the ANSI refers directly to notification requirements and not to the notion of transparency.

²¹⁰ SDOAA 2004, sec 102.

²¹¹ ANSI Essential Requirements, sec. 2.1.

²¹² Horizontal Guidelines, para 282.

²¹³ In practice, that implies that NSOs would need to notify the WTO TBT facility, ISO and ESOs.

²¹⁴ EU Regulation 1025/2012, art. 3.3.

²¹⁵ This appears from a conversation with an industry expert.

comments may be even modified based on further deliberations in order to get the standard through the approval phase.²¹⁶

b) Openness and Participation

Related to transparency is the principle of participation or openness, as it is referred to by some regulatory frameworks. Participation is believed to facilitate effective policy shaping by providing possibilities to consult stakeholders at the early stage of rule-making and to exchange past experiences.²¹⁷ To that end, participation should be meaningful and effective in the sense that it should allow actors to *change* the outcome by approval or acceptance processes.²¹⁸ In SSOs, broad stakeholder engagement results in wide-ranging technical discussion and contributes to standards' adoption by industry.²¹⁹

The TBT Committee Decision provides that open and unrestricted participation should be guaranteed at all levels of standard-setting (namely, proposals of new work items, technical discussions, submission of comments, standards review, voting, standards adoption and dissemination) and policy development.²²⁰ However, the wording of the Decision, requirement to ensure that participation is also meaningful applies only to standards development.

Discussion on whether or not all processes that take place within SSOs should be subjected to openness were also held outside the TBT Committee. In the earlier version of the OMB Circular, the principle of openness was explained as "providing meaningful opportunities to participate *at all stages* of standards development."²²¹ During the revision of the OMB Circular, however, many commenters voiced concerns that the providing participation "at all stages" may burden the work of SSOs while, as a practical matter, this requirement was already implemented by the principle of transparency. Accordingly, the sentence was replaced by "providing meaningful opportunities to participate *on a non-discriminatory basis*."²²² In turn, SDOAA 2004 stipulates that all procedural principles, including openness, should be applied also to all SSOs' standardization activities and "actions relating to the IPR policies."²²³

Openness, equality and meaningful opportunities to express one's position and have it considered are also prongs of participation under the EU standardization scheme. Horizontal Guidelines require SSOs to implement the principle of participation via objective and non-discriminatory distribution of voting rights, in particular as regards to the processes of

²¹⁶ E.g. standards' approval processes of IEEE-SA.

²¹⁷ Harlow, *Global Administrative Law* (2006), at 202.

²¹⁸ Cf. Kate O'Neill, et al., *Actors, Norms, and Impact: Recent International Cooperation Theory and the Influence of the Agent-Structure Debate*, 7 ANNU. REV. POLITICAL SCI. 149 (2004); Andrew Moravcsik, *Is There a 'Democratic Deficit' in World Politics? A Framework for Analysis*, GOV. OPPOS. 336 (2004), (on openness in policy decision-making).

²¹⁹ Cf. Büthe, *Engineering Uncontestedness* (2010), at 11 (on increased legitimacy due to participation of global actors).

²²⁰ TBT Committee Decision, Annex 4, para C (6).

²²¹ Which mirrors the principle of "openness" of the WTO Committee Decision.

²²² OMB, Circular A-119, at 9.

²²³ SDOAA 2004, sec 103 (1) (7).

technology selection.²²⁴ Regulation 1025/2012 requires ESOs to ensure participation of all affected stakeholders, particularly those representing social interests or a particular group,²²⁵ public authorities (also addressed by the OMB Circular)²²⁶ and medium-sized enterprises (SMEs),²²⁷ both at the policy development level and at various stages of standards development (i.e. standardization proposal, technical deliberations, submission of comments and revision processes).²²⁸ This does not imply, however, that stakeholders should be granted voting rights for (all) these standardization phases;²²⁹ (to compare, ANSI states that unreasonable restriction of voting rights precludes participation.)²³⁰ Where ESOs operate on the basis of national delegation, the duty to involve all relevant actors lies upon NSOs.²³¹

It comes as no surprise that both US and EU frameworks address governmental agencies' participation in SSOs: after all, standards may be used for regulatory and policy purposes at both sides of the Atlantic, so keeping governments informed of and engaged in industry activity is advantageous both for the public and private sector. Neither do the restrictions imposed on voting rights seem unreasonable: in a narrow-specialized technical field, increased participation may dissipate the effectiveness of technical processes, cause breakdowns in experts' negotiations²³² or unnecessary prolong technical deliberations, which in turn threatens the effectiveness of a standard. What is astonishing, is that none of the frameworks explain what should be understood under the term "policy development" – even though the TBT Committee Decision and Regulation 1025/2012 accurately define standards development stages. And while SDOAA 2004 seems to limit its scope to SSOs' patent policies, it is unclear whether those are covered by the TBT Committee Decision, especially given the fact that the TBT Agreement is silent on the intellectual property issues related to standards.

In recent past, participation in amendment procedures of SSOs' operational rules was discussed before the ANSI Executive Standards Council (ExSC). The dispute revolved around the updated IPR policy of IEEE Standards Association (IEEE-SA), whose contents and drafting processes received a barrage of criticism.²³³ Among other things, a group of companies owning large patent portfolios and disadvantaged by the new licensing rules argued that the updated IPR Policy was not developed in an open process that considered the views of all affected stakeholders: in other words, the process was believed not to respect ANSI Essential Requirements. Had the ExSC agreed with complainants' view, IEEE-SA would have been

²²⁴ Horizontal Guidelines, para 281.

²²⁵ EU Regulation 1025/2012, rec. 17 and 24.

²²⁶ OMB Circular A-119, para 6(d).

²²⁷ EU Regulation 1025/2012, art.5, 6, 7 and rec. 2.

²²⁸ EU Regulation 1025/2012, art. 5 (1).

²²⁹ EU Regulation 1025/2012, rec. 23.

²³⁰ ANSI Essential Requirements, sec. 1.1 and 2.1.

²³¹ EU Regulation 1025/2012, art. 6, 7 and rec. 2.

²³² Cf. D. Stasavage, *Open-Door or Closed-Door? Transparency in Domestic and International Bargaining*, 58 INT. ORGAN 667 (2004), at 668 (on transparency in international policy-making).

²³³ E.g. N. Petit, *The IEEE-SA Revised Patent Policy and Its Definition of "Reasonable" Rates: A Transatlantic Antitrust Divide?* 27 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 211 (2017); Nicolo Zingales & Olia Kanevskaia, *The IEEE-SA Patent Policy Update Under the Lens of EU Competition Law*, 12 EUROPEAN COMPETITION JOURNAL 195 (2016); Sidak, *The Antitrust Division's Devaluation of Standard Essential Patents* (2015).

risking its re-accreditation as an ASD, which it obtained upon modifications of its IPR rules.²³⁴ Instead, the ExSC held that the ANSI Essential Requirements do not apply to the development of standard-setting policies, noting that SSOs enjoy the freedom to design their policies the way it pleases them²³⁵ (which, given the relative regulatory freedom of SSOs and their high level of self-regulation, does not seem odd). What is striking, however, is ANSI's apparent inconsistency with approach taken by SDOAA 2004 which, as a matter of fact, perceives actions related to IPR policy as an integral part of an SSO's standardization activities.

c) Consensus, Impartiality and Balance

Next to openness, another entrenched principle that was discussed in the ExSC appeal against IEEE-SA accreditation was the principle of consensus – the cornerstone of private voluntary standardization. As established by the ISO/IEC Guide 2, a document widely used as a reference by national and international standardization bodies and dispute settlements mechanisms,²³⁶ a standard is by definition established by consensus,²³⁷ which the Guide defines as a “general agreement characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments,” but that “does not imply unanimity.”²³⁸

When referring to consensus-based standards, TBT Committee Decision further develops the requirement of meaningful opportunities, emphasizing that standards development processes should not privilege or favor particular interests, and that consensus-procedures should seek to consider the views of all parties concerned and reconcile any conflicting arguments.²³⁹ In this context, all standard development processes should guarantee impartiality.²⁴⁰ The fact the principles of impartiality and consensus are merged into one principle invites an assumption that within the meaning of TBT Committee Decision, consensus only serves as a safeguard of equality during the preparation of standards. In addition, due attention has to be paid to the difference in the wording: whereas impartiality “*should be accorded*”, consensus process “*should seek to take into account the views of all parties*.”²⁴¹

A similar “effort-based” obligation is maintained by ANSI, which calls SSOs to make “...an effort [to resolve] all expressed objections ...”²⁴² and generally prohibits any exclusion and discrimination in standards development. The OMB Circular furthermore requires SSOs to preserve standards development processes that are balanced, provide a meaningful engagement

²³⁴ SSOs typically apply for re-accreditation by ANSI after substantial changes of their operational frameworks.

²³⁵ ANSI Executive Standards Council Summary Decision, (Feb. 25, 2016), on file with the author.

²³⁶ For instance, WTO Dispute Settlement Bodies (DSBs).

²³⁷ ISO/IEC Guide 2, art. 3.2.

²³⁸ ISO/IEC Guide 2, art. 1.7.

²³⁹ TBT Committee Decision, Annex 4, para D (8).

²⁴⁰ TBT Committee Decision, Annex 4, para D (9).

²⁴¹ Compare TBT Committee Decision, Annex 4, para D (8) and (9).

²⁴² E.g. ANSI Essential Requirements, Sec 2.6.

from a broad range of parties and ensure that no single interest should dominate the decision-making.²⁴³ Note that the Circular terminology is rather simplified as opposed to “balance of interests” or “balance of representation” in the earlier versions of the Circular and in the ANSI Essential Requirements, or the SDOAA 2004’s “balance of interests.” In EU law, Regulation 1025/2012 specifies with regard to ICT standards, that impartiality should be viewed in the light of technological development: standards should be neutral and stable and should not impede innovation.²⁴⁴

In short, consensus serves as an overarching requirement and encapsulates a number of other procedural principles rooted in administrative law. Reasoned and justified decisions to restrain the power of stronger parties,²⁴⁵ while balanced stakeholders’ engagement in decision-making processes reduces the changes for a standard to be biased against particular interests.

As discussed earlier, the notion of international standard under the WTO was somewhat complicated by the Appellate Body’s ruling in *US –Tuna II*, which effectively stretched the scope of Article 2.4 TBT Agreement to *international* standards that are not based on consensus.²⁴⁶ Discussions on whether or not an international standard should be based on consensus arose even before the *US-Tuna II* report was adopted: for instance, the US argued that a standard for transportation packaging of lithium batteries established by the International Civil Aviation Organization (ICAO) was not an international standard for the reason that it was adopted by voting, and not consensus, and hence this document should not have been used as a basis for national technical regulations.²⁴⁷ However, since only those national regulations that are based on international standards are presumed compatible with the TBT Agreement,²⁴⁸ the question arises whether SSOs producing international standards become immune to the principles of TBT Committee Decision.²⁴⁹ A different view presented by scholarship suggested that since TBT Committee Decision introduces these principles as a “best effort” requirement, it merely obliges SSOs to establish a consensus-building processes.²⁵⁰ Moreover, each SSO implements requirement of consensus differently: for instance, where IEEE-SA establishes a voting quorum for achieving consensus,²⁵¹ and IETF merely relies on “humming.”

As in case of transparency, informal standardization groups may fall short on impartiality and balance. W3C, which develops standards and specifications for various web technologies, is infamously considered a “benevolent dictatorship” where the Director has the ultimate decision-making power.²⁵² A recent example is the decision to approve Encrypted Media Extensions (EME) recommendation as a W3C Recommendation (read: W3C standard) despite

²⁴³ OMB, Circular A-119, para 2(e)(ii).

²⁴⁴ EU Regulation 1025/2012, Annex II (4) (c).

²⁴⁵ Eyal Benvenisti, *The Interplay Between Actors as Determinant of the Evolution of Administrative Law in International Institutions*, 68 L&CP 319 (2005), at 326.

²⁴⁶ *US-Tuna II*, para 353.

²⁴⁷ Wijkstrom & McDaniels, *International Standards and the WTO TBT Agreement* (2013), at 7.

²⁴⁸ TBT Agreement, art. 2.4.

²⁴⁹ Provided that, according to the reading in *EC-Sardines*, their decision-making is consensus based.

²⁵⁰ Ming Du & Fei Deng, *International Standards as Global Public Goods in the World Trading System*, 43 LIEI 2, 113 (2016), at 134-135.

²⁵¹ IEEE-SA Standards Board Operations Manual (2019), § 5.4.3.3 and 5.4.3.5.

²⁵² See Jorge L. Contreras, *A Tale of Two Layers: Patents, Standardization and the Internet*, DENV. U.L. REV. 853 (2016), footnote 102 at 874-875.

a strong opposition and the fact that the approval vote that marked a strong departure from consensus.²⁵³

Whether or not consensus is always beneficial, let alone feasible, is likely to depend on SSOs' operational field and scope of activities. For example, development of web standards is mostly driven by technical excellence, rather than consensus.²⁵⁴ But even if consensus-building may delay standards development processes, it is still believed to guarantee better outcomes in the long run.²⁵⁵

d) Effectiveness and Relevance

The Appellate Body in *EC-Sardines* held that an international standard should be regarded as ineffective and inappropriate for application when it does not accomplish the legitimate objective pursued ("ineffective") and is not specifically suitable for the fulfilment of those legitimate objectives ("inappropriate").²⁵⁶ Under the TBT Committee Decision, the principles of effectiveness and relevance provide positive and negative obligations for SSOs. Positive obligations imply that standards should respond to regulatory and market needs, be paced to scientific and technological development, and, ideally, be performance based; the latter is echoed in the Code of Good Practice.²⁵⁷ As to negative obligations, standards should not distort the global market, affect fair competition, impede innovation and technological development, or give preference to certain countries' technical requirements.²⁵⁸ The fact that these two principles are merged together again opens avenues for assumptions: for instance, the wording of the TBT Committee Decision may suggest that ineffective standards should be also considered *per se* irrelevant, or that all relevant standards are effective.

To ensure that standards maintain their relevance, the OMB Circular requires agencies to utilize the retrospective periodic review mechanism,²⁵⁹ and urges them to collaborate with SSOs in order to consider updates and alternatives to existing standards.²⁶⁰ Regulation 1025/2012 in turn provides with regard to ICT standards, that those should be of sufficient quality to enable innovation and address market needs.

The striking absence of any further elaboration on efficiency and relevance by US and EU frameworks may be explained by a simple fact that standards which do not respond to the needs of the market and the society are most likely not to be used by the industry or to be endorsed

²⁵³ *W3C Publishes Encrypted Media Extensions (EME) as a W3C Recommendation*, Press release (Sep. 18 2017) <<https://www.w3.org/2017/09/pressrelease-eme-recommendation.html.en>>.

²⁵⁴ In other words, "The Web is, and should be, driven by technical merit, not consensus" Jeffrey Way, *A Brief History of HTML5* (Dec. 6, 2011) <<https://code.tutsplus.com/articles/a-brief-history-of-html5--net-23064>>, quoting Ian Hickson.

²⁵⁵ Simcoe, *Standard Setting Committees: Consensus Governance for Shared Technology Platforms* (2012).

²⁵⁶ *EC-Sardines*, paras. 259 – 29.

²⁵⁷ TBT Committee Decision, Annex 4, para D (11) and TBT Agreement, Annex 3(I).

²⁵⁸ TBT Committee Decision, Annex 4, para D (10) and TBT Agreement, Annex 3(D), (E).

²⁵⁹ Those mechanisms are defined in Exec. Order No. 13563, 76 Fed. Reg. 3821 (Jan. 18, 2011) and Exec. Order No. 13610, 81 Fed. Reg. 4213 (May 2, 2010).

²⁶⁰ OMB, Circular A-119, at 8.

by governmental agencies as policy tools. In fact, deviation from ineffective and irrelevant standards is not prohibited, although it may occur at some costs. Manufacturers that choose not to comply with an EU harmonized standard any use any other means to demonstrate conformity of their products with the essential requirements of the Directives: yet in practice, adherence to European standards appears a preferred option among economic operators,²⁶¹ foremost, as it grants products a “free movement pass” and allows their unrestricted circulation in all Member States. Refusal by a US federal agency to use a particular private voluntary standard must be based on a valid reason, such as standard’s inconsistency with applicable laws.²⁶² The explanation of why an agency decided to deviate from a standard should be submitted in a written statement to the OMB. Likewise, Article 2.4 TBT Agreement permits Members to depart from international standards when those are “ineffective or inappropriate” for the fulfilment of the legitimate objectives pursued by Members’ technical regulation: a lion’s share of trade concerns raised in the TBT Committee deals exactly with Members’ technical regulations deviating from international standards, for instance for the reason of security.

e) Coherence and coordination

Another principle that facilitates development of effective standards is coherence. Coherence ensures optimal allocation of SSOs’ resources, avoids duplications in SSOs’ activities and prevents possible contradiction among standards. To eliminate the existence of conflicting international standards, the TBT Committee Decision emphasizes the importance of coordination and cooperation between relevant international bodies.²⁶³ In a similar vein, SSOs within the territory of one Member shall strive to achieve a “national consensus” on standards they produce.²⁶⁴ ANSI calls upon SSOs to resolve potential conflicts within ANSs (and thus not within SSOs’ areas and scope of work) by the means of coordination and, where possible, harmonization (again, in a context of an “effort”),²⁶⁵ and notes that conflict situations should be resolved in “good faith.”

Coherence is especially crucial in the EU regulatory framework, since EU standardization does not only influence harmonization of technical requirements, but also consistency in EU policy-making. In this regard, coherence in European standardization system is ensured by the so-called “stand still” obligation, which prohibits NSOs to adopt or maintain national standards that contradict their European equivalents.²⁶⁶ In view of standards relevance to the market, Regulation 1025/2012 also supports regular information exchange between NSOs, ESOs and the Commission as tools to ensure coherence of standards across EU members.

²⁶¹ Van Leeuwen, *EUROPEAN STANDARDISATION OF SERVICES AND ITS IMPACT ON PRIVATE LAW* (2017), at 42; Schepel, *The new approach to the New Approach* (2013), at 528.

²⁶² OMB, Circular A-119, para 5.

²⁶³ TBT Committee Decision, Annex 4, para D. Although it might be suggested that the principle of coherence does not refer to standard and standard-setting processes within a single ISB (*see Delimatsis, Global Standard-Setting 2.0*, (2018), at 317), it nevertheless guides the policies and communication of that ISB and might affect its decisions in relationship with other organizations.

²⁶⁴ TBT Agreement, Annex 3(H).

²⁶⁵ ANSI Essential Requirements, sec. 1.4. and 2.4.

²⁶⁶ EU Regulation 1025/2012, art. 3.5 and 3.6.

It goes without saying that coherence is challenging to achieve in SSOs that do not provide for sufficient transparency. In R&D intensive SSOs, coherence is almost an oxymoron: most widely accepted ICT standards were subject to fierce competition from other standardization initiatives in the early stages of their development and were selected by the market due to their technical features, costs or compatibility with other technologies. For instance, 4G Long Term Evolution (LTE) standards developed in the 3rd Generation Partnership Project (3GPP) was almost overthrown by IEEE-driven Worldwide Interoperability for Microwave Access (WiMAX) and the USB technology standardized by the USB Implementers forum won the battle against Firewire, also known as IEEE 1394 High Performance Serial Bus. At the same time, many SSOs and consortia have concluded agreements or maintain liaisons necessary for the minimum coordination among them.²⁶⁷ Outside traditional cooperation mechanisms, effective allocation of SSOs' work is safeguarded by the fact that many companies who hold membership of multiple SSOs would send a fixed group of employees to technical meetings.

f) Appeal/Review

The principles of appeal and review constitute an important part of modern administrative systems and are widely acknowledged in scholarship on transnational regulation and global law.²⁶⁸ Yet, while in domestic administrative law, the right of an individual affected by a decision to have it reviewed by an *independent* tribunal is essential,²⁶⁹ this is not always the case for transnational legal order, where organizations typically maintain their own adjudication or review mechanisms. The reason for that lies in the fact that adjudicatory review of an institution's decision may disrupt interactions among its members and impede its proper societal functioning, since such independent review often lacks knowledge of the specific transaction.²⁷⁰ For SSOs, a distinction should be drawn between the review of a standards content ("substantive review") and of the processes followed for a standards' development and approval ("procedural review").²⁷¹

The principle of appeal/review is observable in all applicable standardization instruments of the US. OMB Circular provides that SSOs should incorporate processes for handling procedural appeals;²⁷² ANSI elaborates that such processes should offer "identifiable, realistic, and readily available appeals mechanism for the impartial handling of procedural appeals regarding any action or inaction,"²⁷³ and that consideration of appeals shall be fair, unbiased

²⁶⁷ To illustrate, see the list of liaisons for IEEE-SA <https://ieee-sa.imeetcentral.com/ieeeliaisons/> (Aug. 2019) and for the ETSI <<https://portal.etsi.org/TBSiteMap/ee/LiaisonOfficers.aspx>>.

²⁶⁸ Errol Meidinger, *Administrative Law of Global Private-Public Regulation: The Case of Forestry*, 17 EJIL 47 (2006), at 79.

²⁶⁹ Kingsbury, et al., *The Emergence of Global Administrative Law* (2005), at 39.

²⁷⁰ Cf. Oliver E. Williamson, *Transaction-Cost Economics: The Governance of Contractual Relations*, 22 J.L. & ECON. 233 (1979), at 256, quoting Justice Rhenquist (on collective bargaining agreements).

²⁷¹ Such distinction is maintained for example within the system of the IEEE, IEEE-SA, IEEE-SA Standards Board Bylaws (Dec.2019)< http://standards.ieee.org/develop/policies/bylaws/sb_bylaws.pdf> [hereinafter Standards Board Bylaws], § 5.2.

²⁷² OMB, Circular A-119, para 2 (e) (iv).

²⁷³ ANSI Essential Requirements, sec. 1.8.

and fully address the concerns expressed;²⁷⁴ SDOAA 2004 stipulates that SSOs should ensure that appeals can be filled by those parties who oppose SSOs' decisions.²⁷⁵ The fact that neither the EU or WTO framework require SSOs to maintain appeal or review processes is quite astonishing, especially given that the TBT Committee Decision was largely driven by the US.²⁷⁶ Under Regulation 1025/2012, technical review is only mentioned in the context of ICT specifications,²⁷⁷ which leaves the door ajar for SSOs to decide whether they should provide appeal and review procedures for the decision-making processes leading to the adoption of a standard. And while such procedures are indeed implemented by the three ESOs,²⁷⁸ the fact that ANSI obliges all SSOs to comply with its Essential Requirement for accreditation purposes encourages all US-based SSOs to introduce appeal and review processes into their operational framework.

g) Access to standards on fair, reasonable and non-discriminatory terms

Availability of standards documents is discussed under the principle of transparency; nevertheless, some standardization frameworks explicitly address access to proprietary elements incorporated into a standard or technical specification. More often than not, the applicable instruments require SSOs to implement a patent policy that is based on (fair), reasonable and non-discriminatory (F/RAND) licensing commitments.²⁷⁹ The Horizontal Guidelines offer a perfect illustration, suggesting that SSOs patent policy should require a commitment from patent-holders to disclose their essential intellectual property and license their technology on FRAND terms.²⁸⁰ OMB Circular clarifies that RAND licensing obligations²⁸¹ extend to "implementers of the standard" and not to the "all interested parties," unlike it was stipulated in its earlier versions. Regulation 1025/2012 explains that the FRAND principle also cover royalty-free licensing requirement.²⁸²

Inclusion and licensing of proprietary technologies into standards is not addressed by the TBT Agreement, although concerns related to intellectual property sometimes arise at TBT Committee meetings. One of such concerns related to intellectual property implemented in China's guidelines for secure IT risk control mechanism in banking sector.²⁸³ Another, and perhaps the most famous example, is the discussion on WLAN Authentication and Privacy Infrastructure (WAPI), a China's homegrown Wi-Fi standard running on a different security

²⁷⁴ ANSI Essential Requirements, sec. 2.8.

²⁷⁵ SDOAA 2004, Sec. 102 (5) (F).

²⁷⁶ See *supra* n 147.

²⁷⁷ EU Regulation 1025/2012, Annex II (4) (a).

²⁷⁸ E.g. European Telecommunications Standards Institute, ETSI Directives : Statutes of the European Telecommunications Standards Institute <https://portal.etsi.org/directives/38_directives_feb_2018.pdf> [hereinafter ETSI Statutes], art. 13.4 and 14.3

²⁷⁹ See Contreras, *An Empirical Study of the Effects of Ex Ante Licensing Disclosure Policies on the Development of Voluntary Technical Standards* (2011).

²⁸⁰ Horizontal Guidelines, para 285.

²⁸¹ Which the Circular explains as "a term of art in the rulemaking context," OMB, Circular A-119, at 9.

²⁸² EU Regulation 1025/2012, Annex II (4) (c).

²⁸³ Committee on Technical Barriers to Trade, Minutes of the Meeting of 18-19 March 2015, WTO Doc. G/TBT/M/65 (May 28, 2015), para 2.2.2.2.

protocol than the standard crafted in 802.11 working group of the IEEE.²⁸⁴ WAPI was developed in a closed procedure, as per applicable Chinese legislation, but embedded a number of proprietary encryption algorithms owned by Chinese companies.²⁸⁵ Upon its approval in May 2003,²⁸⁶ all WLAN devices marketed in China were obliged to comply with WAPI standard, which resulted in a practical nightmare for all foreign equipment vendors: in order to maintain their presence at both global and Chinese markets, wireless devices had to be equipped with technologies reading two sets of WLAN specifications. On top of that, Western companies struggled to get access to essential technologies owned by Chinese firms which lacked any licensing obligations and enjoyed the full freedom of setting royalty rates.²⁸⁷ Fortunately for Western and Japanese exporters, the mandatory nature of WAPI was abandoned by Chinese government, in a part following concerns expressed during the TBT meetings (which, in turn, also related to the fact that China was deviating from the he existing international standards on wireless local area network equipment, the ISO IEC 8802-11, and thus breaching its obligation under Article 2.4 TBT Agreement),²⁸⁸ but also due to ISO's refusal to recognize WAPI as an international standard.²⁸⁹

h) Concerns of developing countries or “weaker parties”

The fact that effective participation of developing countries is encapsulated in a separate principle in the TBT Committee Decision, and not dealt with under the principle of openness akin to US and EU frameworks addressing the involvement of weaker parties, is no accident, given the mandate of the WTO. Under the TBT Committee Decision, this principle consists of both passive and active elements: it prohibits *de facto* exclusion of developing countries,²⁹⁰ and calls upon providing technical assistance for improving their participation – which is echoed in the relevant provisions of the TBT Agreement.²⁹¹

But even when set forth by a specific provision, increased involvement of developing countries may have similar flaws as broad participation in general: Western companies often admit fearing the “race to the bottom” and decrease in quality of international standards as a consequence of active involvement of developing countries in SSOs’ decision-making. On a

²⁸⁴ See Christopher S. Gibson, *Globalization and Technology Standards Game: Balancing Concerns of Protectionism and Intellectual Property in International Standards*, 22 Berkley Tech. L. J. 4, 1403 (2007), at 1435 et seq. (on the WAPI case).

²⁸⁵ *Id.*, at 1424; Committee on Technical Barriers to Trade, *Transitional Review Mechanism in Connection with Paragraph 18 of the Protocol on the Accession of the People's Republic of China: Questions and Comments from Japan to China*, 25-27, WTO Doc. G/TBT/W/270 (Oct. 10, 2006), ¶¶ 25-27.

²⁸⁶ Eventually, transition period was extended and the deadline for mandatory compliance became June 2004.

²⁸⁷ Han-Wei Liu, *International Standards in Flux: a Balkanized ICT Standard-Setting Paradigm and its Implications for the WTO*, 13 JIEL 551 (2014).

²⁸⁸ Committee on Technical Barriers to Trade, Minutes of the Meeting of 7-9 June 2006, WTO Doc. G/TBT/M/39 (Jul. 31, 2006), ¶¶ 64-66. Committee on Technical Barriers to Trade, Minutes of the Meeting of 9 November 2006, WTO Doc. G/TBT/M/40 (Jan. 26, 2007) ¶ 97.

²⁸⁹ Gibson, *Globalization and Technology Standards Game* (2007).

²⁹⁰ It is suggested that this requirement is defined in a negative manner, Delimatsis, *Global Standard-Setting 2.0* (2018), at 318.

²⁹¹ TBT Agreement, Article 12.

positive side of the ledger, participation in global standardization fora provides developing industry with a steep learning curve and in the long run, may eventually facilitate expansion of multilateral trade.

2. Observations on procedural safeguards

The procedural principles for standardization analyzed in this section may set different thresholds for SSOs to demonstrate compliance with particular legal requirements, but to some extent, these principles are also intertwined. Transparency underpins openness, since effective participation is impossible without access to the relevant information; transparency also underpins coherence, allowing SSOs to coordinate their work programs and ensuring efficient allocation of standards development projects; consensus and balanced procedures that allow for the resolution of objections facilitate consent within the industry and thus ensure that standards are relevant, effective and widely accepted. Moreover, by employing vague terms such as “relevant stakeholders,”²⁹² only defined in Horizontal Guidelines as “all *competitors* in the market or markets affected by the standard,”²⁹³ and, even more ambiguous, “good/reasonable time,” which is only clarified in the Code of Good Practice of the TBT, the procedural frameworks provide SSOs with room for maneuver to adjust their governance to specialized technical activities in their operational field.

The resembles of the frameworks may in part be explained by the observation that the procedural principles for international standardization offered by the WTO framework largely stem from Western administrative requirements: after all, the TBT provisions were drafted predominantly by the Western powers.²⁹⁴ To compare, scholarship on transnational and global administrative law often discusses due process in the context of legitimization non-State rule-making:²⁹⁵ procedural requirements then constitute normative elements that address arising legitimacy and accountability concerns of expertise-based governance²⁹⁶ and make regulation more accessible for regulated,²⁹⁷ ensuring that parties’ positions in regulatory bargaining remain balanced.²⁹⁸

Given the abovementioned, the author suggests that applicable procedural principles should be viewed holistically and in the context of the industry field and regulatory environment in which an SSO operate. That said, it should be noted that not all legal instruments discussed in this

²⁹² It has been suggested that what should be understood under “stakeholders” can be business or professional associations, consumer, States, and NGOs, Van Leeuwen, *EUROPEAN STANDARDISATION OF SERVICES AND ITS IMPACT ON PRIVATE Law* (2017), at 19.

²⁹³ Horizontal Guidelines, para 281.

²⁹⁴ Above n 279.

²⁹⁵ See G.P. Callies and M. Renner, ‘Between Law and Social Norms: The Evolution of Global Governance’ 22 *Ratio Juris* 2 (2009) 260.

²⁹⁶ Harlow, *Global Administrative Law* (2006), at 201; Sabino Cassese, *Administrative Law without the State? The Challenge of Global Regulation*, 37 *N.Y.U. INTERNATIONAL LAW AND POLITICS* 663 (2004-2005), at 688.

²⁹⁷ Harlow, *Global Administrative Law* (2006), at 192; Cassese, *Administrative Law without the State?* (2004-2005) at 685.

²⁹⁸ Eyal Benvenisti, *The Interplay Between Actors as Determinant of the Evolution of Administrative Law in International Institutions*, 68 *LAW AND CONTEMPORARY PROBLEMS* 319 (2005), at 325 - 326.

chapter are binding: for instance, the TBT Committee Decision is a “subsequent agreement” between the WTO Members,²⁹⁹ which should be taken into account when interpreting the TBT Agreement,³⁰⁰ and Horizontal Guidelines are considered soft law of the European Commission. Procedural principles for standards development thus merely introduce “best practices” strategies for SSOs to escape antitrust liability, develop standards to be referenced in national regulations, or to benefit from increased legitimacy; at the same time, they may serve as effective tools to ensure that all relevant interests for a particular standardization activity are taken on board.

And yet, some elements related to the current discussions on standardization are strikingly missing from the analyzed legal frameworks. First and foremost is the lack of consideration regarding the copyright of private standards. While some clarity could have been offered by the principle of transparency and the requirement of “reasonable availability” of standards, implemented in the WTO and US frameworks, the threshold for reasonable availability remains opaque. ISO/IEC Guide 2 provides that standards’ *public* (emphasis added) availability is “...presumed to constitute acknowledged rules of technology...”³⁰¹ which may suggest that standards that are not publicly available should not, in principle, be endorsed as industry rules. This does not seem to be the case in the US standardization system, which allows incorporation of standards that are not placed into the public domain. OMB Circular explicitly refused to provide any concrete definition of the “reasonably available” requirement, referring to the OFR, but provided some guidance by mentioning which aspects should be viewed as facilitating such availability, including access to standards’ summary and read-only versions.

The debate on SSO’s governance is also absent: the frameworks do not clarify whether the principles apply to *all* activities of SSOs, or only to technical development of standards. Yet, if the latter is the case, as it was successfully claimed by the IEEE in its appeal before ExSC,³⁰² And if the latter is the case, SSOs may argue to have wider discretion when designing their governance rather than when developing their standards: in theory, a standard can then be drafted following procedures that were developed in opaque and closed processes that did not represent industry consensus.

Ultimately, the question remains whether the procedural principles, as currently formulated, are adequate to ensure the balance of interests in ICT standardization, given their broad interpretation and the regulatory framework they derive from.

V CHALLENGES IN REGULATING AND ENFORCING DUE PROCESS IN THE CURRENT LANDSCAPE OF ICT STANDARDIZATION

Despite significant regulatory autonomy of SSOs, their processes may still be curbed by various legal instruments available under multiple jurisdictions. Yet, to assess their practical value, these procedural instruments should be reviewed in the wider scope of the legal

²⁹⁹ Vienna Convention of the Law of the Treaty, art. Article 31(3) (a).

³⁰⁰ US-Tuna II, ¶¶ 371-372.

³⁰¹ ISO/IEC Guide 2, art. 3.2.1

³⁰² ANSI Executive Standards Council Summary Decision, (Feb. 25, 2016), on file with the author.

frameworks from which they are derived. To that end, section V of this paper evaluates the extent to which each of the studied frameworks apply to the various types of SSOs, and whether procedural scrutiny of SSOs' processes against the principles is attainable under the current standardization landscape.

A. SCOPE OF APPLICATION OF REGULATORY REGIMES TO SSOs

1. WTO law

The scope of TBT Agreement covers (international) standards that are developed by *recognized* bodies. This implies that, first and foremost, the applicable provisions of the Agreements, its Annexes and the Committee Decision will apply to standardization activities of the ISO and the IEC, which TBT implicitly recognizes by referring to the definitions of the ISO/IEC Guide in its Annex 1.³⁰³ By the same token, TBT Agreement covers standards produced by the international bodies listed in Annex A of the SPS Agreement, namely Codex Alimentarius Commission, International Office of Epizootics and International Plant Protection Convention:³⁰⁴ following the reasoning of the Appellate Body in *US-Tuna II*, the fact that those bodies were listed by the SPS Committee which consists of whole WTO membership serves as proof as they have “recognized activities in standardization.”³⁰⁵ Furthermore, TBT provisions are expected to cover standards set by ITU, as this specialized agency of the UN is also likely to enjoy a status of a recognized international standards body.³⁰⁶

It appears that, despite their evident role in multilateral trade, most of the ICT standards, being industry-driven initiatives, still manage to escape the purview of WTO law and are not covered either by the TBT Agreement. It has even been suggested that an implicit governmental endorsement of a private standards body could allow that government to escape its WTO obligations (unless the measure at issue could indeed be attributed to the government, that is).³⁰⁷ And yet, private SSOs fulfil an essential function at world trade arena. In the agricultural sector, for example, private actors are a key player in the development and application of standards for food safety.³⁰⁸ Moreover, compliance with private standards, even when those are not adopted as technical regulations, is often a prerequisite for accessing a large number of developed countries' markets and creates confusion for exporters who already have to comply

³⁰³ Note that unlike the SPS Agreement, TBT does provide an indicative list of standards bodies covered by the Agreement.

³⁰⁴ Agreement on the Application of Sanitary and Phytosanitary Measures, annex 1A WTO Agreement, Ap. 15, 1994, 1867 U.N.T.S. 493, at 71–83 [*supra* SPS], Annex A (3).

³⁰⁵ *US-Tuna II*, ¶¶ 360–363.

³⁰⁶ Although ITU accommodates both governmental members and private parties, the former clearly prevail in their decision-making power, since their contributions are limited to the Sector of their affiliation. International Telecommunications Union, Collection of the Basic texts adopted by the Plenipotentiary Conference, Constitution of the International Telecommunications Union (2015) < <http://search.itu.int/history/HistoryDigitalCollectionDocLibrary/5.21.61.en.100.pdf>>, art. 3.

³⁰⁷ Jan Wouters & Dylan Geraets, Private Food Standards and the World Trade Organization: Some Legal Considerations, 11 *WORLD TRADE REVIEW* 3, 479 (2012), at 485.

³⁰⁸ See Food and Agriculture Organization of the United Nations & World Trade Organization, *Trade and Food Standards* (2017) < https://www.wto.org/english/res_e/booksp_e/tradefoodfaol7_e.pdf >, at 27.

with requirements set by formal standard-setters.³⁰⁹ From a purely procedural perspective, scrutiny of private standards under the principles of TBT Committee Decision is desirable to ensure that these standards are developed in transparent and open manner and that procedural guarantees are afforded at all stages of standards development.³¹⁰

Although concerns regarding the absence of a coherent WTO framework for private standards are regularly expressed by WTO Members,³¹¹ even meagre attempts to outline the basic concepts for private standardization have not been met with a great enthusiasm by the wider WTO community.³¹² Currently, the discussion on private standards and their coverage by WTO law in general, and TBT Agreement in particular, seems to have reached an impasse. On one hand, since the TBT obligations were designed for the Members,³¹³ extending the scope of the TBT Agreement and its principles to private SSOs would inevitably lead to increased governmental involvement in many fields that have traditionally been a matter of the private sector. This may upset the intergovernmental structure of the WTO system and provoke widespread discontent among industry. On the other hand, allowing private standards to avoid WTO scrutiny prompts far thornier questions: is it justifiable that exporters and producers from developing countries, who are typically precluded from participation in private standards bodies, should bear additional compliance costs to access developed markets? Are private standards at odds with the fundamental principles of transparency and non-discrimination? Do private SSOs weaken the roles of governments and international standards development bodies? Does the low degree of openness and inclusiveness in such SSOs undermine the legitimacy of the international trading system?³¹⁴

In this regard, due attention should be paid to standards for technological interoperability and their exposure to the rules of international trade. As such, the WTO does not provide a precise mechanism for addressing technology standardization either in formal SSOs (other than the ISO/IEC/ITU and alike) or in consortia. To fall within the scope of WTO law, a measure should constitute an act of the government, which is rarely the case for wireless telecommunications or Internet specifications, typically developed by industry-driven platforms. Members also seem reluctant to discuss issues related to interoperability standards in the TBT Committee.

³⁰⁹ See Committee on Sanitary and Phytosanitary Measures, *Effects of SPS-related private standards - Compilation of replies*, WTO Doc. G/SPS/GEN/932/Rev. 1 (Dec. 9, 2009).

³¹⁰ Mavroidis & Wolfe, *Private Standards and the WTO: Reclusive No More* (2017), at 21 (on the perils of poor standards development processes).

³¹¹ Committee on Technical Barriers to Trade, *Fifth Triennial Review of the Operation and Implementation of the Agreement on Technical Barriers to Trade under Article 15.4*, WTO Doc. G/TBT/26 (Nov. 13, 2009), ¶ 26. Few years ago, further discussion on private standards in TBT Committee was suggested by China; however, China's proposal to draft a TBT guide on the use of private voluntary standards was actively opposed by the US and the EU, see Committee on Technical Barriers to Trade, Minutes of the Meeting of 15-16 June 2016, WTO Doc. G/TBT/M/69, ¶ 3.2.4.3.2. Previously, Members have also expressed concerns under the SPS Agreement: in particular, Saint Vincent and the Grenadines were concerned that the operation of a EurepGAP scheme in relation to trade in bananas with supermarkets in the United Kingdom was not covered by WTO provisions, see Committee on Sanitary and Phytosanitary Measures, *Private Standards and the SPS Agreement*, WTO Doc. G/SPS/GEN/746 (Jan. 24, 2007).

³¹² Attempts in SPS were not crowned with success, since Members failed to agree even on the definition of a "private standard," Mavroidis & Wolfe, *Private Standards and the WTO: Reclusive No More* (2017), at 12.

³¹³ TBT Agreement, art. 1.

³¹⁴ See generally, Mavroidis & Wolfe, *Private Standards and the WTO: Reclusive No More* (2017); Thorstensen et al., *Private Standards – Implications for Trade, Development and Governance* (2015).

For instance, when US expressed concerns regarding Korea's draft regulation to mandate the standard on Wireless Internet Platform for Interoperability (WIPI), Korea believed that this issue should be raised under the GATS and not the TBT Agreement, since WIPI was "a technical interface standard that governed interconnection among networks of wireless Internet service providers," adding that the notification of the measure under the TBT Agreement was submitted merely for transparency purposes.³¹⁵ But while the GATS and the TRIPS Agreement, which covers issues related to patents, may indeed apply to telecommunications and wireless network standards, they lack procedural framework for standards development offered by the TBT Committee Decision, and hence are ineffective for procedural scrutiny of (private) SSOs.

Does this mean that private and informal SSOs and industry consortia that develop widely applicable standards, completely escape the purview of the WTO? I argue that it is not necessarily the case. Firstly, although WTO agreements indeed target measures adopted by States, they sometimes contain provisions regulating private behavior: a vivid example is the WTO Antidumping Agreement, which allows States to apply measures to foreign firms.³¹⁶ Submitting a private sector activity to the scrutiny under a WTO Agreement is thus not an uncharted area under the WTO *acquis*. Secondly, the TBT Agreement provides for the mechanisms to scrutinize standards development procedures of private SSOs against the Code of Good Practice, as long as Members where such SSOs are incorporated are willing to enforce the Code's provisions; similar reasoning applies to the TBT Committee Decision, which is implemented by many national legal frameworks. Thirdly, arrangements that monitor compliance with the rules of international trade can be negotiated *outside* the WTO framework: suggestions to launch an international forum on private standards that will represent the interests of stakeholders and ensure better cooperation between SSOs, governments and stakeholders, have previously been made by the United Nations Forum on Sustainability Standards (UNFSS).³¹⁷ These arrangements, however, should be sufficiently flexible to preserve the advantages of industry standardization.

While the three suggested avenues may facilitate procedural scrutiny of private SSOs that retain some formal features of "bodies with recognized standardization activities" (i.e. open membership and consensus-based decision-making), it remains uncertain whether these mechanisms will be adequate for scrutinizing informal standardization groups. In this context, standards created by industry consortia may be submitted to the TBT procedural principles once they are endorsed by a recognized SSO. Moreover, compliance with the WTO framework for standardization is expected from US-based SSOs that are accredited by ANSI. These, in turn, may be both formal *and* informal bodies dealing with interoperability of telecommunications networks, standards consumer electronic equipment and design of software: examples include the Alliance for Telecommunications Industry Solutions (ATIS), Consumer Electronics Association (CEA), Dimensional Metrology Standards Consortium

³¹⁵ Committee on Technical Barriers to Trade, *Minutes of the Meeting held on 20 March 2003*, WTO Doc. G/TBT/M/29 (May 19, 2003) ¶¶ 54-55.

³¹⁶ Mavroidis & Wolfe, *Private Standards and the WTO: Reclusive No More* (2017), at 10.

³¹⁷ See World Economic Forum, *What Companies Want from the World Trading System* (2015) <http://www3.weforum.org/docs/WEF_GAC_Trade_II_2015.pdf> at 14 and 15 (on suggestions of UNFSS).

(DMSC), OSEHRA and MedBiquitous.³¹⁸ Hence, by accrediting private SSOs, ANSI does not only recognize their standards as “American National Standards,” but also submits these bodies to the scrutiny of the TBT Committee Decision.

2. US and EU law

The role of the US governmental agencies and the European Commission in private standardization activities cannot be compared to the one of the WTO Secretariat: as such, the WTO does not partake in the meetings of technical experts (what US agencies are encouraged to do), or enjoy a Counsellor or observer status in private SSOs, and nor can it propose standardization projects (which is the Commission’s prerogative in the ESOs). Hence, already by participating in private standardization activity, regulators can be the watchdog of due process in SSOs, albeit they contribute to standards development on an equal footing with other stakeholders.³¹⁹

It can be observed that procedural principles of Regulation 1025/2012 largely apply to the development of harmonized standards by the ESOs and, to a lesser extent, to the activities of NSOs and informal ICT platforms.³²⁰ Since the US regulatory framework does not provide for the establishment of “designated bodies,” it is assumed to cover a wider range of SSOs. As it is the case with the WTO framework, industry consortia will only fall under the procedural principles of OMB Circular and ANSI once they are accredited by the ANSI and their standards can be used as policy-tools. In the EU, informal standardization groups fall outside the scope of Regulation 1025/2012, unless their standards are used by the Commission for procurement purposes.

3. US and EU Antitrust Law

In the US and EU, antitrust provisions governing standardization are not confined to international standards or technical regulations, and hence also apply to industry consortia and informal standard-setting groups. For this reason, SDOAA and Horizontal guidelines may be assumed to cover a broader range of standards and standardization platforms than the TBT Agreement or the applicable US and EU legislation, especially considering that the competition and antitrust provisions can be subject to extraterritorial application and curb anti-competitive conducts outside their jurisdictions.³²¹

³¹⁸ See American National Standards Institute, Accredited Standards Developers (May 2019) <<https://share.ansi.org/>>.

³¹⁹ This was confirmed in a number of conversations with standardization experts; moreover, the opposite does not appear from the legal documents.

³²⁰ See Regulation 1025/2012, Annex II.

³²¹ This appears from the established case law in the EU (Joined Cases 89/85, 104/85, 114/85, 116/85, 117/85 and 125/85 to 129/85, *Ahlström and Others v Commission*, 1988, E.C.R. – 5193); and in the US, *US v Aluminum Co of America*, 148 F.2d 416 (2nd Cir.1945). Moreover, the Sherman Act of 1890 applies to a conduct involving trade or commerce with foreign nations, when that conduct has a direct, substantial and foreseeable effect on trade or commerce in the US, or when a foreign conduct was meant to produce and indeed produced substantial effects in the US territory, *see Hartford Fire Insurance Co v California*. 113 S.Ct. 2891 (1993).

Yet, certain limitations of these frameworks are still at order: for instance, the EC Horizontal Guidelines only apply to those SSOs that can be classified as “undertakings” under EU law. In *Stichting Certificatie Kraanverhuurbedrijf (SCK)*, the CJEU found a Dutch certification institution which obliged the use of cranes and prohibited certified firms to sub-contract their activities to non-certified firm, to be an undertaking. In its reasoning, the Court relied on the fact that SCK carried out an economic activity akin to a private undertaking and, since certification was provided upon the payment, was also seeking profits.³²²

In *SELEX*, the General Court held that Eurocontrol, an international standard-setting body in the field of air traffic management, could not be considered a service provider and should not be considered an “undertaking” within the meaning of EU competition law.³²³ The Court pointed out that the adoption of binding standards by the Council of Eurocontrol,³²⁴ is a “clearly legislative activity (...) which directly concerns the exercise by those States of their powers of public authority”³²⁵ and that the role of Eurocontrol is “akin to that of a minister who, at national level, prepares legislative or regulatory measures which are then adopted by the government.”³²⁶ While the CJEU did not completely agree with the reasoning of the General Court, it confirmed on appeal that Eurocontrol’s technical standardization activities were not an economic activity and hence, fall outside the scope of competition law.³²⁷

The CJEU also scrutinized a Portugal-based association for Charter Accountants that established the system of compulsory trainings.³²⁸ Upon finding that the *Ordem dos Técnicos Oficiais de Contas v Autoridade da Concorrência (OTOC)* held a public service mission and was de facto acting in a relevant market for professional trainings of chartered accountants, the Court held that the rules of OTOC laid down discriminatory conditions to the detriment of its competitors and hence reflected an exclusionary agreement among the members of the organizations in breach of Article 101 TFEU.³²⁹

How does this analysis of procedural frameworks fit into the bigger picture of regulating industry activity? Following the reasoning suggested in this section, SSOs that are not covered by the TBT Agreement will fall within the scope of US and EU regulation or – if those do not apply as well – within the US and EU competition law frameworks, provided that their standards restrict trade or market access in the US or the EU (which should not be difficult to prove considering standards subject to the discussions in this paper are widely applicable). The

³²² Joined Cases T-213/95 and T-18/96, *Stichting Certificatie Kraanverhuurbedrijf (SCK), Federatie van Nederlandse Kraanverhuurbedrijven (FNK) v Commission*, 1997, E.C.R. II- 1739, ¶ 117.

³²³ Case T-155/04, *SELEX Sistemi Integrati SpA v Commission of the European Communities*, 2006, E.C.R. II- 480 [hereinafter *Selex*], ¶ 61.

³²⁴ The Council of Eurocontrol comprised directors of the civil aviation administration of each Member State of the organization, appointed by their respective States for the purpose of adopting technical specifications which will be binding in all those States, see Case T-155/04, *Selex*, ¶ 59.

³²⁵ *Id.*

³²⁶ *Id.*

³²⁷ Case C-113/07, *SELEX Sistemi Integrati SpA v Commission of the European Communities*, 2009, ECLI:EU:C:2009:191 ¶ 96

³²⁸ Case C-1/12 *Ordem dos Técnicos Oficiais de Contas v Autoridade da Concorrência*, 2013, ECLI:EU:C:2013:127 [hereinafter *Ordem dos Técnicos Oficiais de Contas*]. *Ordem dos Técnicos Oficiais de Contas* (OTOC) allowed competing bodies to provide compulsory training but claimed certain courses exclusively.

³²⁹ *Ordem dos Técnicos Oficiais de Contas* ¶ 97.

main flaw of this cascading framework, however, is the inconsistency of thresholds that SSOs should reach under different legal documents to demonstrate compliance with certain procedural requirements.

B. RELEVANCE OF THE PROCEDURAL PRINCIPLES TO ICT STANDARDIZATION

Procedural scrutiny of SSOs' standards development processes against the principles set forth by the applicable legal frameworks is beneficial from the perspective of many actors, in particular, by stakeholders that are not represented in SSOs' technical committee, civil society and policy-makers. If private SSOs are covered by the TBT Agreement, their standards can be submitted to the WTO dispute settlement mechanisms, including consultations between parties and adjudication by WTO Panels and ultimately, by the Appellate Body. Opening avenues to examine private standards under the WTO principles will contribute towards inclusive and transparent national technical regulations and arguably, will clarify the uncertainties created by the *US-Tuna II* regarding consensus-based nature of the standard. In this regard, it can be expected that the WTO Dispute Settlement Body (DSB) will follow the path of the US and EU Courts: rather than engaging in a complex discussion on technical aspects of private standards, Panels or the Appellate Body will examine the processes followed during their standards development. The legal instruments guiding this analysis will be the TBT Committee Decision and the Code of Good Practice.

Herein lies the question, whether the WTO procedural principles formulated in the 90s remain appropriate for contemporary standardization activity. Considering increased digitalization, cross-sectoral cooperation and convergence of different scientific fields in which SSOs operate, the "one approach fits all" -way to scrutinize standards development procedures seems futile and may even have adverse effects on the technical work of an SSO. For instance, the above-mentioned lack of transparency in ICT consortia as a result of their reluctance to reveal their work programs, is in part explained by the intensely competitive environment in which those consortia operate. Unlike formal SSOs, where standards are first drafted in the technical committees and only then introduced to broader industry, consortia-developed standards are put to the market test, and the ultimate choice of the "winning" standard (which then becomes the "de facto" standard) rests upon the industry. The infamous "standards war" between the Betamax and VHS videotape formats in late 70s and early 80s perfectly illustrates competition between informal standardization activities.

As a matter of course, increased transparency as desired by the TBT instruments and the EU Regulation 1025/2012 will, in all likelihood, lessen competitiveness of a consortium. By the same token, greater openness of informal SSOs, although generally welcomed by civil society, is prone to reduce the decision-making speed in an informal industry group, again impairing effectiveness and competitiveness of its standards. That said, consortia, similarly to many formal SSOs, typically have other mechanisms at their disposal to ensure that their standardization activities comply with a minimum of due process requirements of transparency, openness and participation and to ensure that the voice of the relevant stakeholders is heard.

W3C, for instance, makes the charters of its working groups publicly available.³³⁰ Bluetooth SIG provides environment for interoperability testing (IOP) and implements adopters' feedback on technical performance of Bluetooth specifications prior to their official release.

Amid formal SSOs, the IEEE-SA offers the drafts of its standards for a public review process, albeit against a fee for the "public."³³¹ In the ISO and IEC, whose membership is open only to the national committees of UN Members, the interests of certain groups stakeholders are represented by separate organizations. This does not mean, however, that these groups do not face any hurdles: for example, many non-ETSI members representing interests of civil society and consumers have to apply for a liaison status for every ISO/IEC technical committee of its interest. In view of their limited voting rights in working groups and committees, "weaker" stakeholders are compelled to resort to lobbying, which in turn puts into question the independence of SSO members and hence, impartiality and fairness of SSOs' standardization activities.

Transparency within the meaning of the WTO, US and EU procedural frameworks gains in prominence once a standard has already established itself on the market, since it prevents duplication of standardization activities and ensures coherence among the industry. This, however, does not exempt SSOs from ensuring that their procedure is fair and balanced during the earlier stages of standards development: the opposite increases the chance to obstruct industry consensus, since those who disagree with technical features of a standard, or with procedures followed during its development will most likely develop their own normative frameworks. W3C was founded in the early 90s, in part as a response to time-consuming, consensus-based processes of IETF; a decade later, a group of Web browser vendors separated from W3C and founded a new group for web standards, the Web Hypertext Application Technology Working Group (WHATWG), following a disagreement with the W3C on technical and procedural merits.³³² This illustrates that the industry reacts despite being "locked in" by particular standards.

In this context, the WTO procedural principles fail to reflect contemporary aspects of standardization, such as increased importance of private and "informal" standards, inclusion of proprietary solutions in ICT specifications and the need to find a balance between effective and inclusive standardization processes. In contrast, US and EU regulatory regimes, while marginally implementing the six principles of the TBT Committee Decision, provide mechanisms that are more advanced and effective in addressing private standards than those offered under the WTO framework.

In particular, national standardization frameworks are most useful when it comes to disclosure and licensing of SEPs: soft law and jurisprudence on antitrust and unfair licensing practices are well-established on both sides of the Atlantic, as well as in emerging economies such as

³³⁰ E.g. World Wide Web Consortium, *HTML Working Group Charter* <<https://www.w3.org/2007/03/HTML-WG-charter.html>> (Aug. 2018).

³³¹ IEEE-SA Standards Board Operations Manual, ¶ 5.4.5.

³³² The main point of the disagreement was the preference of the W3C community for the XML standard, while members of WHATWG preferred to continue the improvement of HTML.

China and India.³³³ Moreover, in the US standardization system, ANSI's accreditation grants increased legitimacy to SSOs, inciting compliance with its procedural requirements; in turn, procedural enforcement in EU standardization system is centralized and mostly occurs via the national Courts or the CJEU.

This preference towards national frameworks does not mean that the principles encapsulated in their legal instruments should be taken as a proxy for regulation of standardization activities. After all, as it was suggested in the previous sections, none of the frameworks are sufficiently clear nor efficient to encompass contemporary standards development. But even though both US and EU legal frameworks remain incomplete, their institutions appear more suitable to ensure SSOs' compliance with the principles of transparency, openness and consensus than the WTO.

VI CONCLUDING REMARKS

Standardization is one of the most controversial and wide-ranging areas of contemporary rule-making. Despite the existence of a well-established legal framework and a significant body of research, many aspects related to industry regulation by the means of setting technical standards are yet to be explored. Especially when it comes to the balance of interests in complex standards development processes – such as the balance between accessing standards and granting SSOs proprietary rights over their creations, between monetizing patents and building new technologies on existing standards, between ensuring that societal and security interests are taken on board while innovation and technological progress continue to flourish – many issues remain unresolved. And yet, achievement of this balance is crucial, especially in times when standardization becomes global and multidimensional, and when societal concerns arise in sectors that have traditionally been driven by technical considerations, such as the ICT. In this regard, failure to address all relevant interests is likely to create a situation where there will be multiple standards for the same functionality, jeopardizing the global effort to develop universally applicable standards.³³⁴

This paper suggested that safeguarding various interests in standardization process is a complex legal issue which can be addressed, as least in part, by the procedural principles offered by the applicable regulatory regimes. Its further analysis revealed, however, that in case of ICT

³³³ See THE CAMBRIDGE HANDBOOK OF TECHNICAL STANDARDIZATION LAW. COMPETITION, ANTITRUST AND PATENTS 263 *et seq.* (Jorge L. Contreras, ed., 2018) (on FRAND-related disputes around the world).

³³⁴ To illustrate: CDMA2000 and WDCMA, the two competing standards for 3rd Generation (3G) mobile technology, were driven by commercial interests of equipment vendors to monetize their SEPs, which cause inconveniences in standards implementation and fragmentation of the global telecom market. While some services providers used CDMA2000, other preferred WDCMA: since the latter lacked backwards compatibility with the CDMA standards series, manufacturers wishing to implement both standards had to get access to a set of different technologies, resulting in additional costs. Luis Cabral & David Salant, *Evolving technologies and Standards Regulation*, 36 IJIO 48 (2014), at 49. At the time of writing, the future of universal 5G standard is rather uncertain; although the preference of governments and the industry lies in a global solution, with the current debate around Huawei, a situation where multiple regional 5G standards will be created does not seem unlikely, although at this time, remains merely a speculation.

standardization, the current regulatory environment of the WTO, US and EU is not well-equipped to secure the balance of interests, firstly, because the applicable regulatory frameworks do not always apply to this particular type of standardization activity and, secondly, because these frameworks fall short of addressing current concerns related to standard-setting. At the same time, since the procedural principles discussed in this paper represent the “best effort” practices, they offer, at least in theory, a good normative framework and can be curbed to address the issues of copyrighted standard, patent licensing and societal interests in technocratic decision-making. In this regard, the takeaways of the paper should be the following:

First, even if SSOs’ scrutiny against the legal framework is undesirable in a broader context, recourse to these frameworks is necessary in case standards development gravely breaches the law, for instance in case of cartel-forming or human rights violations. These issues can be successfully addressed under US and EU frameworks, which benefit from strong enforcement institutions and established jurisprudence on private standardization. As it stands now, the WTO does not provide for an appropriate forum to resolve private standardization concerns, even when these standards are harmful for a group of WTO Members. Issues related to standards and international trade should be addressed at the national level, for instance, by the ANSI, which also monitors compliance of accredited SSOs with the principles of the TBT Committee Decision.

Second, in the effort to achieve standards’ legitimacy, SSOs need to work together with regulatory agencies and governmental institutions that incorporate their standards, and the roles of regulators and private institutions should be clearly divided. The burden to ensure that standards development processes offer sufficient procedural guarantees rests with SSOs, who enjoy greater autonomy to implement “best effort” principles in the manner which is deemed most beneficial for their particular standardization activity given SSOs’ membership composition, operational field and the nature of their standards. Procedural principles cannot be applied in an identical manner to each and every standardization activity but being familiar with the specifics of their industry sector, SSOs are well-positioned to scrutinize their processes against the procedural principles. In turn, whether a standard is sufficiently legitimate to exert binding obligations should appear from decision-making processes of governmental agencies that incorporate standards into their regulatory documents. In this regard, the relevant questions to ask are: is the agency’s decision unbiased? Did the agency consider alternatives? Were concerns of affected stakeholders sufficiently addressed?

Such approach suggests that “de facto” binding standards are not subjected to the legitimacy check by governments, since they do not become binding by the force of law: recall that under both US and EU frameworks, standards can metamorphize into binding rules only by virtue of a reference in legal documents. This type of standard undergoes a different type of legitimization: once the industry decides that the standard is not fit for purpose, this standard would typically be overthrown by a superior alternative. For a long time, standardization of technologies has entrusted industry with the selection of dominant standards: governmental intervention in this process risks undermining incentives of private actors to compete at “the market for standards” and may therefore disturb the quality of SSOs’ work.

Ultimately, any further discussion on balance of interests in standardization should be carried out in a broader context, taking into account international and national legal provisions on standardization as well as such aspects as the modes of standards' incorporation and SSOs' operational fields. Applying this broader lens separately to each standard will be a challenging task for the Courts. Then, on a positive note, this approach is most likely to produce accurate and sector-specific results and to reduce ambiguities around private ownership of incorporated standards.³³⁵

In this regard, the issue of access to standards, incorporation of societal interests in technocratic-decision making as well as governance of individual SSOs form an agenda for future research in the field of standardization. This academic work, however, should be performed with caution, and reflect the current landscape of technical standardization and the regulatory needs of scientific domains in which particular SSOs operate, rather than attempting to bring the processes of each and every SSO under a single theoretical framework.

³³⁵ Such individual approach was also suggested by the US Court of Appeals for the District Columbia Circuit in *ASTM v. PRO*.