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**REGULATION OF STANDARDS IN TECHNOLOGY MARKETS:  
TRACING CONNECTIONS BETWEEN COMPETITION LAW  
AND INTERNATIONAL TRADE**

Settore scientifico-disciplinare: Diritto dell'Unione europea (IUS/14)

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The present study is the outcome of a three-year doctoral research project investigating regulatory and competition law approaches to standardization in the technology sector. It soon became clear, however, that little is known about technical standardization's implications for global competition policy, innovation and trade. Thus the focus of the research shifted to providing a more systematic account of the intersection between these different legal areas than could be found in the existing literature.

Given my interests in China, while pursuing my PhD, I benefitted from research stays at Shanghai Jiao Tong University (KoGuan Law School), where I am currently enrolled as a S.J.D. candidate, pursuing further comparative research on competition and regulatory law. My research has received funding from the People Programme (Marie Curie Actions) of the European Union's Seventh Framework Programme (FP7/2007-2013) under REA grant agreement no. 318908, acronym of the project: POREEN (2013-2016) entitled "Partnering Opportunities between Europe and China in the Renewable Energies and Environmental Industries", within the results of the Research Team at gLAWcal – Global Law Initiatives for Sustainable Development (United Kingdom).

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## **BIBLIOGRAPHY**

# CHAPTER I

## INTRODUCTION

*“The greatest challenge to any thinker is stating the problem in a way that will allow a solution”*

- Bertrand Russell

### 1. INTRODUCTION

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#### 1. INTRODUCTION

Technical standards represent the backbone of innovation and exert a direct effect on modernization, competition and economic development as a whole. This is even more critical in the context of ICT industry, where the main objectives are interoperability and compatibility of consumer products and processes in markets featuring strong network effects. In particular, hi-tech markets would be unproductive if ICT technologies could not operate across multiple platforms and devices, benefiting consumer welfare and the economy in general. Standards are employed to maximize the efficiency of processes and to found commonalities across companies, market sectors, countries and worldwide.

It is thus widely recognized that standards can foster technology diffusion, innovation and international trade. Indeed, standards are key in virtually every single product we use and process that arranges products for consumption. The global economy is extremely reliant on technical standards that enable interoperability and compatibility. Today, many widespread technologies are created by standards-setting activities and operate successfully thanks to the interaction standards allow.

Standards play three distinguished functions,<sup>1</sup> which could be all re-conducted to a wider regulatory purpose. First, standards exert a regulative function as they tend to conform and coerce firms' conduct on the market. Second, they have a cognitive function, granting specific qualities to certain technologies. Third, they have a fundamental normative function, as they favor cooperative strategies, which can in return engender long-lasting beneficial effects, provided that the choice of one technology over another is made in a fair and transparent manner, thus offsetting potential anticompetitive restrictions. Indeed, considering standardization as a sort of infrastructure,<sup>2</sup> once in place, it incentives market players to rely on it and use it, thus fostering further cooperation and spreading the advantages of network effects. Standards thus represent a decisive instrument for gauging and capitalizing on technological advances. In this respect, standards are constitutive of markets and a pivotal means for economic growth.<sup>3</sup>

On the other side, standards are becoming essential in sectors outside the ICT segments, such as smart grid, e-health, intelligent transport systems, mobile money and smart metering technologies for water, gas and electricity management.<sup>4</sup>

Notwithstanding the policy-makers' increasing attention to ICT standardization, legal scholars, competition authorities and practitioners have started to be attracted by this phenomenon only in recent years, given the increased litigation in this field,<sup>5</sup> often referred to as "patent wars".<sup>6</sup> These

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<sup>1</sup> C. Lane, *The Social Regulation of Inter-Firm Relations in Britain and Germany : Market Rules, Legal Norms and Technical Standards*, 21 CAMBRIDGE JOURNAL OF ECONOMICS (1997), p. 197.

<sup>2</sup> D. Acemoglu, G. Gancia, F. Zilibotti, *Competing engines of growth: Innovation and standardization*, 147 JOURNAL OF ECONOMIC THEORY (2012), p. 570.

<sup>3</sup> K. Blind, A. Jungmittag, *The Impact of Patents and Standards on Macroeconomic Growth : A Panel Approach Covering Four Countries and 12 Sectors*, 29 JOURNAL OF PRODUCTIVITY ANALYSIS (2008), p. 51.

<sup>4</sup> V. C. Gungor, D. Sahin, T. Koçak, S. Ergüt, C. Buccella, C. Cecati, G. P. Hancke, *Smart Grid Communication Technologies and Standards*, 7 IEEE TRANSACTIONS ON INDUSTRIAL INFORMATICS 4, (2011), pp. 529-539.

<sup>5</sup> See Kai-Uwe Kühn, Fiona Scott Morton, Howard Shelanski, *Standard Setting Organisation Can Help Solve the Standard Essential Patent Licensing Problem*, CPI ANTITRUST CHRONICLE, March 2013 (special issue) p. 1, stating that "[i]n the ICT sector, rates of patenting have exploded and – with the convergence among communications technology, device hardware, and software – products have become more complex".

<sup>6</sup> On the current patents wars, see Michael A. Carrier, *A roadmap to the smartphone patent wars and FRAND licensing*, CPI ANTITRUST CHRONICLE 2 (2012). Patent warfare have been present for a long time. In the 1850s similar disputes characterized the sewing machine sector. See R. Lampe, P. Moser, *Do*

numerous proceedings and court decisions are mainly centered on injunctions or fair, reasonable, and non-discriminatory (“FRAND”) fees suits, having their crucial litigious point in the assertion of patents which are deemed essential to the implementation of technical standards (*i.e.* standard-essential patents or “SEPs”) as it is impossible to manufacture standard-compliant products, for instance a smartphones, without using technologies covered by one or more SEPs.<sup>7</sup>

The rise in litigation is mainly due to the amplified number of patents embedded in technical standards and the growing intricacy of high tech devices, which contain a vast quantity of patents and standards. As noted, the patent war in the ICT sector also stemmed from the merger between two cluster of standards and patents under the creation of the smart phone, which implied a collision between the information technology sector patent galaxy and the telecom sector galaxy.<sup>8</sup> The resulting smartphone industry features thickets of patents and lawsuits spanning several courts which are being launched between major corporations, often setting as rivals manufacturers of Google’s Android operating systems (HTC, Motorola Mobility, Samsung) on one side, and Microsoft or Apple on the other.<sup>9</sup> Besides the smartphone industry, future technologies such as Internet of Things, which also encompasses technologies such as Machine-to-Machine, smart grids, smart homes, intelligent transportation and smart cities, will progressively more be dependent on patented technology standards. Accordingly, the quantity of patents claiming an invention related to these standards is relentlessly growing resulting, to an extent, in some level of standard capture, which seems inevitable given that a complex product such as a

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*patent pools encourage innovation? Evidence from the nineteenth century sewing machine industry*, 70 JOURNAL OF ECONOMIC HISTORY 4 (2010), pp. 898-920. Later, a series of patent litigations in multiple countries was instrumental in guaranteeing to Thomas Edison the control of the lightening market, and establishing his incandescent light bulb as the industry standard, replacing gas lights. See L. Shaver, *Illuminating innovation: From patent racing to patent war*, 69 WASHINGTON AND LEE LAW REVIEW 3 (2012).

<sup>7</sup> *EU Competition Policy Brief*, Standard Essential Patents, Issue 8, June 2014.

<sup>8</sup> BJÖRN LUNDQVIST, *STANDARDIZATION UNDER EU COMPETITION RULES AND US ANTITRUST LAWS: THE RISE AND LIMITS OF SELF-REGULATION* (EDWARD ELGAR PUBLISHING 2014), p. 66, arguing that the patent war in the ICT sector stemmed from the merger of the IT with the telecom industry.

<sup>9</sup> Michael A. Carrier, *A roadmap to the smartphone patent wars and FRAND licensing*, CPI ANTITRUST CHRONICLE 2 (2012). For a detail analysis of the main smartphone litigations, see Liguó Zhang, *Standardization and Patent Licensing in the European Union* (oy Nord Print Ab 2012), pp. 80 et seq.

smartphone or tablets implements a multitude of SEPs and non-SEPs incorporated in underlying technical standards.<sup>10</sup>

The inclusion of patented technology on the one hand enhance standards' performance, interoperability and cost-effectiveness. Patent protection pushes innovation by incentivizing investment in R&D, it permits to the innovator to obtain return on his investment by using the innovation himself or by licensing the patent to other companies.<sup>11</sup> As noted in the Guidelines on the applicability of Article 101 of the TFEU to horizontal co-operation agreement standards "normally increase competition and lower output and sales costs, benefiting economies as a whole".<sup>12</sup>

On the other hand, incorporating patented technology serves the strategic interests of market players, which have a notable benefits to having their patented technologies selected as part of the standard.<sup>13</sup> As a matter of fact, SEPs holders often exert a market power generated by the lack of substitute technologies, which could allow compliance with the standard in which they are embedded. The use of those patents and compliance with those standards is thus essential to uphold a workable presence in the market. Likewise, standardization reinforces the patent holders' bargaining leverage in the course of licensing negotiations, provided that their patents are essential for the implementation of the adopted standard.<sup>14</sup>

In this vein, SEPs could potentially result in anti-competitive behavior, such as misuse of patents or a standard capture or hold-up. SEPs holders' market

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<sup>10</sup> M.Gerst, *IPR in Standardisation*, Feb. 2016, IP KEY, p. 14.

<sup>11</sup> K. BLIND, *STANDARDISATION: A CATALYST FOR INNOVATION; INAUGURAL ADDRESS (ERASMUS UNIVERSITY ROTTERDAM, 2009)*.

<sup>12</sup> Guidelines on the Applicability of Article 101 of the Treaty on the Functioning of the European Union to Horizontal Co-operation Agreements, OJ C 11/1 (2011), para 263. See also the White Paper by the U.S.

Department of Justice and the FTC mentioned that "*standards can [...] increase innovation, efficiency, and consumer choice; foster public health and safety; and serve as a fundamental building block for international trade.*" U.S. Dep't of Justice & Fed. Trade Comm'n, *Antitrust Enforcement and Intellectual Property Rights: Promoting Innovation and Competition* (2007).

<sup>13</sup> ITU, *UNDERSTANDING PATENTS, COMPETITION AND STANDARDIZATION IN AN INTERCONNECTED WORLD, 2014*, p. 51.

<sup>14</sup> Mark A Lemley, *Antitrust and the Internet Standardization Problem*, 28 *CONNECTICUT LAW REVIEW* (1996), p. 1041. See also Janice M Mueller *Patent Misuse Through The Capture Of Industry Standards*, 17 *BERKELEY TECHNOLOGY LAW JOURNAL* (2002), p. 623.

power is determined by the fact that they take advantage, sometimes opportunistically, from new revenue-generating opportunities in that every implementer of a standard is, as a given, infringing the related SEPs, except if they obtain licenses to these SEPs from their owners. When patent claims are asserted on a selected standard, any producers of a device compliant with the standard will need to take out a license from the IP holder.<sup>15</sup> SEPs can be tremendously profitable in terms of royalty income, but as well in terms of being strong bargaining chips in cross-licensing negotiations. Moreover, also companies take advantage from incorporating patented technology in a standard, since the extensive adoption of that standard might indicate a shift in market direction that benefits a SEP owner's expertise or existing products, platforms and clients, thereby giving them a competitive advantage by virtue of their having less need than their competitors to remodel their product offerings.<sup>16</sup>

The concern is mainly due to the need to make sure that market power exerted by holding SEPs is not unduly exploited to the detriment of effective competition as a single SEP is sufficient to block third party from implementing the standard to which it relates. That is to say that SEPs holder may act ad gatekeepers to the market.<sup>17</sup> In fact, markets based on innovation and interoperability and characterized by strong network effects assume, in order to preserve competition, that players are granted access technologies vested in IPRs, especially patents. It is thus necessary that when a technology is incorporated into a standard, SEPs holders have, on the one hand, an obligation to disclose the patents they own and, on the other, the right to ask for fair, reasonable, and non-discriminatory fees. Nonetheless, SEPs holder often put into play opportunistic behaviors that are inconsistent with these obligations, such as by seeking injunctions against manufacturers of products that comply with the standard or by asking for discriminatory or excessive licensing terms. Competition law is thus central to assure that SEPs holders do not abuse their market power engaging in

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<sup>15</sup> M.Gerst, *IPR in Standardisation*, Feb. 2016, IP KEY, p. 4.

<sup>16</sup> ITU, *UNDERSTANDING PATENTS, COMPETITION AND STANDARDIZATION IN AN INTERCONNECTED WORLD*, 2014, p. 52.

<sup>17</sup> DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL 2014), p. 7.

anticompetitive exploitative or exclusionary conduct in a market locked-in to a specific technical standard.

Nonetheless, we argue that an analysis of those phenomena limited to a merely competition law perspective, *i.e.* the risks created by standardization with respect to compliance with the antitrust rules, falls short of appreciating the implications standardization is entailing in the global arena. Conversely, we hold that they should be scrutinized in light of the inherent intertwined tension between patent rights embodied in technical standards, innovation and the international trade regime. Indeed, standards could constitute a barrier to trade as they mirror regulatory philosophies, approaches, and values of a specific public, thus swelling compliance costs for firms.<sup>18</sup> Hence, international standardization becomes central as it could reduce these costs while addressing network externalities and information asymmetries,<sup>19</sup> turning into the favored level of regulation.<sup>20</sup> Globalization of markets upholds this, advocating for a globalization of standards in the world's supply chains.<sup>21</sup>

Many commentators have noted the inadequateness of the present legal framework that disciplines the interactions of patent rights incorporated into standards, pointing out the degree of intellectual property ("IP") employed as entry deterrent and the use of strategic patenting in this sector.<sup>22</sup> While most of the attention has been focused on analyzing the competition issues raised by this interaction, the present study assumes that the issues and gaps within the legal regime governing the interface between IPRs in standards and competition concerns give raise to significant trade implications and ultimately impair the international trading system by raising barriers. This thesis thus endeavors to establish linkages with competition, international trade and standards, drawing from interactions between IP and competition in ICT markets.

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<sup>18</sup> R. Staiger, A. Sykes, *International Trade, National Treatment and Domestic Regulation*, 40 JOURNAL OF LEGAL STUDIES (2011), p. 149.

<sup>19</sup> See WTO, WORLD TRADE REPORT 2005.

<sup>20</sup> T. Büthe, W. Mattli, *Setting International Standards – Technological Rationality or Primacy of Power ?*, 56 WORLD POLITICS (2003), p. 1; K. Tamm Hallström, *Organizing International Standardization – ISO and the IASC in QUEST OF AUTHORITY* (EDWARD ELGAR, 2004).

<sup>21</sup> WORLD ECONOMIC FORUM ("WEF"), THE GLOBAL ENABLING TRADE REPORT 2012 – REDUCING SUPPLY CHAIN BARRIERS, 2012.

<sup>22</sup> See generally, DIETER ERNST, INDIGENOUS INNOVATION AND GLOBALIZATION: THE CHALLENGE FOR CHINA'S STANDARDIZATION STRATEGY (2011).

## 2. HYPOTHESES AND RESEARCH QUESTIONS

In a stimulating book (“The World Is Flat”, 2006), Thomas Friedman holds that the world has developed into a level playing field as an outcome of globalization, claiming that the global market has made historical and geographical partitions gradually irrelevant.<sup>23</sup> Nonetheless, some questions arise: does this hold true for regulation as well or do diverging legal philosophies and tactics continue to play a crucial role? From the outset, it emerges that regulation appears highly fragmented, as different rules, expressing different values, coexist, overlap and sometimes cause friction.

Building on these observations, I am principally interested in the regulatory policies concerning technology standardization. The implications of standardization cannot be overstated: today, the global economy relies heavily on technical standards because they foster technology diffusion and economic growth.<sup>24</sup> Yet little is known about their implications for global competition policy, innovation and trade.<sup>25</sup> This absence in legal analysis is particularly critical in the context of disruptive technological advancements featured in information and communication technology and other innovation-intensive sectors,<sup>26</sup> characterized by strong network effects, inter-operability and compatibility of consumer products and processes.<sup>27</sup> In this respect, standards are constitutive of development and pivotal market enablers, as they represent a decisive instrument for gauging and capitalizing on technological advances.<sup>28</sup> Nevertheless, technical standards can also serve the strategic interests of incumbents, which derive

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<sup>23</sup> THOMAS L. FRIEDMAN, *THE WORLD IS FLAT: THE GLOBALIZED WORLD IN THE TWENTY-FIRST CENTURY* (LONDON: PENGUIN 2006).

<sup>24</sup> See generally, KNUT BLIND, *THE ECONOMICS OF STANDARDS: THEORY, EVIDENCE, POLICY* (Edward Elgar Cheltenham 2004); WIPO, *Standards and Patents*, Standing Committee on the Law of Patents, 13<sup>th</sup> Session, 2009.

<sup>25</sup> Geoffrey A. Manne and Joshua D. Wright, *Introduction* to GEOFFREY A. MANNE AND JOSHUA D. WRIGHT (EDS.), *COMPETITION POLICY AND PATENT LAW UNDER UNCERTAINTY: REGULATING INNOVATION* (Cambridge University Press 2011).

<sup>26</sup> Brad Biddle et al., *The Expanding Role and Importance of Standards in the Information and Communications Technology Industry*, 52 *JURIMETRICS* 177 (2012); Martin C. Libicki, *Standards: The Rough Road to the Common Byte*, in BRIAN KAHIN AND JANET ABBATE (EDS.), *STANDARDS POLICY FOR INFORMATION INFRASTRUCTURE* (Cambridge, MA: MIT Press 1995).

<sup>27</sup> CARL SHAPIRO AND HAL R. VARIAN, *INFORMATION RULES*, (Harvard Business Press 2013); JOHN PALFREY AND URS GASSER, *INTEROP: THE PROMISE AND PERILS OF HIGHLY INTERCONNECTED SYSTEMS* (New York: Basic Books 2012).

<sup>28</sup> BJÖRN LUNDQVIST, *STANDARDIZATION UNDER EU COMPETITION RULES AND US ANTITRUST LAWS: THE RISE AND LIMITS OF SELF-REGULATION* (EDWARD ELGAR PUBLISHING 2014).



notable benefits from having their patented technologies selected as part of the standard.<sup>29</sup> The concern is mainly due to the need to ensure that market power exerted by holding patents which are deemed essential to the implementation of technical standards – *i.e.* standard-essential patents – is not abused, hampering effective competition.<sup>30</sup>

The first legal issue that comes into play regards consequences of the growing importance of proprietary technologies in innovation-driven markets,<sup>31</sup> combined with the lack of coherent competition policy and scrutiny of intellectual property (“IP”) rights incorporated in standards. In this regard, my hypothesis is that the uncertainty triggered by major divergences in legal and policy approaches established in different jurisdictions has, to some extent, enabled advanced countries to use standards as a strategic weapon to hinder competition and block or delay access to the market to new entrants, ultimately affecting the distribution of innovation gains.

However, the competition law<sup>32</sup> outlook is only one side of the problem. Our assumption is that the difference of views and uncertainty that characterized the tensions between patents and standards from a competition standpoint has allowed developed countries to use standards as trade barriers. To the extent that dissimilarities in laws and public policies concerning standardization pose significant hindrances for cross-border trade,<sup>33</sup> this has pressed latecomers in the

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<sup>29</sup> Miguel Rato, Nicolas Petit, *Abuse of Dominance in Technology-Enabled Markets: Established Standards Reconsidered?*, 9 EUROPEAN COMPETITION JOURNAL 1 (2013); Mark Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CALIFORNIA LAW REVIEW 1889 (2002).

<sup>30</sup> See Hanns Ullrich, *Patent Pools – Policy and Problems*, in JOSEF DREXL (ED.), RESEARCH HANDBOOK ON INTELLECTUAL PROPERTY AND COMPETITION LAW (Edward Elgar Publishing 2008), pp. 139 et seq.; Carl Shapiro, *Setting Compatibility Standards: Cooperation or Collusion?*, in ROCHELLE DREYFUSS ET AL. (EDS.), EXPANDING THE BOUNDARIES OF INTELLECTUAL PROPERTY (Oxford University Press 2001), 119 et seq. See also DAVID TELYAS, THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS (KLUWER LAW INTERNATIONAL 2014).

<sup>31</sup> See generally Herbert J. Hovenkamp, *Competition for Innovation*, UNIVERSITY OF IOWA LEGAL STUDIES RESEARCH PAPER No. 13-26 (2012).

<sup>32</sup> Here the terms “antitrust law” and “competition law” are used to refer comprehensively to the set of rules regulating potential anticompetitive market behavior, although the two expressions are not identical; see Wolfgang Pape, *Socio-Cultural Differences and International Competition Law*, 5(4) EUROPEAN LAW JOURNAL (1999), p. 438.

<sup>33</sup> Yogesh Pai, *Standards-Essential Patents: A Prolegomena*, 19 JOURNAL OF INTELLECTUAL PROPERTY RIGHTS (2014), p. 59; Baisheng An, *Intellectual Property Rights in Information and Communications Technology Standardization: High Profile Disputes and Potential for Collaboration between the United States and China*, 45 TEXAS INTERNATIONAL LAW JOURNAL (2009), p. 175; Christopher S. Gibson, *Globalization and Technology Standards Games: Balancing Concerns of Protectionism and Intellectual Property in International Standards*, 22 BERKLEY TECHNOLOGY LAW JOURNAL (2007), p. 1403.

international economy to call for more penetrating government intervention, supporting the development and adoption of competing homegrown complementary standards as a source of economic catch-up,<sup>34</sup> which, in return, could gain ground as a novel type of substantial, protectionist, non-tariff barrier to trade.<sup>35</sup>

The second issue thus relates to the need to integrate a global competition policy perspective into international economic law to intervene and restrain the exclusionary consequences created by an opportunistic use of standardization across several jurisdictions, coupled with unpredictable – occasionally lax – antitrust scrutiny. Accordingly, I plan to explore the establishment of a comprehensive competition policy framework matching the tenets of international trade and IP law.

This analysis is today even more needed cannot be deferred anymore as the integration of developing countries into the global economy has exacerbated these potential conflicts. In fact, as markets are increasingly global and intertwined, standardization is becoming an important enabler in international trade. At the same time, developing countries are facing increasingly trade barriers in the form of patents embodied into standards, which has been opportunistically used by developed countries as entry deterrents to the ICT markets.

Despite its relevance in global economy, standards have been subject of debate only in recent past from an international trade regulatory standpoint. As a matter of fact, despite the WTO rules requiring that most standard must be

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<sup>34</sup> Richard P. Suttmeier, Xiangkui Yao, and Alex Zixiang Tan, *Standards of Power: Technology, Institutions, and Politics in the Development of China's National Standards Strategy*, THE NATIONAL BUREAU OF ASIAN RESEARCH (2006), p. 11.

<sup>35</sup> See generally Branislav Hazucha, *Technical Barriers to Trade in Information and Communication Technologies*, in TRACEY EPPS AND MICHAEL J. TREBILCOCK (EDS.), *RESEARCH HANDBOOK ON THE WTO AND TECHNICAL BARRIER TO TRADE* (Cheltenham: Edward Elgar Publishing 2014), pp. 539–540; Robert Howse, *A New Device for Creating International Legal Normativity: The WTO Technical Barriers to Trade Agreement and "International Standards"*, in CHRISTIAN JOERGES AND ERNST-ULRICH PETERSMANN (EDS.), *CONSTITUTIONALISM, MULTILEVEL TRADE GOVERNANCE AND SOCIAL REGULATION* (Oxford: Hart Publishing 2006), pp. 392–393.

“international”, most standards still originate in a single industrialized country or in EU<sup>36</sup> and US’s regional standardization bodies.<sup>37</sup>

Given the extensive literature on the interactions of competition law issues raised by the assertion of SEPs and IPR issues in standardization, the present study claims no ingenuity in detecting the teething troubles regarding the same, but to spur novel thoughts and to collect perspectives from an international competition standpoint. Taking an innovative stance with respect to previous scholarship, my research project proposes new solutions by using a novel, multi-practice approach. I collect, compare and evaluate perspectives from diverse practice areas to ascertain legal gaps and conflicts applying to existing processes and structures. I argue that analysis limited to a merely antitrust perspective, *i.e.* the risks created by standardization with respect to compliance with the competition/antitrust rules, falls short of appreciating the implications that standardization entails. Conversely, I hold that they should be scrutinized in light of the inherent intertwined tension between IP rights embodied in technical standards, innovation and the international trade regime, within and outside the World Trade Organization (“WTO”) system. This derives from the observation that there is a significant commonality of objectives between competition and trade policy.<sup>38</sup>

### 3. LEGAL METHODOLOGY AND ANALYSIS APPROACHES

The study will thus adopt a three-fold methodological approach:

- I. It is based on comparison, investigating how differential legal and policy treatments of patented technology through the application of national competition laws are at the root of inter-jurisdictional normative friction. These divergences fail to prevent IP owners

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<sup>36</sup> Mention is exclusively made of the European Union and no longer of the European Community, as a result of the entry of the Treaty of Lisbon into force. See Art. 1 para. 3 of the European Union Treaty.

<sup>37</sup> Craig N. Murphy, *Voluntary Standard Setting: Drivers and Consequences*, 29 ETHICS & INTERNATIONAL AFFAIRS 4 (2015), p. 447.

<sup>38</sup> See generally Alden F. Abbott, Shanker Singham, *Competition Policy and International Trade Distortions*, 4 EUROPEAN YEARBOOK OF INTERNATIONAL ECONOMIC LAW (2013), p. 23; MARTYN D. TAYLOR, *INTERNATIONAL COMPETITION LAW: A NEW DIMENSION FOR THE WTO?* (Cambridge University Press 2006).

from exerting their market power using incorporated standards as trade barriers, thus raising issues on the consistency of the international trading regime.

- II. It addresses the international dimension of tension between IP rights in standards and competition law, investigating the role of international trade law – and the WTO in particular – (a) in enabling a *status quo* advantageous to incumbent IP holders in deterring new entrants and reaping monopoly rents, and (b) in addressing latecomers’ efforts to create new technical barriers to trade. An enlightening example is China’s standardization policy: Beijing’s authorities are inclined to rely on standards as a public policy regulatory tool for a variety of purposes, including promoting indigenous’ industries and inbound technology transfer.<sup>39</sup> For this reasons, even if Chinese representatives are active members of several international SSOs, the central government also influences and puts emphasis on the development of domestic standards in key technology.
- III. It scrutinizes the proliferation of strategic patenting and the use of these strategies as trade barriers, gauging, *inter alia*, the developing phenomena such as the rise of patent-avoiding latecomer strategies.

My purpose is to develop a conceptual framework for addressing competition and regulatory issues raised by standardization in innovation markets, with an emphasis on practical, policy-oriented research. Building on science and technology literature and theories of government regulation, I am interested in how diverging regulatory philosophies – especially in late-comer economies such as China – affect innovation. Drawing from different models of

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<sup>39</sup> STEPHEN EZELL AND ROBERT D. ATKINSON, THE MIDDLE KINGDOM GALAPAGOS ISLAND SYNDROME: THE CUL-DE-SAC OF CHINESE TECHNOLOGY STANDARDS, Information Technology and Innovation Foundation (2014); Dan Breznitz, Michael Murphree, *The Rise of China in Technology Standards: New Norms in Old Institutions*, Prepared for the US-China Economic and Security Review Commission 16 (2013); DIETER ERNST, INDIGENOUS INNOVATION AND GLOBALIZATION: THE CHALLENGE FOR CHINA’S STANDARDIZATION STRATEGY (2011).

government intervention, my research investigates the advisability of establishing a coherent global competition framework integrated within international economic law so as to prevent global market distortions and foster welfare-enhancing trading policies to be deployed in the consumer – and public – interest.

# CHAPTER II

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## STANDARDIZATION AND TECHNICAL STANDARDS AS REGULATORY TOOLS

*“Standards are essential for all human activity, but most people take them for granted. Only when products fail to work, or mishaps occur, does the average person think about standards. Even in business, where money is at stake, standards are often given a low priority. There is a clear need [...] for greater attention to standards”.*

“Global Standards: Building Blocks for the Future”  
Congress of the United States, Office of Technology Assessment (March 1992).

### **1. STANDARDIZATION AND TECHNICAL STANDARDS: TAXONOMICAL ISSUES**

#### **2. THE SOURCES OF STANDARDS**

2.1. STANDARDS DEVELOPED BY STANDARD-SETTING ORGANIZATIONS: FORMAL STANDARD DEVELOPMENT ORGANIZATIONS, QUASI-FORMAL GROUPS, AND INFORMAL FORA

2.2. DE FACTO STANDARDS DEVELOPED BY SINGLE COMPANIES

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#### **4. STANDARDIZATION REGIMES**

4.1. THE EUROPEAN STANDARDIZATION SYSTEM

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4.2.1. PROSPECTIVE CHALLENGES FOR STANDARDIZATION IN CHINA

## 1. STANDARDIZATION AND TECHNICAL STANDARDS: TAXONOMICAL ISSUES

Standards can generally be described as documents that provide requirements, specifications, guidelines or characteristics that can be applied consistently to ensure that materials, products, processes and services are “*fit for purpose*”,<sup>40</sup> increase the efficiency of individual processes and introduce common systems across divisions of individual companies. The main types of standards include: (i) vocabulary standards, which are particularly relevant in health and medical information, concern cover glossaries and defined terms, which provide uniformity and cohesion in the interpretation of terms to prevent misunderstandings and misinterpretations; (ii) measurement standards, which involve definitions of measures and detail basic units of the International System of Units; (iii) safety standards, designed to guarantee product, activity or process safety either in a voluntary or mandatory manner; (iv) product standards, which contain specifications that cover the requirements for a material or product and provide comprehensive guidance for producing, processing, selling, purchasing and using the product; and (v) technical standards, usually most predominant in the ICT sector and consumer electronics, but are also widespread in ICT-enabled service areas such as healthcare, transportation and energy.<sup>41</sup>

The present work focuses on technical standards. They target compatibility and interoperability by “*creating regulatory conditions able to stimulate socio-economic development*”.<sup>42</sup> Oddly, just like standards in general, technical ones lack a uniform definition.<sup>43</sup> They are differentiated from other types of standards as they denote the creation of norms and requirements for technical systems, identifying standard engineering criteria, methodologies and processes.<sup>44</sup> In the literature the terms “compatibility standards” and “interoperability standards” are

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<sup>40</sup> INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO), WHAT IS A STANDARD?, available at on the ISO’s website.

<sup>41</sup> R. N. A. BEKKERS, M. DALAIS, A. DORE, N. VOLANIS, UNDERSTANDING PATENTS, COMPETITION & STANDARDIZATION IN AN INTERCONNECTED WORLD (ITU, 2014), p. 12.

<sup>42</sup> *Ibid.*

<sup>43</sup> Lea, Gary & Hall, Peter, *Standards and intellectual property rights: an economic and legal perspective*, INFORMATION ECONOMICS AND POLICY, Vol. 16, 2004, p. 69.

<sup>44</sup> ITU, UNDERSTANDING PATENTS, COMPETITION AND STANDARDIZATION IN AN INTERCONNECTED WORLD, 2014, p. 15.

also found, as the workability of systems embedding various interconnecting parts is predominantly reliant on conformance with common standards. Indeed, technical standards could be defined as common platforms of codified technical knowledge empowering products to work together. In essence, they are regulatory technical tools: information on product characteristics and features and information that allows compatibility and interoperability, given that through their implementation, different parts and modules of a product may be produced separately.<sup>45</sup>

In an effort towards further clarifying the notion, several academic specialists, standard setting organizations (“SSOs”), public policy documents and political institutions have provided different definitions.

The International Organization for Standardization (the “ISO”) and the International Electrotechnical Commission (the “IEC”) define a standard as a “*document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context*”.<sup>46</sup> The European Commission has defined the term as a set of technical specifications relating to a product or an operation, which is recognized by a large number of manufacturers and users.<sup>47</sup> A similar definition has been adopted by the WTO’s Agreement on Technical Barriers to Trade (the “TBT Agreement”), which defines the term “standard” as a “[d]ocument approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, with which compliance is not mandatory”.<sup>48</sup>

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<sup>45</sup> Nari Lee, Yang Li, *European Standards in Chinese Courts – A Case of Sep and Frand Disputes in China*, in N. LEE, N. BRUUN & M. LI (EDS.), *GOVERNANCE OF INTELLECTUAL PROPERTY RIGHTS IN CHINA AND EUROPE* (EDWARD ELGAR PUBLISHING, 2016).

<sup>46</sup> ISO/IEC Guide 2:2004, *Standardization and related activities*, Definition 3.2.

<sup>47</sup> See European Commission, *Communication on Intellectual Property Rights and Standardization*, COM (92) 445, published on 27 Oct. 1992.

<sup>48</sup> World Trade Organization Agreement on Technical Barriers to Trade, Annex 1, § 2. See also, Yogesh Pai, *The International Dimension of Proprietary Technical Standards: Through the Lens of Trade, Competition Law and Developing Countries* (July 6, 2012), Society of International Economic Law (SIEL), 3rd Biennial Global Conference Working Paper No. 2012/40, p. 9.



These definitions are all largely aligned with standards officially recognized by SSOs, yet they ignore the wide spectrum of *de facto* standards that arise from market-driven forces, as it will be explained further.

The academic literature has been more inclusive, preferring a broader definition of standards, as norms, or technical specifications,<sup>49</sup> that seek to provide a communal design for a product or a process by setting out requirements and<sup>50</sup> that are regularly and constantly used.<sup>51</sup> Even in the case of standards developed in the framework of SSOs, it is the reiterated and widespread use of that standard by the market that allows the transition from a plain technical specification, *i.e.* a mere document setting out the technical requirements of a standard that the SSOs' members would like to see the market adopt, to a proper technical standard.<sup>52</sup>

In this vein, SSOs do not set standards, but purely provide a forum for the selection of technical specifications, which the market, ultimately, will decide whether to regard as a standard. Moreover, applying standards to products and processes needing repeated use in implementation is of relevance for realizing efficiencies and pro-competitive advantages,<sup>53</sup> as “*standards should be based on the consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits*”.<sup>54</sup> Indeed, standards ultimately foster competition between companies by promoting technical specifications that are

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<sup>49</sup> A definition of “technical specification” is found in Directive 98/34/EC Article 1 as “*a specification contained in a document which lays down the characteristics required of a product such as levels of quality, performance, safety or dimensions, including the requirements applicable to the product as regards the name under which the product is sold, terminology, symbols, testing and test methods, packaging, marking or labeling and conformity assessment procedures*”. Directive 98/34/EC of 22 Jun. 1998 laying down a procedure for the provision of information in the field of technical standards and regulations, as amended by Directive 98/48/EC of 20 Jul. 1998, Directive 2006/96/EC of 20 Nov. 2006 and Regulation 1025/2012 of 25 Oct. 2012.

<sup>50</sup> See Rolf Weber, *Competition Law Versus FRAND Terms in IT Markets*, 34 *WORLD COMPETITION* (2001).

<sup>51</sup> Daniel J. Gifford, *Developing Models for a Coherent Treatment of Standard-Setting Issues Under the Patent, Copyright, and Antitrust Laws*, *IDEA: THE JOURNAL OF LAW AND TECHNOLOGY*, Vol. 43 (2003): 333.

<sup>52</sup> DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p. 18.

<sup>53</sup> SCP/13/2, p. 8.

<sup>54</sup> ISO/TMB Policy and Statement (2004).

common to undertakings active in a certain technological field, which remain free to differentiate their products by means of non-standardized features.<sup>55</sup>

Definitional uncertainty and the lack of a unique definition, while fostering a number of legal concerns, has not prevented standards and the phenomenon of standardization to grow at an exceptionally fast pace. This is a direct outcome of globalization. As markets become more global and interconnected, it is crucial that technological devices are compatible with each other.<sup>56</sup>

## 2. THE SOURCES OF STANDARDS

The ICT standardization landscape is a complex one, featuring several standards and standards-setting entities. As a result, technical standards belong to different categories, which are dependent on (i) the entities in charge of their development, (ii) their mandatory or voluntary nature (iii) and the degree of openness concerning participation in a standards-development process and the ability to access and implement the resulting standards.<sup>57</sup>

The primary aim of standardization is – or should be – to select a technology that will be adopted by all market players to ensure interoperability between products. In this vein, the process by which standards are set is extremely dynamic and complex.

The technology selection process involves identifying, testing and comparing different technical solutions to detect the one that would serve the market better. The selection is predominately carried out by companies involved in different ways in the standardization procedure. The nature of these companies has been categorized by the European Commission in its Guidelines on the applicability of Article 101 TFUE as follows:

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<sup>55</sup> DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p. 18.

<sup>56</sup> This aspect is underlined in the Regulation(EU) No 1025/2012, which provide that “[t]he primary objective of standardisation is the definition of voluntary technical or quality specifications with which current or future products, production processes or services may comply. Standardisation can cover various issues, such as standardisation of different grades or sizes of a particular product or technical specifications in product or services markets where compatibility and interoperability with other products or systems are essential”.<sup>56</sup>

<sup>57</sup> R. N. A. BEKKERS, M. DALAIS, A. DORE, N. VOLANIS, *UNDERSTANDING PATENTS, COMPETITION & STANDARDIZATION IN AN INTERCONNECTED WORLD* (ITU, 2014), p. 12.

- I. upstream-only companies. They solely develop and market technologies and derive their income exclusively from licensing revenue. Accordingly, their incentive is to maximize their royalties;
- II. downstream-only companies. They solely manufacture products or offer services based on technologies developed by other, but do not hold relevant intellectual property rights. For these companies, royalties represent a cost and not a source of revenue, and their incentive is to reduce or avoid royalties; and
- III. vertically-integrated companies that both develop technology and sell products”. Companies in this category have mixed incentives. Indeed, on the one hand, they can draw licensing revenue from their intellectual property rights. On the other hand, they may have to pay royalties to other companies holding IPR essential to the standard”. As a result, these companies might cross-license their own essential IPR in exchange for essential IPR held by other companies.<sup>58</sup>

As these three main categories of companies each have different interests in standard-setting, the interface between them can lead to tensions. Accordingly, policymakers and SSOs strive to strike a balance between these frequently conflicting stakeholder interests.<sup>59</sup>

Standards can have different sources and can be developed mainly through the mechanisms set out below.

## **2.1. STANDARDS DEVELOPED BY STANDARD-SETTING ORGANIZATIONS: FORMAL STANDARD DEVELOPMENT ORGANIZATIONS, QUASI-FORMAL GROUPS, AND INFORMAL FORA**

Standards may be enacted through governmental or administrative decision-making (so-called “*de jure* standardization”). This pattern is the ordinary

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<sup>58</sup> Communication from the Commission – Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements [2011] OJ C 11/1 (2011 Guidelines), para 267.

<sup>59</sup> M. Gerst, *IPR in Standardization*, Feb. 2016, IP KEY, p. 1.

mechanism in China, where general standards are set by national law,<sup>60</sup> and administrated and enforced by the Standardization Administration of the PRC (the “SAC”). Standards are further governed] by the regulation for implementation.<sup>61</sup> From a regulatory perspective, *de jure* standards empower government authorities to oversee the assertion of IPRs by direct regulation.

Standards can be cooperatively created in the framework of an SSO. For the purposes of the present research, an SSO indicates any cooperative effort between two or more stakeholders aimed at defining common technical standards that the SSO’s members are thus strongly incentivized to comply with in order to develop new products and new markets.<sup>62</sup> SSO standards are usually referred to as “formal” standards,<sup>63</sup> to indicate that the process leading to their adoption is in some way formalized and represents the outcome of an agreement between the participating stakeholders. Examples of formal standards are the ones developed by the European Telecommunications Standards Institute (“ETSI”) in the telecommunications sector, such as GSM, 3G and 4G.

The European Commission recognizes three broad types of SSOs:<sup>64</sup>

1. SSOs that are officially accredited standard development bodies (Standard Development Organizations, or “SDOs”), whose members represent a large portion of companies operating on the relevant market.<sup>65</sup> SDOs are responsible for handling and supervising the standardization process in a specific field of technology.

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<sup>60</sup>中华人民共和国标准化法 (1988). (Standardization Law of the People's Republic of China, 1988).

<sup>61</sup> 7 中华人民共和国标准化法实施条例, (1990) Regulations For The Implementation Of The Standardization Law Of The People's Republic Of China, Promulgated by Decree No. 53 of the State Council of the People's Republic of China on April 6, 1990 and effective as of the date of promulgation).

<sup>62</sup> Guillaume Dufey, *Patents and Standardization: Competition Concerns in New Technology Markets*, GLOBAL ANTITRUST REVIEW 2013, p. 17.

<sup>63</sup> Pappalardo, Kylie, and Nicolas Suzor. *Standardization and patent ambush: Potential liability under Australian competition law*, COMPETITION AND CONSUMER LAW JOURNAL 18 (2011) p. 269.

<sup>64</sup> European Commission, Directorate-General for Enterprise and Industry, *Patents and Standards: a Modern Framework for IPR-based standardization*, 2014.

<sup>65</sup> R. N. A. BEKKERS, M. DALAIS, A. DORE, N. VOLANIS, UNDERSTANDING PATENTS, COMPETITION & STANDARDIZATION IN AN INTERCONNECTED WORLD (ITU, 2014), p. 19.

Some are formally recognized by regional<sup>66</sup> or national bodies,<sup>67</sup> as most countries have government-recognized SDOs. They are generally member-driven bodies that gather standardization experts belonging to competing companies, public institutions and academia, to define standards in response to priorities determined by public or private sector members. They are also referred to as “voluntary consensus standards”.

Some standards are elaborated by international groups such as the International Telecommunications Union (“ITU”) and the International Organization for Standardization (“ISO”). At the international level, international standards organizations foster cohesion and harmonize global practices on standards thereby facilitating international cooperation in standardization. They thus play a crucial role in countering the potential risk of market protection and obstruction of market access that comes with unilaterally-developed standards, which can be used as a form of protectionism, as will be further analyzed. As a matter of fact, the TBT Agreement prohibits governments from arbitrarily adopting standards, as the adoption of standards must be supported by “*sound science*”. As the adoption of international standards rather than national ones reduces the risk of trade barriers, the TBT agreement strongly encourages countries to develop and adopt international standards.

- II. SSOs that are “quasi-formal” large international organizations that share many features of the characteristics of formally recognized groups. This category comprises, for instance, the International Internet Engineering Task Force (IETF) and the Institute of Electrical and Electronics Engineers (IEEE).

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<sup>66</sup> For instance, at the EU level, in the sector of new technologies, the European Telecommunications Standards Institute (ETSI) is one of the most important regional standard-setting organizations.

<sup>67</sup> For instance, China’s National Institute for Standardization (CNIS).

- III. finally, besides traditional SSOs, smaller, special interest informal industry-organized consortia or *fora* have flourished as a way to develop ICT standards.<sup>68</sup> It is believed that informal cooperation among a reduced number of stakeholders that have a common interest allows standards between sector specific associations to be developed more quickly. Some consortia may be established to develop a specific standard, for a time-limited lifespan. For example the World Wide Web Consortium (W3C).<sup>69</sup> Others might instead be permanently established to serve a wider technological area. For example, the Full HD 3D Glass Initiative of Panasonic, Samsung and Sony.<sup>70</sup> Examples of standards created by consortia include the Universal Serial Bus (“USB”)<sup>71</sup> and the Digital Versatile Disc “DVD” standard.<sup>72</sup>

In practice, it is frequent for consortia, informal forums and SDOs to interact. Indeed, it is common for consortia to have their standards subsequently adopted by formal SDOs,<sup>73</sup> suffice it to mention<sup>74</sup>, the Compact Disc (“CD”) standard<sup>74</sup> and the Common Alerting Protocol (“CAP 1.1”) standard.<sup>75</sup>

This interaction should not come as a surprise as consortia are often composed of leading firms in specific technology markets. These firms leverage their head start in the standardization phase and their market power to steer the

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<sup>68</sup> Updegrove catalogs 1025 such organizations. See Andrew Updegrove, *Standard setting organizations and Standards List* (2015).

<sup>69</sup> See [www.w3c.org](http://www.w3c.org)

<sup>70</sup> See [www.fullhd3dglASSES.com](http://www.fullhd3dglASSES.com)

<sup>71</sup> The USB is a standard hardware interface for attaching peripheral devices to a computer, which was developed by a consortium of businesses to improve physical hardware compatibility by launching a specific connector and pin definition. ITU, UNDERSTANDING PATENTS, COMPETITION AND STANDARDIZATION IN AN INTERCONNECTED WORLD (2014), p. 21

<sup>72</sup> The DVD standard for the digital optical storage of movies, multimedia content or other data on a 12cm disc is standardized by a membership-driven industry association known as the DVD Forum. *Ibid.*

<sup>73</sup> Knut Blind and Stephan Gauch, *Trends in ICT standards: The Relationship between European Standardisation Bodies and Standard Consortia*, 32 TELECOMMUNICATIONS POLICY (2008), p. 511.

<sup>74</sup> The CD standard was originally developed by a Philips-Sony consortium and first published in 1980, was formalized as an IEC International Standard in 1987 with various amendments made in 1996. ITU, UNDERSTANDING PATENTS, COMPETITION AND STANDARDIZATION IN AN INTERCONNECTED WORLD (2014), p. 21

<sup>75</sup> The CAP 1.1 standard is format for exchanging all-hazard emergency alerts and public warnings, disseminated simultaneously over all kinds of networks. It was originally developed by the Organization for the Advancement of Structured Information Standards (“OASIS”), and later standardized by ITU as Recommendation ITU-T X.1303. *Ibid.*

relevant SDOs to adopt their technology standards. They often have the vast majority of voting rights in the relevant technical committees of the SDOs.<sup>76</sup>

Scholar Knut Blind and other scholars have argued that technology leaders are likely to develop standards through formal SDOs or through consortia, as the choice reflects different interests.<sup>77</sup> In particular, a formal procedure within SDOs is more appropriate where the technology decided upon needs to be implemented with downstream customers or upstream suppliers, and the suppliers need to adapt their content, product and services. In this context, the formal procedure of SDOs enables cooperation between all stakeholders.<sup>78</sup> In contrast, it is preferable to develop standards through a consortium when the focus is on a specific technology that is close to a company's own R&D core activity. Indeed, consortia often operate at an early stage of the standardization phase, when collaborating competitors enter into small consortia joint ventures or R&D agreements in order to develop joint solutions to be adopted as standards.<sup>79</sup>

Competition authorities are fully conscious that these collaborations constantly occur, especially in network-driven innovation markets,<sup>80</sup> engendering what is usually referred to as “coopetition”. This phenomenon, which stems from a unitary vision of competition and collaboration, refers to the fact that firms need to compete sternly and collaborate deeply at the same time.<sup>81</sup> It thus represents a sort of cooperation between competitors, “*collaborating in defining and, in some sense, pricing the technology, while opening up the opportunity for single firms to add essential patents under the standard*”.<sup>82</sup>

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<sup>76</sup> *Id.*

<sup>77</sup> *Id.*

<sup>78</sup> *Id.*

<sup>79</sup> Maurits Dolmans, *Standards for standards*, *FORDHAM INTERNATIONAL LAW JOURNAL* 26 (2002), p. 171.

<sup>80</sup> For instance, research and development joint ventures have been a widely-spread way of collaborating under competition law. According to US antitrust rules, research and development joint ventures should be scrutinized in light of the Rule of Reason, see US Department of Justice, *Antitrust Guide Concerning Research Joint Ventures* (1980), 3 et seq. In the EU, the Commission in its 1968 Notice concerning agreements, decisions and concerted practices in the field of cooperation between enterprises (O.J. C 75/3, 27.07.1968, 3) remarked that research and development joint ventures generally do not restrict competition.

<sup>81</sup> Hanns Ullrich, *Expansionist Intellectual Property Protection and Reductionist Competition Rules: A TRIPS Perspective*, 7 *JOURNAL OF INTERNATIONAL ECONOMIC LAW* 401(2004), p. 420.

<sup>82</sup> BJÖRN LUNDQVIST, *STANDARDIZATION UNDER EU COMPETITION RULES AND US ANTITRUST LAWS: THE RISE AND LIMITS OF SELF-REGULATION* (EDWARD ELGAR PUBLISHING 2014) p. 5.

## 2.2. DE FACTO STANDARDS DEVELOPED BY SINGLE COMPANIES

Standards can also be developed by a single, dominant firm, which manages to promote its “proprietary specifications” so that they become the general accepted standard for that technological field, given that they are widely accepted by purchasers of goods or receivers of services. These standards, unlike formal standards, stem spontaneously from market forces, through the agreement of users and voluntary implementation.<sup>83</sup> Specifically, in market sectors featuring strong network effects, where the value of a good hinges on the quantity of users of the same good, standardization might take place “*as the market tips toward a standard, due to the positive reinforcement of the consumer desires and expectation*”.<sup>84</sup> Against this background, companies often engage in SSO standardization to prevent the risk of *de facto* standards, which can slow down R&D innovation founded on the standard until it obtains substantial market dominance. Consumers may postpone their purchases until a *de facto* standard arises as the champion.

*De facto* standards are often vested with proprietary interests, so that their adoption is subject to the willingness of the rights holder, often including the company setting the standard, to promote and facilitate access. They are thus likely to create competition problems as many of them embody proprietary interests in the form of patents. On the other side, provided that the patent holder has granted licenses to its intellectual property rights,<sup>85</sup> they can represent as a relevant source of revenues. Consequently, companies developing such standards can optimize their benefits by creating a wider and more attractive market. Moreover, companies do not have to take into account competing interests, unlike with collaboratively-developed standards. Nor is it subject to specific licensing constraints of its cooperative-based counterparts, such as FRAND obligations.

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<sup>83</sup> An example of a *de facto* standard is the Orange Book of Philips. See German Federal Supreme Court, 6 May 2009, KZR 39/06 (Orange-Book-Standard).

<sup>84</sup> Nari Lee, Yang Li, *European Standards in Chinese Courts – A Case of Sep and Frand Disputes in China*, in N. LEE, N. BRUUN & M. LI (EDS.), *GOVERNANCE OF INTELLECTUAL PROPERTY RIGHTS IN CHINA AND EUROPE* (EDWARD ELGAR PUBLISHING, 2016).

<sup>85</sup> Nonetheless, it should be noted that an undertaking that has developed a specification may not always want to promote the standard, as it might make more economic sense for it to keep the specification to itself. For example if the company believes that it can serve the full market on its own. *De facto* standards originate from a purely market-driven process and their popularity represents the parameter of their importance, as opposed to formal standards that need to be approved or declared by specific authorities.



However, the value and efficacy of a *de facto* standard depends on the extent of market power exerted by the company and/or its technical superiority over its competitors.

*De facto* standards are playing an increasingly important role. Most interoperability standards are developed within the private sector. In the US there is a governmental preference for privately-developed standards over governmental ones.<sup>86</sup> Some widely adopted interoperability standards, such as PDF<sup>87</sup> and VHS<sup>88</sup> are *de facto* standards. In the literature, however, it has been remarked that, as standardization frequently increases the value of a product, private actors have a hard time influencing the standardization process.<sup>89</sup> They therefore tend to seize the value of a standard by various means, including by IPR assertion. A joint effort is therefore needed to make the most of the potential of a market while also preventing it from being captured by a few pools of dominant actors forming SSOs.<sup>90</sup> It is common that SSOs – such as the IEEE and ETSI – although derived completely from private players, “become quasi-public with the support or approval of governments”, thus “chang[ing] a *de facto* standardization to a semi *de jure* standardization as they set the standard through agreement and provide a structured self-governance through the membership rules”.<sup>91</sup>

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<sup>86</sup> Office of Management and Budget (OMB) Circular A-119 (1998).

<sup>87</sup> Portable Document Format (PDF), developed by Adobe Systems, is a file format used to represent documents in a manner independent of application software, hardware and operating systems. Adobe made the PDF specification available free of charge in 1993 but it remained a proprietary format until 2008 when it was formalized as an international standard by the International Organization for Standardization (ISO) as ISO 32000-1. By submitting PDF to ISO, Adobe made the standard more attractive to governments, among others, which were seeking a universal open document format for communications and archival purposes. In parallel, Adobe published a public patent licence to ISO 32000-1, thereby granting royalty-free rights to all Adobe-owned patents necessary to make, use, sell and distribute PDF-compliant implementations.

<sup>88</sup> A well-known example is the Video Home Standard (VHS) developed by the Japanese company, JVC. JVC was convinced that it would benefit from actively promoting its standard, not only among competing manufacturers of video deck players, but also among tape manufacturers and movie makers able to provide the VHS platform with valuable content.

<sup>89</sup> Nari Lee, Yang Li, *European Standards in Chinese Courts – A Case of Sep and Frand Disputes in China*, in N. LEE, N. BRUUN & M. LI (EDS.), GOVERNANCE OF INTELLECTUAL PROPERTY RIGHTS IN CHINA AND EUROPE (EDWARD ELGAR PUBLISHING, 2016).

<sup>90</sup> See also Nari Lee, *Patented Standards and the Tragedy of Anti-Commons*, TEOLLISOIKEUDELISIA KIRJOITUKSIA, 2006.

<sup>91</sup> Nari Lee, Yang Li, *European Standards in Chinese Courts – A Case of Sep and Frand Disputes in China*, in N. LEE, N. BRUUN & M. LI (EDS.), GOVERNANCE OF INTELLECTUAL PROPERTY RIGHTS IN CHINA AND EUROPE (EDWARD ELGAR PUBLISHING, 2016).

### 2.3. STANDARDS DEVELOPED BY OPEN SOURCES

Finally, standards can be developed from open source.<sup>92</sup> The notion of “open standard” is the subject of extensive debate,<sup>93</sup> “with definitions revolving around the relative ‘openness’ of the standards-development process, the resulting standards and the ownership of the rights attached to the technologies or techniques contained within a standard”.<sup>94</sup> For instance, according to ITU, “open standards” are standards made available to the general public and are developed (or approved) and maintained via a collaborative, consensus-driven and transparent process, from which materially affected and interested parties are not excluded.

It has been remarked that “Open standards” foster interoperability and data exchange among different products or services and are intended for widespread adoption.<sup>95</sup> The notion of “openness” refers to a standards-development process open to participation by all materially affected interests. Conversely, “closed standards” do not satisfy this criterion, for instance, proprietary specifications for which the owner does not grant licenses, or standards which are created in a setting accessible by invitation only.<sup>96</sup>

Table: examples of international SDOs and consortia and their standards of relevance to ICTs<sup>97</sup>

Standards body	Type	Technology focus	Notable standards
International Organization for Standardization (ISO)	Formal SDO	All technological areas, including but not limited to ICT	ISO 9660 (CD File System); ISO 5800 (photographic film speed); ISO/IEC 11172, 13818 and 14496 MPEG suite; ISO 3166 Country codes; ISO 9000 Quality management; ISO 14000 Environmental management
International Electrotechnical	Formal SDO	Electrical, electronic and related	ISO/IEC 11172, 13818 and 14496 MPEG suite

<sup>92</sup> Marcus Glader, *Open Standards: Public Policy Aspects and Competition Law Requirements*, 6 EUROPEAN COMPETITION JOURNAL (2010), p. 611.

<sup>93</sup> K. Krechmer, *The Principles of Open Standards*, 50 Standards Engineering 6 (1998), pp. 1-6.

<sup>94</sup> R. N. A. BEKKERS, M. DALAIS, A. DORE, N. VOLANIS, UNDERSTANDING PATENTS, COMPETITION & STANDARDIZATION IN AN INTERCONNECTED WORLD (ITU, 2014).

<sup>95</sup> See also Resolution GSC-12/05 of the 12th Global Standards Collaboration meeting (Kobe, 2007).

<sup>96</sup> R. N. A. BEKKERS, M. DALAIS, A. DORE, N. VOLANIS, UNDERSTANDING PATENTS, COMPETITION & STANDARDIZATION IN AN INTERCONNECTED WORLD (ITU, 2014).

<sup>97</sup> ITU, UNDERSTANDING PATENTS, COMPETITION AND STANDARDIZATION IN AN INTERCONNECTED WORLD (2014).

Standards body	Type	Technology focus	Notable standards
Commission (IEC)		technologies	IEC 62196 for plugs and charging modes for electric vehicles
International Telecommunications Union (ITU)	Formal SDO	Telecommunications	ITU-T E.164 Numbering Plan; xDSL standards for Internet access over copper; Passive optical networks (PONs) for fibre-to-the-home (FTTH) Internet; Synchronous Digital Hierarchy (SDH); Optical Transport Network (OTN); Fax machines (ITU-T T.30 and ITU-T T.4); Video codecs (ITU-T H.264 AVC and ITU-T H.265 HEVC, developed with ISO/IEC MPEG)
European Telecommunications Standards Institute (ETSI)	Formal SDO	Telecommunications	Various mobile standards including 2G GSM, 3G UMTS/W-CDMA, 4G LTE; Cordless telephony: DECT; Safety communications: TETRA; Car safety: eCal
Institute of Electrical and Electronics Engineers (IEEE)	Formal SDO	Wide range of electro-technical areas	IEEE 802.3 Ethernet; IEEE 802.11 Wireless Networking ('Wi-Fi'); IEEE 1394 'Firewire'; IEEE 802.15.1 'Bluetooth'; IEEE 802.16 'WiMax' wireless networking; IEEE 802.15.4 'ZigBee' standard for low-distance, low-power communications
Internet Engineering Task Force (IETF)	Consortium	Internet protocols	Internet Protocol suite (TCP/IP); Hypertext transfer protocol (HTTP)
World Wide Web Consortium (W3C)	Consortium	Web-related standards	Hypertext Markup Language (HTML); Extensible Markup Language (XML)
Organization for the Advancement of Structured Information Standards (OASIS)	Consortium	Standards for e-business and Web services	Common Alerting Protocol (CAP); Content Management Interoperability Services (CMIS); Electronic Business using XML (ebXML); Key Management Interoperability Protocol (KMIP); OpenDocument

### 3. THE STANDARD-SETTING PROCESS

The focus of these studies will be on the most common formal standards, those that are negotiated through voluntary consensus process in SDOs. It should be underlined that, as for the implementation phase of standards, it is, generally, voluntary. This is the case also for standards developed by formal SDOs: even though they are formally acknowledged by national or regional authorities, the implementation of their standards is left to a voluntary basis,<sup>98</sup> except for de jure standards, whose implementation is commanded by law. As it has been noted, although “[d]e jure standards can aim to limit standards battles or ‘platform wars’, attempting to impose certainty by fiat”, they carry the risk, in case implementation is imposed “too early, based on incomplete information, crowding out the opportunity for the emergence of a superior standard”, to “hamper innovation, potentially also raising barriers to competition and trade in cases where the adoption of a standard works to grant market dominance to a small group of companies”.<sup>99</sup>

Each standardization body sets its own rules, adopt its own procedures and follow its own practices for the formalization of a standard. However, in almost all of the processes it is possible to find a common paradigm. According to the model proposed by the ISO,<sup>100</sup> each process follows three major phases:

- l. reporting and evaluating the need for a standard: *“The need for a standard is usually expressed by an industry sector, which communicates this need to a national member body. The latter proposes the new work item to ISO as a whole. Once the need for an International Standard has been recognized and formally agreed, the first phase involves definition of the technical scope of the future standard. This phase is usually carried out in working groups which*

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<sup>98</sup> Public authorities may commission an SDO to develop a specific standard (so-called “mandated standard”. For example, the European Commission frequently mandates ETSI or another recognized body to develop a specific standard, which is then approved as a European Standard (EN). A mandated standards, nonetheless, is not mandatory in terms of implementation. The implementation can, however, have some advantages within the so-called European New Approach. See, S. FARR, HARMONISATION OF TECHNICAL STANDARDS IN THE EC (JOHN WILEY & SONS, 1996).

<sup>99</sup> R. N. A. BEKKERS, M. DALAIS, A. DORE, N. VOLANIS, UNDERSTANDING PATENTS, COMPETITION & STANDARDIZATION IN AN INTERCONNECTED WORLD (ITU, 2014), p. 25.

<sup>100</sup> See the International Organization for Standardization (“ISO”)’s website.

*comprise technical experts from countries interested in the subject matter;*<sup>101</sup>

- II. researching and consolidating the consensus on the standard features: *“Once agreement has been reached on which technical aspects are to be covered in the standard, a second phase is entered during which countries negotiate the detailed specifications within the standard. This is the consensus-building phase;*<sup>102</sup> and
- III. formal approval and publication of the document: *“[t]he final phase comprises the formal approval of the resulting draft International Standard [...], following which the agreed text is published as an ISO International Standard.”*<sup>103</sup>

In most cases, drafting the technical standard is carried out within technical committees and working groups made up of “experts representing the economic and social stakeholders (e.g., producers, suppliers, customers, users, distributors, research centers, consumers, public administration).”<sup>104</sup> Therefore, the standards body plays more of a function for coordinating work and providing an organizational structure. Finally, there are increasingly frequent cases in which the international standardization bodies endorse technical standards that have been previously formalized by other standardization bodies, putting into place a sort of second-degree standardization. This occurs particularly in very complex application, such as those that features the ICT market. In this sector, standardization involves lengthy and complex technical evaluations that are best handled by specialized standardization bodies.

Once formalized, the standards come in the form of documents containing all information necessary to reproduce the model: that is to say, the so-called standard specifications. As a result, the companies interested in developing a product that complies with the standard must be able to access them in detail.

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<sup>101</sup> *Id.*

<sup>102</sup> *Id.*

<sup>103</sup> *Id.*

<sup>104</sup> UNI (EDS.), LE REGOLE DEL GIOCO, UNI, 2006.

The standards bodies usually consider the documentation they have actualized as material that is, for all purposes, covered by the IP protection. This means that normally the standardization bodies do not spread their documentation freely, and to access it, the operators concerned must pay a royalty and acquire the necessary permits.

It necessarily follows that the standardization body, holding such property rights, may regulate access and use (as well as, indirectly, the implementation) of the final products. However, it is important to clarify that these considerations relate mostly to the stage of access to relevant documentation for the standard and not to the stage of implementation for the same standard. In fact, in addition to legal protections for access to the documentation, which has been previously mentioned, usually the technologies that are selected during the standards setting process are covered by patents. Consequently, when a patented technology is used as part of a standard, those who have legitimately acquired such documentation may still be unable to adopt and implement the standard, unless upon payment of an additional royalty to the patent holders, and the patent owner must agree to license its patent to other members of the organization. Much of the revenue of standardization organizations is derived from access to standardization documentation and standards licensing activities – as well as from membership fees. As we shall see, in order to avoid excessive royalties, the patent owner must ask for reasonable fees when licensing its patent, *i.e.* it must give access to its technology on FRAND terms and conditions.

### **3.1 CORE PRINCIPLES GOVERNING FORMAL STANDARDIZATION PROCESSES**

Although various SDOs apply their own standards-development principles, a number of entrenched best practices in standards development can be identified. These core principles are particularly described by ITU:<sup>105</sup>

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<sup>105</sup> R. N. A. BEKKERS, M. DALAIS, A. DORE, N. VOLANIS, UNDERSTANDING PATENTS, COMPETITION & STANDARDIZATION IN AN INTERCONNECTED WORLD (ITU, 2014), p. 23-25.

- Consensus: agreement (*i.e.* an absence of sustained opposition to substantive issues, but not forced unanimity) by all relevant stakeholders on the final composition of standards.<sup>106</sup>
- Transparency, which concerns the availability in regards to the proposal, development and approval of a technical standard in order to enable informed, equal participation by all stakeholders.
- Balance and openness: all stakeholders' interests should be equally pondered, ensuring that no specific interest dominates the standards-development process. Moreover, the standards-development process should be open to participation by all affected interests, on equal footing.
- Due process, which requires that the standards-development process allow all stakeholders to equally express their interests, have them weighted and, eventually, appeal an outcome adversely affecting their position.

The WTO's Committee on TBT, besides supporting these core principles, also recommends further principles in order to reinforce the notion of international standards development:<sup>107</sup>

- Impartiality: the standards-development process should guarantee equal participation to all entities, warranting that standards do not favor or protect any particular industries, markets or countries.<sup>108</sup>
- Effectiveness and relevance: standards should be adopted exclusively when they respond to a need stemming from some technological advancement or regulatory or market need.<sup>109</sup>

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<sup>106</sup> For instance, the ISO/IEC describe the concept of consensus as that of 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", although observing that "Consensus need not imply unanimity". ISO/IEC Guide 2:2004, standardization and related activities - General vocabulary (2004).

<sup>107</sup> World Trade Organization (WTO) Committee on Technical Barriers to Trade (2002) Decision of the committee on principles for the development of international standards, guides and recommendations with relation to articles 2, 5 and annex 3 of the agreement, G/TBT/1/Rev.8, 23 May, Section IX.

<sup>108</sup> *Id.*

- Coherence: standard-developing organizations should cooperate amongst themselves to prevent conflicting standards at the international level, as well as duplications or overlaps.<sup>109</sup>
- Development dimension: interestingly, in our research we found that a core principle sustained by the WTO concerns the circumstance that international standards should consider the need to embolden developing countries' involvement in the international standards-development process.<sup>111</sup>

## 4. STANDARDIZATION REGIMES

### 4.1. THE EUROPEAN STANDARDIZATION SYSTEM

The EU standardization has advanced through two main phases: (i) the so-called “Old Approach”, featuring extremely detailed legislation on standards requirements and, from 1985 onward, (ii) the “New Approach”, which limited the content of legislation to “essential requirements”, leaving the technical details to European harmonized standards.

#### 4.1.1. THE “OLD APPROACH”

The Old Approach to standardization comprised exhaustive texts covering all necessary technical and administrative requirements. This aspect, along with the unanimity required in this field, made the adoption of such legislation very cumbersome.

The first effort to move on from this impasse was done with the adoption of Directive 83/189/EEC in 1983, which established an information procedure between the Member States and the Commission to prevent the formation of new technical barriers to the free movement of goods.<sup>112</sup> This procedure was codified initially by Directive 98/34/EC in 1998 and modified by Directive 98/48/EC in 1998, mainly to

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<sup>109</sup> *Id.*

<sup>110</sup> *Id.*

<sup>111</sup> *Id.*

<sup>112</sup> Directive 83/189/EEC has now been superseded by Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services (OJ L 241, 17.9.2015, p. 1).



extend its application to Information Society services. Most recently, the procedure was codified for the second time by Directive (EU) 2015/1535 in 2015.<sup>113</sup>

Together with legislative initiatives to avoid new barriers and encourage the free movement of goods, the efficient application of the principle of mutual recognition cherished in EU law was also followed. Indeed, national technical regulations are subject to the requirements of Articles 34 to 36 TFEU, which proscribe quantitative restrictions or measures that have an equivalent effect. In this vein, the case law of the European Court of Justice, particularly the *Cassis de Dijon* case,<sup>114</sup> encouraged the mutual recognition principle and altered the EU approach to technical harmonization by affirming that Member States could only justify forbidding or restricting the marketing of products from other Member States on the basis of non-conformity with “essential requirements”. This laid the foundation in support of the New Approach.

#### **4.1.2 THE “NEW APPROACH”**

The New Approach was launched by the Council of Ministers on 7 May 1985 in its Resolution for a new approach to technical harmonization and standards.<sup>115</sup> It constitutes a regulatory method according to which (i) legislative harmonization should be reserved to those essential requirements that products positioned on the EU market must meet if they are to profit from free movement within the EU, (ii) the technical specifications for products satisfying the essential requirements ironed out in legislation should be laid down in harmonized standards that can be applied together with the legislation, (iii) products manufactured in compliance with harmonized standards benefit from a presumption of conformity with the corresponding essential requirements of the applicable legislation, and, in some cases, the manufacturer may benefit from a simplified conformity assessment procedure and (iv) the application of harmonized or other standards remains voluntary, and the manufacturer can always apply other technical specifications to meet the requirements, but will carry the burden of demonstrating that these

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<sup>113</sup> OJ L 316, 14.11.2012, p. 12.

<sup>114</sup> Case 120/78, 20.2.1979, *Rewe-Zentral AG v Bundesmonopolverwaltung für Branntwein*, ECR 1979, p. 649.

<sup>115</sup> OJ C 136, 4.6.1985, p. 1.

technical specifications answer the needs of the essential requirements, more often than not, through a process involving a third party conformity assessment body.<sup>116</sup>

The principles of the New Approach for European standardization paved the way to further harmonization. The role of harmonized standards legislation and the duties of the European SSOs are now defined in Regulation (EU) No 1025/2012<sup>117</sup>, which gives the Commission the prospect of inviting, after consultation with the Member States, the European SSOs to draft harmonized standards and institutes procedures to assess and object to harmonized standards.

In adopting a systemic perspective, it can be remarked that, although European and international standards are voluntary in nature, the EU standardization system is aimed at greater integration as well as the development of the Single Market.

The EU standardization regime has been defined as “*coordinated, regulated, subsidized and inclusive*”.<sup>118</sup> Overall, the EU standardization regime does not imply the direct intervention of the governments. In other words, EU standardization (whilst not as informal and industry-led as in the US, where consortia prevail over institutionalized, hierarchical SSOs) remains a fundamentally private initiative. It

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<sup>116</sup> For an overview of the Old and New Approach, see European Commission, Commission Notice - The ‘Blue Guide’ on the implementation of EU products rules 2016 (2016/C 272/01).

<sup>117</sup> OJ L 316, 14.11.2012, p. 12. The 2015/1535 notification procedure allows the Commission and the Member States of the EU to examine the technical regulations Member States intend to introduce for products (industrial, agricultural and fishery) and for Information Society services before the adoption. The aim is to ensure that these texts are compatible with EU law and the Internal Market principles. Specifically, According to Directive (EU) 2015/1535 Member States must inform the Commission of any draft technical regulation prior to its adoption. Starting from the date of notification of the draft, a three-month standstill period – during which the notifying Member State cannot adopt the technical regulation in question – enables the Commission and the other Member States to examine the notified text and to respond appropriately. Where it emerges that the notified drafts may create barriers to the free movement of goods or to the free provision of Information Society services or to EU secondary legislation, the Commission and the other Member States may submit a detailed opinion to the Member State that has notified the draft. The detailed opinion has the effect of extending the standstill period by additional three months for products and by additional one month for services. In the event of a detailed opinion being issued, the Member State concerned has to explain the action that it intends to take in response to the detailed opinion. The Commission and the Member States can also make comments about a notified draft that appears to comply with European Union law but that requires clarification on its interpretation. The Member State concerned shall take such comments into account as far as possible. Finally, the Commission can also block a draft for a period of 12 to 18 months if European Union harmonization work is to be undertaken or is already underway in the same field.

<sup>118</sup> Richard P. Suttmeier and Yao Xiangkui, *China’s Post-WTO Technology Policy: Standards, Software, and the Changing Nature of Techno-Nationalism*, NBR SPECIAL REPORT, NAT’L BUREAU OF ASIAN RESEARCH NO. 7, at 25 (May 2004).

is left to industry to select which technology better serves its interests, while the government merely outlines priorities and guidelines, without however imposing an intrusive overarching policy in this regard.<sup>119</sup>

The EU standardization regime includes national standardization organizations (e.g. in Italy, the Ente nazionale italiano di unificazione (“UNI”). These organizations are subject to government regulation. They represent an ample spectrum of interest groups, scientific organizations and public agencies. They acknowledge the centrality of standards for regional economic benefit and the diffusion of innovation.<sup>120</sup>

The EU standardization regime also includes a regional layer, composed of three standardization organizations. Namely, the European Telecommunications Standards Institute (ETSI),<sup>121</sup> the European Committee for Standardization (CEN),<sup>122</sup> and the European Committee for Electrotechnical Standardization (CENELEC).<sup>123</sup> They promote economic integration among member countries. The rules for cooperation between these organizations and national SSOs are explicitly set out in Directive 98/34/EC.<sup>124</sup> At the international level, cooperation between the European standardization organizations and their corresponding international SSOs is governed by formal agreements.<sup>125</sup> The resulting highly detailed and institutionalized system reflects the EU’s “*interest in international standardization*

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<sup>119</sup>Similarly, “*it is also not, and should not be, an antitrust agency’s role to interfere with the nature of the standard-setting process unless anticompetitive conducts are present*”. Grazyna Piesiewicz, Ruben Schellingerhout, *Intellectual property rights in standard setting from a competition law perspective*. The fact that the EU perceives standardization as a private matter does not imply, however, that FRAND conditions and the TFEU 101 guideline should not be taken into account. On May 1 2014, the European Commission adopted new rules for the assessment of technology transfer agreements according to EU competition law in order to facilitate the sharing of IP and provide guidance on licensing agreements that fuel competition. The new rules comprise two legal tools: (a) the new Technology Transfer Block Exemption Regulation (Commission Regulation EU No. 316/2014), and (ii) the Technology Transfer Guidelines (Commission Communication 2014/C 89/03).

<sup>120</sup> *Id.*

<sup>121</sup> See ETSI’s website.

<sup>122</sup> Translated from French “*Comité européen de normalisation*”, CEN.

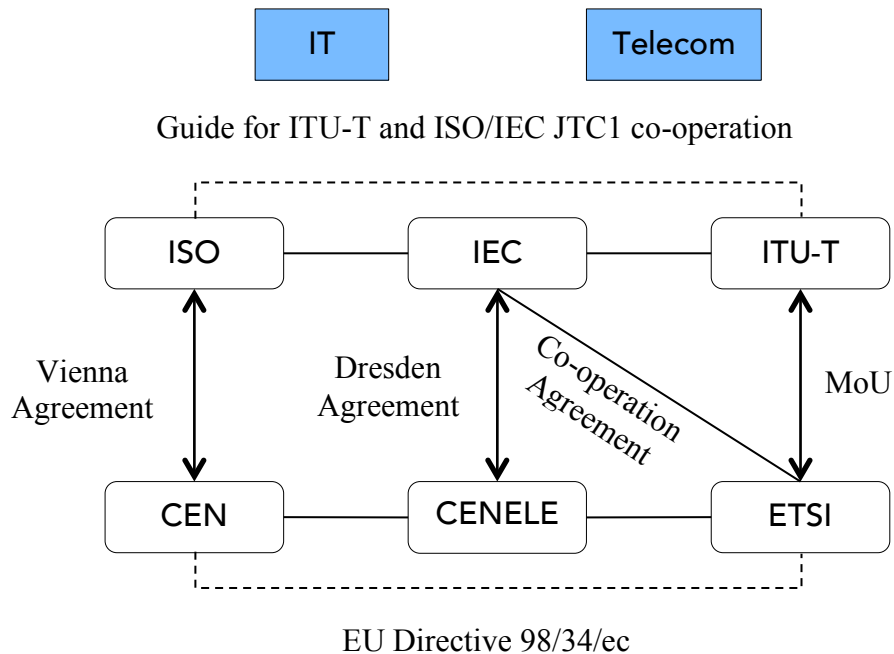
<sup>123</sup> Translated from French “*Comité Européen de Normalisation Électrotechnique*”, CENELEC.

<sup>124</sup> See Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations.

<sup>125</sup> This is primarily the case for the links between CEN-ISO and CENELEC-IEC; but not so much the case for ETSI and the ITU-T.

because of its potential to eliminate technical barriers to trade and to increase market access for all.”<sup>126</sup>

Table: the EU standardization system



## 4.2 THE CHINESE STANDARDIZATION SYSTEM

The Chinese standardization system is extremely different from the European one.

It developed under the aegis of a planned economy regime, with substantial influence from the former Soviet Union.<sup>127</sup> Under the system of a planned economy, the central government articulated and managed overarching nationwide standardization.

After an economic standstill, which also affects the standardization milieu and characterized the “Cultural Revolution” period beginning in 1966, Deng Xiaoping’s reform and opening-up policy pushed the central government to pursue

<sup>126</sup> European Commission’s 2001 Staff Working Paper, *European Policy Principles on International Standardization*, SEC(2001, p. 1296.

<sup>127</sup> On the Chinese standardization system, see Wang Ping, Wang Yiyi, and John Hill, *Standardization Strategy of China - Achievements and Challenges*, EAST-WEST CENTER WORKING PAPER-ECONOMICS SERIES 107 (2010), pp. 1-3.

a more intense modernization drive. The ensuing economic recovery also impacted China's standardization efforts, which were substantially resumed and advanced. Accordingly, in 1978, the State General Bureau for Standardization ("SGBS") was established and began to set up "national standardization technical committees". China applied for and regained its membership in the ISO at this time.

Today, the standardization administration system of the Chinese government is still the one formed under the planned economy system through which the central government exercised centralized control, while each different ministry was responsible for standardization of the industry that was under its jurisdiction. This system was further strengthened by the Standardization Law promulgated in 1988. According to the *Standardization Law* standards in China include both voluntary and mandatory standards and are classified into four levels, all of which should be registered with the SAC. Namely, the levels are designated as national standards, sector standards, local standards and enterprise standards.<sup>128</sup>

In the current standardization system, standard-setting is a matter of State and the Government effectively conducts first hand standardization through the Standardization Administration of China (the "SAC").

The SAC is in charge of approving and enacting standards<sup>129</sup> under the management of the General Administration of Quality Supervision, Inspection and Quarantine (the "AQSIQ"). The AQSIQ is a ministerial administration that operates directly under the supervision of the State Council. The SAC also represents China's interests internationally before the ISO and the IEC and it is in charge of managing 51 national mirror groups of IEC Technical Committees ("TCs") and Sub-Committees ("SCs"), and ISO/IEC Joint TC1 ("JTC") and SCs.<sup>130</sup> This task is carried out with China Electronics Standardization Institute (the "CESI"). The CESI plays a relevant role in ICT standardizations and is administered by the Ministry of Industry and Information Technology (the "MIIT").

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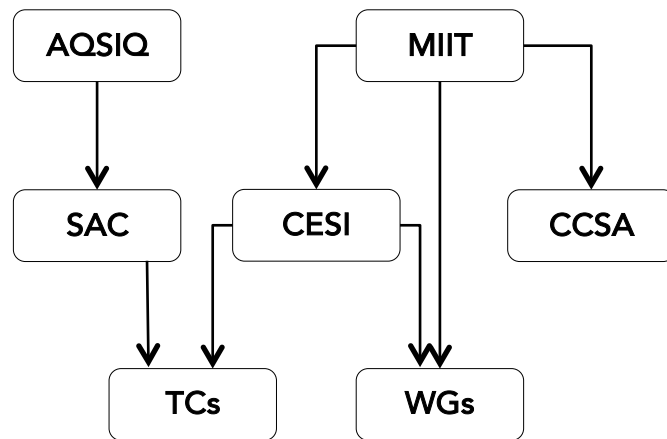
<sup>128</sup> State Council, Standardization Law of the People's Republic of China, 1988, Item 6, Chapter 2.

<sup>129</sup> See Brian J. Delacey, Kerry Herman, David J. Kiron, Josh Lerner, Wai-Shun Lo, *Government Intervention in Standardization: The Case of WAPI*, Harvard Bus. School – Fin. Unit & Nat'l Bureau of Econ. Research (Sept. 2006), p. 8.

<sup>130</sup> M. Gerst, *IPR in Standardization*, Feb. 2016, IP KEY, p. 22.

Another entity involved in ICT standard-setting is the China Communication Standards Association (the “CCSA”). The CCSA is the Chinese member of the Global Standards Collaboration, the association of national and regional SDOs active in the area of telecommunications. The CCSA also operates under the administration of the MIIT.

Table: the Chinese standardization system



**AQSIQ:** General Administration of Quality Supervision, Inspection and Quarantine

**MIIT:** Ministry of Industry and Information Technology

**SAC:** Standardization Administration of China

**CESI:** China Electronic Standardization Institute

**CCSA:** China Communications Standards Association

Overall, the European and Chinese standardization systems differ deeply, although both have adopted a strong and centralized top-down approach to standards.<sup>131</sup> In the EU, standard-setting stems from voluntary cooperation between public authorities, industry stakeholders, research centers and other actors. Although the European Commission, by means of its New Approach, aims to harmonize EU standards and influence the contest between European standardization organizations and their international counterparts, there is no direct government intervention. Conversely, in China, the government directly

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<sup>131</sup> See generally, Christopher S. Gibson, *Globalization and the technology standards game: Balancing concerns of protectionism and intellectual property in international standards*, BERKELEY TECHNOLOGY LAW JOURNAL 22.4 (2007), p. 1403-1484.

supervises, manages and shapes standardization, reflecting its industrial policies:<sup>132</sup> it is the only main body to organize and preside over standardization activities.

On the contrary, China's standardization system remains in the hand of the central Government' control and administration, as set out in the 1988 *Standardization Law*, which was designed to serve economic development at a time when China was developing Deng Xiaoping's progressive opening up of Chinese markets.<sup>133</sup>

Other differences between the EU and Chinese standardization regimes concern stakeholders playing a primary role. In the EU standardization process technology manufacturers are pre-eminent, while in China, researchers and public research institutions prevail.<sup>134</sup> As will be analyzed in this study, both the EU and the Chinese standardization regimes remain reluctant to recognize the legitimacy of standards developed and adopted by industry-led consortia and other informal standard-setting entities. Although such entities are predominant in the US standardization scenario, both the EU and its Chinese counterparts still prefer institutionalized standard-setting organizations.<sup>135</sup> Nowadays, the process of standardization remains opaque and foreign firms in China do not have appropriate advance notice to comment on new standards.<sup>136</sup> Accordingly, "*To the extent that foreign companies are involved in the drafting of standards, their role is usually that of observer, with the Chinese side being especially reluctant to invite foreign participation in high-tech areas.*"<sup>137</sup>

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<sup>132</sup> D. Breznitz, M. Murphree, *The Rise of China in Technology Standards: New Norms in Old Institutions*, Research Report Prepared on Behalf of the US-China Economic and Security Review Commission, 2013, p. 7.

<sup>133</sup> Wang Ping, Wang Yiyi, and John Hill, *Standardization Strategy of China - Achievements and Challenges*, EAST-WEST CENTER WORKING PAPER-ECONOMICS SERIES 107 (2010), pp. 2-3.

<sup>134</sup> M. RONGPING, W. ZHUOLIANG, *THE ROLE OF STANDARDS IN NATIONAL TECHNOLOGY POLICY IN CHINA*, 2005.

<sup>135</sup> Richard P. Suttmeier, Xiangkui Yao, Alex Zixiang Tan, *Standards of Power: Technology, Institutions, and Politics in the Development of China's National Standards Strategy*, THE NATIONAL BUREAU OF ASIAN RESEARCH (2006).

<sup>136</sup> Brian J. Delacey, Kerry Herman, David J. Kiron, Josh Lerner, Wai-Shun Lo, *Government Intervention in Standardization: The Case of WAPI*, Harvard Bus. School – Fin. Unit & Nat'l Bureau of Econ. Research (Sept. 2006), p. 9.

<sup>137</sup> Richard P. Suttmeier, Yao Xiangkui, *China's Post-WTO Technology Policy: Standards, Software, and the Changing Nature of Techno-Nationalism*, NBR Special Report, THE NATIONAL BUREAU OF ASIAN RESEARCH No. 7, at 26 (May 2004). However, it must be noted that today some industrial associations in China (for instance the CCSA, the CEEIA and the IRGSA), play a prominent role in developing national and sector standards. However, they remain subject to the leadership of the Government.

#### 4.2.1. PROSPECTIVE CHALLENGES FOR STANDARDIZATION IN CHINA

However, over the past four decades of reform, and upon opening up, China has been shifting from a planned economy to a market-based economic system. This suggests that its standardization management should reflect a change of paradigm by innovating and potentially embracing a system, similar to those of develop countries, where most technical standards are voluntary and formulated based on a market mechanism and where implementation of standards mainly relies on the lock-in effect of market competition instead of governmental enforcement.<sup>138</sup>

Policy makers are aware of the relevance of standards in today's economy. Accordingly, in the last few years, China has progressively "*placed the development of standards at the center of its national strategy to emerge as a world leader in science and technology by the year 2020.*"<sup>139</sup> A long-term standards strategy was launched in 2002 with the establishment of a technical standards development strategy and the establishment of a national technical standards system. Strategic objectives to be achieved were divided into three phases. Namely:

- I. forming a new voluntary technical standards system and enhancing the market adaptability of technical standards by 2010;
- II. completing and perfecting the technical standards system and raising the level of Chinese technical standards development by 2020; and
- III. ensuring that Chinese technical standards hold a pre-eminent and prominent international status by 2050.<sup>140</sup>

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Wang Ping, Wang Yiyi, and John Hill, *Standardization Strategy of China - Achievements and Challenges*, East-West Center Working Papers, Economics Series, No. 107, p. 14.

<sup>138</sup> Wang Ping, Wang Yiyi, John Hill, *Standardization Strategy of China - Achievements and Challenges*, EAST-WEST CENTER WORKING PAPER-ECONOMICS SERIES 107 (2010), p. 14.

<sup>139</sup> R.P. Suttmeier, X. Yao, A.Z. Tan, *Standards of Power? Technology, Institutions, and Politics in the Development of China's National Standards Strategy*, THE NATIONAL BUREAU OF ASIAN RESEARCH, 2006, p. 27.

<sup>140</sup> Teresa Cendrowska, *Enabling US-Chinese Cooperation in Standards and Conformity Assessment*, ASTM STANDARDIZATION NEWS, referring to comments of Liu Fei, Director of Operations in the Beijing office of the Consortium for Standards Conformity and Assessment (the "CSCA").



China is gradually becoming more aware of the fact that the country's role in the global setting is shifting from a mere standards implementer to a standards developer and innovator. Some observers have gone so far as to identify China as the likely global technology standards-setter of the 21st century.<sup>141</sup> This has prompted an urgent need for China to comprehensively reform its standardization system in order to meet the requirements of the market-based economic system, which has been established and gradually improved in China over the past 35 years. In light of this China has launched a systematic redesign of its entire standardization architecture in order to become one of the most important players in global standardization by 2020.

A first step would be to launch a thorough reform of standardization, starting with the amendment of the 1988 *Standardization Law*, which has its origins in a planned economy system. This reform would align the development of China's market economy and government institutions with a modern standardization regime. This modernization is also fostered by the State Council reform proposal circulated in March 2015.<sup>142</sup> The reform involves numerous action points,<sup>143</sup> such as (i) redefining the role of standards in promoting industrial transformation and improving the quality and efficiency of economic production; (ii) focusing on fostering competition for domestic use and on things being "created in China" for global markets; (iii) stating that standards shall also serve diplomacy and trade; and (iv) emphasizing industry-driven standardization, including consortia (social group standards) and enterprise standards.

This strategy reflects and responds to the efforts made by the Chinese Government to move towards the next stage of economic development as outlined in its 13<sup>th</sup> five-year plan and supported in the country's ten-year national plan, "Made in China 2025". "Made in China 2025" aims to reinforce industrial competitiveness by upgrading the manufacturing sector to the next level of the

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<sup>141</sup> See Bob McDowell, *China Technology Standards?*, Fortune (Mar. 5, 2004); Peter Lewis, *China Sets the Standards*, CNN Money (Feb. 23, 2004).

<sup>142</sup> SESEC III, Bi-monthly Newsletter March 2015.

<sup>143</sup> SESEC III China Situation Monthly Newsletter, March 2015; Ziegler "A Chinese Perspective on the Role of Standards in International Trade – A European Perspective", SIIT 2015.

value chain and putting greater emphasis on advanced information technology, innovation and efficiency.<sup>144</sup>

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<sup>144</sup> M. Gerst, “*Made in China 2025*” and *What it Means for European SMEs*, EUROBIZ, EUCCC, April, 2016. The plan is to transform China’s manufacturing industry from “made in China” to “made by China”, emphasizing product quality and sustainability, and developing brands to become a “world manufacturing power”. M. Gerst, *IPR in Standardization*, Feb. 2016, IP KEY, p. 18.

# CHAPTER III

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## REGULATING NEW TECHNOLOGY MARKETS

*“The Fourth Industrial Revolution is unfolding at an exponential rather than a linear pace”.*

China President Xi Jinping

Opening address delivered at the World Economic Forum in Davos (2017)

### **1. FOCUS ON ICT: NETWORK EFFECTS AND INTEROPERABILITY**

### **2. LOCK-IN AND HOLD-UP**

### **3. THE CONCEPT OF STANDARD-ESSENTIAL PATENTS (“SEPs”)**

### **4. INNOVATION, INTELLECTUAL PROPERTY AND STANDARDIZATION:**

#### **DETECTING TENSIONS**

4.1. DIFFERENTIATION VS. HARMONIZATION

4.2. PRIVATE VS. PUBLIC GOOD

4.3. TECHNOLOGICAL VARIETY VS. SELECTION

4.4. IP AND STANDARDIZATION: COMPLEMENTARY INSTITUTIONAL DEVICES OF MARKET REGULATION

### **5. COMPETITION CONCERNS AND IP IN INNOVATIVE MARKETS**

5.1. COMPETITION AS A DISCOVERY PROCESS OF CREATIVE DESTRUCTION

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5.3. PATENT ASSERTION ENTITIES

5.4. ANTICOMMONS

5.5. CROSS-LICENSING

5.6. PATENT POOLS

### **6. STRATEGIC STANDARDIZATION BY ADVANCED COUNTRIES AND**

#### **INDIGENOUS STANDARDIZATION BY LATECOMERS**

6.1. CHINA: THE PROS AND CONS OF BEING A LATECOMER IN A GLOBALIZED TECHNOLOGY-DRIVEN ECONOMY

6.2. INNOVATION POLICIES AS A REGULATORY TOOL: AT THE CROSSROADS OF IP, COMPETITION AND TRADE

## 1. FOCUS ON ICT: NETWORK EFFECTS AND INTEROPERABILITY

This part focuses on the relationship between technical standards, IP and competition in the information and communications technology (“ICT”) sector. This relationship has emerged in the ICT sector because in this sector strategic patenting is predominant. Technology developers rely on IPRs, especially patents, to recoup or to fund R&D investments. This often leads to technologies being incorporated into standards. Firms seeking to implement standards or develop enhanced technologies trespass the patents incorporated in these standards if they do not obtain a license.

The ICT sector, carrying a value of around USD 2 trillion per year,<sup>145</sup> plays an important role in the development of standards. Indeed, the convergence of products and services in the mobile communications and Internet sector has changed our daily lives. The majority of mobile phones access the internet using wireless technology and complex microelectronic devices interconnect with one another thanks to hundreds of interoperability standards. These interoperability standards almost always embed patented technology..

The ICT sector has two main features: (I) network effects and (II) interoperability.

- I. Network effects are generally viewed as a particular set of market mechanisms, which, by their presence, tend to have specific positive economic features not found in conventional markets. Interestingly, while the early studies on network effects focused on long-distance telephony,<sup>146</sup> today network effects are usually acknowledged as a crucial feature of many industries,<sup>147</sup> including the ICT sector.

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<sup>145</sup> United Nations Conference on Trade and Development (UNCTAD) (2014), *Global imports of information technology goods approach \$2 trillion, UNCTAD figures show*.

<sup>146</sup> Jeffrey Rohlfs, *A theory of interdependent demand for a communications service*, THE BELL JOURNAL OF ECONOMICS AND MANAGEMENT SCIENCE (1974), pp. 16-37.

<sup>147</sup> Empirical evidence of network effects has been found in product categories as diverse as, for instance, spreadsheets (see Erik Brynjolfsson, Chris F. Kemerer, *Network Externalities in Microcomputer Software: An Econometric Analysis of the Spreadsheet Market*, MANAGEMENT SCIENCE Vol. 42, No. 12 (Dec., 1996), pp. 1627-1647), and databases (see Neil Gandal, *Competing Compatibility*

A product generates direct network effects when its increased use by any user directly increases its value.<sup>148</sup> Network effects may also be indirect, where increased use of the product increases the invention of progressively more valuable complementary goods, thereby indirectly increasing the value of the original product. For example, standards allowing file compatibility with Windows, result in increased quality and availability of complementary applications' software.<sup>149</sup>

Additionally, empirical evidence concerning e-marketplaces, reader/writer software pairs, hardware/software platforms and matching services has proven the existence of two-sided network effects. This is where an increase in use of a product by one set of users increases the value of a complementary product to another distinct set of users, and the other way around.<sup>150</sup>

Finally, network effects can be local, as other features of the primary network of connections, rather than an increase in the size of a product's user base in general, can impact on the relevance of network effects. A good example showing local network effects is instant messaging. In this context, the scope of clustering in the network, as well as the amount of information that each consumer holds, may come to be relevant as each consumer is directly affected by the choices of even a small subgroup of other

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*Standards and Network Externalities in the PC Software Market*, THE REVIEW OF ECONOMICS AND STATISTICS Vol. 77, No. 4 (Nov., 1995), pp. 599-608.

<sup>148</sup>This is the sort of network effect modeled by most work in this area, see Michael L. Katz, Carl Shapiro, *Network externalities, competition, and compatibility*, THE AMERICAN ECONOMIC REVIEW 75:3 (1985), pp. 424-440; see also JOSEPH FARRELL, GARTH SALONER, *ECONOMIC ISSUES IN STANDARDIZATION* (1985).

<sup>149</sup> For an early analysis of the economics of indirect network effects see Nicholas Economides, Steven C. Salop, *Competition and integration among complements, and network market structure*, THE JOURNAL OF INDUSTRIAL ECONOMICS (1992), Pp. 105-123.

<sup>150</sup>On this kind of network effect see Jean-Charles Rochet, Jean Tirole, *Platform competition in two-sided markets*, JOURNAL OF THE EUROPEAN ECONOMIC ASSOCIATION 1.4 (2003), pp. 990-1029.

consumers, e.g. those that the consumer is connected to through a social or business network.<sup>151</sup>

- II. Regarding interoperability, although a clear definition is absent, it can be defined as the linking of systems, networks and services so that they can work together successfully and be compatible.<sup>152</sup> This compatibility prerequisite is what constitutes “interoperability”, that is “*the ability of two systems to interoperate using the same communication protocol*”.<sup>153</sup> The European Court of Justice (the “ECJ”) further clarified that “*interoperability is a matter of degree and that various software products in a system ‘interoperate’ (at least partially) when they are able to exchange information and mutually to use the information which has been exchanged*”.<sup>154</sup>

Interoperability is above all vital in the telecommunications sector where it produces a network of technologies that can interrelate between each other. Interoperability is thus critical for the advance of new technologies and the advantages for consumer welfare. Nonetheless, interoperability is at the source of potential competition concerns, as shown in the landmark ECJ Microsoft case. In this case, Microsoft had refused to provide its computer protocols and patents to its competitors, in order to prevent facing competition from other software designers. The ECJ found that this conduct prevented competitors from generating programs that

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<sup>151</sup> On local network effects and complex network structure, see Arun Sundararajan, *Local Network Effects and Complex Network Structure* (August 2006). On the current growing literature addressing more general network games, see Andrea Galeotti et al, *Network games*, THE REVIEW OF ECONOMIC STUDIES 77.1 (2010): 218-244. These new models rely heavily on the so-called “science of networks”, see Mark E.J. Newman, *The structure and function of complex networks*, SIAM REVIEW 45.2 (2003), pp. 167-256.

<sup>152</sup> See generally Shin, Dong-Hee, Hongbum Kim, and Junseok Hwang. *Standardization revisited: A critical literature review on standards and innovation*, COMPUTER STANDARDS & INTERFACES 38 (2015), pp. 152-157.

<sup>153</sup> Thomas Hoehn and Alex Lewis, *Interoperability Remedies, FRAND Licensing and Innovation: a review of recent case law*, 34(2) EUROPEAN COMPETITION LAW REVIEW (2013), p. 101.

<sup>154</sup> Case T-201/04 *Microsoft v Commission* [2007] ECR II-3601 (Microsoft I), para 158.

could interoperate with Microsoft's servers and was thus in violation of Article 102 TFEU.<sup>155</sup>

Network effects assume the existence of interoperability, as ICT products will not be able to extract any benefit from the network effects unless they are compatible. Vice versa, the demand for interoperability, the interface between different products and technologies, is network-driven, given that when a market adopts a technical standard, demand tends to migrate towards one solution, which becomes the *de facto* standard, if no standard is elaborated *de iure* by an SSO.<sup>156</sup> Additionally, guaranteeing the advancement of shared technology standards is decisive in network industries. However, shared technology standards can be difficult to achieve when technology businesses each want their own R&D to be prioritized or at least well-represented. These are crucial issues in the standardization contest, as the standardization contest frequently imposes a compromise on economic operators between the performance and compatibility of ever-innovating products, and between openness and exclusionary control of underlying technologies.<sup>157</sup>

## 2. LOCK-IN AND HOLD-UP

There is a fundamental friction between the interests of the R&D inventors, who pursue economic yields on their investments, and users of novel technology, who seek access on reasonable and affordable terms. These contrasting aims are even more blatant in the context of standards, whose existence and value is strictly dependent on widespread acceptance. If patented, these standards may hamper effective competition through (i) lock-in and (ii) hold-up.

1. "Lock-in" describes the situation where a standard is adopted or approved by an SDO and market participants make substantial investments on the basis of the standard. Substantial investments include contractual commitments, purchasing durable goods and

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<sup>155</sup> *Ibid.*

<sup>156</sup> Bjorn Lundqvist, *Competition Law as the Limit to Standard-Setting*, in JOSEF DREXL AND FABIANA DI PORTO (ED), *COMPETITION LAW AS REGULATION* (EDWARD ELGAR 2015), pp. 6-7.

<sup>157</sup> For an analysis of network effects in the information technology sector, see CARL SHAPIRO, HAL R. VARIAN, *INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY* (HARVARD BUSINESS PRESS 1998).

capital equipment, training employees, developing or procuring information technology, identifying suppliers, and building up customer loyalty.<sup>158</sup>

- II. In these circumstances, another anticompetitive phenomenon may take place, referred to as patent “hold-up”. Patent “hold-up” occurs when the cost of switching from the standardized technology to an alternative technology is unaffordable, thereby enhancing the patent holder’s power in any ensuing negotiation.<sup>159</sup>

Indeed, ICT devices comprise a high number of patented technology owned by different entities.<sup>160</sup> In order to develop new high-tech devices it is thus necessary to obtain the agreement of all patent owners through licensing agreements. Owners will ask for fees, which generally reflect the market value of their patents. Moreover, given that documents for standards are frequently rather lengthy and intricate, numerous inventive concepts are often incorporated into the same standard, leading to the possibility of multiple patents covering any given standard.<sup>161</sup> The accumulation of royalty demands by numerous patent holders could lead to cost-prohibitive encumbrances on the implementation of products that comply with the standards, leading to a situation termed “royalty stacking”, which is extensively explored in the literature.<sup>162</sup>

### 3. THE CONCEPT OF STANDARD-ESSENTIAL PATENTS (“SEPs”)

The potential friction between standardization and patents emerges when the implementation of a standard requires the inclusion of a proprietary technology. Indeed, most of the standards rely on core technology that does not

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<sup>158</sup> *Id.*

<sup>159</sup> Mark A. Lemley, Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. (2007).

<sup>160</sup> For example, Blind et al. report large numbers of patents that are essential to several standards, *i.a.* WCDMA, LTE, and optical disk drive. KNUT BLIND ET AL., *STUDY ON THE INTERPLAY BETWEEN STANDARDS AND INTELLECTUAL PROPERTY RIGHTS (IPRS)*, FINAL REPORT, 2011.

<sup>161</sup> Jorge L. Contreras, *Patents, Standards and Borders: Addressing National Disparities among Holders of Standard-Essential Patents*, EAST-WEST CENTER WORKSHOP ON MEGA-REGIONALISM - NEW CHALLENGES FOR TRADE AND INNOVATION, 2016.

<sup>162</sup> Mark A. Lemley, Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. (2007); Jorge L. Contreras, *Patents, Technical Standards and Standard-Setting Organizations: A Survey of the Empirical, Legal and Economics Literature* in PETER S. MENELL, DAVID SCHWARTZ (EDS.), *RESEARCH HANDBOOK ON THE ECONOMICS OF INTELLECTUAL PROPERTY LAW, VOL. II - ANALYTICAL METHODS* (EDWARD ELGAR, 2016).



have any equivalent. The implementer thus needs to use the very specific proprietary technological solution in order to make the product compatible with the standard. If the core technology is protected by patents, the patents are defined as “essential”, meaning that *“it is not possible on technical (but not commercial) grounds, taking into account normal technical practice and the state of the art generally available at the time of standardization, to make, sell, lease, otherwise dispose of, repair, use or operate equipment or methods which comply with a standard without infringing that intellectual property right”*.<sup>163</sup>

SEP holders are subject to stricter IP and competition rules. These rules aim to strike a balance between the interests of innovators who own the SEPs and invest in chancy technological improvements for developing standards, and the interests of the implementers who seek to adopt the standards and take advantage of such innovative technology through licenses.

SEPs lie at the heart of the competition issues in this domain as they provide their owners with the power to prevent their competitors from employing certain technology or to request excessive royalties, which may outstrip normal competition. However, assessing and identifying which patents are “essential” for a standard is not an easy task, and is sometimes impossible, due to the extremely large patent portfolios of some firms and the wide-range of patents incorporated into high-tech devices. Therefore, antitrust concerns may arise, particularly concerning the obligation to reveal SEPs during the standardization process.

The large number of patents is fuelled by the practice, which is widespread in the ICT sector, to apply for patents that cover merely minor improvements of former patented technologies. This has created a series of issues, with accompanying efforts to solve them at different stages: at the institutional level, through IPR policies, at the policy level, in terms of competition, IPR, and standardization policy, and in other multilateral contexts, for example by means of patent pooling and other licensing schemes.

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<sup>163</sup> ETSI, *Intellectual property rights* policy (2012). The definition of SEPs provided by the IPRs policy of the ETSI is cited as it represents one of the most important SSOs in the field of telecommunications.

#### 4. INNOVATION, INTELLECTUAL PROPERTY AND STANDARDIZATION: DETECTING TENSIONS

The relationship between IPRs and standards is inherently characterized by a conflict stemming from their diametrically opposed functions, as explained below.

##### 4.1. DIFFERENTIATION VS. HARMONIZATION

The chief goal of IP is to allow differentiation among products, services and the whole business that constitutes the background of products and services. IPRs are destined for private exclusive use.<sup>164</sup> This is clear when analyzing the rationale of patents, which represent the most relevant area of IP for technology standardization.<sup>165</sup> The WTO Agreement on TRIPS specifies the minimum standards that member states must apply to patents, curtailing the discretion that states exert in the regulation and enforcement of IPRs.<sup>166</sup> Patents for an invention are conceived as a statute-created monopoly,<sup>167</sup> granting specific rights to the applicant for the use of the technological invention. Generally, they allow a trade-off between the investors' disclosure of detailed information about the invention against others using information about the invention for the time and geographical area for which the patent is in force.<sup>168</sup> This right to exclusivity, as also mirrored in the TRIPS Agreement,<sup>169</sup> is the crucial legal entitlement in the patent system,<sup>170</sup> as it allows the patent holder to recover returns from the market.

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<sup>164</sup> Karsten Meinhold, *The ETSI IPR Policy*, EC Workshop on IP Rights in Standardization (2008).

<sup>165</sup> For a holistic analysis of concerns related to standardization that touches upon all IP rights, not simply patents, see generally Nuno Pires de Carvalho, *Technical Standards, Intellectual Property, and Competition - A Holistic View*, 47 WASH. U. J. L. & POL'Y 061 (2015).

<sup>166</sup> Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Legal Instruments - Results of the Uruguay Round, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994) (the "TRIPs Agreement"). See Laurence R. Helfer, *Regime Shifting, The TRIPs Agreement and New Dynamics of International Intellectual Property Lawmaking*, 29 YALE JOURNAL OF INTERNATIONAL LAW 1 (2004).

<sup>167</sup> Yogesh Pai, *The International Dimension of Proprietary Technical Standards: Through the Lens of Trade, Competition Law and Developing Countries* (July 6, 2012). Society of International Economic Law (SIEL), 3rd Biennial Global Conference Working Paper No. 2012/40, p. 11.

<sup>168</sup> K. Blind, N. Thumm, E. Iversen, K. Hossain, R. van Reekum, B. Rixius, R. Bierhals, J. Sillwood, *Interaction between Standardization and Intellectual Property Rights*, TECHNICAL REPORT, EUR 21074 EN, 2004, pp. 40-41.

<sup>169</sup> See Article 28 TRIPS: "Rights Conferred"

1. A patent shall confer on its owner the following exclusive rights:

Pursuant to this approach, the patent system has been perceived as performing (I) an appropriation function and (II) a knowledge distribution function in contexts featuring market failures:<sup>171</sup>

- I. the *appropriation function* of the patenting mechanism aims at creating an incentive for private R&D, promoting inventive activities and new economically valuable knowledge where market forces are not sufficient. The incentive purpose is based on the assurance for the investor of the possibility to not only recoup R&D costs, but also to appropriate the profits accruing to the invention;
- II. the *knowledge distribution function* allows the diffusion of the technology by means of disclosure of the invention.

All technologies are vested with the shielding apparatus of the patent regime, in so far as they are patent eligible and satisfy the three patentability requirements of inventive step, novelty and utility, which represent the major criteria pursuant to the WTO Agreement on TRIPS.<sup>172</sup> The patenting system thus caters to the investors' desire to enjoy the profits deriving from the economically valuable knowledge incorporated in the invention. The investor will thus be able to obtain the profits either by developing and commercializing the invention, or by licensing the right to third parties who will then commercialize it.<sup>173</sup> By and large, patenting regimes can therefore be viewed as a mechanism "*designed to create a market for knowledge by assigning propriety property rights to innovators*

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(a) where the subject matter of a patent is a product, to prevent third parties not having the owner's consent from the acts of: making, using, offering for sale, selling, or importing for these purposes that product;

(b) where the subject matter of a patent is a process, to prevent third parties not having the owner's consent from the act of using the process, and from the acts of: using, offering for sale, selling, or importing for these purposes at least the product obtained directly by that process.

2. Patent owners shall also have the right to assign, or transfer by succession, the patent and to conclude licensing contracts".

<sup>170</sup> On this, see Case 238/87 *Volvo NA v Erik Veng (UK) Ltd.* 4 CMLR 122 (1989).

<sup>171</sup> For a pivotal discussion on patents as an appropriation or knowledge distribution mechanism, see K. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, in R. R. NELSON (ED), *THE RATE AND DIRECTION OF THE INVENTIVE ACTIVITY: ECONOMIC AND SOCIAL FACTORS* (PRINCETON 1962).

<sup>172</sup> See Article 27(1) TRIPS, requiring the grant of patents to "*any invention*" in "*all fields of technology*". Consequently, the only set of exclusions are mentioned in Article 27(2) and (3).

<sup>173</sup> K. Blind, N. Thumm, E. Iversen, K. Hossain, R. van Reekum, B. Rixius, R. Bierhals, J. Sillwood, *Interaction between Standardization and Intellectual Property Rights*, TECHNICAL REPORT, EUR 21074 EN, 2004, p. 41.

*which enable them to overcome the problem of non-excludability while, at the same time, encouraging the maximum diffusion of knowledge by making it public”.*<sup>174</sup>

It is nonetheless noted that patentability requirements have been interpreted dissimilarly in different patent regimes. This is clear when examining the patentability of computer programs, i.e. software, in different jurisdictions. In the EU, the European patent office, flexibly interpreting the European patent convention, allows patents to be granted for minor technological inventions, also in the software sector, provided they imply a physical hardware incorporation.<sup>175</sup> Likewise, China does not permit software as such to be patented,<sup>176</sup> although it does not exclude patentability for inventions correlated to computer programs.<sup>177</sup> As for the US, in 1981 the Supreme Court first recognized that a computer program may deserve patent protection. The Supreme Court explained that the presence of a software element did not render a patent-eligible process non-patentable.<sup>178</sup>

The differentiation enabled by the IP systems is key, given that it is conducive to both the appropriation function and the knowledge distribution

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<sup>174</sup> P. Geroski, *Markets for Technology: Knowledge, Innovation and Appropriability*, in P. STONEMAN (ED) HANDBOOK OF THE ECONOMICS OF INNOVATION AND TECHNOLOGICAL CHANGE (BLACKWELL: CAMBRIDGE, USA 1995).

<sup>175</sup> On the patentability of software, see T-258/03 *Auction Method/Hitachi* [2004], Decision of a Technical Board of Appeal of the European Patent Office.

<sup>176</sup> Specifically, Article 25(2) of the Chinese Patent Law sets out a series of exceptions to patentability. One of these exceptions concerns the rules and methods for performing mental activities and it is often relied upon to advance non-patentable subject matter objections against inventions concerning software. The claims concerning one of the following are usually considered as defining rules and methods for performing mental activities: methods of calculation or rules of mathematical calculation; computer programs as such or computer programs recorded on computer-readable media; and rules and methods for playing games. Pursuant to Article 2.2 of the Chinese Patent Law, software patent applications may also be precluded for lack of a “technical solution”, defined in the Guidelines for Patent Examination of the Chinese Patent Office as “*aggregation of technical means applying the laws of nature to solve a technical problem*”. Computer programs are described as “*coded instruction sequences executable by an information processing device, e.g., a computer, to obtain certain results*”, or “*symbolized instruction sequences or symbolized statement sequences that can be automatically transformed into coded instruction sequences*”; a software invention is defined as “*a solution to an identified problem, which is wholly or partly based on processes of computer programs, for controlling or processing external or internal objects of a computer via execution of the computer programs by a computer*”. See Patent Law of the People’s Republic of China (as amended up to the Decision of December 27, 2008, regarding the Revision of the Patent Law of the People’s Republic of China), in Chinese: 中华人民共和国专利法 (根据 2008 年 12 月 27 日全国人民代表大会常务委员会《关于修改〈中华人民共和国专利法〉的决定》修正).

<sup>177</sup> Pursuant to Article 25(2) of the Chinese Patent Law, in case of a claim reciting technical features on top of content concerning methods for performing mental activities, patentability of the software cannot be automatically excluded. *Id.*

<sup>178</sup> *Diamond v Diehr* [1981] 450 US 175.

function. None of these purposes could be achieved without eliminating the homogeneity of products, *i.e.* if products were entirely substitutable. For instance, if we consider a Samsung Galaxy and an Apple iPhone they are substitutable to the extent that they are both smartphones. Nonetheless, they are not identical as they perform different functions that exclude absolute interchangeability. Given the difference in products, sellers have more power to set prices without worrying that consumers might react by shifting from one product to another as a reaction to the price increase. Consumers may ultimately be bound to their preferences and, in some way, not responsive to price changes, as the introduction of differentiating features in a product may have the effect of locking them in. In fact, the less homogenous the two smartphones are, the more willing consumers will be to pay a higher price and stay loyal to their current device.<sup>179</sup>

The role standardization plays is inherently different from the one carried out by the IPR system described above. Standards do not aim at differentiating, but rather at harmonizing products, services and processes. They are elaborated by different interests to create a common ground for the further compatibility of different technology.<sup>180</sup> In this vein, the literature has constantly associated standardization with the reduction of uncertainty to allow the ICT industry to benefit from network externalities.<sup>181</sup> Standards are conducive to minimizing transaction costs, in particular if related to compatibility and interoperability in network-based technologies. In these markets standardization functions as a selection mechanism that applies to diverse technology, allowing the ICT industry to extract the beneficial consequences of network externalities.<sup>182</sup> If possible,

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<sup>179</sup> This refers to the theory of monopolistic competition elaborated by Edward Chamberlian. See EDWARD CHAMBERLIN, *THE THEORY OF MONOPOLISTIC COMPETITION*, 56–70 (1933). Theodore Levitt held that there are two ways of introducing differentiation of products: by augmenting the product or by lowering prices. Product augmentation can come in numerous ways, e.g. through alterations in technical structures and design, or in external services that complement the product. Theodore Levitt, *Marketing Success through Differentiation - Of Anything*, *HARVARD BUSINESS LAW REVIEW* 83 (Jan. 1980), pp. 84, 87.

<sup>180</sup> K. Blind, N. Thumm, E. Iversen, K. Hossain, R. van Reekum, B. Rixius, R. Bierhals, J. Sillwood, *Interaction between Standardization and Intellectual Property Rights*, TECHNICAL REPORT, EUR 21074 EN, 2004, p. 40.

<sup>181</sup> J. Farrell, G. Saloner, *Standardization, Compatibility and Innovation*, *RAND JOURNAL OF ECONOMICS*: Vol. 16, 1 (1985), pp. 70–82.

<sup>182</sup> On the relevance of the selection mechanism in order to benefit from network externalities see M. L. Katz, C. Shapiro, *Network Externalities, Competition, and Compatibility*, *AMERICAN ECONOMIC REVIEW*, Vol. 75, (1985) pp. 424–440; P. A. David, *Some New Standards for the Economics of*

standards work for the attainment of the collective interest of all actors. Hence, they provide a type of public good.<sup>183</sup>

#### 4.2. PRIVATE VS. PUBLIC GOOD

Standards are by nature “public goods” as they satisfy the two characteristics that economics usually attaches to public goods: non-rivalry in consumption (i.e. public goods are not depleted by an additional user) and non-excludability (i.e. it is generally difficult or impossible to exclude people from its benefits, even if they are unwilling to pay for them).<sup>184</sup> Indeed, the fundamental tension between standards and IP can be envisaged as a tension between public goods, embodied by standards, and private goods, represented by patents. In particular, the goal of patents of securing private property and the exclusionary effect of patents concerning the use of information by patent owners, although the information they protect may include some public good elements such as non-excludability, which reflects the character of knowledge as a public good.<sup>185</sup> While technical standardization is meant to transform ideas into a public good, patent protection transforms them into a private good.

The literature emphasizes that standards import into the innovation process a body of technological knowledge, *i.e.* a store of useful technological knowledge that is shared by those working in the particular area,<sup>186</sup> which is spread more widely as public information, as a “public good”.<sup>187</sup>

The conflicting characteristic of public good and private good, which translates into a contraposition between public interests and private interests, lies

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*Standardization in the Information Age*, in DASGUPTA & STONEMAN (EDS.) *ECONOMIC POLICY AND TECHNOLOGICAL PERFORMANCE* (CAMBRIDGE; CAMBRIDGE UNIVERSITY PRESS 1987), pp. 206-234.

<sup>183</sup> C. P. Kindleberger, *Standards as Public, Collective and Private Goods*, in KYKLOS (1983): VOL. 36, pp. 377-396.

<sup>184</sup> W. J. BAUMOL, A. S. BLINDER, *ECONOMICS: PRINCIPLES AND POLICY*, 5TH ED. FORT WORTH, TX: HARCOURT BRACE JOVANOVIČ, 1991, p. 617.

<sup>185</sup> J. STIGLIZ, *KNOWLEDGE AS A GLOBAL PUBLIC GOOD*, CASE STUDIES: KNOWLEDGE AND INFORMATION, 1999, p. 308.

<sup>186</sup> R. R. Nelson, *What is public and what is private about technology?*, CCC Working Paper No. 90-9, Center for Research in Management, University of California, Berkeley, 1990.

<sup>187</sup> K. Blind, N. Thumm, E. Iversen, K. Hossain, R. van Reekum, B. Rixius, R. Bierhals, J. Sillwood, *Interaction between Standardization and Intellectual Property Rights*, TECHNICAL REPORT, EUR 21074 EN, 2004, p. 54.

at the heart of the controversies that characterize the role of patents in the ICT standards sector.

### 4.3. TECHNOLOGICAL VARIETY VS. SELECTION

It is also possible to interpret the tension between standards and IP as a contested interface between the need to assure the creation of technical variety assured by the patent regime and the selection process entailed by standardization. Technical variety assured by the patent regime “conveys efficiencies in specialization and customization (of network technology) that are offset by the failure to achieve network externalities and other economies of scale”.<sup>188</sup> The selection process entailed by standardization, “[i]n reducing diversity, [...] curtails the potentialities for the formation of new combinations and the regeneration of variety from which further selection will be possible.”<sup>189</sup> The economic literature has understood this intersection as a dynamic trade-off enabling a “virtuous circle of generation and distribution of new knowledge”.<sup>190</sup>

This ongoing interaction and constant rebalancing assures that in markets characterized by innovation, where the market plays the role of ultimate selection tool, a surplus of technological variety would impair innovation and the distribution of new knowledge.<sup>191</sup> Commentators have indeed warned against unfettered diversity in network technology based on interconnection as the value of network technology is ultimately linked to its user base.<sup>192</sup> Consequently, too much diversity would likely create a highly fragmented market unsustainable for

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<sup>188</sup> W. E. Steinmueller, *The political economy of data communication standards*, in R. HAWKINS, R. MANSELL, J. SKEA (EDS.) *STANDARDS, INNOVATION AND COMPETITIVENESS* (ALDERSHOT, 1995), pp. 172-191.

<sup>189</sup> P. A. David, D. Foray, *Accessing and expanding the science and technology knowledge base*, STI REVIEW (1995).

<sup>190</sup> D. Foray, *The economics of intellectual property rights and systems of innovation: the persistence of national practices*, in HAGEDOORN (ED) *TECHNICAL CHANGE AND THE WORLD ECONOMY* (EWARD ELGAR 1995), pp. 109-133.

<sup>191</sup> In this vein, Foray holds that too much change prevents innovations from diffusing widely. *Id.*

<sup>192</sup> On the relevance of interconnections, see Metcalfe’s law, which holds that the value of a telecommunications network is proportional to the square of the number of users of the network. The law was named by George Gilder in the 1990s. G. Gilder, *Metcalfe’s Law and legacy*, Forbes ASAP, Sept. 13, 1993. For a critique, Andrew Odlyzko, Benjamin Tilly, *A refutation of Metcalfe’s Law and a better estimate for the value of networks and network interconnections*, Manuscript, March 2 (2005): 2005.

manufacturers, service providers and customers.<sup>193</sup> This extremely varied market would simply be overwhelmed with incompatible technology, which could ultimately shrink the value of technological innovation for consumers. Moreover, simultaneously, the provision of new ideas would similarly be hindered for the reason that market prospects would be a deterrent to potential investors.<sup>194</sup>

The issue can thus be framed as follows: it is crucial to balance the structures aimed at fostering the generation of further technological variety, protecting IP, and the structures that foster the wider distribution of new knowledge into the public sphere. The equilibrium between private and public knowledge is a continuous issue for SSOs, government agencies and industry, as conflicts may result in greater costs.<sup>195</sup> The most common issues in this context are licensing of IPRs incorporated in standards and infringement of undisclosed and unknown IPRs. For instance, in the case of ex-post disclosure of IPRs in a “patent ambush”.<sup>196</sup> This occurs when the owner of a proprietary technology intentionally disguises a SEP during the standard-setting process to extract artificially inflated royalties for his or her patented technology after the standard has been set.<sup>197</sup>

#### **4.4. IP AND STANDARDIZATION: COMPLEMENTARY INSTITUTIONAL DEVICES OF MARKET REGULATION**

Against this background, the conflict between IP and standardization is mainly potential in nature. The inherent tension derives from the fact that these two mechanisms perform functions that do not conflict but rather complement each other within the innovation process. Their relationship should indeed be envisaged as complementary as ideally the incentive function of IPRs and the role of reducing uncertainty usually associated with standards, works collectively in

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<sup>193</sup> K. Blind, N. Thumm, E. Iversen, K. Hossain, R. van Reekum, B. Rixius, R. Bierhals, J. Sillwood, *Interaction between Standardization and Intellectual Property Rights*, TECHNICAL REPORT, EUR 21074 EN, 2004, p. 52.

<sup>194</sup> *Ibid.*

<sup>195</sup> G. Lea, P. Hall, *Standards and intellectual property rights: an economic and legal perspective*, INFORMATION ECONOMICS AND POLICY 16 (2004), p. 71.

<sup>196</sup> K. Blind, *Standardization: a catalyst for innovation*, THE REVIEW OF ECONOMIC STUDIES. ERASMUS RESEARCH INSTITUTE OF MANAGEMENT (28 August 2009).

<sup>197</sup> Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee, *An Industrial Property Rights Strategy for Europe*, COM (2008) 465 final, 9.



the interest of all stakeholders.<sup>198</sup> Working in tandem allows these mechanisms to set the foundations for sustainable innovation.<sup>199</sup>

This does not imply that the tensions highlighted do not exist. These tensions stem from divergences between the investors' interests and the collective interests of the market sectors affected by the technology in question. More generally, they stem from the need to ensure technological variety and allow a technology-selection mechanism in the interests of manufacturers, service providers and consumers. The potentially conflicting relationship is an important part of the innovation-process, understood in evolutionary terms. The interplay between patents and standardization spurs a co-evolution of both technology and the institutional framework. The institutional framework is forced to evolve and its evolution directly affects and influences the development of technology.<sup>200</sup> In this vein, the literature has clarified that "*evolution is the result of two seemingly contradictory processes: the creation of variety and its successive reduction through selection. Effective long-term adaptation requires that these two processes be kept in balance*".<sup>201</sup>

This conclusion finds support in a conceptual framework that places standards in the broader technological and economic development context. The literature on the role of innovation and IPRs envisages economic development as "catching-up", defined as "*the process in which a developing country narrows the*

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<sup>198</sup> The literature has categorized the relationship between patents and formal standardization as institutional elements of the technology infrastructure, which includes institutional arrangements that legitimate, regulate and standardize new technology, public resource endowments of basic scientific knowledge, financing mechanisms and a pool of competent labor, as well as proprietary R&D, manufacturing, marketing, and distribution functions that are required to develop and commercialize innovation. Andrew H. Van de Ven, *The Emergence of an Industrial Infrastructure for Technological Innovation*, JOURNAL OF COMPARATIVE ECONOMICS 17(1993), p. 339. Other commentators have envisaged their complementary role as components of a wider institutional set-up or as infra-technologies. K. Blind, *The Role of Technical Standards for the National Innovation System: Empirical Evidence from Germany*, Proceedings of the Conference "Innovation and Enterprise Creation - Statistics and Indicators" in Sophia Antipolis, November 2000, pp. 2-9.

<sup>199</sup> K. Blind, N. Thumm, E. Iversen, K. Hossain, R. van Reekum, B. Rixius, R. Bierhals, J. Sillwood, *Interaction between Standardization and Intellectual Property Rights*, TECHNICAL REPORT, EUR 21074 EN, 2004, p. 44.

<sup>200</sup> On the co-evolution phenomenon, see R. R. Nelson, *The co-evolution of technology, industrial structure, and supporting structure*, 3(1) INDUSTRIAL AND CORPORATE CHANGE (1994), pp. 47-63.

<sup>201</sup> B. Carlsson, R. Stankiewicz, *On the Nature, Function and Composition of Technological Systems*, in HORST HANUSCH (ED), THE LEGACY OF JOSEPH A. SCHUMPETER. VOLUME 1 (1999) INTELLECTUAL LEGACIES IN MODERN ECONOMICS, VOL. 4 (CHELTENHAM, U.K. AND NORTHAMPTON, MASS.: ELGAR 1999), pp. 488-513.

*gap in productivity and income relative to a leading country*".<sup>202</sup> In this catching-up context, technological advancement is key to successful advancements. Nonetheless, the complexity of the relationship between IPRs and innovation clarifies the non-sufficiency of IPRs as an incentive to innovate. In fact, economic development must be understood as a complex process striving to develop the innovative capabilities of firms in order to broaden innovation regimes, which include standards.

This duality-complementarity is vested in the larger context concerning the economic organization of society. It can in fact be argued that IP and standards are both the result of market regulation. Standards are in the form of government regulation or industry self-regulation and aim at reducing variety in technological innovation. They thereby restrict the choices available to business and consumers. This restriction on the dynamics of the free market paradigm by means of regulation is nonetheless limited, as standards are often justified by economic, technical efficiency, which generally has beneficial effects on competition.<sup>203</sup>

IP is also the product of regulation, as exclusive rights are granted by intervention of the law. IP and standardization must therefore be understood as complementary institutional devices of market regulation, interfering with the free market. In general, it can be said that the impact of standardization on IP is dictated by the interference of regulation in free markets. Relying on Nuno Pires de Carvalho's analysis, given that IP protects differentiation, and granted that free markets prosper when differentiation is in place, market regulation distorts free markets and, as a result, logically distorts IP. Consequently, standardization can be understood as being the most radical form of market regulation, as it distorts IP by impacting on the way in which IPRs are acquired and used; including on the exercise of the right to exclude others from unauthorized use, and the countervailing right to license.

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<sup>202</sup> H. ODAGIRI, A. GORO, A. TSUNAMI, AND R. R. NELSON (EDS.), *INTELLECTUAL PROPERTY RIGHTS, DEVELOPMENT, AND CATCH-UP* (LONDON: OXFORD UNIVERSITY PRESS, 2012), Chapter 1.

<sup>203</sup> See, e.g., Ruben Schellingherhout, *Standard-setting from a competition law perspective*, *COMPETITION POL'Y NEWL.* 1, 3 (2011): "Standards have a positive effect in the economy insofar as they promote economic interpenetration in the common market or encourage the development of new markets and improved supply conditions. Standards tend to increase competition and allow lower output and sales costs, thus benefiting the economy as a whole".

## 5. COMPETITION CONCERNS AND IP IN INNOVATIVE MARKETS

The nature of competition in innovative markets should be assessed *vis-à-vis* standardization. The legal and economic literature has stressed the role of standards as trade facilitators and innovation enablers as they can foster economic growth by curtailing transaction costs and allowing, by means of interconnectivity, economies of scale.<sup>204</sup> Nevertheless, standards may also be used as a tool to hinder competition and block access to the market.<sup>205</sup> Moreover, standards, by freezing a given innovative technology, give stability and certainty to market players and, more generally, to international trade. At the same time, stability is constantly challenged and fine-tuned by new products that incorporate valuable knowledge.

### 5.1. COMPETITION AS A DISCOVERY PROCESS OF CREATIVE DESTRUCTION

A useful theoretical framework assessing the relationship between innovation, competition and standards is provided by Joseph Schumpeter's theory on capitalism as an evolutionary process of creative destruction.<sup>206</sup> For Schumpeter, capitalism is by nature a form or method of economic change. Change represents the central urge underpinning the capitalist system, in which newcomers constantly outcompete the established economic structure from within, constantly crafting a new way of doing business.<sup>207</sup> The salient feature of capitalism is not “*how [it] administrates existing structures, [...] the relevant problem is how it creates and destroys them.*” In other words, what is important is how to maintain markets as competitive by preserving the faculty of destroying old structures to create new ones.<sup>208</sup>

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<sup>204</sup> As research on economic standardization has pointed out, “*[s]tandards affect the R&D, production, and market penetration stages of economic activity and therefore have a significant collective effect on innovation, productivity, and market structure*”. G. Tassej, *Standardization in Technology-based Markets*, RESEARCH POLICY 29 (2000), p. 587.

<sup>205</sup> Mark A. Lemley, *Intellectual property rights and standard-setting organizations*, 90 CALIFORNIA LAW REVIEW 6 (2002), pp. 1889-1980.

<sup>206</sup> JOSEPH SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY (GEORGE ALLEN & UNWIN, 1976, p. 82; JOSEPH SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY (BOSTON, MA: HARVARD UNIVERSITY PRESS 1942).

<sup>207</sup> *Id.*, p. 81.

<sup>208</sup> BJÖRN LUNDQVIST, STANDARDIZATION UNDER EU COMPETITION RULES AND US ANTITRUST LAWS: THE RISE AND LIMITS OF SELF-REGULATION (EDWARD ELGAR PUBLISHING 2014), p. 98.

Zooming into the patent system, the patent system provides the discovery process with competition by infusing exclusivity. The patenting regime could be interpreted as working similarly to a “lottery” mechanism, by which the innovation process is infused with unpredictability,<sup>209</sup> as it is not possible to assess which goods are plagued by scarcity, before they are exposed to competition. According to Friedrich A. Hayek’s theory of the discovery process, if the unpredictability characterizing this framework was not in place, and for instance there was a system where some authority decided which goods were to be considered scarce or innovative, it would not be possible to reach as good a decision as a decentralized process of competition based on consumers, a process better able to allocate resources.<sup>210</sup>

In the context of innovation, competition therefore seems better understood as *a discovery process of creative destruction*, to which the central concern is not represented by a supra-competitive process, but rather in the incentive of the entrepreneur to perpetuate and evolve the process itself. This notion of competition coincides with a “trial and error” conceptual framework, *i.e.* a notion of competition corresponding to the continual game or struggle of two or more parties acting autonomously to secure the business of third parties by offering the most favorable terms.<sup>211</sup>

However, while Hayek’s and Schumpeter’s models of competition as a discovery process and as creative destruction have the merit of providing a conceptual framework concerning why and how initial decisions lead to certain innovation trajectories and exclude other alternatives, they are less likely to be applied to certain standard-setting procedures. This is because they often entail collective or cumulative cooperative efforts rather than a competitive process. When innovation is mainly cooperation-driven, cumulative changes might result

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<sup>209</sup> On the patent system as a lottery-like regime characterized by unpredictability, see Fredric Scherer, *The Innovation Lottery*, in ROCHELLE DREYFUSS ET AL. (EDS.), *EXPANDING THE BOUNDARIES OF INTELLECTUAL PROPERTY* (OXFORD UNIVERSITY PRESS, 2000), pp. 4 et seq.

<sup>210</sup> See FRIEDRICH A. HAYEK, *NEW STUDIES ON PHILOSOPHY, POLITICS, ECONOMICS, AND THE HISTORY OF IDEAS* (ROUTLEDGE AND K. PAUL, 1978), pp. 185 et seq.

<sup>211</sup> Dominick Armentano, *Competition Theory and the Market Economy*, in JACK HIGH AND WAYNE GABIE (EDS.), *A CENTURY OF THE SHERMAN ACT: AMERICAN ECONOMIC OPINION, 1890-1990* (GEORGE MASON UNIVERSITY PRESS, 1992), p. 202.

in a “dominant design”,<sup>212</sup> ultimately decreasing incentives for exploring alternative innovation trajectories.

## 5.2. PATENT THICKETS

The number of patent applications received by national patent offices and the number of patents granted by such offices have been increasing dramatically since the 1980s and have remained constant in the 2000s.<sup>213</sup> The reason for these exponential growth rates is, chiefly,<sup>214</sup> the increasing development of technology innovation markets, where new technological products rely on thousands of components, almost all protected by patents. In these markets innovative firms systematically apply for patents every time they invent an incremental innovation that essentially represents a marginal advancement in the sector. In this context innovation is essentially cumulative<sup>215</sup> and cumulative changes might result in a “dominant design”,<sup>216</sup> ultimately decreasing incentives for exploring alternative innovation trajectories.

Hence, the proliferation of patented innovations has triggered the flourishing of “patent thickets”, defined as a “*dense web of overlapping intellectual property rights that a company must hack its way through in order to actually commercialize new technology*”.<sup>217</sup> Patent thickets are especially predominant in

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<sup>212</sup> J. M. Utterback, W. J. Abernathy, *A dynamic model of process and product innovation*, OMEGA, 3 (1975), pp.639-56.

<sup>213</sup> According to the International Telecommunications Union (the “ITU”), from 2003 to 2012 the total number of patents granted by the world’s five largest patent offices almost doubled, rising from 500,000 to 924,000. ITU, *Understanding patents, competition and standardization in an interconnected world*, 2014, p. 35, reporting statistics elaborated by five IP offices (2013) 2012 key IP5 statistical data.

<sup>214</sup> The literature has explored in depth the reasons underlying the PROLIFERATION OF PATENT THICKETS. For example, B.H. Hall et al, *A Study of Patent Thickets* (UK Intellectual Property Office 2013), pp. 17 et seq, has identified the following reasons: (i) the strengthening of patent rights in the US; (ii) the cumulative nature of science and the extension of technology; (iii) shifts in the degree of technological opportunity in various key technologies; (iv) strategic patenting and the increase in PAEs; (v) the lack of resources and misaligned incentives at patent offices; and (vi) growth in trade of high technology products.

<sup>215</sup> FTC, *To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy* (FTC 2003), pp. 25 et seq.

<sup>216</sup> J. M. Utterback, W. J. Abernathy, *A dynamic model of process and product innovation*, OMEGA, 3 (1975) pp. 639-656.

<sup>217</sup> Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools and Standard Setting*, in ADAM JAFFE ET AL. (EDS.), *INNOVATION POLICY AND THE ECONOMY* (MIT PRESS 2001), p. 119. See also Pierre Regibeau and Katharine Rockett, *Assessment of Potential Anticompetitive Conduct in the Field of Intellectual Property Rights and Assessment of the Interplay Between Competition Policy and IPR Protection*, in COMP/2010/16 (ED) (EUROPEAN UNION, 2011), pp. 12 et seq.

the ICT sector in which innovation is reflected in products protected by a high number of patents that are fragmented among several holders. In fact, ICT firms file patent applications even covering minor advancements or modifications of prior innovations. Patent offices are thus required to assess whether the patent applications concern an improvement that is new and contain an innovative step over the state of the art, so as to justify the granting of protection ensured by the exclusive rights afforded by a patent.<sup>218</sup> Lowering the burden of proof for a patent's credentials concerning novelty and the inventive step poses a threat of proliferation of low quality patents, thus increasing patent thickets. Actually, it is believed that lenient control over the innovative step and novelty requirement has contributed to the increase in patent thickets, as patent thickets are often composed of patents of poor quality.<sup>219</sup> Patent thickets can be eliminated at the root by ensuring that patent offices only grant patent protection to genuine, high-quality inventions. This would also reduce the number of patents likely to be invalidated, thus decreasing patent offices' backlog and, as a consequence, increasing certainty for patent applicants and potential competitors in their ICT sector strategy, which concerns the lifecycle of strategic products.<sup>220</sup>

The proliferation of patents can also be explained in light of the greater collaboration in R&D, the growth of international trade and the further globalization of markets. It has also been pointed out that the increased number of patents is caused by the improvement in patent holders' standing in patent infringement lawsuits, generated by changes in jurisprudence, which, in turn has brought about an increase in IP claims.<sup>221</sup>

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<sup>218</sup> For instance, only half of the patent applications filed with [the European Patent Office (the "EPO")] are granted, with the other half either being refused or withdrawn during the examination process. Of the patents granted, approximately half have their scope reduced by the EPO.

<sup>219</sup> BJÖRN LUNDQVIST, *STANDARDIZATION UNDER EU COMPETITION RULES AND US ANTITRUST LAWS: THE RISE AND LIMITS OF SELF-REGULATION* (EDWARD ELGAR PUBLISHING 2014), p. 30.

<sup>220</sup> ITU, *Understanding patents, competition and standardization in an interconnected world* (2014) p. 36. BJÖRN LUNDQVIST, *STANDARDIZATION UNDER EU COMPETITION RULES AND US ANTITRUST LAWS: THE RISE AND LIMITS OF SELF-REGULATION* (EDWARD ELGAR PUBLISHING, 2014), p. 30, stressing that it should nonetheless be noted that "*in certain industries the complexity and specialization in R&D have increased to a point where patent thickets can evolve 'naturally', since incumbent firms cannot develop 'whole technologies', but only different fragments of the same*".

<sup>221</sup> See for instance A. B. JAFFE, J. LERNER, *INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT* (PRINCETON, NJ: PRINCETON UNIVERSITY PRESS, 2006).

Moreover, the spread of intersecting patents is also caused by the greater transparency that characterizes certain industries today. In particular industries featuring research and development relying on technological-standards.<sup>222</sup> Research and development objectives are discussed, and disclosed, during the pre-standardization phase within the technical committees of SSos,<sup>223</sup> at an early stage of the life cycle of the technology,<sup>224</sup> in a collective attempt to produce innovation.<sup>225</sup> The multiplication of standards may thus generate patent thickets, as they act as arrangements between competitors regarding where to conduct research and development activities and file for patents.

The multiplication of patents and patent applications also poses a challenge to the identification of infringements,<sup>226</sup> as it can function as an entry deterrent for new companies and products. The concern is that potential competitors are deterred from entering the market as they lack a patent portfolio in which several patents are essential to a technology or standard. Patents within a patent thicket are often used to block entry, due to the difficulty of identifying all overlapping sets of patents, requiring those who enter the market commercializing new technology to obtain licenses from multiple patentees.<sup>227</sup> This strategic use of patents today represents a common business practice for undertakings in the network industries, where they are used as “bargaining chips”.<sup>228</sup> The larger the patent portfolios, the stronger the bargaining position of the firms, which will more easily defect infringement claims. This pre-emptive patenting model in the context of patent thickets triggers an incentive for firms to apply for even more

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<sup>222</sup> Maurits Dolmans, *Standards For Standards*, 26 FORDHAM INTERNATIONAL LAW JOURNAL 163 (2002), pp. 171 et seq., especially p. 172.

<sup>223</sup> *Id.*

<sup>224</sup> Carl Cargill, *Intellectual Property Rights and Standard Setting Organizations: An Overview of Failed Evolution*, 27 March 2012 FTC/DOJ Hearings on Competition and Intellectual Property Law and Policy in the Knowledge Based Economy, 1, pp. 2 et seq.

<sup>225</sup> Josef Drexl, *Anti-competitive Stumbling Stones on the Way to a Cleaner World: Protecting Competition in Innovation Without a Market*, 8 JOURNAL OF COMPETITION LAW & ECONOMICS (2012), p. 507.

<sup>226</sup> J. BESSEN, M. J. MEURER, *PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK* (PRINCETON, NJ: PRINCETON UNIVERSITY PRESS 2008).

<sup>227</sup> Guillaume Dufey, *Patents and Standardization: Competition Concerns in New Technology Markets*, GLOBAL ANTITRUST REVIEW 2013, at 13; Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools and Standard Setting*, in ADAM JAFFE ET AL. (EDS.), *INNOVATION POLICY AND THE ECONOMY* (MIT PRESS 2001), p. 119.

<sup>228</sup> The concept of patents as “bargaining chips” has been elaborated by John Barton, *Antitrust Treatment of Oligopolies with Mutual Blocking Patent Portfolios*, 69 ANTITRUST LAW JOURNAL (2002) p. 854. See also Michael Katz and Carl Shapiro, *Systems Competition and Network Effects*, 8 JOURNAL OF ECONOMIC PERSPECTIVE (1994) 93, pp. 105 et seq.

patents, flooding the high-technology markets with patents,<sup>229</sup> in order to preserve their dominance in the industry.<sup>230</sup> Potential competitors will then be excluded from entering a market until they achieve a mutual assured destruction (“MAD”) capability,<sup>231</sup> i.e. a large patent portfolio to be used as a defense tool to maintain their dominant position on the relevant markets. The research shows that without MAD capability, the entrants may not be able to fend off infringement claims from the incumbent firm.<sup>232</sup>

A high-technology company could also be used as a commercial tool to extract high royalties or access to other technology in return for licensing agreements.<sup>233</sup> Patent thickets carry with them the downside of increasing the price of production, given the sheer number of licenses that are likely to be obtained.

### 5.3 PATENT ASSERTION ENTITIES

In the context of patent thickets, we often encounter technology-only firms, commonly known as patent assertion entities (“PAEs” or patent trolls).<sup>234</sup> Their business model involves purchasing patents, often in large numbers, and obtaining revenues by asserting those patents, with no conventional lines of business.<sup>235</sup> While some of those entities do exercise patents that they have earned, it is more common that they merely focus on acquiring and monetizing patents, as the primary business model of PAEs is to license their patent portfolio to

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<sup>229</sup> For the notion of “patent flooding”, although with specific reference to the biotechnology sector, see Dietmar Harhoff et al., *The Strategic Use of Patents and its Implications for Enterprise and Competition Policies*, in final report to the Commission in Tender for ENTR/05/82, (July 8, 2007), p. 175.

<sup>230</sup> On the capacity of incumbent firms to preserve their dominance through strategic patenting, see Richard Gilbert and David Newberry, *Preemptive Patenting and the Persistence of Monopoly*, 72 THE AMERICAN ECONOMIC REVIEW (1982) p. 514, which defines such strategic patenting as pre-emptive patenting.

<sup>231</sup> *Id.*

<sup>232</sup> *Id.*

<sup>233</sup> Guillaume Dufey, *Patents and Standardization: Competition Concerns in New Technology Markets*, GLOBAL ANTITRUST REVIEW 2013, p. 13.

<sup>234</sup> The notion of PAEs must be distinguished from “Non-Practicing Entities” (“NPEs”), which by contrast refers to any organization that holds patents but does not use them in any of its own practice or services. NPEs are frequently remnants of practicing entities that do not provide products on the market anymore. ITU, *Understanding patents, competition and standardization in an interconnected world*, 2014, p. 37. While NPEs, just like PAEs, do not use patents to provide goods and services, they may nonetheless engage in innovation and technology transfer. See Fiona Scott Morton and Carl Shapiro, *Strategic Patent Acquisition*, 79 ANTITRUST LAW JOURNAL 463 (2014), p. 465.

<sup>235</sup> *Ibid.*, p. 464.



industrial actors to obtain licensing fees and, in some cases, to threaten to enforce their patent rights against alleged infringers, in an effort to extort licensing fees.

PAEs adopt diverse business strategies to exploit these opportunities, *inter alia*:

- I. some PAEs aggregate thousands of patents by purchasing masses of them, thereby boosting monetization through litigation based on the combined portfolio, which is extremely profitable. This mechanism allows PAEs to attain a rather innovative kind of economies of scale;
- II. some PAEs assert a small amount of patents against many targets. One version of this involves assertions that have elements of nuisance suits, where targets can settle for less than the cost of litigation.<sup>236</sup>

PAEs profit from the excessively elevated expenses suffered by defendants in patent-infringement proceedings, as well as the business risks connected to the modification of a good or withdrawal from a market as a result of a successful litigation.<sup>237</sup> In fact, PAEs often stay dormant, waiting for industrial players to research and develop, design and eventually produce new goods, and then hold up the innovative product by taking legal action for patent infringements or requesting excessively high licensing fees. Faced with these options, industrial players find themselves forced to pay the PAEs, therefore divesting the market of the financial resources that could be employed for more advantageous objectives, for instance investments in further research and development endeavors.<sup>238</sup>

While patent aggregation is not a new trend, current empirical evidence on patent litigation and data on ICT cases<sup>239</sup> shows a noticeable increase in how

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<sup>236</sup> Fiona Scott Morton, Carl Shapiro, *Strategic Patent Acquisitions*, (July 2, 2013).

<sup>237</sup> ITU, *Understanding patents, competition and standardization in an interconnected world*, 2014, p.

37.

<sup>238</sup> Subramanian gives the example of the Blackberry case, where RIM was sued by the patent assertion entity New Technologies Products and finally entered into a \$612.5 million settlement. See Sujitha Subramanian, *Patent Trolls in Thickets: Who is Fishing Under the Bridge*, 30 *EUROPEAN INTELLECTUAL PROPERTY REVIEW* (2008), p. 182.

<sup>239</sup> Robin Feldman, Tom Ewing, and Sara Jeruss, *The AIA 500 Expanded: The Effects of Patent Monetization Entities*, 17 *UCLA J.L. & TECH.* 1, 7 (2013), pointing out that Patent Monetization Entities

patents are purchased and asserted by specialists, such as PAEs, leaving no doubt about the growing role that these entities are playing in the patent ecosystem.<sup>240</sup>

Yet, the role of PAEs is not unequivocal. Some commentators have interpreted the role of PAEs more favorably, envisaging PAEs as intermediaries between firms and inventors in the market for innovation.<sup>241</sup> Indeed, PAEs could help the inventor – who often lacks the assets to exploit the invention – to (i) find downstream firms to which the technology can be transferred, (ii) detect the dishonest firms that are illegally employing the patented technology without paying royalties, and (iii) negotiate reasonable royalties, thanks to its litigation know-how. According to this perspective, PAEs may play a crucial role in assuring returns to inventors, thus promoting innovation and competition.<sup>242</sup>

This favorable view of the role of PAEs seems confirmed in the current patent market, which features a greater opportunity to monetize patent portfolios, hence fostering the upsurge of institutions capable to ease the process of commercializing this asset<sup>243</sup> in an effort to further diversify risk since the return on IP may not be strictly connected with returns on other assets such as stocks or commodities.<sup>244</sup> *“In response to the demand for this new asset, PAEs have created investment vehicles. [...] Many companies holding patents naturally look for opportunities to “unlock value” and obtain cash by selling their patents to PAEs. This in turn fuels further patenting, creating more raw material for PAEs.”*<sup>245</sup>

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filed 58.7% of all patent cases in 2012, up from 24.6% in 2007. 52% of the asserted patents had been transferred from their original owner.

<sup>240</sup> Qualcomm was accused of being a patent troll in the telecommunications industry: *ibid.* 116, et seq. See also EU Commission’s Memo/Press Release, MEMO/07/389, dated 1 October 2007 “Commission Initiates Formal Proceedings against Qualcomm”. Beyond the ICT standardization realm, in the biotechnology industry there is a phenomenon termed “reach-through” licenses, *i.e.* royalty clauses that are based on the success of the products invented by the inventor using the technology protected by the upstream patent. See

Michael Heller and Rebecca Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, (1998) 280 *SCIENCE*, pp. 698 et seq.

<sup>241</sup> ASHISH ARORA, ANDREA FOSFURI, ALFONSO GAMBARDILLA, *MARKETS FOR TECHNOLOGY: THE ECONOMICS OF INNOVATION AND CORPORATE STRATEGY* 8 (2001).

<sup>242</sup> Fiona Scott Morton and Carl Shapiro, *Strategic Patent Acquisition*, 79 *ANTITRUST LAW JOURNAL* 463 (2014), p. 479.

<sup>243</sup> See Andrei Hagiu, David B. Yoffie, *The New Patent Intermediaries: Platforms, Defensive Aggregators, and Super-Aggregators*, *JOURNAL OF ECONOMIC PERSPECTIVES*, Winter 2013, p. 45.

<sup>244</sup> Fiona Scott Morton and Carl Shapiro, *Strategic Patent Acquisition*, 79 *ANTITRUST LAW JOURNAL* 463 (2014), p. 479.

<sup>245</sup> *Id.*

## 5.4 ANTICOMMONS

An assessment of the role of patent thickets cannot disregard the matter of anticommons, which some scholars perceive as one of the issues created by the overlap of interlocking patents on a thicket.<sup>246</sup> The tragedy of anticommons refers to the impossibility for companies to obtain all the rights they need from multiple gatekeepers, each of whom must grant permission before the resource can be used. These excessive property rights stifle innovation as the resource will not be used to its full extent, or “under-used”, and left economically idle. This problem is preeminent in industries such as the ICT industry, which requires the aggregation of hundreds of thousands of components, each of them patented by different individuals, to make one single device.<sup>247</sup> Companies holding SEPs request supra-competitive royalties for each of their essential patents, generating a stack of royalties which, altogether, are too onerous for the product markets to endure.<sup>248</sup>

The concept of anticommons, however, stems symmetrically from the previous concept elaborated by the literature and defined as the “tragedy of the commons”<sup>249</sup> This refers to the over-use of shared resources (such as clean water or fishing grounds) if not protected by adequate property rights and incentives for their preservation. Interestingly, the tragedy of anticommons represents the outcome of the solution proposed for the tragedy of the commons, namely, privatization. Indeed, solving the tragedy of the commons by withdrawing resources from the public domain and placing them into private ownership restricts the right of use in favor of those who are the owners and gives them the right to exclude anyone else, thereby internalizing the costs of the use of the

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<sup>246</sup> For an overview on anticommons, see Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621 (1998) and Michael A. Heller, Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCI. 698 (1998). The origin of the term and the concept is from Frank I. Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of “Just Compensation” Law*, 80 HARV. L. REV. 1165 (1967).

<sup>247</sup> For examples of technological devices comprising innumerable patents, see Mark A. Lemley, Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEXAS LAW REVIEW (2007). The transaction becomes even more complex in the moment in which a product comprises various technologies and a considerable number of patents. Suffice to consider what is needed to produce a smartphone, including, licenses for: the operating system, the touch-screen technology, data traffic and the telephone network.

<sup>248</sup> See Rudi Bekkers et al., *Case studies on the interface between research and standardization, and case studies on patent pools as a coordination mechanism*, in (INTEREST CONSORTIUM PRIORITY 8 NO. CONTRACT 503 594, EU 6<sup>TH</sup> SPECIFIC TARGETED RESEARCH PROJECT, 2006), pp. 105 et seq.

<sup>249</sup> Garrett Hardin, *The tragedy of the commons*, SCIENCE (1968), pp. 1243-1248.

resource through privatization.<sup>250</sup> However, just trying to tackle the tragedy of the commons through forms of privatization, thus attributing ownership of a resource to parties fragmenting it, leads to the tragedy of the anticommons. In this vein, although “*private ownership usually creates wealth,*” “*too much ownership [...] creates gridlock*”; “*too many people own too many pieces of one thing, cooperation breaks down and wealth disappears, and everybody loses*”.<sup>251</sup> It is thus sensible to interpret anticommons as the highest form of obstruction to third parties’ market access.<sup>252</sup>

To put together all the needed patents, one must obtain the consent of the fragment-holders. Where each piece is being protected by IP rights each holder must agree to this union, and can also request a value at will. The main obstacles are therefore related to the transaction costs of the union that will be put in place by the parties concerned.

Given the extensive presence of patent thickets, industry operators have started to look for solutions that often require cooperation with other parties operating in the same market, in order to prevent, and eventually settle, patent litigation. The ultimate effort is to find a way to eliminate the inefficiency connected to multiple blocking patents. Drawing from the classic economic theory of components investigated by Cournot,<sup>253</sup> it appears evident that patent holders have a strong incentive to join forces and cooperate through various commercial tactics, such as cross-licensing or patent pools, as these solutions are infinitely attractive where two companies would not otherwise be able to

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<sup>250</sup> See S. Kopelman, T. A. Turk, C. E. Ybarra, *Too many spoil the broth: how the tragedy of the anticommons emerges in organizations*, Economic Science Institute working papers (2012), pp.1-40.

<sup>251</sup> MICHAEL HELLER, *THE GRIDLOCK ECONOMY: HOW TOO MUCH OWNERSHIP WRECKS MARKETS, STOPS INNOVATION, AND COSTS LIVES* (BASIC BOOKS, 2010).

<sup>252</sup> M. Brede, F. Boschetti, *Commons and anticommons in a simple renewable resource harvest model*, *ECOLOGICAL COMPLEXITY* 6 (2008), pp. 56-63. This situation represents the classic complements issue studied by Cournot in 1838. He considered the problem faced by a brass manufacturer who had to purchase two key inputs (namely copper and zinc) that were each held by a monopolist. Cournot demonstrated that the resulting price of brass was higher than would arise if a single firm controlled trade in both inputs, and sold these inputs to a competitive brass industry. To make things worse, the combined profits of the producers were also lower in the presence of complementary monopolies. A similar detrimental effect on consumers and producers applies when multiple companies control blocking patents for a particular product, process, or business method. AUGUSTIN COURNOT, *RECHERCHES SUR LES PRINCIPES MATHÉMATIQUES DE LA THÉORIE DES RICHESSES* (PARIS: HACHETTE, 1838).

<sup>253</sup> *Id.*

manufacture and sell products, nor operate a specific process or business method without infringing on the other's patents.

In the next paragraphs the main characteristics of these forms of cooperation will be analyzed, focusing on the business arrangements that are being used to cut through patent tickets.<sup>254</sup>

## 5.5 CROSS-LICENSING

Companies can decide to cross-license their patents by means of an agreement through which they exchange a plethora of licenses through a single transaction thereby avoiding unnecessary duplication of transaction costs. These firms may propose to license some patents included in their IP portfolio in order to gain in return the right to use patents of other firms, without disbursing royalties. This scheme allows parties to use both their own patents and their competitors', enabling the sharing of technology and useful combination of technologies within devices. Patent holders resort to cross-licensing in cases where a firm is interested in different patents belonging to another firm, which is also interested in patents held by the undertaking. Instead of launching negotiations for each individual patent, cross-licensing agreements allow negotiations on the pricing of large patent portfolios, reducing the overall time and costs of the negotiations. This type of agreement offers solutions to the tragedy of anticommons to the extent that it helps to avoid situations of under-use of knowledge and reduce problems linked to negotiating single licenses.<sup>255</sup> Indeed, cross-licensing also allows competitors to “*clear blocking patent positions amongst themselves*”, as it gives them access to the technology of their competitors.<sup>256</sup>

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<sup>254</sup> See generally, for patent pools, Hanns Ullrich, *Patent Pools: Approaching a Patent Law Problem via Competition Policy*, in CLAUS-DIETER EHLERMANN & ISABELA ATANASIU (EDS.), EUROPEAN COMPETITION LAW ANNUAL/2005: THE INTERACTION BETWEEN COMPETITION LAW AND INTELLECTUAL PROPERTY LAW (HART PUBLISHING, 2007), p. 322.; for patent thickets, Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools and Standard Setting*, in ADARN JAFFE ET AL. (EDS.), INNOVATION POLICY AND THE ECONOMY (MIT PRESS, 2001), pp. 119 et seq.

<sup>255</sup> M. Bednarek, M. Ineichen, *Patent pools as an alternative to patent wars in the emergent sectors*, 16 INTELLECTUAL PROPERTY AND TECHNOLOGY LAW JOURNAL 7 (2004), p. 3.

<sup>256</sup> Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting* 1 INNOVATION POLICY AND THE ECONOMY 119 (2001).

Often, companies resort to cross-licensing as a result of an infringement in the effort to solve the problem of damages, as frequently the company whose IPR was infringed is also interested in the patents of the infringing counterpart. In this case, cross-licensing agreements act as remedies, often coupled with pecuniary compensation counting as redress. This type of solution is often also used by PAEs, which being interested in certain patents simply seize the infringement as an opportunity to offer this form of exchange.<sup>257</sup>

## 5.6 PATENT POOLS

A patent pool is a sophisticated variant of cross-licensing, an agreement whereby two or more patent holders decide to license their patents together as one package. Licensees can be both patent holders themselves, third parties or both.<sup>258</sup> A pool is usually run by a single entity who plays the role of intermediary between patent holder and businesses that want to use its patented knowledge, executing a single transaction.<sup>259</sup>

Lundqvist remarked that patent pools are multifaceted contracts that often, openly or indirectly, imply four agreements: (i) a clear pool agreement, where the contributors of patents agree on the definition of the technology and the royalty rates at which downstream product manufacturers should get access to the essential IP concerned; (ii) standard licensing agreements from the pool to third party licensees; (iii) an agreement to exchange licenses between the patent providers that are also active in the downstream product market; and (iv) an agreement on where to develop the technology further through grant-back clauses or cross-licensing covenants for future innovations and patents.<sup>260</sup>

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<sup>257</sup> F. Murray, S. Stern, *Do formal intellectual property rights hinder the free flow of scientific knowledge? An empirical test of the anti-commons hypothesis*, JOURNAL OF ECONOMIC BEHAVIOR AND ORGANIZATIONS 63 (2007), pp. 648-687.

<sup>258</sup> M. Bednarek, M. Ineichen, *Patent pools as an alternative to patent wars in the emergent sectors*, 16 INTELLECTUAL PROPERTY AND TECHNOLOGY LAW JOURNAL 7 (2004), pp.1-5.

<sup>259</sup> R. Aoki, A. Schiff, *Promoting access to intellectual property: patent pools, copyright collectives, and clearinghouses*, R&D MANAGEMENT 38 (2008), pp. 189-204.

<sup>260</sup> BJÖRN LUNDQVIST, STANDARDIZATION UNDER EU COMPETITION RULES AND US ANTITRUST LAWS: THE RISE AND LIMITS OF SELF-REGULATION. (EDWARD ELGAR PUBLISHING, 2014), p. 230.

Den Uijl, Bekkers and De Vries have pointed out the main characteristics of patent pools:<sup>261</sup>

- I. All of the pool's patents are available to all enterprises that adhere to this form of agreement, as well as to any potential external licensee.
- II. The patent pool offers, first, a disclosure service, additional to that which is provided by the patent office, and it goes on the market as a single entity. With the exception of the members, who of course, have access to all of the pool's patents, any external licensee, who asks the patent pooler for and concludes a licensing agreement will get the set of knowledge managed by the same pool without having to individually deal with each patent holder.<sup>262</sup>
- III. The licenses are offered through a set of patents related to each other and they are divided according to standard terms and set prices. This standardization allows transaction costs related to the negotiation of the terms of the agreement to be minimized.
- IV. The returns arising from licenses are distributed to each member of the patent pool. This is done following a precise pattern that is defined *ex ante*. Given that the allocation of returns is pre-determined, once the patent pool is established there will be no possibility of conflict about allocation as it will have already been accepted by the members.

Patent pools carry a number of advantages: they provide transparency, facilitate the flow of information and enable the adoption of a technology standard.<sup>263</sup> In an environment where fragmentation emerges as the main obstacle

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<sup>261</sup> S. Den Uijl, R. Bekkers, H. J. De Vries, *Managing Intellectual Property Using Patent Pools: lessons from three generations of pools in the optical disc industry*, 55 CALIFORNIA MANAGEMENT REVIEW 4 (2013), pp. 31-47.

<sup>262</sup> R. Aoki, A. Schiff, *Promoting access to intellectual property: patent pools, copyright collectives, and clearinghouses*, R&D MANAGEMENT 38 (2008), pp. 189-204.

<sup>263</sup> S. Den Uijl, R. Bekkers, H. J. De Vries, *Managing Intellectual Property Using Patent Pools: lessons from three generations of pools in the optical disc industry*, 55 CALIFORNIA MANAGEMENT REVIEW 4 (2013), pp. 31-47.

to the use of knowledge, patent pools are proposed as an effective and efficient solution to address the complexity that fragmentation brings. The task of a patent pool is to bring together a group of patents from different patent holders to facilitate their use by the market, in general, and downstream producers, in particular. Otherwise,<sup>264</sup> fragmentation, which occurs in the IP scenario, leads to the non-use of knowledge, an effect described by Heller in the tragedy of the anticommons.<sup>265</sup>

However, the patent pool, as well as facilitating the adoption of and then allowing the proper use of knowledge, improves the development prospects due to network externalities, which are present in technological sectors and learning economies. In the presence of network externalities, users benefit from a greater number of adopters,<sup>266</sup> which means that the user can also benefit from a lower price of products that incorporate the same technology. Speeding up the process of innovation may make the occurrence of discontinuity in technology more likely and therefore further shorten technology cycles.<sup>267</sup> Although this will have adverse effects on the players that operate in these areas, it should bring benefits for the community as it stimulates the production of new knowledge. From this perspective, the IPR protection mechanism allows those who have contributed to this development to benefit and at the same time improves social well-being through applications resulting from improved knowledge.

## **6. STRATEGIC STANDARDIZATION BY ADVANCE COUNTRIES AND INDIGENOUS STANDARDIZATION BY LATECOMERS**

### **6.1 CHINA: THE PROS AND CONS OF BEING A LATECOMER IN A GLOBALIZED TECHNOLOGY-DRIVEN ECONOMY**

From the perspective of a globalizing economy, China has grown very rapidly and accumulated significant innovation capabilities,<sup>268</sup> participating in the

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<sup>264</sup> L.A. Fennell, *Commons, anticommons, semicommons*, in J.M. OLIN, PROGRAM IN LAW AND ECONOMICS WORKING PAPER NO. 457 (2009), pp. 1-19.

<sup>265</sup> M. A. Heller, *The tragedy of the Anticommons: Property in the Transition from Marx to Markets*, HARVARD LAW REVIEW 111 (1997), pp. 1-83.

<sup>266</sup> M. A. SCHILLING, F. IZZO, *GESTIONE DELL'INNOVAZIONE* (MCGRAW-HILL, 2013).

<sup>267</sup> P. Anderson, M. L. Tushman, *Technological Discontinuities and Dominant Designs: A Cyclical Model of Technological Change*, ADMINISTRATIVE SCIENCE QUARTERLY 35 (1990), pp. 604-633.

<sup>268</sup> D. Ernst, *A new geography of knowledge in the electronics industry? Asia's role in global innovation networks*, 54 POLICY STUDIES, HONOLULU, HI: EAST-WEST CENTER, 2009.



globalization of the economy. Production in China is currently mostly structured in worldwide value chains, and even innovation is progressively becoming more organized in transnational networks. The integration of formerly relatively closed national economies into a globalized economy must be assessed against an analysis of what it means to be a latecomer. Indeed, China, as well as other developing economies in Asia such as India, did not increase their innovation capabilities in isolation; they learnt from the leaders in Europe and other early industrializers. This raises a fundamental question: what are the repercussions of the participation of latecomers in globalized innovation processes and how are they going to differ from or converge with those in industrialized countries?

The literature on divergence and convergence in the innovation path, especially that focusing on inter-country comparisons, is particularly helpful in detecting the downsides and benefits of being a latecomer.<sup>269</sup> Latecomers substantially lag behind early advanced nations in establishing sound enterprises and supportive institutions in order to foster innovation. However, being a latecomer carries some benefits.<sup>270</sup> Late-coming countries and enterprises can take advantage of their late arrival on the global economic scene and gradually insert themselves into global value chains, without having to reproduce the whole prior technological path. They can incorporate advanced technologies, for example, through inward foreign direct investments (“FDI”), goods’ imports, licensing, technology transfer mechanisms and even acquiring businesses from advanced countries and establishing their own R&D facilities in established industry clusters abroad.<sup>271</sup>

The substantial literature on the innovation paths followed by latecomers has shown how these countries mainly rely on catching up and imitating firms in earlier industrializers in order to acquire innovation and production capabilities. It has been observed that imitation involves adaptive innovation, which rarely

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<sup>269</sup> A. GERSCHENKRON, *ECONOMIC BACKWARDNESS IN HISTORICAL PERSPECTIVE* (CAMBRIDGE, MA: HARVARD UNIVERSITY PRESS 1962); M. Hobday, *Innovation in Asian industrialization: A Gerschenkronian perspective*, 31 *OXFORD DEVELOPMENT STUDIES* 3 (2003), pp. 293-314.

<sup>270</sup> J. Mathews, *Catch-up strategies and the latecomer effect in industrial development*, 11 *NEW POLITICAL ECONOMY* (2006), p. 313-35.

<sup>271</sup> For examples in the low carbon economy, see R. Lema, A. Lema, *Technology transfer? The rise of China and India in green technology sectors*, 2 *INNOVATION AND DEVELOPMENT* (2012), pp. 23-44.

results in latecomers creating their own new innovation trajectories<sup>272</sup> or “breakthroughs”.<sup>273</sup> While this holds true for the earlier phase of the catch-up process, the latest literature now acknowledges that this is changing as systemic innovation emerges from latecomers.<sup>274</sup> This shift from mere imitation to indigenous innovation, however, is still being profoundly influenced by technology imports from early industrialized nations.<sup>275</sup>

The growing role of China in the innovation landscape also derives from the trends towards outsourcing and offshoring of the innovation process in the global economy. In the last decades, multinational corporations have progressively decentralized their R&D activities. They have often relocated to China and other latecomer countries.<sup>276</sup> Sometimes they have even developed specific products for ICT markets to satisfy the particular necessities of their middle class consumers.<sup>277</sup> Progressively, latecomer countries, instead of remaining instrumental to multinational companies, have started to embark on their own innovation path,<sup>278</sup> bespoke to their national conditions. By the same token, so-called “organizational decomposition”<sup>279</sup> in the innovation process has played a significant role. Pursuant to organizational decomposition, R&D activities that used to be operated in-house by innovating companies themselves are now carried out by independent suppliers of knowledge-intensive business services, or are

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<sup>272</sup> M. Bell, *Time and technological learning in industrializing countries: How long does it take? How fast is it moving (if at all)?*, 36 INTERNATIONAL JOURNAL OF TECHNOLOGY MANAGEMENT 1/3 (2006), pp. 25–39; P. N. Figueiredo, *Special Issue: Firm-level learning and technological capability building in industrializing economies - Introduction*, 36 INTERNATIONAL JOURNAL OF TECHNOLOGY MANAGEMENT 1/3 (2006), pp. 1–13.

<sup>273</sup> T. Altenburg, H. Schmitz, A. Stamm, *Breakthrough: China’s and India’s transition from production to innovation*, 36 World Development 2 (2008), pp.325–34.

<sup>274</sup> Lema Rasmus, Ruy Quadros, Hubert Schmitz, *Reorganizing global value chains and building innovation capabilities in Brazil and India*, 44 *Research Policy* 7 (2015), pp. 1376–1386.

<sup>275</sup> Hubert Schmitz, Tilman Altenburg, *Innovation paths in Europe and Asia: Divergence or convergence?*, 43 SCIENCE AND PUBLIC POLICY 4 (2016), p. 459.

<sup>276</sup> Y. Sun, M. von Zedtwitz, and D. F. Simon, *Globalization of R&D and China: An introduction*, 13 ASIA PACIFIC BUSINESS REVIEW (2007), pp. 311–9.

<sup>277</sup> H. KHARAS, *THE EMERGING MIDDLE CLASS IN DEVELOPING COUNTRIES*, OECD DEVELOPMENT CENTRE WORKING PAPER 285 (PARIS: OECD 2010).

<sup>278</sup> P. N. Figueiredo, *Special Issue: Firm-level learning and technological capability building in industrializing economies - Introduction*, 36 INTERNATIONAL JOURNAL OF TECHNOLOGY MANAGEMENT 1/3 (2006), pp. 1–13.

<sup>279</sup> H. Schmitz, S. Strambach, *The organizational decomposition of innovation and global distribution of innovative activities: Insights and research agenda*, 2 INTERNATIONAL JOURNAL OF TECHNOLOGICAL LEARNING, INNOVATION AND DEVELOPMENT (2009), pp. 231–49.

transferred to key suppliers.<sup>280</sup> The literature has stressed the global implications of organizational decomposition for innovation: the greater spreading of innovation activities has backed the establishment of innovation capabilities in latecomer firms, particularly in China.<sup>281</sup>

The origins of China's role as a technology competitor began in the late 1970s and early 1980s, when it opened its domestic market to the external world. The policy commitments made by Deng Xiaoping in the milestone March 1978 National Science Conference in Beijing, and subsequently reaffirmed,<sup>282</sup> involved the introduction of FDIs, imported goods, and technology transfer.

China's strategy for science and technology development approved a series of measures to exploit resources from the international environment,<sup>283</sup> thus leading to wider knowledge diffusion and innovation. The new policy included, *inter alia*, the revitalization of the higher education system, through measures aimed at intensifying the interactions with the international community by sending scholars abroad for advanced education and signing agreements with foreign governments for science and technology cooperation.

As the domestic market gradually opened up and embraced foreign companies, FDIs started to flood the Chinese market in the form of joint ventures ("JVs"). This resulted not just in investments and imported products, but also in the introduction of relevant technologies being transferred from foreign companies to these new business entities.<sup>284</sup> Examples of major foreign

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<sup>280</sup> S. Strambach, B. Klement, *The organizational decomposition of innovation and territorial knowledge dynamics. Insights from the German software industry*, in M. HEIDENREICH (ED), *INNOVATION AND INSTITUTIONAL EMBEDDEDNESS OF MULTINATIONAL COMPANIES* (CHELTENHAM, UK: EDWARD ELGAR 2012), p. 193-221.

<sup>281</sup> D. Ernst, *A new geography of knowledge in the electronics industry? Asia's role in global innovation networks*, 54 *POLICY STUDIES*, HONOLULU, HI: EAST-WEST CENTER, 2009; R. Lema, A. Lema, *Technology transfer? The rise of China and India in green technology sectors*, 2 *INNOVATION AND DEVELOPMENT* (2012), pp. 23-44.

<sup>282</sup> For an overview of China's science and technology innovation policy in those years, see Richard P. Suttmeier, Cong Cao, *China Faces the New Industrial Revolution: Research and Innovation Strategies for the 21st Century*, 23 *ASIAN PERSPECTIVE* 3 (1999).

<sup>283</sup> Richard P. Suttmeier, Yao Xiangkui. *China's Post-WTO technology policy: standards, software, and the changing nature of techno-nationalism*. Vol. 7. Washington, DC: National Bureau of Asian Research, 2004, p. 13.

<sup>284</sup> Q. Mu, K. Lee, *Knowledge diffusion, market segmentation and technological catch-up: The case of the telecommunications industry in China*, 34 *RESEARCH POLICY* 6 (2005), pp. 759-783; F. MALERBA, R. R. NELSON, *ECONOMIC DEVELOPMENT AS A LEARNING PROCESS: VARIATION ACROSS SECTORAL SYSTEMS* (EDWARD ELGAR PUBLISHING, 2012).

companies that have gained access to the Chinese market as JVs include Beijing International Switching System Corporation (jointly with Siemens), Beijing Nokia Hangxing, Nanjing Ericsson, Jiangsu Fujitsu, and Guangdong Nortel.<sup>285</sup> It has been observed that these trade intersections and knowledge exchanges with the international business community allowed China to gradually acquire policies, industrial designs and managerial practices that proved indispensable to capture value from the country's science and technological progress.<sup>286</sup>

Nonetheless, the swift growth of FDIs exponentially increased China's reliance on foreign technology, which has since then been a salient trait of the country's industrial scenario. Although the huge FDI flow and consequent technology transfer had raised technology levels of Chinese companies since the 1980s, some concerns started to be raised. In particular, that the mere production of goods based on foreign technology, without any additional innovation, and assembly of imported high-value components for export, would undermine the development of an advanced domestic innovative society and economy. In a sort of catch-22 situation, the more China lacked innovative capacity the more it was led to import advanced technologies from abroad at the expense of its competitiveness. Chinese domestic manufacturers have indeed long agonized over what has been defined as the "technology trap," to be understood as the situation where *"while developing countries' competitiveness has been undercut as the wages rise in labor-intensive sectors, the laggard innovation makes it difficult to continue high rates of economic growth and shift economic activities into higher-skilled sectors"*.<sup>287</sup>

It became obvious that the extreme dependence of China on foreign technology left the country at the low-value added end of the global production network. In particular, in the ICT sector, which had gained the status of *"the*

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<sup>285</sup> For a specific analysis of the influence of JVs in the telecommunications sector in China, see Z. A. Tan, *Product cycle theory and telecommunications industry - foreign direct investment, government policy, and indigenous manufacturing in China*, 26 TELECOMMUNICATIONS POLICY 1 (2002), pp. 17-30.

<sup>286</sup> Richard P. Suttmeier, Yao Xiangkui. *China's Post-WTO technology policy: standards, software, and the changing nature of techno-nationalism*. Vol. 7. Washington, DC: National Bureau of Asian Research, 2004, p. 13.

<sup>287</sup> *Id.*, p. 7. See also Gregory Shaffer, Charles Sutton, *The Rise of Middle-Income Countries in the International Trading System*, in RANDALL PEERENBOOM, TOM GINSBURG (EDS.), LAW AND DEVELOPMENT OF MIDDLE-INCOME COUNTRIES: AVOIDING THE MIDDLE-INCOME TRAP (CAMBRIDGE: CAMBRIDGE UNIVERSITY PRESS, 2014), pp. 59-83.

*leading sector in the contemporary global political economy*”, innovation was not even the optimal, ultimate goal to be hoped for, as this dynamic sector gradually moved “*beyond competition over technological innovation per se*”<sup>288</sup> as “[t]he technological winner is now the one who manages to control *de facto* market standards while at the same time protecting intellectual property rights”.<sup>289</sup>

If one evaluates China’s position in the highly fragmented global production landscape,<sup>290</sup> the underlying reasons for its technological dependence clearly emerge. China’s industry is (still, although increasingly less) mainly export-oriented and it relies heavily on foreign proprietary technology. It thus appears to be more vulnerable to the impact of international technology standards and the different strategic patenting strategies used by patent holders to capitalize on their *de facto* standards and associated royalties.<sup>291</sup> Ultimately, caught in the technology trap, in China “*royalties and rigid licensing terms associated with international technology transfer significantly undercut the profit margins of manufacturers*”.<sup>292</sup>

The same consideration applies to virtually all late-industrialized countries acting as manufacturers or, at the most, as fast followers in innovation, but which are nonetheless increasingly intertwined with international trade and global production and innovation networks. They are “*naturally disadvantaged in the world of international standards as they have not contributed the ‘core technology’ on which these standards are based*”.<sup>293</sup> Not being able to shape the standards regime architecture these countries’ firms are thus “*forced to accept standards and*

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<sup>288</sup> Kim Sangbae, A. Hart Jeffrey, *The Global Political Economy of Wintelism: A New Mode of Power and Governance in the Global Computer Industry*, in JAMES M. ROSENAU, J. P. SINGH (EDS.), *INFORMATION TECHNOLOGIES AND GLOBAL POLITICS* (ALBANY: STATE UNIVERSITY OF NEW YORK PRESS, 2002), p. 143.

<sup>289</sup> *Id.*

<sup>290</sup> For an authoritative overview on the fragmentation of production networks at the global level, see D. Ernst, *Innovation offshoring: root causes of Asia’s rise and policy implications*, in JUAN J. PALACIOS (ED.), *MULTINATIONAL CORPORATIONS AND THE EMERGING NETWORK ECONOMY IN THE PACIFIC RIM* (LONDON: ROUTLEDGE, 2007).

<sup>291</sup> DAN BREZNITZ, MICHAEL MURPHREE, *RUN OF THE RED QUEEN: GOVERNMENT, INNOVATION, GLOBALIZATION, AND ECONOMIC GROWTH IN CHINA* (NEW HAVEN, CN: YALE UNIVERSITY PRESS, 2010); C. Cao, *Zhongguancun and China’s High-Tech Parks in Transition*, 44 *ASIAN SURVEY* 5(2004), pp. 647-688.

<sup>292</sup> Han-Wei Liu, Shin-Yi Peng, *Managing Trade Conflicts in the ICT Industry: A Case Study of EU-Greater China Area*, 19 *J INT ECONOMIC LAW* 3 (2016), pp. 629-656.

<sup>293</sup> Dieter Ernst, Heejin Lee, Jooyoung Kwak, *Standards, innovation, and latecomer economic development: Conceptual issues and policy challenges*, 38 *TELECOMMUNICATIONS POLICY* 10 (2014), p. 854.

pay royalties as decided by the dominant economic players”.<sup>294</sup> These countries face strong competition, which leads to reductions in unit prices, while the cost of royalties per unit stays constant, becoming one of the most burdensome cost items to bear.

It is thus evident that, notwithstanding the advantages deriving from standards, which, as seen above, allow manufacturers to secure trade and knowledge sharing among geographically dispersed participants in the contemporary global market,<sup>295</sup> the relative gains deriving from the standards greatly favor dominant economic players. Namely, advanced and early-industrialized countries, which advocate heavily to ensure that their technological solutions are codified in SEPs having strong market power. In short, given the crucial role that patents play in standardization, latecomers like China might find themselves trapped in patents that exclusively reflect the interests of advanced nations. This patent-trap scenario refers to “*a paradoxical situation that the more products a developing country with low technology consumes or exports, the more royalties it pays to advanced countries where the patents are created*”.<sup>296</sup>

It follows that standardization patent strategies used by large patent holders to extract rents by controlling industry standards can asphyxiate competition and impair late-industrializing countries’ access to international markets.<sup>297</sup>

## **6.2 INNOVATION POLICIES AS A REGULATORY TOOL: AT THE CROSSROADS OF IP, COMPETITION AND TRADE**

In an effort to fill the gap with Western counterparts, alarmed policymakers in latecomer countries, such as China, adopted domestic innovation policies comprising a number of regulatory and policy measures aimed at backing science and technology developments, including subsidies, public procurement rules,

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<sup>294</sup> *Id.*

<sup>295</sup> D. Ernst, *Complexity and internationalization of innovation: Why is chip design moving to Asia?*, 9 INTERNATIONAL JOURNAL OF INNOVATION MANAGEMENT 1(2005), pp. 47–73; D. Ernst, *Limits to modularity: Reflections on recent developments in chip design*, 12 INDUSTRY AND INNOVATION 3 (2005), pp. 303–335; D. S. GREWAL, NETWORK POWER: THE SOCIAL DYNAMICS OF GLOBALIZATION (NEW HAVEN, CT: YALE UNIVERSITY PRESS, 2008).

<sup>296</sup> Ping Wang, Jooyoung Kwak, Heejin Lee, *The latecomer strategy for global ICT standardization: Indigenous innovation and its dilemma*, 38 TELECOMMUNICATIONS POLICY 10 (2014), p. 933.

<sup>297</sup> Dieter Ernst, Heejin Lee, Jooyoung Kwak, *Standards, innovation, and latecomer economic development: Conceptual issues and policy challenges*, 38 TELECOMMUNICATIONS POLICY 10 (2014), p. 854.

standards, IPR-related policies and antitrust rules.<sup>298</sup> In particular, in China, standards have been perceived as a critical instrument to catch up with advanced countries' competition in terms of productivity. In this regard, the incorporation of Chinese-owned patents in indigenous standards represents an effort to rearrange the standing of its domestic manufacturers in the global supply chain. The WAPI and EVD saga, which will be explored later (see next chapter), provide vivid illustrations of homegrown standards' initiatives construed as part of the Beijing government's overall attempt to narrow the gap between China and advanced countries in high-tech sectors.

Facing the perspective of finding itself as a subordinate actor in the global trade network, since 2006 the Chinese government, in its National Mid-Term and Long-Term Science and Technology Development Plan (2006-2020) (also known as "MLP-2006-2020"),<sup>299</sup> started promoting the development of national standards incorporating self-owned IP,<sup>300</sup> supporting "Indigenous Innovation" (in Chinese 自主创新, pinyin *Zìzhǔ chuàngxīn*)<sup>301</sup> as a main policy on both the national and local level.<sup>302</sup>

The goal of the Indigenous Innovation push is, according to the MLP-2006-2020, to reduce dependence on foreign technology from an estimated 60% in 2006 to less than 30% by 2020.<sup>303</sup> It therefore emphasizes home-grown innovative technologies. As will be further explored in the next section, a further, implicit,

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<sup>298</sup> See Jorge Niosi et al., *National Systems of Production: In Search of a Workable Concept*, 15 TECHNOLOGY IN SOCIETY 207 (1993).

<sup>299</sup> *Guo jia zhong chang qi ke ji fa zhan gui hua* (2006-20) (The National Mid-Term and Long-Term Science and Technology Development Plan).

<sup>300</sup> C. Cao, R. P. Suttmeier, D. F. Simon, *China's 15-year science and technology plan*, PHYSICS TODAY (2006), pp. 38-43; S. KENNEDY, R. P. SUTTMEIER, J. SU, STANDARDS, STAKEHOLDERS, AND INNOVATION. SEATTLE (WA: NATIONAL BUREAU OF ASIAN RESEARCH, 2008).

<sup>301</sup> James McGregor, *China's drive for 'indigenous innovation': A web of industrial policies*, US Chamber of Commerce (2010), p. 13.

<sup>302</sup> *Id.*, pp. 17-19. On this point, scholar Daniele Brombal points out: "Recently, the ideological and political significance of science [and technology] have strengthened. It would suffice to think to the expression "scientific vision of development" (in Chinese, 科学发展观, pinyin *kexue fazhan guan*), coined by former President Hu Jintao and former Premier Wen Jiabao to emphasize the need to balance economic growth, social development and environmental protection. Likewise, post-reform transformations have resulted in radical changes in the uses of science and technology, in line with opening to market mechanisms and the outside world. Before 1979 the major research field was defense, however after 1979 it expanded to include all fundamental sectors of the country's development". Daniele Brombal, *Scienza e tecnologia in Cina. Molti successi, grandi speranze (e qualche fondata perplessità)*, OrizzonteCina, vol. 7, n. 5 (Sept. - Oct. 2016), p. 3.

<sup>303</sup> See Sylvia Schwaag Serger, Magnus Breidne, *China's Fifteen-Year Plan for Science and Technology: An Assessment*, 44 ASIA POLICY (2007), p. 147.

objective of this policy is to reduce licensing fees and royalties paid to foreign companies.

The MLP-2006-2020's goal is to transform China into an innovative nation by 2020 and a global leader by 2050<sup>304</sup> through the development and adoption of several regulatory measures. Standards constitute one of the main measures, and this segment is then greatly supported by the government, which allocates public funds for the development of indigenous standards in strategic industries, among which the ICT sector central. Another measure includes the "Indigenous Products Catalogues", which grant preferential treatment to indigenous innovation products in government procurement, and give tax incentives to eligible firms.<sup>305</sup> The standardization boost is noteworthy, with indigenous innovations including, for example, EVD, WAPI, Time Division Synchronous Code Division Multiple Access (TD-SCDMA), Audio Video Coding Standard (AVS), and Unified Charger for Mobile Telecommunications Terminal Equipment (UCMT) (YD-T/1591-2006).<sup>306</sup>

China's indigenous standardization determination can therefore be observed as a reaction to advanced countries' aggressive patenting strategies, which have pre-empted vital technology.

In the context of the present research, it is important to analyze the scope of Indigenous Innovation in parallel to the strategic use of patenting carried out by advanced nations. In particular, the Chinese government has strived to assist its ICT firms in moving up the global value chain by reducing the burden of royalties.<sup>307</sup>

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<sup>304</sup> In late 2010, the State Council issued the "Decision to Accelerate the Development of Strategic Emerging Industries". This order planned to increase the selected strategic industries' share of gross domestic product (GDP) to 15% by 2020, while the overall dependence on foreign technology would be reduced to 30%. See Shin-Yi Peng, *Standards as a Means to Technological Leadership? China's ICT Standards in the Context of the International Economic Order*, in Lisa Toohey et al. (EDS.), *CHINA IN THE INTERNATIONAL ECONOMIC ORDER: NEW DIRECTIONS AND CHANGING PARADIGMS* (CAMBRIDGE: CAMBRIDGE UNIVERSITY PRESS, 2015), p. 128-130.

<sup>305</sup> *Id.*, p. 131.

<sup>306</sup> See James McGregor, *China's Drive for "Indigenous Innovation": A Web of Industrial Policies*, (2011), p. 28-29. See also Han-Wei Liu, Shin-Yi Peng, *Managing Trade Conflicts in the ICT Industry: A Case Study of EU-Greater China Area*, 19 *JOURNAL OF INTERNATIONAL ECONOMIC LAW* 3, (2016).

<sup>307</sup> Liu Han-Wei, Shin-Yi Peng, *Managing Trade Conflicts in the ICT Industry: A Case Study of EU-Greater China Area*, 19 *JOURNAL OF INTERNATIONAL ECONOMIC LAW* 3 (2016), pp. 629-656.



As assessed above, in ICT strategic patenting is often employed as a weapon to engage in anti-competitive behavior using a range of conduct, such as patent hold ups, patent ambush, and strategic injunctive relief. In particular, patent holders can boost their market power when, in violation of FRAND commitments, they “demand ‘unreasonable’ royalties for their patents that are embedded in standards. Thus, standards generate a market power far beyond the power of exclusion and the freedom of contract granted by patent law”.<sup>308</sup> Consequently, strategic patenting is likely to have a major detrimental effect on the economic development of latecomer countries, ultimately hindering innovation and trade. The industries of latecomer countries, which are inherently dependent on foreign patented technologies, are more exposed to strategic patenting behavior adopted by patent holders, who are essentially advanced nations’ market participants, to get the most out of their standards.

In this context, the Government-supported policy of Indigenous Innovation has contributed to triggering China’s transition from a mere manufacturer at the lowest level of the global supply chain, to a path-following learning actor, to an innovator.<sup>309</sup> As mentioned above, a central aspect of the Indigenous Innovation policy is the development and implementation of the standardization capacity of national firms,<sup>310</sup> ultimately promoting the shift from reliance on foreign technology to setting home-grown standards as international standards.<sup>311</sup> International standardization of domestic standards is thus perceived as a strategic tool in the hands of late-industrializing countries, representing a response to the strategic patenting carried out by advanced countries, aimed, in due course, at overcoming the natural disadvantage of late-industrializing countries on the global market.<sup>312</sup>

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<sup>308</sup> Y. A. Pai, *The international dimension of proprietary technical standards: Through the lens of trade, competition law and developing countries*, 1 LAW, POLICY & ECONOMICS OF TECHNICAL STANDARDS EJOURNAL, 1 (2013), p. 5.

<sup>309</sup> Ping Wang, Jooyoung Kwak, Heejin Lee, *The latecomer strategy for global ICT standardization: Indigenous innovation and its dilemma*, 38 TELECOMMUNICATIONS POLICY (2014), p. 934.

<sup>310</sup> Wang Ping, Wang Yiyi, and John Hill., *Standardization Strategy of China - Achievements and Challenges*, EAST-WEST CENTER WORKING PAPER-ECONOMICS SERIES 107 (2010).

<sup>311</sup> J. Kwak, H. Lee, D.B. Chung, *The evolution of alliance structures in China’s mobile telecommunications industry and implications for international standardization*, 36 TELECOMMUNICATIONS POLICY (2012), pp. 966-976.

<sup>312</sup> *Id.*

Having assessed the industrial interests underpinning the Indigenous Innovation policy, it can be concluded that this policy and the strategic patenting policy carried out by IP-rich advanced nations represent two alternative strategic industrial policy tools to achieve an optimal positioning in innovation technology, a market segment that represents today's leading sector in the global political economy. These policy tools are deployed to gain control of the market through influencing the standardization process and reaping supracompetitive rents from IP assets.<sup>313</sup> In the context of standardization, to solve the problems connected to Indigenous Innovation, it is important not to overlook the antitrust concerns raised by standards.

While the literature focuses on either one of the two sides (IP and competition law), we maintain that the investigation of standards and competition must also be examined from an international trade regulatory standpoint. The apparently protectionist behavior of some countries, such as China, is a response, a consequence, and not the cause, of the current opportunistic behavior of patent holders who own patents on technology essential to a standard. This has also been fuelled by diverging interpretations, in different jurisdictions, of the ambiguous meaning of disclosure obligations and the difficulties in getting FRAND compensation. In so far as the uncertainties around these legal concepts, the use of competition policy, and the strategic use of standards, as trade barriers, are not settled internationally, latecomer, laggard innovation countries, will be compelled to establish competing and complementary standards. Namely, standards having a domestic nature, ultimately serving the interests of domestic industrial policies and acting as non-tariff barriers to international trade.<sup>314</sup>

Arguably, international competition law and policy can play an important role in a progressively more globalized economy. This can be achieved through voluntary efforts aimed at creating inter-jurisdictional mutual understanding in

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<sup>313</sup> *Id.*

<sup>314</sup> Yogesh Pai, *Private Proprietary Standards and Public Law: Invoking WTO's Competition Dimension to Avoid Global Market Distortion*, (November 16, 2012). See also P. Gao, *Counter-networks in Standardization: a perspective from developing countries*, 17 INFO SYSTEMS JOURNAL (2007), pp. 391-420.

order to gradually shape best practices in the ICT sector.<sup>315</sup> The success of this approach requires communal efforts to reorganize and implement competition policies. As it will be seen below, the WTO framework should play a key role in these efforts.

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<sup>315</sup> Alden F. Abbott and Shanker Singham, *Competition Policy and international trade distortions*, in C. HERRMANN ET AL. (EDS.), *EUROPEAN YEARBOOK OF INTERNATIONAL ECONOMIC LAW (EYIEL)*, VOL. 4 (2013), p. 25.

# CHAPTER IV

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## A COMPETITION LAW PERSPECTIVE: INCONSISTENCIES IN THE TREATMENT OF IPRs IN STANDARDS

### 1. *EX ANTE* DISCLOSURE OF SEPs AND FRAND TERMS: PRECAUTIONARY MEASURES TO DETER ANTICOMPETITIVE CONDUCT

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### 4. EU AND CHINA'S APPROACH TO COMPETITION LAW ENFORCEMENT

### 5. CONCLUSIONS: DIVERGENCES IN THE APPLICATION OF COMPETITION LAW TO IPRs AND THEIR IMPACT ON INTERNATIONAL TRADE

## **1. EX ANTE DISCLOSURE OF SEPs AND FRAND TERMS: PRECAUTIONARY MEASURES TO DETER ANTICOMPETITIVE CONDUCT**

Having outlined the principal characteristics of the relationship between innovation markets, standards and IP, it is now important to focus on the different competition concerns identified in the area of standardization. This chapter, rather than focusing on whether standardization is inherently pro-competitive or not, analyzes the conduct through which dominant undertakings exert market power in the context of standardization.

As observed in the previous chapter, exclusivity granted by the patent regime fosters innovation by incentivizing investment in R&D, as it enables innovators to gain returns on their investment. Divergently, standardization fosters innovation by instituting interoperability between products and by easing market adoption of innovative technologies.

SSOs, in order to overcome the conflict between patents and standards and the underlying interests, to enhance efficacy and to restrain abuses, have put in place rules for the disclosure of patents, as well as licensing commitments and royalty recommendations on FRAND terms. Disclosure policies generally require participants in the standards development process to disclose the SEPs that they hold. Licensing policies normally oblige participants to grant licenses under their SEPs to implementers on terms that are “fair, reasonable and nondiscriminatory” (“FRAND”) or royalty-free (“RF”). In the meantime, governmental agencies such as competition authorities are also engaged in thwarting abuses of IPR related to standards.

The different policies embedded in SSOs concerning the treatment of IPRs, especially patents, in standards, and the inter-jurisdictional normative conflict caused by diverging legal and policy treatment of SEPs in different jurisdictions through the application of competition law, negatively impact on trade. In fact, the problems courts have to face are global and reach beyond the single case adjudicated, as they impact on companies that operate in multiple markets. It follows that courts hearing disputes on SEPs need to balance the principle of territoriality of law and the underlying rights with the need to respect a

commercial commitment affecting global businesses. In fact, inconsistencies in the treatment of IPRs in standards allow incumbent innovative firms and advanced nations to use the standardization process as a market barrier enabler in the form of patents embedded into standards by imposing unreasonable royalty payments and patent hold-ups.

In the standardization process, two key contractual requirements feature in SSO policies:

- I. before the negotiations to choose a standard are carried out, to disclose all relevant patents for the use and implementation of the standard;<sup>316</sup>
- II. after the standard has been selected, to license SEPs on specified terms, which imposes an obligation on patent holders to declare the terms governing the licensing. There are two main types of licensing obligations: a commitment to license on FRAND terms, or on RF terms, that do not allow rights holders to charge a royalty.

The logic behind FRAND commitments for SEPs is two-fold: to enable SEP holders to obtain acceptable gains from their innovation and to prevent SEP holders from exercising market power that they have attained by virtue of the standardization by demanding supra-competitive royalties.

Although SSOs' IPR policy often contains FRAND commitments, these policies do not specify the actual FRAND royalty rate, nor how it should be set.<sup>317</sup>

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<sup>316</sup> In the EU, ETSI, has such an IPR policy, comprising disclosure and licensing commitments. Specifically, each member of ETSI has to “use its reasonable endeavors to timely inform ETSI of SEPs it becomes aware of”. In particular, members submitting a technical proposal for a standard have an information obligation, as they “shall, on a bona fide basis, draw the attention of ETSI” (see ETSI IPR policy, on the ETSI’s website) to any IPRs that they believe might be essential in case of acceptance of the proposal. (*Id.* Art. 4.1). However, this does not entail any obligation on a member to conduct an IPR search. Regarding licensing commitments, specific licensing terms and negotiations are commercial issues between companies, and are decided by the companies, hence they are not addressed within ETSI. The ETSI IPR policy attempts nonetheless to minimize the risk that standardization efforts are frustrated by ensuring that SEPs are made available to implementers under FRAND terms and conditions.

<sup>317</sup> Opinion of AG Wathelet, CJEU Case C-170/13 *Huawei Technologies v ZTE* ECLI:EU:C:2014:2391, at para 25.

Many SSOs positively disown any role in establishing, interpreting, or adjudicating the reasonableness of FRAND licensing terms,<sup>318</sup> thus leaving the specific identification of the meaning of FRAND to bilateral negotiations between the parties or, when disputes arise, to the courts.<sup>319</sup>

These policies, although flawed by lack of global consistency and application, represent an effort to out-match issues created by the risky fragmentation that afflicts technical standardization in sectors, such as ICT, where a single device, for example a smartphone, implements a plethora of SEPs and non-SEPs entrenched in underlying technical standards. In this context, *ex ante* disclosure requirements and *ex post* FRAND licensing principles represent a self-regulatory means of “*market oriented private ordering*”, “*through the adoption of instruments*” that ease the teething troubles that industry participants face in terms of assessing the value of a patent, and guarantee transparency in patent disclosure.<sup>320</sup> Consequently, most SSOs have very clear IPR policies aimed at efficient licensing.

In the following sections, the EU’s and China’s policies for SSOs are discussed.

## **2. THE EU APPROACH**

### **2.1 EX ANTE DISCLOSURE OBLIGATIONS: THE CHALLENGES OF PATENT AMBUSH**

*Ex ante* disclosure of SEPs is inherent to the standardization process, which is ultimately aimed at identifying a technology that will be incorporated in a standard, consequently dismissing every other alternative technology available. Once potential viable substitutes are abandoned, firms invest in the implementation of the selected standard, becoming locked-in to the standard, as

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<sup>318</sup> Jorge L. Contreras, *Patents, Standards and Borders: Addressing National Disparities among Holders of Standard-Essential Patents*, East-West Center Workshop on Mega-Regionalism - New Challenges for Trade and Innovation, 2016.

<sup>319</sup> Jorge L. Contreras, *Fixing FRAND: A Pseudo-Pool Approach to Standards-Based Patent Licensing*, 79 ANTITRUST L.J. (2013), p. 47-97. Many SSOs, such as ETSI, do not consider the regulation of and negotiations on specific licensing terms to fall within their role. See para 4.1 of the ETSI Guide on Intellectual Property Rights.

<sup>320</sup> NARI LEE, NIKLAS BRUUN, AND MINGDE LI (EDITED BY), *GOVERNANCE OF INTELLECTUAL PROPERTY RIGHTS IN CHINA AND EUROPE* (ELGAR INTELLECTUAL PROPERTY AND GLOBAL DEVELOPMENT SERIES, 2016), p. 285.

switching to another technology is no longer possible.<sup>321</sup> The *ex ante* disclosure obligation thus allows upstream negotiations and prevents patent infringement once the standard is set.<sup>322</sup>

In particular, *ex ante* disclosure aims at preventing individual firms that hold essential patents from being able to hold-up or patent ambush the efficient exploitation of a technology on the market. Hold-up or patent ambush occurs when a patentee, member of an SSO, fails to reveal essential patents or patent applications during the standard-setting process, which become “submarine” patents. This conduct allows the reticent patentee to trap the other members in the technology standard that coincides with its patents or patent applications. Leveraging this position, the ambusher can sue competing firms for patent infringement in order to reap supra-competitive licensing fees. Conversely, once SEPs have been disclosed, the negotiations on the technology standard can begin with full knowledge of the position of each SSO member and its patents. The *ex ante* disclosure is particularly relevant given the sheer number of patents granted in innovative markets. It is difficult to provide effective notice for all patent disclosures. Additionally, patents are published only when they are granted, but protection starts from the filing date. This implies that SEPs may remain secretly pending until they are granted.<sup>323</sup>

Given this background, if SSO members were allowed to deliberately hide their relevant essential patents until a standard was agreed, firms would be deterred from joining the standardization process. SSOs have therefore often adopted disclosure obligations in their IP policies.<sup>324</sup>

Nonetheless, patent ambush is still likely to take place because:

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<sup>321</sup> Daniel Culley, Malik Dhanani, Maurits Dolmans, *Learning From Rambus: How to Tame Those Troublesome Trolls*, 57 THE ANTITRUST BULLETIN (2013).

<sup>322</sup> Guillaume Dufey, *Patents and Standardization: Competition Law Concerns in New Technology Markets*, GAR 2013, p. 24.

<sup>323</sup> Daniel Culley, Malik Dhanani and Maurits Dolmans, *Learning From Rambus: How to Tame Those Troublesome Trolls*, 57 THE ANTITRUST BULLETIN (2013).

<sup>324</sup> For instance, ETSI, which is the major European standards organization in the telecoms sector, has issued an IPR policy, which contains this obligation in its Article 4: “[E]ach Member shall use its reasonable endeavors, in particular during the development of a Standard or Technical Specification where it participates, to inform ETSI of Essential IPRs in a timely fashion. In particular, a Member submitting a technical proposal for a Standard or Technical Specification shall, on a bona fide basis, draw the attention of ETSI to any of that Member’s IPR which might be Essential if that proposal is adopted”. ETSI Intellectual Property Rights Policy (No. 31).



- I. not all SSOs have adopted identical IPR policies. Although a number of international SSOs in the framework of World Standards Cooperation (“WSC”)<sup>325</sup> have adopted common policies on this point and industry consortia are generally aligned with other formal SSO IPR policies, there are exceptions;
- II. participating in an SSO is not mandatory and IP policies only bind parties that have agreed to participate in the SSO. Outsiders cannot be placed under an obligation regarding patent disclosure, as they fall outside the SSO’s jurisdiction.<sup>326</sup> Non-members, especially if patent PAEs not involved in R&D and manufacturing, may therefore find patent ambush an efficient leverage to extract revenue from their patent portfolio;
- III. another element undermining SSOs’ early disclosure provisions is the fact that this disclosure obligation is generally perceived as an expression of “good faith”,<sup>327</sup> as it seems to have a persuasive nature, rather than a prescriptive one. Indeed, it appears that there is no compelling motivation for SEP holders taking part in the drafting of a technology standard to disclose if the incentives not to disclose are stronger.

Given these major defects that nullify the SSO approach on *ex ante* disclosure, and the several cases in the patent war concerning patent ambush, policy makers have often relied on competition law to tackle these practices.

Under EU competition law, the concern of dominance is crucial in assessing whether the conduct of an undertaking restricts competition under Article 102 TFEU. Indeed, EU courts and competition authorities investigate whether there

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<sup>325</sup> The World Standards Cooperation (the “WSC”) was established in 2001 by the International Telecommunications Union (the “ITU”), the International Organization for Standardization (“ISO”) and the International Electrotechnical Commission (“IEC”) in order to strengthen and advance the voluntary consensus-based international standards systems of the ITU, ISO and IEC. The WSC also promotes the adoption and implementation of international and consensus-based standards worldwide; and resolves any outstanding issues regarding cooperation in the technical work of the three organizations.

<sup>326</sup> Guillaume Dufey, *Patents and Standardization: Competition Law Concerns in New Technology Markets*, GAR 2013, p. 24.

<sup>327</sup> *Id.*

has been an abuse only after it has been established that the alleged perpetrator holds a dominant position on a relevant market.<sup>328</sup>

Patents incorporated in technology standards often confer upon their holder a dominant position.<sup>329</sup> This is mainly due to sunk costs<sup>330</sup> and network effects,<sup>331</sup> which deter manufacturers from adopting alternative competing standards or technologies not included in a standard, even if they face supra-competitive licensing demands from the patent owner.

It is important to assess the conditions under which an SEP holder can be said to occupy a dominant position within the meaning of Article 102 TFEU. The Commission has not devoted much effort to provide any precise guidance on this matter. According to established EU case law, a dominant position is “*a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition being maintained on the relevant market by giving it the power to behave to an appreciable extent independently of its competitors, customers and ultimately of its consumers*”.<sup>332</sup> In this respect, the power to behave

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<sup>328</sup> This is different from US antitrust law, where the assessment of a dominant position is not always required, as Section 2 of the Sherman Act and Section 5 of the Federal Trade Commission Act are applied to conduct to acquire, create or maintain a dangerous probability of creating monopoly power. Additionally, also the attempt to create a monopoly can be, in specific circumstances, deemed unlawful antitrust conduct. *Spectrum Sports v. McQuillan*, 506 U.S. 447, 456 (1993). The concept of “dominance” in connection with patents has also been a concern under US antitrust law. In particular, a patentee was traditionally presumed to be dominant regarding the scope of the patent in certain cases under Sec. 2 of the Sherman Act. This was the case until it was overruled by *Illinois Tool Works, Inc. v. Independent Ink*, 547 U.S. 28 (2006).

<sup>329</sup> Also the European Commission seemed to recognize this general circumstance in an open letter to ETSI: “[o]nce an essential technology is included...in a standard, particularly one that is made mandatory pursuant to Community legislation, the owner of the IPR relating to that technology in most if not, all situations occupies a dominant position...vis-à-vis manufacturers requiring licenses”. Open letter from the Commission to ETSI and the CBEMA, February 1994 (not published). The letter is cited in Maurits Dolmans, *Standards for standards*, 26 FORDHAM INTERNATIONAL LAW JOURNAL (2002), footnote 84.

<sup>330</sup> Specifically “sunk costs” refer to the significant non-recoverable (that is, “sunk”) costs, which manufactures may have invested in the development of a standard and in adapting their business to the production of standard compliant products. Joseph Farrell et al., *Standard Setting, Patents, and Hold-Up*, 74 ANTITRUST LAW JOURNAL, 3 (2007), p. 616. Also see Ruikka, Timo, “FRAND” Undertakings in Standardization - A Business Perspective, Paper presented at the Fordham IP Conference, New York City, 28 Mar. 2008, p. 6.

<sup>331</sup> “Network effects” indicate the singular characteristics of markets where standards are set to stimulate interoperability and compatibility between products from different manufactures. In such markets consumers are frequently unwilling to choose products that are not attuned to widespread standards. Sunk costs and network effects may act to deter manufactures from accepting rival standards or non-standardized technologies, even though they may face unreasonable licensing burdens from SEP holders. *Id.*

<sup>332</sup> CJEU, C-27/76 *United Brands v Commission*, ECLI:EU:C:1978:22, para 65. See also CJEU, C-85/76 *Hoffmann-La Roche v Commission*, ECLI:EU:C:1979:36, paras 38-40.

independently refers to the market power necessary to unilaterally influence the parameters of competition to its advantage. In the context of SEPs this means that the degree to which the patentee enjoys the independence to advantageously set excessive or discriminatory, *i.e.* non-FRAND, royalty rates or other licensing conditions, must first be assessed.<sup>333</sup>

The assessment of dominance takes place on the relevant market, which is limited to the SEPs. In particular, when patents are used in a standard, and become essential to competition in the market connected with the standard, three separate market dimensions can be acknowledged:

- I. *technological markets*, where a specific technology denotes a market (which is the case for Wi-Fi or USB technologies);
- II. *product markets*, where competition exists with regard to certain products (smartphones or chipsets, to name but a few); and
- III. *SEP markets*, where each and every SEP amounts to a separate market.<sup>334</sup>

Although, as previously pointed out, SEPs often confer on SEP owners appreciable market power in any of these three markets, which are characterized by sunk costs and network effects, the Commission has always adopted a case-by-case analysis in determining whether an SEP holder is dominant or not. The Commission has explicitly stated that “*there is no presumption that holding or exercising IPR essential to a standard equates to the possession or exercise of*

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<sup>333</sup> See Communication from the Commission, *Guidance on the Commission’s enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings*, OJ 2009/C 45/02, 24 Feb. 2009, paras 10-11. In general the Commission defines market power as the “*ability to profitably maintain prices above competitive levels for a period of time or to profitably maintain output in terms of product quantities, product quality and variety or innovation below competitive levels for a period of time*”, See Communication from the Commission, *Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements*, OJ 2011/C 11/1, 14 Jan. 2011, para 39.

<sup>334</sup> See the analysis of the European Commission’s 2011 Guidelines (2011 Commission Guidelines (No. 1) 261) and the Google/Motorola merger decision (*Google/Motorola Mobility* (Case COMP/M.6381) (Commission Decision 2012/1068 [2012] OJ C 75/01).

market power. *The question of market power can only be assessed on a case by-case basis*.<sup>335</sup>

The concept of relevant market has been defined by the Commission in its notice on the definition of relevant market, where it gives the following definition: *“a relevant product market comprises all those products and/or services which are regarded as interchangeable or substitutable by the consumer by reason of the products’ characteristics, their prices and their intended use”*.<sup>336</sup>

When assessing the substitutability of a product both demand-side substitution and supply-side substitution must be considered. In particular, demand-side substitution concerns the variety of products that are regarded as substitutes by the consumer.

In essence, market definition is employed to identify the sources of effective substitutes to which a licensee will seek recourse if the product’s price is to permanently increase by 5 to 10%.<sup>337</sup>

Supply-side substitution emphasizes the suppliers’ aptitude to switch production to the relevant products and market them in the short term without sustaining substantial supplementary costs. These situations characteristically arise when firms produce an extensive variety of qualities of a given product. Even if those qualities are not substitutable for the final consumer, they will be clustered into one product market as long as most suppliers are able to offer and sell the different qualities in the short term and without substantial supplementary costs.

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<sup>335</sup> 2011 Commission’s Guidelines (No. 1) 269.

<sup>336</sup> Commission notice on the definition of relevant market for the purposes of Community competition law, OJ C 372 of 9 Dec. 1997.

<sup>337</sup> This test, defined as the SSNIP-test or “*small but significant and non-transitory increase in price test*”, is used in the *Commission notice on the definition of relevant market for the purposes of Community competition law* (OJ 1997/C 372/5, 9 Dec. 1997, para 17), and confirmed in the *Commission Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements* (OJ 2014/C 89/03, 28 Mar. 2014, para 22), where the SSNIP test applies in the context of licensing. The SSNIP test aims to identify the smallest relevant market within which a hypothetical monopolist could implement a lucrative noteworthy increase in price. The relevant market is thus represented by a group of goods or services that are deemed substitutes by the customer. Such group is evaluated as being worth monopolizing where, if only one single supplier were to provide it, that supplier could profitably increase its price without its customers turning away and selecting other goods and services from other suppliers.

The market concerned with regard to ICT standardization is the technology market, which is generally envisaged as including all technologies that are regarded by licensees as interchangeable with or substitutable for the licensed technology by reason of their characteristics, royalties and intended use.<sup>338</sup>

Given this conceptual framework for defining markets, the EU case law has specified that holding a patent does not automatically equate to holding a dominant position.<sup>339</sup> This is so because the exclusivity conferred concerns only the specific implementation set out in the patent, and not also alternative implementations that could achieve the same result. It follows that substitute technologies, patented or non-proprietary, may exist and exert competitive pressure upon the patentee.<sup>340</sup> However, when dealing with SEPs, a patentee's competitors have no other option than to use the innovation vested in the SEP in order to comply with the standard. In other words, no substitute technologies are available for that purpose.<sup>341</sup>

The existence of competing technologies to which a licensee may seek recourse may strongly reduce the SEP holder's market power.<sup>342</sup> In this vein, it is necessary to investigate the real market power enjoyed by the SEP holder also in

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<sup>338</sup> *Commission Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements*, OJ 2014/C 89/03, 28 Mar. 2014, para 22.

<sup>339</sup> See for instance CJEU, Joined Cases C-241/91 P and C-242/91 P, *RTE and ITP v. Commission (Magill)*, 6 Apr. 1995, para 46.

<sup>340</sup> DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p. 53.

<sup>341</sup> This argument was upheld by the Commission in Google's acquisition of Motorola's SEPs, where it stated that "each SEP can be considered as a separate market in itself as it is necessary to comply with a standard and thus cannot be designed around, i.e. there is by definition no alternative or substitute for each such patent" (Case COMP/M.6381, *Google/Motorola Mobility*, 13 Feb. 2012, para 61). By this the Commission sidestepped the issue related to the difficulties in assessing dominance and it *de facto* set a presumption that every SEP holder *per se* holds a dominant position in the distinct upstream technology market that is deemed to exist for every patent essential to a standard. It follows that SEP owners enjoy market power, holding a 100% share on that market, with no need to delineate the relevant market first. BJÖRN LUNDQVIST, *STANDARDIZATION UNDER EU COMPETITION RULES AND US ANTITRUST LAWS: THE RISE AND LIMITS OF SELF-REGULATION* (EDWARD ELGAR PUBLISHING, 2014), at 303; and DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014) at 35. Considering that according to the Commission (Case C-62/86, *AKZO v. Commission*, 3 Jul. 1991, para 60, and Case T-228/97, *Irish Sugar v. Commission*, 7 Oct. 1999, para 70) a presumption of dominance is set once an undertaking holds a market share that is above 50%, this is a strong indication of dominance. Yet, it is not to be interpreted as decisive evidence overruling the Commission's Horizontal Guidelines' explicit statement that holding an SEP does not translate into dominance (Communication from the Commission, *Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements*, OJ 2011/C 11/1, 14 Jan. 2011, para 269).

<sup>342</sup> Maurits Dolmans & Daniel Ilan, *European Antitrust and Patent Acquisition: Trolls in the Patent Thickets*, 8 JOURNAL OF THE ANTITRUST COMMITTEE OF THE INTERNATIONAL BAR ASSOCIATION 2 (2012), p. 8.

the downstream product market. If there is competitive pressure deriving from alternative technology, *i.e.*, if customers in the downstream market can easily switch to substitute technologies, this may diminish the capability of the SEP holder to exercise market power.<sup>343</sup>

Therefore, it appears manifest that an assessment of the relevant market, in the case of standards, must take into account both the upstream and downstream market.<sup>344</sup> In the context of standards, the relevant market is represented by both the upstream standard setting market, in which undertakings seek to have their proprietary technology integrated in a standard, and the downstream product market, where products that incorporate the standard are sold.<sup>345</sup> Consequently, although the adoption of a standard may put an end to effective competition between rival technologies for inclusion in the specific standard, this is not sufficient to infer market power. Indeed, in cases in which the licensee of the standardized technology can shift to alternative technologies, the IPR holder will not be able to exert monopoly power. Furthermore, lacking substitutes on the upstream technology market, if customers on the downstream market, where products integrating the standard are sold, can effortlessly shift to alternative

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<sup>343</sup> GINEVRA BRUZZONE, MARCO BOCCACCIO, CHAPTER 5: STANDARDS UNDER EU COMPETITION LAW: THE OPEN ISSUES; COMPETITION LAW AND INTELLECTUAL PROPERTY (KLUWER LAW INTERNATIONAL, Vol. 50) 2012. The Commission has stressed the relevance of competing standards for the definition of market power: “*in the case of several competing standards or in the case of effective competition between the standardized solution and non-standardized solution a limitation of access may not produce restrictive effects on competition*”. Communication from the Commission, *Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements*, OJ 2011/C 11/1, 14 Jan. 2011, para 294. By the same token, the Commission in its *Google/Motorola* merger decision stressed the relevance of competing standards for the assessment of market power. Case COMP/M.6381 - *Google/Motorola Mobility*, 13 Feb. 2012, para 53, where it states that: “*once a standard has been adopted and widely implemented by the industry and in the absence of competing standards, firms that use these technologies may be severely limited in their ability to use another technology*”.

<sup>344</sup> The relevance of downstream competition in limiting the market power that licensors derive from their position on the upstream technology market has been acknowledged by the Commission. Thus, the Commission in its *Technology Transfer Guidelines* states that “[*if the downstream product market is competitive, competition at this level may effectively constrain the licensor*]” and highlights that market shares on the technology market may be calculated by reference to the sales of products incorporating the licensed technology. *Commission Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements*, OJ 2014/C 89/03, 28 Mar. 2014, para 88.

<sup>345</sup> GINEVRA BRUZZONE, MARCO BOCCACCIO, CHAPTER 5: STANDARDS UNDER EU COMPETITION LAW: THE OPEN ISSUES; COMPETITION LAW AND INTELLECTUAL PROPERTY (KLUWER LAW INTERNATIONAL, 2012)

products that do not embody the standard, this may be enough to prevent the IPR holder from exerting significant market power.<sup>346</sup>

Given the difficulties in applying Article 102 TFEU in the standards framework, it does not come as a surprise that establishing the abusive nature of patent ambush conduct is not without problems. Additionally, there is little guidance available as, at the time of writing, the Court of Justice of the European Union (“CJEU”) has not yet assessed the issue of patent ambush. The only basis for assessing the EU approach on this matter is the Rambus case, dealt with by the European Commission. The case is also particularly interesting as the Commission’s Statement of Objections containing a preliminary finding of abuse by Rambus followed just a few months after the US Federal Trade Commission’s (“FTC”) findings that the American technology company called Rambus had violated Section 2 of the Sherman Act and its conduct constituted an illegal monopolization.<sup>347</sup> It is informative to examine how the parallel EU and US proceedings developed differently and how the Commission and the FTC assessed the applicability of EU competition and US antitrust law in patent ambush conduct.

The EU Commission, on 30 July 2007, sent a Statement of Objections to Rambus alleging that it had infringed Article 102 TFEU by: (i) not disclosing its patents and patent applications essential to the standard in the field of semiconductors during the standardization process before a US SSO; and (ii) later imposing unreasonable royalties.<sup>348</sup>

The Commission decided to settle the case relying on Article 9(1) of Regulation 1/2003 as Rambus committed to cap its royalty fees for products compliant with the standard.<sup>349</sup> However, the proceeding still sheds some light on the EU approach with regards to patent ambush. According to the Commission,

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<sup>346</sup> *Id.*

<sup>347</sup> See Case No. 07-1086, *Rambus Incorporated v Federal Trade Commission*, 22 Apr. 2008.

<sup>348</sup> Commission press release in Case COMP/38.636, *Rambus*, MEMO/07/330 (Commission confirms sending a Statement of Objections to Rambus), 23 Aug. 2007.

<sup>349</sup> Yves Botteman, Agapi Patsa, *Towards a more sustainable use of commitment decisions in Article 102 TFEU cases*, 1 JOURNAL OF ANTITRUST ENFORCEMENT 2 (2013), pp. 347-374. Given that Article 9 decision do not involve an in-depth legal assessment of the alleged abuse, they are not conducive to legal certainty, especially in the field of ICT standardization, where the market is in great need of further guidance.

the abuse did not consist in the patent ambush itself, but rather in the claiming of fees at a level higher than those that Rambus would have been able to charge if the patents had been disclosed.<sup>350</sup>

Specifically, the Commission focused on the licensing terms imposed by Rambus *ex post*, rather than on the *ex ante* deceptive practices. Although the deceptive tactics were held to have excluded competing non-proprietary technology and the conduct “*necessarily influenced the standards process, in a context where suppression of the relevant information necessarily distorted the decision making process within a standard-setting body*”,<sup>351</sup> the Commission did not consider such conduct as an abuse under Article 102 TFEU.<sup>352</sup> According to the Commission, the fact that Rambus breached the SSOs policy concerning the duty to act in good faith, to disclose patents and patent applications in a timely manner is inherent to the standard-setting process,<sup>353</sup> and it should not generally be viewed as a precondition for establishing an abuse under Article 102 TFEU.<sup>354</sup>

The focus of the Commission on the *ex post* phase, after the phase in which the standard incorporating Rambus’s SEPs was adopted, is reasonable, considering the unusual nature of patent ambush. The supposed abuse consists in an SEP holder deliberately concealing its patent and subverting the standard-setting process to push for the adoption of a standard that mirrors its hidden patents.<sup>355</sup> The unusual point here is that the alleged abuse, i.e. the deceptive conduct, occurs when the patent holder is not yet dominant. Indeed, a patentee’s dominance will at the earliest be acquired when the SSO adopts the standard, i.e., when the market becomes locked-into the standard and the patent holder acquires market power. This abuse-dominance sequence poses an issue as EU

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<sup>350</sup> Commission decision in Case COMP/C-3/38.636, *Rambus*, 9 Dec. 2009, para 28.

<sup>351</sup> *Rambus* (Case COMP/38.636) Commission Decision [2009], para 39.

<sup>352</sup> The reasoning of the Commission assumes that there were alternative technologies that could have been selected for inclusion in the standards that would have led to lower fees being imposed in the *ex post* phase. *Rambus* (Case COMP/38.636) Commission Decision [2009], para 46.

<sup>353</sup> DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p. 78.

<sup>354</sup> Commission decision in Case COMP/C-3/38.636, *Rambus*, 9 Dec. 2009, para 39.

<sup>355</sup> *Rambus* had amended its patent application in compliance with the discussion in the SSO technical committee so as to ensure that once granted the patent would cover the standard. Commission decision in Case COMP/C-3/38.636, *Rambus*, 9 Dec. 2009, paras 40-42.



competition law prohibits the abuse of a dominant position, thus presupposing that dominance occurs before abuse, not vice versa.<sup>356</sup>

Indeed, Article 102 TFEU would not capture the abusive nature of Rambus's deceptive conduct at the outset, as Rambus arguably did not hold a dominant position at the time when the ambush itself took place. It thus appears that the Commission made an effort to by-pass the issue of establishing dominance *ex ante*.<sup>357</sup>

In light of the Rambus decision, it is not possible to affirm whether patent ambush amounts to an abuse under Article 102 TFEU. It could amount to an abuse under Article 102 TFEU if the Commission could demonstrate that the patentee has charged unreasonable, *i.e.* non-FRAND, fees, after the standard was adopted. In this regard, the Commission could base its argument on the exploitative use of excessive pricing as an anti-competitive harm.<sup>358</sup> Nonetheless, the literature has emphasized the shortcoming of this conceptual framework in the standardization context.<sup>359</sup> Indeed, given that the anticompetitive harm descends from the SEP holders *ex ante* deceptive conduct, it seems inappropriate

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<sup>356</sup> BJÖRN LUNDQVIST, *STANDARDIZATION UNDER EU COMPETITION RULES AND US ANTITRUST LAWS: THE RISE AND LIMITS OF SELF-REGULATION* (EDWARD ELGAR PUBLISHING, 2014), p. 303. See also BELLAMY AND CHILD, *EUROPEAN UNION LAW OF COMPETITION* (OXFORD UNIVERSITY PRESS, 2013), p. 756.

<sup>357</sup> Interestingly, in the US twist of the Rambus case, the Federal Trade Commission did not face the same challenges as the Commission given that Section 2 of the Sherman Act, in contrast to Article 102 of the TFEU, prohibits unlawful monopolization, hence, the FTC did not lack the legal basis for assessing the deception itself to be unlawful. Consequently it was argued that Rambus had unlawfully obtained monopoly power because absent the deception its patent would have been excluded from the standard. On appeal the Court of Appeals from the District of Columbia Circuit, however, disagreed as there was insufficient evidence to support the accusation. See Case No. 07-1086, *Rambus Incorporated v Federal Trade Commission*, 22.4.2008, p. 11. See also DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p. 105.

<sup>358</sup> It has been observed that as the abuse must be established *ex post*, the Commission bears the burden of proof to establish a connection between the impact of the deceit *ex ante* (when the patentee was not dominant) and the royalty level charged *ex post* (when the patentee acquired a dominant position). DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p. 105.

<sup>359</sup> Andreas Fuchs, *Patent ambush strategies and Article 102 TFEU*, in JOSEF DREXL ET AL (EDS.), *MORE COMMON GROUND FOR INTERNATIONAL COMPETITION LAW?* (EDWARD ELGAR, 2011), pp. 177 et seq. See Josef Drexl, *Intellectual property in competition: How to promote dynamic competition as a goal*, in JOSEF DREXL ET AL (EDS.), *MORE COMMON GROUND FOR INTERNATIONAL COMPETITION LAW?* (EDWARD ELGAR, 2011), pp. 210 et seq.

to remedy it by a finding of excessive pricing, which would at most impose on the SEP holder an obligation to lower the licensing fees.<sup>360</sup>

## 2.2 INJUNCTIVE RELIEF AND ABUSIVE LITIGATION: CHRONICLES FROM THE PATENT WAR

The debate concerning the degree to which EU competition law restricts the prerogative of rights' holders to assert their IPRs against third parties has increased in light of the so-called "patent war" in the smartphone market. Many of the leading ICT companies, which own large IPR portfolios, are enforcing their patents, some of which are essential to underlying standardized technology, by asking courts to grant injunctive relief preventing the sale of unlicensed rival products. In this contest, an SEP holder should not be allowed to take advantage of the injunctions as leverage to obtain anti-competitive benefits. To this end, an undertaking against which an injunction is sought or enforced should have the chance to raise a compulsory licensing defense on the basis of competition law, i.e. to make a claim that the SEP holder has violated Article 102 TFEU by refusing to grant, or even to negotiate, a license on FRAND terms.<sup>361</sup> Patent implementers are indeed fighting against injunctions by raising allegations of unlawful abuse as a counterclaim in the several patent infringement lawsuits brought against them or by lodging complaints of abuse of a dominant position with competition authorities.<sup>362</sup> If this defense is denied and discarded as inadmissible, the alleged infringers facing the prospects of an injunction, may be impelled to accept excessive or discriminatory licensing terms.

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<sup>360</sup> Some scholars have suggested that the Commission could have made use of its creative skill to delineate a line of argumentation aimed at considering patent ambush "to the effect that a dominant patent owner must not demand royalties in a situation where its failure to speak was part of a hold-up plan and led to a chain of events leading to dominance in the relevant technology market". Daniel Culley, Malik Dhanani and Maurits Dolmans, *Learning From Rambus: How to Tame Those Troublesome Trolls*, 57 THE ANTITRUST BULLETIN (2013), p. 155. Recognizing patent ambush as being itself abusive might not find a favorable response, given that the Commission tends to assess unilateral conduct under Article 102 of the TFEU using an effects-based approach, focused on the economic impact on the market, which seems to be more consistent with the general objectives of EU competition law. See the OECD, *What is competition on the merits?*, Policy Brief, June 2006.

<sup>361</sup> For a comprehensive analysis of standards and FRAND commitments, see Damien Geradin, Miguel Rato, *Can Standard-Setting Lead to Exploitative Abuse? A Dissonant View on Patent Hold-up, Royalty Stacking, and the Meaning of FRAND*, 3 EUR. COMPETITION J. 101 (2007).

<sup>362</sup> Nicolas Petit, *Injunctions for FRAND-Pledged SEPs: The Quest for an Appropriate Test of Abuse Under Article 102 TFEU*, 9 EUR. COMPETITION J. 677 (2013).

In this context, it is fundamental to appreciate that FRAND commitments are construed as a “precautionary measure” to deter anticompetitive conduct “by ensuring that essential IPR is made available to all third parties on FRAND terms”.<sup>363</sup> A FRAND obligation has three main components: (1) an obligation to license, and a ban on obtaining injunctive relief against licensees to force them to submit to the licensor’s demands regardless of whether the demands are fair and reasonable; (2) an obligation not to charge monopoly rent, and to limit demands to what the licensor would have been able to obtain in a competitive market had there been an auction before the standard was set, with technologies competing for the standard; (3) an obligation not to discriminate between licensees, or between licensees and the licensor’s own downstream business.

The recent upsurge in patent litigation and the several complaints lodged before EU and US competition authorities alleging the abusive nature of these lawsuits should not be oblivious to the legal framework elaborated by the courts on vexatious or abusive litigation. This constitutes the conceptual framework to assess under which circumstances the assertion of SEPs establishes an abuse.

The legal test for vexatious litigation was elaborated in the *ITT Promedia* case,<sup>364</sup> where the General Court held that, given that forbidding applying for an injunction was “an exception to the general principle of access to the courts, which ensures the rule of law”,<sup>365</sup> initiation of legal action may amount to an abuse under Article 102 TFEU only in “wholly exceptional circumstances”.<sup>366</sup> More precisely, the General Court implicitly endorsed<sup>367</sup> the two criteria, which the Commission elaborated, that must be satisfied in order to find that the initiation of legal

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<sup>363</sup> DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p. 222.

<sup>364</sup> CJEU, Case T-111/96 *ITT Promedia NV v. Commission* [1998] ECR II-2937.

<sup>365</sup> *Id.* para 61.

<sup>366</sup> *Id.* para 60.

<sup>367</sup> Although the General Court did not rule on the conformity of the two criteria with EU competition law, it applied them, thus implicitly validating them. See CGEU, Case T-111/96, *ITT Promedia v. Commission*, 17 Jul. 1998, paras 57-58. Many scholars support the implicit endorsement interpretation of the two cumulative criteria. See ALISON JONES, BRENDA SUFRIN, *EC COMPETITION LAW - TEXT, CASES AND MATERIALS* (3RD ED., OXFORD UNIVERSITY PRESS, 2008), p. 582; and ERIK ØSTERUD, *IDENTIFYING EXCLUSIONARY ABUSES BY DOMINANT UNDERTAKINGS UNDER EU COMPETITION LAW: THE SPECTRUM OF TESTS*, (KLUWER LAW INTERNATIONAL, INTERNATIONAL COMPETITION LAW SERIES, 45, 2010), p. 137. The validity of the test was later explicitly confirmed by the General Court in the *Protégé International* case. CGEU, Case T-119/09, *Protégé International v. Commission*, 13 Sep. 2012, paras 51-68. On this point, see Bo Vesterdorf, *IP Rights and Competition Law Enforcement Questions*, 4 *JOURNAL OF EUROPEAN COMPETITION LAW & PRACTICE* 2 (2013), pp. 109-111.

proceedings can be construed as abusive: “the action (i) cannot reasonably be considered as an attempt to establish its rights and can therefore only serve to harass the opposite party”; and (ii) “it is conceived in the framework of a plan whose goal is to eliminate competition”.<sup>368</sup>

These criteria are cumulative<sup>369</sup> and must be construed narrowly, given the centrality of the right of access to court.<sup>370</sup> Indeed, the *ITT Promedia* case pointed out that competition law generally cannot be used as a tool to prevent undertakings from asserting their rights before the court. This finding has also been applied in the IP context.<sup>371</sup> Indeed, competition law, should instead be a basis to prevent patentees from obtaining an injunction, although legally provided, only where the injunction is exclusively employed to carry out anticompetitive conduct detrimental to the public interest as a whole, which is the very goal of competition law. If, conversely, competition law were used in an unfettered way to curtail the scope of IP, this would pose a risk not only for the fundamental right of access to court, but it would undermine the incentive for undertakings to invest in research, development and innovation, jeopardizing the ultimate objective of effective competition as promoted by competition law.<sup>372</sup>

It logically follows that the assertion of IPR will only be deemed abusive in exceptional circumstances, where the reliance on statutory rights may amount to an abuse of dominance. In particular where, in light of the finding of the Commission and the General Court in the *ITT Promedia* case, a FRAND commitment serves exclusively to harass the defendant and eliminate competition.<sup>373</sup>

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<sup>368</sup> *Ibid*, para 55. See also paras 55-57 and 72. For an exhaustive analysis of these two criteria, see Nicolas Petit, *Injunctions for FRAND-Pledged SEPs: The Quest for an Appropriate Test of Abuse Under Article 102 TFEU*, 9 EUROPEAN COMPETITION JOURNAL 677 (2013).

<sup>369</sup> *Id.* para 59.

<sup>370</sup> *Id.* para 61.

<sup>371</sup> David Hull, *The EC’s Investigation into the Pharmaceutical Sector: Trouble Ahead at the IP/Competition Intersection?*, 11 COMPETITION POLICY INTERNATIONAL 1 (2008), p. 5.

<sup>372</sup> This role for competition law has been acknowledged by both the Commission and the CJEU. See, e.g., CJEU, Case T-201/04, *Microsoft Corp v. Commission*, 17 Sep. 2010, paras 704-719.

<sup>373</sup> This approach, as noted, also stems from the relevance of the fundamental right to access to a court and to achieve an effective remedy, which represents both a general principle of law and a fundamental right enshrined in Article 6 of the Convention for the Protection of Human Rights and Fundamental Freedoms, 1950 (the “ECHR”), which states: “[e]veryone whose rights and freedoms guaranteed by the law of the Union are violated has the right to an effective remedy before a tribunal

## 2.2.1 THE “GOOD FAITH” POTENTIAL LICENSEE

The Commission has expressly acknowledged that there are circumstances where the seeking and enforcement of injunctions may be deemed abusive within the meaning of Article 102 TFEU. In the 2012 approval decision on Google’s acquisition of Motorola Mobility,<sup>374</sup> the Commission found that “*depending on the circumstances, it may be that the threat of injunction, the seeking of an injunction or indeed the actual enforcement of an injunction granted against a good faith potential licensee, may significantly impede effective competition*”.<sup>375</sup> The Commission’s decision was taken in conformity with the reasoning underlying the *ITT Promedia* judgments, reaffirming that it is only in “*wholly exceptional circumstances*” that bringing legal proceedings is capable of constituting an abuse within the meaning of Article 102 TFEU. According to the Commission, even the mere “threat” of seeking and enforcing an injunction on the basis of FRAND-pledged patents might amount to an abuse. The menace of facing an injunction might indeed “*forc[e] the potential licensee into agreeing to potentially onerous licensing terms which it would otherwise not have agreed to*”.<sup>376</sup>

Moreover, the Commission has recognized that seeking and enforcing an injunction or threatening to do so may be anticompetitive, particularly where such remedies are used to prompt a “*good faith*” licensee to accept onerous licensing terms that otherwise would have been rejected. The Commission, despite making the notion of “*good faith*” potential licensee a key point in its reasoning, did not provide a definition of this requirement. One approach could

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[...]. A similar right has since been codified in Article 47 of the Charter of Fundamental Rights of the European Union, 2000 O.J. C 364/1, 18 Dec. 2000. Similarly, the right to achieve an effective remedy, comprising preliminary injunctions, against an infringement, is enshrined in a number of obligations set out in the TRIPS agreement and in Directive 2004/48 on the enforcement of IPRs. See WTO Agreement on the Trade Related Aspects of Intellectual Property Rights, (the “TRIPS Agreement”) and Directive 2004/48/EC of the European Parliament and of the Council on the enforcement of intellectual property rights, 29 Apr. 2004.

<sup>374</sup> Case COMP/M.6381, *Google/Motorola Mobility*, 13 Feb. 2012. The merger was cleared in accordance with the EC Merger Regulation. See Council Regulation (EC) No. 139/2004 of 20 Jan. 2004 on the control of concentrations between undertakings (the “EC Merger Regulation”).

<sup>375</sup> *Id.* (No. 35) 107.

<sup>376</sup> *Google/Motorola Mobility* (No. 35) 107. Similar issues have been addressed in the US, where the US Federal Trade Commission remarked that “[s]eeking and threatening injunctions against willing licensees of FRAND-encumbered SEPs undermines the integrity and efficiency of the standard-setting process and decreases the incentives to participate in the process and implement published standards”. Federal Trade Commission, *Motorola Mobility LLC and Google Inc.; Analysis of Proposed Consent Order to Aid Public Comment*, File No. 121-120, 3 Jan. 2013.

be to refer to the level of royalty fee and deem in good faith a licensee who offers to pay fees that are FRAND. Nonetheless, the uncertainty about the concept of FRAND and the difficulty in assessing whether a royalty is acceptable make this approach not effective in establishing whether a would-be licensee is in good faith.

The issue is that the Commission places a huge burden on the SEP holder to conduct a successful negotiation, but leaves little room for injunctions. In fact, by stating “[i]n the event licensing discussions fail, the SEP holder may ultimately take its counterparty to court and seek an injunction” the Commission has arguably implied that such action is only acceptable as a last resort mechanism, where the potential licensee is not genuinely willing to take a license.<sup>377</sup> Along the same line, the Commission has affirmed that while owners of FRAND-pledged patents are obliged to provide a license on FRAND terms, they “*have the right to conduct negotiations with interested parties concerning the exact terms and conditions of the license, including the exact level of royalties and the right to enforce such agreements by means of litigation*”. It has thereby acknowledged that injunctions, in the context of standardization involving SEPs, represent an exception, rather than the rule.<sup>378</sup>

Against this background, the findings of the Commission suggest that it has adopted a notion of “good faith” licensee that exclusively emphasizes the obligation of the SEP holder to initiate and conduct licensing negotiations, overlooking the obligation of the potential licensee to actively seek a license in the first place. Conversely, this obligation of the potential licensee should be taken into consideration in the assessment of the “good faith” of the licensee. An alleged infringer who passively waits for proceedings to be started can arguably not be deemed a “*good faith potential licensee*”, willing to take a license on FRAND terms.

It is safe to conclude that the Commission has regarded injunctions as a last resort tool, where the potential licensee is not in good faith. In this respect, the legal standard supported by the Commission in *Google/Motorola Mobility*, appears to be quite strict on SEP owners. Indeed, it follows that threatening,

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<sup>377</sup> Case COMP/M.6381, *Google/Motorola Mobility*, 13 Feb. 2012, para 106.

<sup>378</sup> *Id.*, para 55.

seeking or enforcing an injunction will run counter to Article 102 TFEU for as long as the potential licensee is willing to negotiate a license on FRAND terms. The Commission seems to consider that obstructing licensing negotiations is a sufficient element for establishing abusive conduct of the patentee.

In conclusion, some authors have pointed out that the Commission is about to introduce a new, independent form of abuse in EU competition law, although within the existing legal framework established by *ITT Promedia*.<sup>379</sup>

### **2.2.2 THE EUROPEAN COMMISSION'S PERSPECTIVE ON INJUNCTIONS FOR SEPs: CHANGING APPROACHES**

There is an increasingly widespread trend to construe the seeking of injunctions for FRAND-pledged SEPs as a *sui generis* abuse,<sup>380</sup> subject to a novel test which relies on whether the injunction is sought against a “*willing licensee*” or not. Accordingly, the seeking of an injunction will only amount to an abuse of dominance where it is sought against a “*willing licensee*”.

The European Commission (or the “Commission”)'s approach to SEPs and the “good faith” regime has been further demystified by two Commission decisions adopted on April 29, 2014, concerning the assertion of SEPs. These decisions, although failing to allay the many doubts on the point, arguably contributed to shedding some light on the notion of “*willing licensee*” and on what conduct is to be deemed abusive in the context of licensing SEPs.

#### **2.1.2.1 THE MOTOROLA AND SAMSUNG CASES: TOWARDS A MORE LICENSEE-FRIENDLY APPROACH?**

In April 2012, the Commission started a proceeding against Motorola, following complaints lodged by Microsoft and Apple (the “Motorola case”). In the same year Motorola had sought and enforced an injunction against Apple before the Mannheim regional court in Germany, based on an SEP reading on the GPRS

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<sup>379</sup> DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p. 222.

<sup>380</sup> European Commission Press Release; “*Antitrust: Commission sends Statement of Objections to Samsung on potential misuse of mobile phone standard-essential patents*”, 21 Dec. 2012.

mobile technology standard (an ETSI standard), which is embodied in Microsoft's and Apple's main devices such as Xbox, Windows, I-Phone and I-Pad.

The enforcement of the injunction was carried out notwithstanding that “...Apple had agreed to take a license and be bound by a determination of the FRAND royalties by the relevant German court”.<sup>381</sup> Apple argued that Motorola had requested Apple to cross-license its entire non-SEP portfolio, in return for Motorola's SEPs. Apple contented that Apple's refusal to accept these licensing terms triggered Motorola's legal action against Apple. Facing the consequences of the lawsuits, which led to a temporary ban on Apple's online sales of its flagship products, Apple agreed to enter into a settlement agreement with Motorola, which imposed disadvantageous licensing terms for Apple, comprising a non-challenge clause, which granted to Motorola the right to terminate the license if Apple did not give up its right to challenge the validity of Motorola's SEPs.

In its decision, the Commission held that “*it was abusive for Motorola to both seek and enforce an injunction against Apple in Germany on the basis of an SEP, which Motorola had committed to licensing on FRAND terms, where Apple had agreed to take a license and be bound by a determination of the FRAND royalties by the relevant German court*”.<sup>382</sup> The Commission therefore concluded that Apple was willing to license. Moreover, it considered abusive Motorola's practice of insisting, under the threat of enforcing the injunction, that Apple agree to disadvantageous licensing terms. As noted by the Commission “...[i]mplementers of standards and ultimately consumers should not have to pay for invalid or non-infringed patents. Implementers should therefore be able to ascertain the validity of patents and contest alleged infringements”.<sup>383</sup>

Regardless of the finding of abuse, the Commission did not impose a fine on Motorola, acknowledging that there was a lack of case-law from the EU courts

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<sup>381</sup> Commission's press release in Case COMP/39.985, *Motorola - Enforcement of GPRS standard essential patents*, IP/14/489 (Commission finds that Motorola Mobility infringed EU competition rules by misusing standard essential patents), 29 Apr. 2014.

<sup>382</sup> *Id.*

<sup>383</sup> *Id.*



concerning the legality of SEP-based injunctions under Article 102 TFEU, and that national courts' case-law showed diverging conclusions on this matter.<sup>384</sup>

The parallel Samsung proceeding (the *Samsung* case), based on similar factual circumstances, was instead concluded with the acceptance by the Commission of specific commitments proposed by Samsung. These commitments were aimed at solving the competitive concerns raised during the investigation and so to avoid a formal assessment of the violation of Article 102 TFEU.

In April 2011, Samsung commenced to seek injunctive relief against Apple in various Member States, claiming infringement of its SEPs reading on the 3G UMTS mobile technology standards, adopted by ETSI. Following Apple's complain, the Commission initiated an investigation and in December 2013 issued its preliminary assessment, taking the view that given that Samsung had committed to license on FRAND terms, the seeking of injunctions against Apple on Samsung's SEPs may be construed as an abusive conduct.<sup>385</sup> The Commission further remarked that recourse to injunctive relief might distort FRAND licensing negotiations and lead to high prices, reduced product choice, and the stifling of differentiating innovation in the markets for smartphones and tablets, to the ultimate detriment of consumers.

In response to these anticompetitive concerns, Samsung committed not to seek any injunctions in the European Economic Area (the "EEA") on the basis of any of its SEPs for a period of five years against any company agreeing to a licensing framework that consists of: (i) a mandatory negotiation period of up to 12 months; and (ii) if the negotiation fails, a third-party determination of FRAND terms by a court if either party chooses, or by an arbitrator if both parties agree.

The commitments made clear that a prospective licensee should not be deemed "unwilling", however, on the ground that the prospective licensee challenges validity, infringement, or essentiality of the SEP in question. The Commission rendered Samsung's commitments legally binding under Article 9 of

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<sup>384</sup> Case AT.39985 *Motorola - Enforcement of GPRS Standard Essential Patents*, European Commission's Decision (Apr. 29, 2014), para. 561.

<sup>385</sup> European Commission Press Release; "Antitrust: Commission sends Statement of Objections to Samsung on potential misuse of mobile phone standard-essential patents", 21 Dec. 2012.

Regulation 1/2003. In this context, a would-be licensee can demonstrate its willingness to take a license on FRAND terms by agreeing that a court or mutually agreed arbitrator sets the terms in case of dispute.<sup>386</sup>

This decision provides a “safe harbor” for prospective licensees who are willing to take a license on FRAND terms. In other words, the Commission acknowledged that asserting SEPs, i.e. seeking an injunction or simply threatening to do so, might run counter to Article 102 TFEU where: (i) the patent holder has committed to a standardization body to grant licenses on FRAND terms, and (ii) the injunction is directed against a licensee genuinely willing to negotiate a license on FRAND terms.

Besides this much needed clarification, the decision does not provide any guidance on how to determine if a prospective licensee is “willing” in cases falling outside this safe harbor, i.e. outside the context of FRAND-pledged patents. The Commission simply held that the assessment as to whether the defendant has been willing to negotiate a license in good faith should be evaluated on a case-by-case basis, having regard to the specific factual circumstances.<sup>387</sup>

As noted, the standard of good faith adopted by the Commission suggests a broader application of Article 102 TFEU to injunctions brought by SEP holders and could be defined as being licensee-friendly.<sup>388</sup> Indeed, the assertion of SEPs, by threatening, seeking or enforcing injunctions, occurring in light of a FRAND commitment, is generally considered abusive as a main rule, as long as the would-be licensee is in good faith or willing to negotiate a license on FRAND terms.

### **2.1.2.2 THE ORANGE-BOOK-STANDARD CASE: A STRICTER STANCE**

Interestingly, the standard of good faith or willingness adopted by the Commission in the decision analyzed above differs significantly from that envisaged by the German Federal Court (*Bundesgerichtshof*) in the “Orange-Book-

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<sup>386</sup> Cases COMP/39.939 and COMP/39.985, MEMO/14/322 (Antitrust decisions on standard essential patents (SEPs) - *Motorola Mobility and Samsung Electronics* - Frequently asked questions), 29 Apr. 2014.

<sup>387</sup> DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014).

<sup>388</sup> *Id.*

Standard case” of May 6, 2009,<sup>389</sup> concerning CD-R and CD-RW patent pools (“*Orange Book*” was the informal name for Philips and Sony’s *de facto* recordable CD standard).<sup>390</sup> The German Court, although confirming that an alleged infringer may plead that an SEP holder is abusing its dominant position if the SEP holder refuses to license on FRAND terms, imposed a high burden on alleged infringers. To counter a request for a preliminary injunction with a competition law defense, the alleged infringer must prove that the patentee was given the opportunity to obtain a license on FRAND terms; offering evidence that the alleged infringer was denied a license on FRAND terms to which he was entitled is not sufficient.<sup>391</sup> For this reason, the *Orange Book Standard* has been perceived as being patentee-friendly,<sup>392</sup> especially compared to the approach of the Commission analyzed above.

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<sup>389</sup> Case KZR 39/06, *Philips Electronics N.V. v SK Kassetten*, German Federal Supreme Court (Bundesgerichtshof), 6 May 2009. For an English version of the judgment, see INTERNATIONAL REVIEW OF INTELLECTUAL PROPERTY AND COMPETITION LAW, Vol. 41 (2010), p. 369.

<sup>390</sup> However, it should be pointed out that the *Orange-Book-Standard* case was not precisely on point because it concerned a patent essential for a *de facto* standard (i.e., a standard that had developed in the marketplace), rather than a patent that had become essential through a standardization process, and the Federal Court’s conclusion was not based on the patent owner’s (express or implied) promise to license on FRAND terms.

<sup>391</sup> In particular, according to the *Orange Book Standard* defense, a presumptive abuse will be found if the firm against which an injunction is sought is a “willing licensee”, but to this end two conditions must be satisfied: (i) the potential licensee must have proposed to the SEP holder “an unconditional offer to conclude a license agreement which the patent proprietor cannot reject”. This condition is extremely difficult for a licensee to meet, as there is a wide margin for the SEP holder to reject the offer; (ii) the defendant (the would-be licensee) must have “compl[ie]d with the obligations on which the use of the licensed subject matter depends”, which implies that as soon as he makes the offer, the alleged infringer must behave as if he is a licensee, i.e. “pay[ing] the royalties resulting from the contract or ensur[ing] their payment” in escrow (Judgment of the Bundesgerichtshof of 6 May 2009 in Case KZR 39/06 *Orange Book Standard*). The rationale underpinning this is that a FRAND defense will not be acceptable unless the licensee behaves like an existing FRAND licensee. Peter Camesasca et al., *Injunctions for Standard-Essential Patents: Justice is not Blind*, 9 JOURNAL OF COMPETITION LAW & ECONOMICS 2 (2013), p. 295.

It follows that if an infringer fails to satisfactorily address the *Orange Book* criteria, especially failing to make an offer complying with the requirements established by the German court, the court deems that it cannot be the fault of a SEP holder, which has itself undertaken to grant a license on FRAND terms, and it will be proportionate to grant an injunction against such an infringer. Conversely, in case these requirements are met, the FRAND defense would succeed, the infringement action would be dismissed, and the final injunction would not be granted. *Ibid.*, 296.

The proof of the licensee’s willingness is construed in an even more narrow way as it cannot be simply extrapolated from explicit statements. To the contrary, conclusive evidence of exteriorized acts of fulfillment is required: i.e. a “serious” offer, and subsequent conduct in the form of anticipative payments. This departs from the Commission’s decision in *Google/Motorola*, where willingness was established by documentary evidence, in particular by reviewing internal documents from Google. *Google/Motorola*, para 150. Nicolas Petit, *Injunctions for Frand-Pledged Standard Essential Patents: The Quest for an Appropriate Test of Abuse Under Article 102 TFEU*, 9 EUROPEAN COMPETITION JOURNAL 3 (2013).

<sup>392</sup> *Id.*, pp. 677-719.

The legal test adopted by the German Federal Supreme Court is excessively narrow and it appears to conflict with the flexible “good faith” norm embraced by the Commission. It has been observed that by “*requiring the would-be licensee to fulfill such strict conditions arguably fails to achieve a proper balancing of interests in case a FRAND commitment has been issued by the patentee*”.<sup>393</sup> In fact, it is evident in the context of the assertion of FRAND-pledged SEPs that the risk that competition law would curb the scope of IPRs, gradually eroding the incentives to innovate, is limited. In particular, the patentee, by voluntarily committing to license the patents on FRAND terms to all third parties pursuant to the IPR policy of an SSO, “... *expects to obtain remuneration for its SEPs by means of licensing revenue rather than using these patents to seek to exclude others*”,<sup>394</sup> thus showing willingness to trade exclusivity for remuneration.<sup>395</sup>

### 2.1.2.3 THE HUAWEI CASE: A MUCH SOUGHT-AFTER CLARIFICATION?

This background of seemingly inconsistent precedents at national and EU level raises the need for the CJEU and the European Commission to take the initiative to foster a more uniform approach, shaping a conceptual framework within which injunctions are not granted in violation of Article 102 TFEU.

A preliminary ruling delivered on July 16, 2015 by the Court of Justice (“ECJ”) in response to the reference made by the *Landgericht Düsseldorf* (the Düsseldorf Regional Court) goes in this direction.<sup>396</sup> Interestingly, the case involved two major Chinese ICT companies: Huawei<sup>397</sup> and ZTE.<sup>398</sup>

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<sup>393</sup> DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p 218.

<sup>394</sup> Commission Decision C(2014) 2891 final in Case COMP/39.939, *Samsung - Enforcement of UMTS standard essential patents*, 29 Apr. 2014, para 62.

<sup>395</sup> DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p 202.

<sup>396</sup> CGEU, Case C-170/13, *Huawei Technologies Co. Ltd v. ZTE Corp., ZTE Deutschland GmbH*, EU:C:2015:477.

<sup>397</sup> Huawei, a Chinese telecommunications company, holds a European patent declared as essential to the Long Term Evolution (the “LTE”) mobile telecommunications 4G standard developed by the European Telecommunications Standards Institute (the “ETSI”), a standard setting organization. Huawei made a commitment to ETSI to grant licenses for SEPs for the LTE to third parties on FRAND terms.

<sup>398</sup> ZTE, also a Chinese telecommunications company, markets base stations with LTE software that incorporates technology covered by Huawei’s patent.

After ZTE and Huawei failed to conclude a licensing agreement, Huawei brought an action for infringement against ZTE before the Düsseldorf court seeking, among other remedies, an injunction prohibiting the continuation of the infringement. ZTE claimed that, given its willingness to license Huawei's patents in Germany on FRAND terms, Huawei's action for an injunction was abusive.

The request for a preliminary ruling stemmed from the fact that the German court considered that, applying the *Orange-Book-Standard* to the *Huawei-ZTE* case would lead it to issue the requested injunction, while applying the principles set out in the Samsung press release might lead it to dismiss Huawei's action for an injunction as an abuse. The outcome depended on what was considered sufficient to show a willingness to license. The Düsseldorf Regional Court therefore stayed the proceedings and, on April 5, 2013, referred five questions to the ECJ, asking whether, and, if so, in what circumstances, an action for infringement brought by an SEP holder that has given a commitment to grant licenses on FRAND terms constitutes an abuse of a dominant position. On November 4, 2014, Advocate General Wathelet delivered his opinion on the issues raised by the court.<sup>399</sup> On July 16, 2015, the ECJ delivered its judgment.<sup>400</sup>

The judgment tries to balance the interests of: (i) SEP owners, and (ii) implementers and consumers. The ECJ noted that, to prevent an action for a prohibitory injunction from being regarded as abusive, an SEP holder must comply with conditions that seek to ensure "*a fair balance between the interests concerned.*"<sup>401</sup> The judgment clarifies that SEP holders who have committed to grant licenses on FRAND terms are not deprived of their right to seek and enforce an injunction against potential infringers, but that this right is limited in various important respects. An SEP holder, therefore, is entitled to commence injunction proceedings, but only after it has complied with the specific requirements set out by the ECJ, and only provided that the SEP user has not complied with these specific requirements:

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<sup>399</sup> CGEU, Case C-170/13, *Huawei Technologies Co. Ltd v. ZTE Corp., ZTE Deutschland GmbH*, EU:C:2015:477, Opinion of AG Wathelet, ECLI:EU:C:2014:2391.

<sup>400</sup> *Ibid.*

<sup>401</sup> *Id.*, para 55.

- The SEP holder must notify the SEP user of the infringement,<sup>402</sup> designating the SEP and specifying the way in which it has been infringed. Given the large number of SEPs forming a standard, an SEP user may not be aware that it is infringing a valid SEP. Upon being alerted by the SEP holder of the alleged infringement, the SEP user must express its willingness to conclude a license on FRAND terms.<sup>403</sup>
- Subsequently, the SEP holder must present a detailed written offer for a license on FRAND terms that includes the amount of royalty and the way in which that royalty is to be calculated.<sup>404</sup> The ECJ concluded that the SEP holder is better placed to make a non-discriminatory offer than the SEP user, particularly given that licensing agreements with third parties are confidential.<sup>405</sup>
- The SEP user must respond promptly, diligently, and in good faith, without engaging in delaying tactics. In particular, if the SEP user does not accept the offer, it must submit, promptly and in writing, a specific FRAND counter-offer.<sup>406</sup>
- SEP users can challenge the validity and essentiality of an SEP in parallel to licensing negotiations and after conclusion of a license.<sup>407</sup> The ECJ's choice of language seems to suggest that SEP holders can no longer make their licenses conditional on users agreeing not to bring such challenges, contrary to common practice under the

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<sup>402</sup> *Id.*, paras 60 and 61.

<sup>403</sup> *Id.*, para 62.

<sup>404</sup> *Id.*, para 63.

<sup>405</sup> However, the Court of Justice of the European Union did not explain how to determine whether a SEP holder's offer is FRAND, or address the implications of an offer failing to qualify as FRAND. Arguably, both issues will need to be assessed by the court in which the infringement action is brought. If the SEP holder's offer does not qualify as FRAND, the court should reject the injunction. Another issue not addressed in the judgment is whether the willingness of a SEP holder to have the FRAND terms of the license set by a court or arbitration tribunal renders the offer *per se* FRAND, although the judgment acknowledges this as an option, and courts will likely agree that such an offer would qualify as FRAND.

<sup>406</sup> *Id.*, para 66. If the parties do not reach an agreement, and the SEP holder seeks an injunction, it would seem that the court would have to determine whether the SEP user's counter-offer qualifies as FRAND. If no agreement is reached, a SEP user that is already using the technology must provide security (e.g., by providing a bank guarantee or placing amounts necessary on deposit) by reference to the number of past acts of use, and must be able to render accounts. *Id.*, para. 67. Where no agreement is reached, the amount of the royalty may, by common agreement, be determined by an independent third party. *Id.*, para. 68.

<sup>407</sup> *Id.*, para 69.

*Orange-Book-Standard* case law. In this respect, the judgment is consistent with the Commission's decisions in *Motorola*<sup>408</sup> and *Samsung*.<sup>409</sup>

In sum, the judgment imposes important obligations on SEP users, notably, to make a counter-offer on FRAND terms and to provide appropriate security for the prior use of the SEP. The judgment places SEP holders in a stronger position than they appeared to be in under the Commission's decisions in *Motorola*<sup>410</sup> and *Samsung*.<sup>411</sup> In particular the judgment removes SEP users' unique "safe harbor" that allowed them to avoid an injunction by agreeing to have the terms of the license determined by a court or arbitration tribunal. Instead, third-party arbitration will only be available by common agreement. Moreover if parties fail to reach agreement on the terms of the license, the SEP user must provide appropriate security and be able to render accounts, which represents an important burden on the SEP user.

Unfortunately, the judgment also leaves many questions unanswered. For example, the ECJ did not address the issue of dominance. It therefore remains an open question whether an SEP holder is (*per se*) dominant by virtue of having a patent that is essential to a standard.

Moreover, the judgment provides no guidance on: (i) what amounts to "FRAND" terms; (ii) whether the license has to be country-wide, EEA-wide or worldwide; (iii) whether a portfolio license can be required including SEPs on the same standard or other standards or even non-SEPs; and (iv) whether a cross-license can be requested and if so, on what terms, etc. While these points are not addressed in the judgment, it may be possible to argue, perhaps as a fallback in cases where an offer is not considered FRAND, that willingness to have the terms of the license determined by an independent third party should, in itself, be considered FRAND.

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<sup>408</sup> Case AT. 39985, April 29, 2014, *Motorola - Enforcement of GPRS Standard Essential Patents*.

<sup>409</sup> Case COMP/C-3/39.939, September 27, 2013, *Samsung Electronics and Others*.

<sup>410</sup> Case AT. 39985, April 29, 2014, *Motorola - Enforcement of GPRS Standard Essential Patents*.

<sup>411</sup> Case COMP/C-3/39.939, 27 Sept. 2013, *Samsung Electronics and Others*.

Nonetheless, the judgment seems to require courts considering the injunction applications to assess whether the offers made by the parties are objectively FRAND. If the parties fail to agree on having the terms of the license determined by a third party, it is not entirely clear what the implications will be for injunction proceedings.<sup>412</sup>

## **2.2 FAIR, REASONABLE AND NON-DISCRIMINATORY (“FRAND”) LICENSING: THE CHALLENGES OF UNREASONABLE ROYALTY PAYMENTS**

As a precondition to including any technology covered by IPRs in a standard, SSOs require IPR holders that are essential to the standard to guarantee mutual fair treatment in the course of development and implementation of a new standard. In order to help to ensure that standards do not allow the owners of essential patents to abuse their market power to extort competitors or prevent them from entering the marketplace, IPR holders commit to two main obligations: disclosure, which was analyzed earlier in the context of patent ambush, and licensing rules. Licensing rules guarantee that SSO members license their IPR to each other on equitable terms,<sup>413</sup> in an effort to thwart patent hold-up scenarios, where a member abuses his status as an SEP holder by requesting excessive fees from potential licensees that have no other alternative than to pay.<sup>414</sup>

SSOs licensing requirements provide that SEP holders must license their patents on fair, reasonable and non-discriminatory terms.<sup>415</sup>

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<sup>412</sup> Interestingly, on 3 Nov. 2015 the Düsseldorf court applied these principles in *Sisvel v Haier*. The Düsseldorf court left open the question of whether Sisvel’s worldwide offer for the portfolio concerned qualified as FRAND, because the user failed to provide security and therefore was not considered a willing licensee. The court also noted that it does not need to answer the question of whether there would have been room for a counter-offer by the SEP user if the SEP holder’s offer had actually been FRAND (the SEP holder having thus fulfilled its licensing duty). Finally, the court stated that the security provided by the SEP user must be in accordance with its counter-offer. This ruling suggests that the Düsseldorf court remains inclined to be SEP-holder friendly. Landgericht Düsseldorf, Judgment of November 3, 2015, Joined Cases 4a O 93/14 and 4a O 144/14 *Sisvel v. Haier*.

<sup>413</sup> Richard J. Gilbert, *Deal or No Deal? Licensing Negotiations In Standard-Setting Organizations*, 77 ANTITRUST LAW JOURNAL (2011)

<sup>414</sup> Mark A. Lemley, Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEXAS LAW REVIEW (2007), p.1993.

<sup>415</sup> The FRAND requirement is also found in European Commission antitrust guidelines: “To avoid elimination of competition in the relevant market(s), access to the standard must be possible for third parties on fair, reasonable and non-discriminatory terms.” European Commission Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements, OJ 2001 C 3/2 (the “Horizontal Guidelines”), para 174.



The FRAND obligation plays a central role in the competition, innovation, IP law interface, as it is designed to attain different objectives. First, it is intended to avoid the blocking of standards by outright refusals to license implementations and by patent holders seeking injunctions. Secondly, the FRAND obligation is designed to specifically prevent the use by the patent holder of excessive bargaining power to extract higher than reasonable royalties from licensees. Case-law and anecdotal evidence strongly suggest that royalties must not be left to be set by unfettered price mechanisms and that FRAND undertakings are necessary precisely for this reason. It is indeed clear that in the context of standards there is a tangible risk of patent holder opportunism, as standards have a deep impact on the bargaining situation between licensees and SEP holders.

Notwithstanding the relevance of FRAND undertakings, no antitrust authority has, to date, clarified the notion of FRAND terms in a standard context. In particular the “fair and reasonable” components of FRAND terms has been interpreted in a variety of ways, often diverging.<sup>416</sup>

This ambiguity in legal terms has increased litigation to determine whether the FRAND standard has been met. It has increased the occurrence of legal disputes, between SEP holders and those seeking a license in order to be compliant with a standard, regarding what precisely constitutes fair and reasonable license terms. As noted above, such disputes ultimately end up before competition authorities or courts insofar as licensees or would-be licensees assert that the license terms imposed by the SEP holder run counter to Article 102 TFEU. As remarked, there is also an increasingly popular practice of alleged infringers of SEPs adding on a competition law defense as a counterclaim in injunction proceedings, asserting that they had been willing to take a license on FRAND terms, but that the SEP holder insisted on non-FRAND terms.

The reluctance to more specifically define what constitute “fairness” and “reasonableness” may be seen as a deliberate policy choice not to constrain the

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<sup>416</sup> Richard J. Gilbert, *Deal or No Deal? Licensing Negotiations In Standard-Setting Organizations*, 77 ANTITRUST LAW JOURNAL 855, 856 (2011), p. 856.

freedom of companies to operate their business and the margin of maneuver of the Commission to deal with anticompetitive behavior.<sup>417</sup>

As the General Court has held,<sup>418</sup> in the assessment of whether license terms are fair and reasonable, all of the components forming the economic context at issue should be taken into account, including the circumstances and position of the licensor and licensee. This case-by-case approach is indeed widespread in competition law and it stems from a number of vague legal terms that allow for a more flexible application of remedies.<sup>419</sup>

Nonetheless, legal certainty remains an issue. A legal definition of FRAND may arguably be useful in order to help competition authorities to assess whether licensing terms are FRAND, or not.

SSOs' policies do not offer much guidance on the notion of FRAND as their IPR rules do not spell out what criteria must be satisfied for royalty rates to be "fair" and "reasonable." Within standards bodies' rules, IPR policies, and related SSO documents there is no solid definition of what these terms concretely mean.<sup>420</sup> They usually merely state that licensing terms must be negotiated on a bilateral basis. The tendency to leave SSO members to negotiate the contractual

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<sup>417</sup> The European Commission has pointed out that "[it] is not feasible or appropriate to be more specific as to what constitutes 'fairness' or 'reasonableness' since these are subjective factors determined by the circumstances surrounding the negotiation. If the right holder is to be satisfied that his investment in research and development can be adequately recovered, he would expect the royalty rate to relate in some way to the normal freely negotiated commercial rate, allowing for the greatly increased market for his technology which standardization will bring". Communication from the European Commission, *Intellectual Property Rights and Standardization*, COM(92) 445 Final, 27 Oct. 1992, point 4.3.3.

<sup>418</sup> The General Court in Case T-167/08, *Microsoft Corp v. Commission*, 27 Jun. 2012, para 95, stated that "Microsoft is, on the other hand, right to maintain that several rates may be covered by the notion of 'reasonable remuneration rates'".

<sup>419</sup> The General Court in Case T-167/08, *Microsoft Corp v. Commission*, 27 Jun. 2012, para 84, stated that "[...] the use of imprecise legal concepts in making rules, breach of which entails the civil, administrative or even criminal liability of the person who contravenes them, does not mean that it is impossible to impose the remedial measures provided for by law, provided that the individual concerned is in a position, on the basis of the wording of the relevant provision and, if need be, with the help of the interpretation of it given by the courts, to know which acts or omissions will make him liable" (also see para 91).

<sup>420</sup> For instance, both the ETSI IPR policy and the ANSI Patent Policy abstain from unraveling what they mean by "fair and reasonable terms" or by "reasonable terms and conditions," respectively. Timo Ruikka, "FRAND" *Undertakings in standardization - A business perspective*, Paper presented at the Fordham IP Conference, New York City, March 28, 2008.

licensing terms, without any interference, might also be explained by the concern that the SSO may otherwise be accused of behaving like a cartel.<sup>421</sup>

This vagueness in terminology results makes it difficult to contest an offered royalty rate as not being compliant with a FRAND commitment.<sup>422</sup> This legal uncertainty raises even more concerns as the IPR rules of standards bodies generally do not deal with the coordination issues stemming from the co-presence of a large number of patent holders, most of the time each licensing their essential patents independently and without considering the totality of all essential patents. Given this context and having confirmed that the *ex post* effects of standardization deeply alter the equilibrium of licensing negotiations, the absence of clear rules in these respects paves the way for the opportunistic conduct of SEP holders.<sup>423</sup>

### 2.2.1 CRITERIA TO DEFINE "FAIRNESS" AND "REASONABLENESS"

The uncertainty surrounding the concept of FRAND has forced courts to seek guidance from market practices in foreign jurisdictions. At the same time,

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<sup>421</sup> DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), para 9.03[e][3].

<sup>422</sup> Timo Ruikka, "FRAND" *Undertakings in standardization - A business perspective*, Paper presented at the Fordham IP Conference, New York City, March 28, 2008.

<sup>423</sup> Timo Ruikka, "FRAND" *Undertakings in standardization - A business perspective*, Paper presented at the Fordham IP Conference, New York City, March 28, 2008. It should also be remarked that FRAND terms are negotiated between the licensor and the licensee and need to be construed as contractual terms mirroring the will of the parties and binding on them. Moreover, patent law is not of great help to courts in determining royalty rates as frequently they are not set in mandatory regulations. FRAND terms are grounded on the membership agreements that are undertaken voluntarily by the SSO members, as self-regulation. Hence, they could, at most, be qualified as contractual: this means that courts may only rely on general principles such as the principle of fairness in civil law, the principle of equity, and the principle of good faith in contract law. See for example, 中华人民共和国民法通则 General Principles of the 中华人民共和国合同法 Contract Law of the People's Republic of China, Articles 5 to 6. However, it remains necessary to distinguish the contractual implications of a FRAND understanding from those stemming from Article 102 TFEU. Indeed, although SSOs' licensing policies are aimed at preventing competition issues that may arise from the inclusion of proprietary technology in a standard, contractual compliance with a FRAND commitment will not *per se* ensure competition law compliance. The literature has pointed out that "even if SSO policies were to contain elaborate definitions of FRAND such definition, as agreed between SSO members, would not necessarily be FRAND vis-à-vis non-members. In this respect it must be recalled that the interests of SSO members cannot be presumed always to be aligned with those of the public, let alone in harmony with effective competition". See Joseph Farrell et al., *Standard Setting, Patents, and Hold-Up*, 74 ANTITRUST LAW JOURNAL 3 (2007), at 658. In other words, mere compliance with the contractual terms of the FRAND commitment does not prevent a SEP holder from refusing outright to license or to set royalty rates so high as to successfully block others from gaining access to the technology. Damien Geradin, Miguel Rato, *Can Standard-Setting Lead to Exploitative Abuse? A Dissonant View on Patent Hold-up, Royalty Stacking, and the Meaning of FRAND*, 3 EUROPEAN COMPETITION JOURNAL 101 (2007).

despite the local nature of the rights, and local jurisdiction, courts need to face extra-territorial market considerations as well, as the market practices for standards are international.

Notwithstanding the absence of a competition law definition of “fairness” and “reasonableness”, the Commission and the CJEU have identified some criteria in order to investigate whether a royalty is unfair and unreasonable under Article 102 TFEU. Furthermore, legal and economic doctrines have been elaborated in this regard, proposing different methods on how to calculate FRAND terms. The topic is too complex to be comprehensively analyzed in this chapter, and it falls outside the scope of the present study. However, in the subsequent section reference is made to different theories in this respect.<sup>424</sup>

The European Commission Guidelines on the applicability of Article 101 of the TFEU to horizontal co-operation agreements 2011 (the “Horizontal Co-operation Guidelines”), recalling the CJEU in the *United Brands* case, offer some guidance on the legal test to apply to ascertain whether a dominant undertaking

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<sup>424</sup> The European Commission could intervene to tackle non-FRAND licensing terms on the basis of excessive pricing, given the clear legal basis provided in Article 102(a) TFEU, according to which a dominant undertaking that imposes “*unfair and unreasonable prices or other unfair trading conditions*” may be subject to liability. In this vein, the conduct of imposing excessive royalties due to the market power granted by the ownership of SEPs may amount to an abuse of a dominant position. However, to date there is no European Commission decision nor CJEU case concerning intervention triggered by the finding that a royalty has been deemed excessive. This cautious approach in intervening directly against unfair pricing abuse is primarily due to the practical difficulty in identifying a benchmark against which the price can be compared and in deciding whether the gap between the benchmark and the alleged excessive price is sufficient to amount to a violation of Article 102 TFEU. This somewhat vague legal test is made even more prone to errors given that competition authorities generally lack the expertise to intervene in price setting matters. See Mario Mariniello, *European antitrust control and standard setting*, Bruegel Working Paper 2012/01, at 13. The reluctance shown towards a direct intervention on prices might furthermore be attributable to the risk of reducing the incentive to enter the market, as “*it creates uncertainty as to whether the investments in R&D can be recouped*”. See DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p. 88. SEP holders should indeed be allowed to recoup the risky investments made to develop their patented technology. High prices would then represent a “*necessary reward*” for the innovative effort made by the most efficient firms and intervention against high profits might undermine innovation and, ultimately, be detrimental to consumers’ interests. This has been recognized by the European Commission as well: “[...] *high profits may often be the results of superior innovation and risk taking, which should not be penalized as this would work as a disincentive to innovate and invest*”. OECD, Policy Roundtables - Excessive Prices 2011, DAF/COMP 820119 18, 2012 p. 311. Another source which may cause competition authorities to exercise restraint is the perception that direct intervention on price constitutes conclusive evidence of a failure of competition policy, consequently, “[I]t seems unsound to argue that competition authorities would be the best placed to perform such a duty. That perhaps explains the reluctance to intervene shown by the European Commission in the past and the skepticism often flagged by high-ranked EC officials”. Mario Mariniello, *European antitrust control and standard setting*, Bruegel Working Paper 2012/01, p. 13.

has violated Article 102(a) TFEU by using its market power to reap benefits otherwise not achievable if “*normal and sufficiently effective competition*”<sup>425</sup> had been in place. According to the Commission “[t]he assessment of whether fees charged for access to IPR in the standard-setting context are unfair or unreasonable should be based on whether the fees bear a reasonable relationship to the economic value of the IPR”.<sup>426</sup> The Horizontal Co-operation Guidelines present a non-exclusive list of methods to carry out this assessment.

That being said, the Horizontal Co-operation Guidelines specify that “*In principle, cost-based methods are not well adapted to this context because of the difficulty in assessing the costs attributable to the development of a particular patent or groups of patents*”.<sup>427</sup> The difficulty in determining relevant costs assessing whether a royalty is excessive is all the more an issue in the patent context where “*allocating fixed R&D costs, including the costs of failed projects, with any precision is close to impossible*”.<sup>428</sup> The ECJ has in fact acknowledged that there may be “*...considerable and at times very great difficulties in working out production costs which may sometimes include a discretionary apportionment of indirect costs and general expenditure...*”.<sup>429</sup>

Conversely, the Commission asserts that the reasonableness and fairness of a royalty rate imposed *ex post* after a standard has been adopted may be decided by “*compare[ing] the licensing fees charged by the company in question for the relevant patents in a competitive environment before the industry has been locked into the standard (ex ante) with those charged after the industry has been locked in (ex post)*”. This comparative method evidently “*assumes that the comparison can be made in a consistent and reliable manner*”.<sup>430</sup>

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<sup>425</sup> Case 27/76, *United Brands v. Commission*, 14 Feb. 1978, para 250. See also Case 26/75, *General Motors v. Commission*, 13 Nov. 1975, para 249.

<sup>426</sup> European Commission Guidelines on the applicability of Article 101 of the TFEU to horizontal co-operation agreements, 2011 (the “Horizontal Co-operation Guidelines”). The European Commission makes a similar, albeit obiter, statement in its merger clearance decision in Case COMP/M.6381 *Google/Motorola* (2012) (paragraph 105).

<sup>427</sup> 2011 Commission Guidelines (n 1) 289.

<sup>428</sup> DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p. 121.

<sup>429</sup> Case 27/76, *United Brands v. Commission*, 14 Feb. 1978, para 254.

<sup>430</sup> 2011 Commission Guidelines (n 1) 289. Communication from the European Commission, *Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal*

The comparative *ex post-ex ante* method suggests that the “*the overall benchmark is the hypothetical royalty rate which would have been offered had it not been for the SEP holder’s dominant position*”.<sup>431</sup> In other words, this method assumes that the patent subject to scrutiny was licensed before the adoption of the standard on the market to which the standard is related and with the objective of letting the licensee implement features analogous to those covered by the standard.<sup>432</sup>

Consequently, the method assumes that if the patent at issue was licensed *ex ante* at a certain rate, the licensor must have evaluated its adequateness to allow for the costs linked to the development of the patented technology to be recovered and for the risks to be offset. Thus, any increase in royalties after the standard is adopted is presumed to be indicative of an anticompetitive opportunistic behavior aimed at extracting rents in excess of a technology’s intrinsic value, without any objective justification. This consideration is aligned with the General Court’s reasoning that the reasonableness of a royalty rate reflects exclusively the intrinsic value deriving from the technology innovative character. Conversely, a patentee should not be allowed to charge royalty rates reflecting the strategic value deriving from network effects stemming from the fact that the standard has been adopted and the market has become locked-in, as the opportunistic exploitation of this strategic value cannot escape the scrutiny of Article 102 TFEU.<sup>433</sup>

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*co-operation agreements*, OJ 2011/C 11/1, 14 Jan. 2011, para 289. This method comparing *ex ante* royalty with *ex post* royalty rates has been supported by some scholars. See for instance CARL SHAPRIO, HAL VARIAN, *INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY* (HARVARD BUSINESS SCHOOL PRESS, 1999), at 241: “[r]easonable should mean the royalties that the patent holder could obtain in open, up-front competition with other technologies, not the royalties that the patent holder can extract once other participants are effectively locked in to use technology covered by the patent”.

<sup>431</sup> DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p. 119.

<sup>432</sup> DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), pp. 128-129.

<sup>433</sup> Case T-167/08, *Microsoft Corp v. European Commission*, 27 Jun. 2012, paras 143-144. The court did not employ the term “network effects”, notwithstanding that it held that Microsoft should not be permitted to charge remuneration rates that mirrored the strategic value deriving from “[...] *the mere ability to interoperate with Microsoft’s operating systems*”. *Ibid.*, para 142.

## 2.2.2 CRITERIA TO DEFINE “NON-DISCRIMINATORY” CONDUCT

Having analyzed the meaning of fairness and reasonableness, it is important to turn to the “non-discriminatory” component of FRAND, which imposes that licensing terms should be non-discriminatory,<sup>434</sup> meaning that “*all similarly situated licensees and licensors must have access to technology on the same terms and conditions, so as to enable them to compete on a level playing field. Deviation from the non-discrimination principle is allowed only if there is an objective justification and the difference in treatment is proportionate to the difference in circumstances.*”<sup>435</sup>

The licensor may indeed have an incentive to not only put in place an exploitative abuse through excessive pricing, but also to impose a discriminatory royalty rate that would place the licensee at a competitive disadvantage vis-à-vis other trading partners enjoying more favorable rates, ultimately excluding them from the market.<sup>436</sup>

Interestingly, discriminatory licensing has so far received little attention compared to the “fair” and “reasonable” part of FRAND, and no EU case-law has dealt with this element. Nor is there any guidance on this in the Horizontal Guidelines,<sup>437</sup> or in the Commission’s Technology Transfer Guidelines,<sup>438</sup> which do not address the matter of discriminatory licensing. Nonetheless, there is no doubt that discriminatory licensing may run counter to EU competition law and fall within the scope of Article 102(c) TFEU.<sup>439</sup>

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<sup>434</sup> See also Anne Farrar-Layne, *Nondiscriminatory pricing is standard setting different*, 6 JOURNAL OF COMPETITION LAW & ECONOMICS 4 (2010), p. 812; Chris Chaffer, *Prohibiting discriminatory cross-licensing*, 21 INFORMATION & COMMUNICATIONS TECHNOLOGY LAW 2 (2012), p. 91.

<sup>435</sup> Maurits Dolmans, *Standards for standards*, 26 FORDHAM INTERNATIONAL LAW JOURNAL (2002).

<sup>436</sup> For an in-depth analysis on the reasons why a SEP holder may be induced to engage in discriminatory licensing, see DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), pp. 150-153.

<sup>437</sup> Communication from the European Commission, *Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements*, OJ 2011/C 11/1, 14 Jan. 2011, paras 289-291.

<sup>438</sup> European Commission *Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements*, OJ 2014/C 89/03, 28 Mar. 2014.

<sup>439</sup> See European Commission press release in Case COMP/37.792, *Microsoft*, IP/01/1232 (European Commission initiates additional proceedings against Microsoft), 30 Aug. 2001. Interestingly, the European Commission dropped the allegations of discrimination in its final decision in Case COMP/37.792, *Microsoft*, 24 Mar. 2004 so the General Court did not address this aspect on appeal in Case T-201/04, *Microsoft Corp. v. Commission*, 17 Sep. 2007.

However, Article 102(c) TFEU prohibits “*applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage*”. The CJEU and the Commission have interpreted this provision as also prohibiting reverse discrimination, i.e., applying equivalent conditions to transactions characterized by different factual circumstances.<sup>440</sup> Non-discrimination can thus be evaluated if the patent holder has already licensed the same patent or a patent of the same type of technology: a comparison of the value ascribed can straight away signal if there is discrimination. If the patent holder has not already so licensed, a criterion is to verify whether the prospective value is contrary to *id quod plerumque accidit* in the same industry and to make a comparison of those values.<sup>441</sup>

Consequentially, the application of Article 102(c) TFEU presupposes a detailed case-by-case analysis of all factual and economic circumstances at issue that may justify differential treatment of licenses, as diverging licensing terms do not automatically signal an abuse of market power.<sup>442</sup>

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<sup>440</sup> See Case C-209/10, *Post Danmark A/S v. Konkurrencerådet*, 27 Mar. 2012, para 30 and COMP/A.36.568/D3, *Scanlines Sverige v. Port of Helsingborg*, 23 Jul. 2004, para 276.

<sup>441</sup> M. Siragusa, *Le essential facilities nel diritto comunitario ed italiano della concorrenza*, in E. A. RAFFAELLI, *ANTITRUST FRA DIRITTO NAZIONALE E DIRITTO COMUNITARIO* (BRUXELLES-MILANO, 1998), p. 196.

<sup>442</sup> This has been accepted by the CJEU. See for example Case 322/81, *Michelin v. Commission*, 9 Nov. 1983, para 73, and Case T-228/97, *Irish Sugar v. Commission*, 7 Oct. 1999, para 114. Nonetheless, diverging licensing terms may indeed be justified where they mirror different circumstances underlying the transactions being compared and actually represent the effort to offset different economic and competitive circumstances. See Case 13-63, *Italian Republic v. Commission*, 17 Jul. 1963, concerning discrimination in the context of the European Coal and Steel Community (“ECSC”) Treaty. As stated by the European Commission in its Guidance on the European Commission’s enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings, a dominant undertaking may justify its conduct “... either by demonstrating that its conduct is objectively necessary or by demonstrating that its conduct produces substantial efficiencies which outweigh any anti-competitive effects on consumers.” See Communication from the European Commission, *Guidance on the European Commission’s enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings*, OJ 2009/C 45/02, 24 Feb. 2009, point 28.

It follows that Article 102(c) TFEU does not entail a *per se* prohibition against licensing discrimination. Conversely, the licensor should ensure that the royalty charged mirrors any dissimilarity as to the terms and conditions agreed in order to avoid applying equal treatment to non-equivalent transaction. This would run counter to Article 102(c) TFEU, which as noted has been construed as prohibiting reverse discrimination. It is evident that “...discrimination could also be caused if different situations were treated in the same manner.” See Case 13-63, *Italian Republic v. Commission* (1963) ECR 165.

In this vein, restricting patentees’ freedom to differentiate between licensees might have unwarranted results. A parallel can be drawn with the European Commission’s cautious stance towards provisions that require SSO members to issue a blanket licensing commitment as a precondition for participation (“*license-by-default*” clauses). See the ETSI controversy, where the European Commission noted that a license-by-default scheme would likely contravene Article 101(1)



### 3. CHINA: REGULATING STANDARDS TO PROTECT THE MARKET

#### 3.1 STANDARDIZATION ADMINISTRATION OF CHINA (“SAC”)’S MEASURES ON NATIONAL STANDARDS

The US has been reiterating its concern that China is pursuing a protectionist agenda in disguise of the goal of fostering indigenous innovation through State-supported development and implementation of home-grown standards that differ from international ones.<sup>443</sup>

As seen above, as a consequence of China’s position in the global supply chain, one of the primary drivers of the country’s willingness to support its domestic technology standards is arguably explained by the ever-increasing production costs, which are constantly driven up by patents and related royalties, held by advanced nations.<sup>444</sup> The more patents and related royalty fees Chinese firms need to pay, the less profit margin the country’s manufacturing sector can make. This is especially acute in the ICT sector, which features a high number of

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TFEU as it does not provide SSO members with a chance to exclude select technologies from the FRAND licensing obligation. See European Commission Notice in Case IV/35.006, and *ETSI interim IPR policy*, 95/C 76/05, 28 Mar. 1995, point 8. See also Eric J. Iversen, *Standardization and Intellectual Property Rights: ETSI’s controversial search for new IPR-procedures*, SIIT’99 Proceedings, IEEE Conference on Standardization and Innovation, Aachen, Germany, 15-17 Sept. 1999, p. 6; and Maurits Dolmans, *Standards for standards*, 26 *FORDHAM INTERNATIONAL LAW JOURNAL* (2002), pp. 180-181. It has been observed that such “a compulsory licensing obligation [...] would discriminate against companies in possession of large IPRs portfolios and be therefore detrimental to innovation”. DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p. 94. In fact, it would discourage participation by patentees, thus leading to inferior standards by curbing the number of substitute technologies available for inclusion. The European Commission acknowledges this risk in its 1992 communication on IPR and standards, noting that “although it could be argued that consumers would benefit in the short term if intellectual property rights were compulsively licensed to serve as the basis of standards, in the long term, investment in research and development in the standardized industrial sectors would dry up within the Community”. See Communication from the European Commission, *Intellectual Property Rights and Standardization*, COM(92) 445 Final, 27 Oct. 1992, point 5.1.15.

Indeed, differences as to the terms and conditions agreed will often result in differential licensing schemes. But this will not amount to discrimination within the meaning of Article 102(c) TFEU, in so far as there is an objective and proportionate justification, identified in a causal link between the diverging royalty rates charged and the monetary payment mode under the terms agreed by the licensing negotiations. It has been observed that “while not strictly related to supply costs, the terms and conditions impact both the value of the patent licensed as well as the risks - hereby the potential costs - of the parties to the agreement. Accordingly, differences as to the terms agreed will therefore most often translate into diverging royalty payments or other fees”. See DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p. 159.

<sup>443</sup> United States Trade Representative (USTR), 2014 Report to Congress On China’s WTO Compliance (December 2014) (the “2014 USTR Report”) 73.

<sup>444</sup> See Dan Breznitz, Michael Murphree, *The rise of China in technology standards: New norms in old institutions*, prepared for the US-China Economic and Security Review Commission 16 (2013), p. 2.

overlapping patents, often amounting to patent thickets, in order to reach the needed level of interoperability among heterogeneous devices.<sup>445</sup> Against this background, China seems to be aiming at squeezing down prices by increasing supply. The use of competing, alternative, domestic technologies can indeed serve the purpose of forcing concessions in royalties.

This situation is exacerbated by a notable amount of uncertainty under the Anti-Monopoly Law (“AML”)<sup>446</sup> and its implementing regulations as to the treatment of IPRs and FRAND-related concerns. This uncertainty increases the risk of public and private antitrust actions and creates uncertainty regarding the consistency of China’s standardization policy *vis-à-vis* its WTO commitments. The encouragement of indigenous innovation affects the way Chinese standard-setting agencies deal with patents in standards.

The issue has been the subject of three draft regulations advanced by the Standardization Administration of China (“SAC”) in 2004, 2009 and 2012 respectively. These drafts show a progressive softening of China’s stance following foreign, especially US, claims that the Beijing government has placed emphasis on developing national standards that rely either on technology belonging to the public domain or technology that can be made available at reduced rates.<sup>447</sup>

The 2004 draft regulation<sup>448</sup> provided that patented technologies could not be incorporated in mandatory national standards, and could be included in voluntary national standards only where the technology concerned is deemed

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<sup>445</sup> This apprehension is particularly severe with respect to ICT, which, by its nature, not only needs a high degree of interoperability, but also includes a heavy portfolio of patented technology, particularly software. See Andrew Updegrave, *ICT Standard Setting Today: A System Under Stress*, 6 CONSORTIUM STANDARDS BULLETIN No. 4 (Apr. 2007). The sheer number of patents increases the danger that patent thickets will merge, hypothetically obstructing innovation, principally where standards are involved. Carl Shapiro, *Navigating the patent thicket: Cross licenses, patent pools, and standard setting*, 1 INNOVATION POLICY AND THE ECONOMY (2001), pp. 119-150.

<sup>446</sup> Anti-monopoly Law of the People’s Republic of China, Adopted at the 29th meeting of the Standing Committee of the 10th National People’s Congress of the People’s Republic of China on August 30, 2007.

<sup>447</sup> United States Trade Representative (USTR), 2014 Report to Congress On China’s WTO Compliance (December 2014) 73, at 69. The USTR frames such reduced rates as below market, though, of course, the point of FRAND licensing terms is to correct the market disruption caused by standardization.

<sup>448</sup> See 国家标准涉及专利的规定（暂行）（征求意见稿）[Provisions on Issues Related to Patents in National Standards (Interim) (Draft for Public Comment, Mar. 19, 2004)].

“irreplaceable”.<sup>449</sup> Moreover, when a national standard does involve a patented technology, the holder would be required to irrevocably state, in writing, his or her agreement to license either on a royalty-free or FRAND basis.<sup>450</sup> Nonetheless, the 2004 draft did not make any reference addressing the issue of what amounts to FRAND. The 2004 draft was never adopted because of the lobbying pressure exerted against it by the US government and companies.<sup>451</sup>

The 2009 draft regulation<sup>452</sup> allowed for the inclusion of patented technologies in national standards only if such technologies are “essential” for them.<sup>453</sup> It provided that in case the national standard must include a patented technology, the owner of the SEPs must sign an irrevocable written declaration stating its willingness to license its technologies on a royalty-free or FRAND basis. According to this draft the fee should be “*at a price significantly lower than the normal royalties*”. This wording is arguably problematic as it would likely work as a deterrent for IPR owners to participate in standard-setting activities in China as it would limit their capacity to receive a fair return on their R&D investment.<sup>454</sup>

As for mandatory standards, the 2009 draft regulation reiterated the 2004 draft’s prohibition on the inclusion of patented technologies in mandatory national standards, stating that “*in principle, compulsory national standards shall not involve patents*” (Article 12). In case a national standard does involve a patented technology, the 2009 draft compelled the patent holder either to grant a royalty-free license or to negotiate with SAC to reach a jointly acceptable solution. It provided that if such a solution is not reached, SAC shall either not approve the national standard at issue or demand a compulsory license (Article 13).

However, this compulsory licensing power of SAC posed some issues. Indeed, compulsory licensing is to be allowed only under clear procedural rules

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<sup>449</sup> *Id.* at Art. 3.

<sup>450</sup> *Id.* at Art. 11.

<sup>451</sup> Greg S. Slater, *Compulsory Licensing Trends in the Technology Sector: China as a Case Study on Licensing Patents*, in ABA SECTION OF INTELLECTUAL PROPERTY LAW: COMPULSORY LICENSING AND OTHER IP CONTROLS (2009), p. 135.

<sup>452</sup> See 涉及专利的国家标准制修订管理规定（暂行）（征求意见稿） [Provisions on the Administration of Formulating and Revising National Standards Involving Patents (Interim) (Draft for Public Comment)] (Nov. 2, 2009).

<sup>453</sup> *Id.* at Art. 3.

<sup>454</sup> George T. Willingmyre, *Take Two - China’s Proposed Regulations for Patent-Involving National Standards*, INTELLECTUAL PROPERTY WATCH, 21 Dec. 2009.

and undertaken within the regulatory framework spelled out by the WTO's TRIPs Agreement. Besides a lack of clarity, as noted by the Intellectual Property Owners Association the SAC policy on compulsory licensing requirements would risk to negatively impact China: "*compulsory licensing, or forced negotiation in the shadow of the threat of compulsory licensing, for mandatory national standards would also lead to reduced innovation. Patents benefit Chinese society by creating long-term incentives for Chinese companies to invest in innovation.*"<sup>455</sup> The policy would further jeopardize the possibility to efficiently develop standards using the most advanced technologies. Critics indeed argued that the draft regulation would force China to accept inferior technologies. Ultimately, the stark criticism received, led to the abandonment of the 2009 draft regulation as well.

Eventually, in 2012 SAC proposed a third draft regulation on patents in standards<sup>456</sup> that shifted the language in a way more favorable to the inclusion of patented technologies in national standards, allowing more flexibility on the part SAC. However, it remains unclear if the re-wording is a mere cosmetic gesture to placate Western critics or it actually reflects a change in SAC's approach to the issue in practice.

Similarly to the previous two draft regulations, the 2012 draft requires patented technologies to be "indispensable" for them to be included in national standards.<sup>457</sup> In case a national standard must cover a patented technology, the patent holder must give an irrevocable written declaration stating either that he or she agrees to license the patent on a royalty-free or FRAND basis; or that he or she does not.<sup>458</sup> Importantly, this draft deleted that the fee must be "*significantly lower than normal*" wording, although it is not clear how SAC would interpret FRAND.

With regards to mandatory national standards, the 2012 draft maintains that, "in principle", mandatory national standards shall not incorporate patented

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<sup>455</sup> See Intellectual Property Owners Association's Comments on the Standardization Administration of China's Draft Provisions on the Administration of Formulating and Revising National Standards Involving Patents.

<sup>456</sup> See 国家标准涉及专利的管理规定（暂行）征求意见稿 [Provisions on the Administration of National Standards Involving Patents (Interim) (Draft for Public Comment)] (Dec. 19, 2012).

<sup>457</sup> *Id.*, Art. I.4.

<sup>458</sup> *Id.*, Art. III.1.

technologies.<sup>459</sup> In case a mandatory national standard does include a patented technology, the patent holder is still required to negotiate with SAC to reach a mutually acceptable solution.<sup>460</sup> Hence, the draft does not mention the granting of a royalty-free license anymore, although nothing would prevent a patent holder from so granting if he or she sees fit. In case a deal with SAC is not reached, while SAC is required not to approve the national standard in question,<sup>461</sup> it cannot impose a compulsory license as it could do under the previous 2009 draft.<sup>462</sup>

The softer stance adopted in the 2012 draft regulation may signal the awareness, on the part of China, of the potential negative unintended consequences of a policy that is exceptionally hostile to patent holders and that fails to appropriately value IPRs in standards.<sup>463</sup> Regardless of the underlying rationale that pushed SAC to soften its original stances on this issue, the 2012 draft was positively welcomed by international stakeholders positively and it was enacted as the Interim Regulatory Measures on National Standards Involving Patents (the “Measures on National Standards”), issued jointly by SAC and the State Intellectual Property Office (“SIPO”) and became effective on January 1, 2014.<sup>464</sup>

However, a number of issues remain. First, the Measures on National Standards seem to be designed to benumb patents, as mandatory standards will never include patented technology unless SAC reaches a mutually acceptable solution with the patent holder. It has been observed that whilst such provisions ensure that “*proprietary technical standards will always, one way or another, be subject to competition*”, they “*tee China up for another WTO/TBT dispute if it decides to mandate a standard in a field where an international standard does incorporate patent rights*”).<sup>465</sup>

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<sup>459</sup> *Id.*, Art. IV.1.

<sup>460</sup> *Id.*, Art. IV.2.

<sup>461</sup> *Ibid.*

<sup>462</sup> *Ibid.*

<sup>463</sup> D. Daniel Sokol, Wentong Zheng, *FRAND in China*, 22 TEXAS INTELLECTUAL PROPERTY LAW JOURNAL (2013), p. 23.

<sup>464</sup> SIPO, 国家标准涉及专利的管理规定(暂行), see SIPO's website.

<sup>465</sup> See C. McElwain, *The World's Laboratory: China's Patent Boom, IT Standards and the Implications for the Global Knowledge Economy*, 14 SANTA CLARA JOURNAL OF INTERNATIONAL LAW 441 (2016), p. 456.

Secondly, the term “reasonable” remains susceptible to diverging interpretations. Indeed, as seen above, it remains to be seen how SAC, which has demonstrated a general aversion towards SEPs, will interpret this term, which is a common requirement of standard-setting organizations.<sup>466</sup>

### **3.2 STATE ADMINISTRATION FOR INDUSTRY AND COMMERCE (“SAIC”)’s 2012 DRAFT IP ENFORCEMENT GUIDELINES**

Besides the above SAC regulations, the SAIC draft IP Enforcement Guidelines released in August 2012 also cover some detailed provisions on IPRs in standard-setting. Specifically, Article 22 provides that unilaterally setting the terms and conditions of patent licenses during the standard-setting process is a legitimate way of exercising patent holders’ IPRs and generally does not have the effect of excluding or impeding competition.<sup>467</sup>

However, the same provision also states that patent holders may violate the AML] if they: (i) know or should have known that their patents may be included in a standard; (ii) do not disclose their patent information as required by the rules of the standard setting agency; (iii) claim patent rights after they have been included in a standard; and (iv) such claims have a potential adverse impact on competition and innovation in the relevant market.<sup>468</sup>

Article 22 also states that in case a patented technology is included in a mandatory national standard, an upper limit or “cap” should be established for the royalty fees, which should not be “significantly higher” than the royalty fees prevailing prior to the inclusion of the patent in the standard.<sup>469</sup> The cap thus represents what will be considered an acceptable royalty fee amount for patents included in standards and it provides some insights into how China’s antimonopoly regulators might approach FRAND licensing in standard-setting.<sup>470</sup>

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<sup>466</sup> *Ibid.*

<sup>467</sup> See 关于知识产权领域反垄断执法的指南 [Guide on Antimonopoly Law Enforcement in the Field of Intellectual Property Rights], Art. 4 [the “SAIC Draft IP Enforcement Guideline”], Art. 22.

<sup>468</sup> *Ibid.*

<sup>469</sup> *Ibid.*

<sup>470</sup> D. Daniel Sokol, Wentong Zheng, *FRAND in China*, 22 TEXAS INTELLECTUAL PROPERTY LAW JOURNAL (2013), pp. 23-24.

### 3.3 SAIC's 2015 DRAFT IPR REGULATION

IPR policies in China have been greatly developed to bring them closer to international standards and to make them more appropriate for market participants' needs.<sup>471</sup> In this vein, on April 7, 2015, the State Administration for Industry and Commerce ("SAIC") published the Regulation on the Prohibition of Conduct Eliminating or Restricting Competition by Abusing Intellectual Property Rights (Consultation Draft) ("draft SAIC IPR Regulation").<sup>472</sup>

It represents an important step in the competition regulation of IPRs as, for the first time, the Chinese antitrust authorities set out a legal framework in this regard, in an effort to bridge the gap between the previous patchwork of pre-existing laws, which lacked consistency, and the international practices in antitrust and IPR established in the EU and the US.<sup>473</sup>

Building upon previous developments, the draft SAIC IPR Regulation emphasizes that the AML and IPR laws have the communal purpose of fostering innovation and competition, advancing efficiency, and ultimately defending the interests of consumers and the public interest. It clarifies the grey areas left by Article 55 of the AML, which contains the very generic prohibition on any (ab)use of IPRs aimed at eliminating or restricting competition through anticompetitive agreements, abuse of dominance or other conduct incompatible with the AML and IPR laws.

The draft regulation contains an obligation to disclose IPRs during the standardization process. Article 13(2) prohibits two categories of abuse of dominance without justifiable causes: (1) patent assertions after failing to disclose patents in the standard-setting phase; (2) undertakings' failure to comply with the FRAND principle.

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<sup>471</sup> EURObiz, Journal of the European Union Chamber of Commerce in China, Sept/Oct. 2015.

<sup>472</sup> 关于禁止滥用知识产权排除、限制竞争行为的规定 2015 年 4 月 7 日国家工商行政管理总局令 第 74 号公布, Regulation on the Prohibition of Conduct Eliminating or Restricting Competition by Abusing Intellectual Property Rights (Consultation Draft).

<sup>473</sup> See Adrian Emch, Liyang Hou, *Antitrust Regulation of IPRs: China's First Proposal*, COMPETITION POLICY INTERNATIONAL (2014).

One of the most discussed provisions is Article 7, as it appears to extend the “essential facilities doctrine” to the IPR sector. It provides (Article 7(2)) that a dominant firm may not refuse without due justification to license its IPRs under reasonable terms if these IPRs constitute an essential facility and the refusal has anticompetitive effects. The provision also identifies the aspects to be considered to assess whether a request for access to an essential facility may be precluded by a dominant firm: (i) the IPRs cannot be reasonably substituted and are necessary for other undertakings to compete in the relevant market; (ii) refusal to license will cause a negative impact on competition or innovation, harming consumers’ or the public interests; and (iii) licensing the rights will not cause unreasonable harm to the licensor.

Hence, there are some doubts as to whether these provisions consider all patents included in national standards an essential facility in the context of AML.

In general, the provisions also recognize that firms should not be presumed to have a dominant position only because they own IPRs. They thus sacrifice any sort of golden rules in favor of a more tailored “rule of reason” approach.

Additionally, also the revision of the PRC Patent Law in the current proposal contained in the 4th amendment includes some provisions concerning the abuse of IPRs. In particular, Article 82 that requires a patent holder to grant licenses in case of failure to disclose SEPs related to national standards during the standard setting process.<sup>474</sup> In other words, the new proposal seems to create a compulsory licensing regime for the patents that are included in the national standards, where the rights’ holders have failed to disclose SEPs during the standard setting process.

However, the 2015 draft SAIC IPR Regulation, although specifically tackling IPR-related AML issues, limits the scope of applicability as they are construed as a mere departmental regulation, which is unable to address all IPR related monopolistic conduct.

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<sup>474</sup> 中华人民共和国专利法修改草案（征求意见稿）条文对照（Comparison of text: Draft for public comment on the 4th Amendment of the Patent Law).



It is worth mentioning that on February 4, 2016, SAIC published for public comment its draft Guidelines On Anti-Trust Enforcement Against IP Abuse, dated February 2, 2016.<sup>475</sup> These draft guidelines are in addition to the 2015 draft SAIC IPR Regulation. It is the Antimonopoly Commission of the State Council that decides whether or not to adopt the guidelines, while the 2015 draft SAIC IPR Regulation was drafted adopted on the basis of SAIC's own legislative authority. Arguably, if there will be dissimilarity in wording and policy between these two legal tools, there will unavoidably be concerns about how this dissimilarity will be enforced.

### 3.4 THE COURTS' APPROACH: CHALLENGING PATENT LICENSING PRACTICES BY (STRATEGICALLY) USING AML

Chinese courts have decided a few cases on the antitrust concerns raised by FRAND commitments in the context of the 2008 AML.

In this regard, it is remarkable that the AML, which just like other antitrust laws in many jurisdictions covers agreements, abuses of dominant position and mergers, specifically singles out IP. In other words, *“the AML is unique among comparable laws in specifically addressing intellectual property rights, the “abuse” (滥用) of which can constitute a violation”*.<sup>476</sup> In particular, Article 55<sup>477</sup> states that: *“[t]his Law shall not apply to the conduct of undertakings of exercising their intellectual property rights in accordance with the relevant laws and regulations on intellectual property rights; however, this Law shall apply to the conduct of undertakings of eliminating or restricting market competition by abusing their intellectual property rights.”*<sup>478</sup>

Article 55, by assuring the right of IPR holders to exercise their rights, subordinates any suspected IP misuse to the remit of the AML, which thus

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<sup>475</sup> See 关于滥用知识产权的反垄断执法指南（国家工商总局第七稿）公开征求意见的公告。

<sup>476</sup> See C. McElwain, *The World's Laboratory: China's Patent Boom, IT Standards and the Implications for the Global Knowledge Economy*, 14 SANTA CLARA JOURNAL OF INTERNATIONAL LAW 441 (2016), p. 456.

<sup>477</sup> For an overview of the types of anticompetitive conduct under the AML, see Chapter 10 on China in D. DANIEL SOKOL, DANIEL A. CRANE AND ARIEL EZRACHI, *GLOBAL ANTITRUST COMPLIANCE HANDBOOK* (OXFORD UNIVERSITY PRESS, 2014).

<sup>478</sup> AML, Art. 55.

constitutes the fully legitimate statutory basis for public and private antitrust enforcement related to anticompetitive IP use.<sup>479</sup>

These provisions have been interpreted by the Chinese government to mean that charging market-based IP licensing fees to Chinese companies is “abuse”. Commentators have remarked that these norms have thus been relied on in order “to take legal action against companies whose only “crime” is to be innovative and hold patents. Indeed, the Chinese law allows compulsory licensing of IP by a “dominant” company that refuses to license its IP if access to it is “essential for others to effectively compete and innovate.” And with Chinese courts largely rubberstamping the government’s dictates, foreign companies have little choice but to comply. All too often, complying means changing their terms of business so that they sell to the Chinese for less and/or transfer even more IP and technology to Chinese-owned companies, often after paying substantial fines.”<sup>480</sup>

Overall, what these provisions mean in practical terms remains uncertain. For instance, Sokol and Zheng underline that what would be considered an unfairly high price, is highly unclear under Chinese law “given that Chinese law does not offer clear guidance on what an acceptable fee should be”.<sup>481</sup> Comparatively, charging high prices is rarely challenged in Europe.<sup>482</sup> Nevertheless, “in the Chinese context, such a provision might be used to extract or impose better terms for a FRAND licensee. These legal ambiguities create significant uncertainty for FRAND licensing in China”.<sup>483</sup>

Lacking specific guidance on patent royalties, at first, Chinese courts called to solve disputes involving the licensing of IPRs applied the general principles set by the Supreme People’s Court’s (the “SPC”) advisory opinions on determination

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<sup>479</sup> For a comprehensive overview of the AML, see H. STEPHEN HARRIS ET AL., *ANTI-MONOPOLY LAW AND PRACTICE IN CHINA* (OXFORD UNIVERSITY PRESS, 2011).

<sup>480</sup> Robert D. Atkinson Stephen Ezell, *False Promises: The Yawning Gap Between China’s WTO Commitments and Practices*, Information Technology & Innovation Foundation, September 17, 2015, citing the Hearing on the Foreign Investment Climate in China before the U.S.-China Economic and Security Review Commission (2015) (written testimony of Dr. Robert D. Atkinson, President, Information Technology and Innovation Foundation), 8, <http://www2.itif.org/2015-uscc-investment-climate.pdf>.

<sup>481</sup> D. Daniel Sokol, Wentong Zheng, *FRAND in China*, 22 *TEXAS INTELLECTUAL PROPERTY LAW JOURNAL* (2013), p. 14.

<sup>482</sup> *Ibid.* See D. DANIEL SOKOL, DANIEL A. CRANE, ARIEL EZRACHI, *GLOBAL ANTITRUST COMPLIANCE HANDBOOK* (OXFORD UNIVERSITY PRESS, 2014).

<sup>483</sup> *Ibid.*

of royalties rates. These opinions are replies given to inquiries from lower-level courts.<sup>484</sup> In these opinions, the SPC has generally adopted an approach on FRAND that seems aligned with the one taken by the SAC in its 2009 draft regulation on patents in standards. Indeed, pursuant to the SPC's reasoning, if a patent holder has taken part in the standard development process at a national, sector, or local level, or has given consent to incorporate its patents in a national, sector, or local standard, then he or she will be considered to have consented to granting to others the use of his or her patents for the purposes of implementing the standard. This use will not, evidently, amount to patent infringement. In case the patent holder requires the users of his or her patent to pay a royalty fee, the amount of the fee should be "*significantly lower than the normal amount*".<sup>485</sup>

Although this approach to royalty rates echoes the SAC's 2009 draft regulation, it should be remarked that this draft was never enacted and the subsequent 2012 draft distanced itself from the SAC's original hard stance on patents in standards and deleted the "*significantly lower than normal*" language from the text. In my view, this amendment does not preclude that, in theory, both the SPC and the SAC would still interpret FRAND to mean "*significantly lower than normal*". It is thus far from unambiguous whether the SPC and the SAC would take the same approach or would reconsider their previous understanding of FRAND.

However, in view of the above, a consideration could be provisionally drawn, one that non-Chinese companies operating in the Chinese market, or willing to enter it, should be aware of, especially considering China's increasingly influential participation in the global standard-setting scenario and its incontrovertible relevance to the international economy. The Chinese approach to FRAND appears to be aggressive and more favorable to patent implementers, in contrast to the

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<sup>484</sup> See in particular the 2008 advisory opinion: 最高人民法院关于朝阳兴诺公司按照建设部颁发的行业标准《复合载体夯扩桩设计规程》设计、施工而实施标准中专利的行为是否构成侵犯专利权问题的函（[2008]民三他字第 4 号）[Supreme People's Court's Letter of Reply on Whether Chaoyang Xingnuo Co. Infringed a Patent Included in a Ministry of Construction Standard when it Implemented the Patent as Required by the Standard] (Jul. 8, 2008). The SPC's 2008 advisory opinion has been followed by Chinese courts. See for instance 衡水子牙河建筑工程有限公司与张晶廷等侵犯发明专利权纠纷上诉案[Civil Judgment on Appeal of Dispute Between Hengshui Ziyah Construction Ltd. Co. and Zhang Jingting et al. Regarding Invention Patent Infringement], Hebei High People's Court (Mar. 21, 2011).

<sup>485</sup> *Ibid.*

current global tendency. This interpretation of FRAND that cuts down royalty rates, reinforced by a strategic use of antitrust enforcement, as will be analyzed below, coupled with the Government-led support to develop and implement competing home-grown standards, seems to be designed to shape a novel, alternative patent-licensing-standardization regime, aimed at reducing the leverage of patentees and royalty rates.

### **3.4.1 HUAWEI V. INTERDIGITAL: SQUEEZING FRAND ROYALTY RATES DOWNWARDS**

The Huawei cases<sup>486</sup> concern the interpretation of FRAND royalty rates in China and as such these judgments have resulted in notable debate among academics and practitioners.

On July 26, 2011, InterDigital Inc. (“InterDigital”), a US company, sued Huawei Technologies Co., Ltd. (“Huawei”), a Chinese company, and others before the US International Trade Commission for infringing its SEPs on wireless technologies. As a response, on December 5, 2011, Huawei sued InterDigital for unlawful tying and excessive pricing in contravention of the AML and for violating its obligation to license on FRAND terms.<sup>487</sup> The cases were decided on February 4, 2013, by the Shenzhen Intermediate Court and later, in October 2013, confirmed in their entirety by the Guangdong High Court of China.<sup>488</sup>

Huawei prevailed in its two claims as on appeal it was confirmed that: (i) InterDigital had abused its dominant market position by dictating a tying arrangement in the license agreements, requesting grant backs, and demanding a discriminatory and unreasonably high royalty rate for its Chinese SEPs and non-SEPs. As for the definition of the relevant market, the court held that each of the SEP licensing markets amounted to a relevant market; (ii) InterDigital had imposed excessively high royalty rates for its SEPs related to 2G, 3G, and 4G wireless communications standards. Namely, the court held that InterDigital’s

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<sup>486</sup> Shenzhen Intermediate People’s Court, *Huawei v. InterDigital*, Feb. 4, 2013, [2011] Shen Zhong Fa Zhi Min Chu Zi Nos. 857 and 858; Guangdong High People’s Court, *Huawei v. InterDigital*, Oct. 16, 2013, [2013] Yue Gao Fa Min San Zhong Zi Nos. 305 and 306.

<sup>487</sup> For an overview of the case background, see Michael Han, Kexin Li, *Huawei v. InterDigital: China at the Crossroads of Antitrust and Intellectual Property, Competition and Innovation*, COMPETITION POLICY INTERNATIONAL (2013).

<sup>488</sup> These decisions were published only in April 2014.

royalty rates were markedly higher in comparison to the agreement InterDigital entered into with Apple and Samsung.

The imposition of excessively high royalty rates was deemed part of a complex coercive conduct including the filing before the US International Trade Commission of the injunctive relief suits InterDigital sought against Huawei. In this regard, the Guangdong High Court found this injunction to amount to one of the factors demonstrating InterDigital's abuse in forcing excessive pricing.<sup>489</sup>

Other elements that worked together in the finding of patent abuse, were represented by the fact that the court held that Huawei was a "willing licensee", although the judges did not elaborate on this legal standard, and that InterDigital's offer to Huawei was not FRAND since it was non-negotiable.

Overall, Guangdong High Court did not pronounce itself on whether seeking an SEP-based injunction is to be considered, *per se*, abusive conduct. Using the legal reasoning of the Huawei decision as a point of departure, it seems sensible to conclude that seeking an SEP-based injunction is prone to be abusive where injunctive relief is sought by an SEP holder with market dominance, for the purpose of forcedly prompting a willing licensee to accept excessively high royalty rates.

A particular contested aspect of the decision concerns the parameter used to assess the "reasonableness" of the licensing terms that InterDigital imposed on Huawei. Indeed, the court determined the upper limit of the FRAND royalty for InterDigital's SEPs mainly on the basis of a comparison with the royalties InterDigital charged other parties outside China. In particular, the court evaluated publicly available information, such as InterDigital's licensing revenues, in order to calculate the royalty fees that InterDigital charged or proposed to charge Apple and Samsung. Interestingly, it appears that the court needed to

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<sup>489</sup> The court argued that: "[...] *InterDigital failed to fulfill its fair, reasonable and non-discriminatory licensing obligations and acted without regard to Huawei's good faith and willingness during negotiations. It did not adjust its offer [to a reasonable pricing]; instead, it initiated a suit in the U.S. based on the essential patents. While InterDigital seemingly was exercising its legitimate litigation rights, it intended to coerce Huawei, through means of litigation, to accept excessive pricing and to pay consideration on top of the essential patents. This act lacks legitimacy and should be remedied.*". Guangdong High People's Court, *Huawei v InterDigital*, 16 Oct. 2013.

reverse-engineer this data as InterDigital refused to disclose it by providing evidence, fearing that it would be made available to non-parties to the case. Indeed, InterDigital could not obtain assurance that its confidential business information would not be disclosed to its Chinese customers and competitors. This of course represents a worrisome procedural problem likely to cause a headache for non-Chinese companies involved in antitrust litigation in China.<sup>490</sup> The court then compared the estimated royalty fees (between InterDigital and Samsung, and between InterDigital and Apple) to the fees InterDigital had requested from Huawei and concluded the fees requested from Huawei were significantly higher.<sup>491</sup>

Nonetheless, some commentators have remarked that the royalty rate estimate lacks sufficient grounds, as the two alleged comparable licensees (Apple and Samsung) may not have been very comparable in practice to the hypothetical license between InterDigital and Huawei. In particular, the Samsung license was entered into in the settlement of litigation, and the Apple license “*might not have been entered into based on RAND considerations*”.<sup>492</sup> Along the same line, critics have pointed out that “*patents covered by InterDigital’s licenses with Apple and Samsung may not be totally identical to what would be included in the license with Huawei*” and they may actually cover different specific standards within the 2G, 3G, and 4G standards.<sup>493</sup> It has been further observed that a number of elements cast doubt over the comparable character of the licensees. Notably, the dissimilarity of the products made by the licensees; the uncertainty over whether the Samsung and Apple licenses had other provisions, for instance grant-backs or cross-licenses; and the fact that the Apple license was a lump-sum license, which means that “*when turning it into a per unit royalty one should use the projected sales units at the time of license negotiation as the denominator, instead of the actual sale units*”.<sup>494</sup> Additionally, the court calculated that a FRAND royalty

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<sup>490</sup> Other procedural concerns were that non-Chinese lawyers were not allowed to attend hearings and that there was a general lack of access to information and transparency.

<sup>491</sup> D. Daniel Sokol, Wentong Zheng, *FRAND in China*, 22 TEXAS INTELLECTUAL PROPERTY LAW JOURNAL (2013).

<sup>492</sup> Fei Deng, Su Sun, *Determining the FRAND Rate: U.S. Perspectives on Huawei v. InterDigital*, CPI ANTITRUST CHRONICLE (2014), pp. 9-12.

<sup>493</sup> *Ibid.*

<sup>494</sup> *Ibid.*

“should not exceed 0.019% of the actual sales price of each Huawei product”.<sup>495</sup> However, the decisions do not disclose how the specific FRAND rate was appraised, nor do they spell out the underlying rationale that supposedly justified imposing a specific FRAND rate.

Moreover, a number of procedural problems characterized the *Huawei v InterDigital* case. For example, non-Chinese lawyers were not allowed to attend hearings, there was a lack of access to information, and InterDigital could not provide evidence containing confidential business information in the absence of the assurance that it would not be disclosed to its Chinese customers and competitors.<sup>496</sup>

This case may be interpreted as the signal that the FRAND policy in China is being led by industrial policy objectives. In the Huawei/InterDigital saga, it has been argued that the decisions and the actual setting of the FRAND rates was not due to legal reasoning, but was instead decided, or at least greatly influenced, by the Government’s industrial policy concerns of keeping the patent royalty rates low in order to “improve[e] Huawei’s position as a telecom equipment manufacturer with lower prices for a needed input”.<sup>497</sup> According to this interpretation “[g]iven the influence of the government over judges in China, the decisions raise the possibility that in China, ultimately it is the Chinese government, not the judges, that determines the FRAND rates”.<sup>498</sup> Indeed, it is arguable that the absence of transparency fuels the concerns, often expressed by Western firms and advanced countries, that China relies on antitrust enforcement as a tool to advance its industrial policy agenda. The government-sponsored industrial policy of Indigenous Innovation and the strategic use of antitrust have deep implications for antitrust FRAND policy. However, the practical consequences for Chinese competition law on FRAND determination still remain uncertain.

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<sup>495</sup> *Ibid.*

<sup>496</sup> D. Daniel Sokol, Wentong Zheng, *FRAND in China*, 22 TEXAS INTELLECTUAL PROPERTY LAW JOURNAL (2013), p. 23.

<sup>497</sup> Fei Deng, Su Sun, *Determining the FRAND Rate: U.S. Perspectives on Huawei v. InterDigital*, CPI ANTITRUST CHRONICLE (2014), pp. 9-12.

<sup>498</sup> *Ibid.*

The *Huawei/InterDigital* saga shows nonetheless a trend within the Chinese context towards an austere approach to FRAND determination, aimed at setting extreme reductions in royalty rates. This approach represents an understandable response to the concern about excessive pricing charged by advanced countries' patent holders. By pushing FRAND royalty rates downwards, the Chinese judges, to a certain extent not genuinely independent from the Government's industrial policy, reduce patentees' leverage, while putting patent implementers in a much better position. This novel, alternative licensing paradigm, also significantly contrasts with the approach in most other jurisdictions.

However, this strategy carries the risk of backfiring. While the stimulation of domestic innovation, also through the strategic use of antitrust policy as highlighted by the aggressive stance on FRAND, has arguably allowed the attainment of the critical goal of reducing royalties within the Chinese political economy, there are unintended consequences to take into account. The political influence of FRAND policy is indeed likely to lead to a systemic slow-down in innovation<sup>499</sup> as a reduction in FRAND would disincentivize foreign SEP holders from entering the Chinese market. This would ultimately shield domestic competition from genuine global competition. Moreover, reduced economic incentives for SEP holders may also encourage patent implementers to engage in reverse hold-up conduct, stifling even more investments.

Given this non-optimal overall outcome, in terms of fostering innovation, it is likely that China's policy makers will start to face internal opposition if they persevere with an excessively aggressive policy on FRAND. This is all the more important as China transitions from an implementer country focused on lowest costs where firms are low margin, high value manufacturing businesses, to an innovator creating IP of its own with a growing interest in IP protection. As Chinese innovative firms start to realize that they can extract substantial revenues from the protection of their own IPRs, their interest in IP protection is expected to increase, as already shown by the burgeoning volume of patents issued by the SIPO.

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<sup>499</sup> *Id.*, p. 35.



Moreover, as China transitions from being an implementer, centered on lowest cost, to an innovator, commanding a cost premium, efforts to impose unreasonable restrictions that lack a genuine antitrust basis will impede Chinese innovation and may cause China to fall into a “middle income trap”. Namely, the economic slowdown that most fast-growing developing economies experience when they reach income thresholds comparable to that of China today.<sup>500</sup> For these reasons, a FRAND policy focused on short-term industrial policy needs, appears to be, at the very least, short-sighted.<sup>501</sup>

### 3.4.2 NDRC v. QUALCOMM: PROTECTING CHINESE INFANT INDUSTRY

Chinese competition authorities and courts have been ramping up the enforcement of AML, also by regulating the pricing practices of patent holders. This is in stark contrast to the trend in the EU, where there is a general reluctance to review excessive pricing.

This is the case with the *Qualcomm* case, which was decided on February 10, 2015, by the Chinese National Development and Reform Commission (the “NDRC”).<sup>502</sup> The NDRC is the competition authority responsible for investigating anti-competitive conduct related to prices.

The decision, which followed an investigation that lasted more than fifteen months, ruled that Qualcomm Incorporated (“Qualcomm”), the world’s largest maker of smartphone microchips, had engaged in anticompetitive conduct relating to its business model for SEP licensing for wireless communication technology and base-land microchip sales. The NDRC decided that Qualcomm had violated Article 17(i) (selling products at unfairly high prices) and Article 17(v)

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<sup>500</sup> Pierre-Richard Agénor, Otaviano Canuto, *Middle-Income Growth Traps* (World Bank Policy Research Working Paper No. 6210, 2012) (for a general overview on middle-income growth traps). Specifically on China, see David Bulman, Maya Eden, Ha Nguyen, *Transitioning from low-income growth to high-income growth: is there a middle-income trap?*, JOURNAL OF THE ASIA PACIFIC ECONOMY (2016). For an economic analysis of the middle-income trap, see KEUN LEE, SCHUMPETERIAN ANALYSIS OF ECONOMIC CATCH-UP: KNOWLEDGE, PATH-CREATION, AND THE MIDDLE-INCOME TRAP (CAMBRIDGE UNIVERSITY PRESS, 2013).

<sup>501</sup> D. Daniel Sokol, Wentong Zheng, *FRAND in China*, 22 TEXAS INTELLECTUAL PROPERTY LAW JOURNAL (2013), p. 35-36.

<sup>502</sup> NDRC Administrative Sanction Decision No. 1 [2015] (Mar. 2, 2015). The NDRC previously announced the conclusion of its 15-month investigation (the “NDRC Announcement”): NDRC Ordered Qualcomm to Rectify its Anti-Competitive Behavior and Imposed a Fine of RMB 6 Billion (10 Feb. 2015).

(tying products or imposing unreasonable conditions of trade) of the AML, eliminated and restricted market competition, hindered and repressed technological innovation and development, and harmed consumer interests.

In particular, the NDRC held that:

- I. Qualcomm had charged excessive royalties when licensing its patents to Chinese companies, based on the following elements: (a) it had refused to disclose its patent list and had included expired patents in its patent portfolio licensed to Chinese licensees; (b) it had requested that Chinese licensees grant back their patents free of charge, and had refused to deduct the value of such patents from royalty fees or to pay for such patents in other ways; and (c) it had charged relatively high royalty fees and unreasonably used the net sale price of the whole mobile devices that incorporated its technology as the base for its royalty fees;
- II. Qualcomm had violated the AML as it had bundled wireless communications SEPs with non-SEPs, without justification. The NDRC held that this behavior had restricted non-SEP licensing by Qualcomm's competitors. Interestingly, the NDRC discarded Qualcomm's defense that it can be hard to distinguish between SEPs and non-SEPs and instead insisted, without providing much explanation, that the distinction can be easily made as a matter of normal practice;
- III. Qualcomm's conduct involving conditioning its supply of base-band microchips on unreasonable licensing terms and on a covenant not to challenge the licensing agreements was anticompetitive.

The decision required Qualcomm to cease certain anticompetitive conduct and to pay a record fine of RMB 6.088 billion (about USD 975 million).<sup>503</sup> It also

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<sup>503</sup> As for the fine, Article 47 of the AML authorizes the antitrust authority to confiscate illegal gains and impose a fine of between one and ten percent of the prior year's turnover. Article 49 of the AML

imposed a number of intrusive regulatory remedies agreed upon by Qualcomm and the NDRC.

Although this fine imposed on Qualcomm, which is a US company, is the largest fine imposed to date for a violation of the AML, it has been noted that it amounts, at the most, to an “inconvenience (*albeit a significant one, in monetary terms*), considering that, as of March 2014 it held reserves of \$30 billion in cash and marketable securities.”<sup>504</sup> What is going to be an even greater source of concern for Qualcomm, and, presumably, other SEP owners, given that these measures will travel with Qualcomm’s SEPs if they are transferred,<sup>505</sup> is the rectification remedy imposed by the NDRC. Specifically, Qualcomm agreed to reduce the basis for royalties to 65% of the net selling price of branded devices retailed for use within mainland China. The NDRC decision stressed, however, that the pertinent net selling price is the “wholesale” price. Moreover, Qualcomm was asked to not alter the royalty percentage, namely, 5% for SEPs concerning 3G devices, and 3.5 % for SEPs concerning 4G devices that do not implement CDMA or WCDMA.

It should be remarked that, notwithstanding fears related to the NDRC’s increased focus on investigating patent holders, the NDRC’s decision comprises some features that are favorable to patent holders that have aggressively construed FRAND. Indeed, Qualcomm has maintained its capability to determine royalties based on the wholesale price of the entire device (although restricted to

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stipulates that the antitrust authority shall take into consideration factors such as the nature, extent, and duration of the violation when setting the fine. The Qualcomm fine amounts to around 8% of Qualcomm’s 2013 sales in China. The NDRC originally based the fine at 10%, given the severity and duration of the anticompetitive conduct. Later, the NDRC clarified that it diminished the fine by two percentage points given Qualcomm’s cooperative attitude with the investigators. See NDRC explains why it has not imposed a 10% fine, Xinhua Press (10 Feb. 2015). It has been observed that “[i]t is a matter of some concern, nonetheless, that such a high fine could be imposed for practices that were controversial, but for which not very clear precedent existed”. In particular, the NDRC decision concerning the fine is in stark contrast with the Motorola SEP case in the EU, where the European Commission did not impose a fine on Motorola, acknowledging the lack of case-law from the EU courts concerning the legality of SEP-based injunctions under Article 102 TFEU, and the fact that national court case-law showed diverging conclusions on this matter. See Case AT.39985 - *Motorola - Enforcement of GPRS Standard Essential Patents*, European Commission Decision (29 Apr. 2014), para 561.

<sup>504</sup> Jack Ellis, *Qualcomm antitrust decision could be the Big Bang moment for China’s domestic patent market*, IAM, 12 Feb. 2015.

<sup>505</sup> Cunzhen Huang, Maurits Dolmans, Stephan Barthelmess, Anita Ng, and Tara Tavernia, *China’s NDRC imposes changes in licensing practices (Qualcomm)*, E-COMPETITION No. 72356, 2 Mar. 2015.

65 % of that price), rather than only on the price of the microchip, the smallest saleable component, as some advocated.

Given the lack of supporting information in the NDRC's decision, it is not clear how the relevant percentages (the 5 % rate for 3G, and the 3.5 % rate for LTE) were calculated,<sup>506</sup> other than that these were reported to be rates that Qualcomm charged in the past. This appears to be the result of a negotiated compromise, which affects its precedential value.

Most importantly, the NDRC's decision could have a major effect as SEP licensors of Chinese patents (i) are now obliged to pay reasonable rates for cross-licenses of Chinese patents; and (ii) cannot insist on a cross-license of non-SEPs as a condition for an SEP license. This outcome shows the flexibility enjoyed by the NDRC in assessing excessive pricing. It also echoes the struggle in defining a reasonable price level for a specific product or service. Although, to a certain extent, the NDRC decision could exacerbate the doubts for firms as to whether or not they comply with Article 17(1) of the AML, as far as SEP holders are concerned, it offers guidance on how their pricing policies and conduct should fit into the Chinese competition regime.

This landmark decision provides much needed guidance on the approach that the NDRC will take in analyzing matters at the crossroads of competition and IP law. Nonetheless, NDRC pronouncements are not binding on the State Administration for Industry and Commerce ("SAIC") and the Ministry of Commerce ("MOFCOM"), therefore raising the prospect that the three agencies may apply the AML to IP rights in dissimilar ways. The NDRC decision leaves open many issues about the NDRC's stance on the scope of its own jurisdiction, given that the decision is drafted in broad terms, while the detailed obligations of

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<sup>506</sup> Article 11 of the Anti-Price Monopoly Rules provides that, when determining whether excessive pricing exists, the following should be taken into consideration: (i) whether the sale price is significantly higher than the sale price of other competitors; (ii) if the cost is generally stable, whether the sale price is increased beyond normal scale; (iii) whether the sale price increase level is significantly higher than the cost increase level; and (iv) other factors.

the company are set out in a voluntary rectification plan that was acknowledged by the NDRC to meet its requirements.<sup>507</sup>

After China, mobile microchip giant Qualcomm now faces European antitrust scrutiny. In July 2015, the European Commission opened two formal antitrust investigations to gauge concerns that Qualcomm may have abused a dominant position in the area of baseband microchip sets through two separate forms of conduct.<sup>508</sup> On December 8, 2015, the Commission sent two Statements of Objections (“SOs”) to Qualcomm, concerning exclusivity payments and predatory pricing, respectively, outlining the Commission’s preliminary view that the microchip set supplier had abused its dominant position in the worldwide markets for 3G (UMTS) and 4G (LTE) baseband microchip sets, in violation of EU competition rules, in particular Article 102 of the TFEU.<sup>509</sup> The first SO stated that since 2011, Qualcomm had paid significant amounts to a major smartphone and tablet manufacturer on condition that it exclusively use Qualcomm baseband microchip sets in its smartphones and tablets, allegedly reducing the manufacturer’s incentives to source microchip sets from Qualcomm’s competitors and hampering competition and innovation in the markets for UMTS and LTE baseband microchip sets.<sup>510</sup> The second SO outlined that between 2009 and 2011 Qualcomm engaged in predatory pricing by selling certain baseband microchip sets at prices below costs, with the aim of deterring competition in the market. In the Commission’s view, this conduct occurred at a time when the UK microchip set maker Icera constituted a mounting threat to Qualcomm in the primary edge segment of the market, offering advanced data rate performance. According to the SO, Qualcomm reacted to that threat by selling certain amounts of its UMTS baseband microchip sets to two of its customers at prices that did not cover Qualcomm’s costs, with the aim of pushing Icera out of the market.<sup>511</sup>

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<sup>507</sup> For instance, the precise limitation of the geographic scope of the remedies to smartphones made in China for use in China, and the limitation of the SEPs affecting only Chinese patents, are not set out in the Decision itself. H. Stephen Harris, Jr. *An Overview of the NDRC Decision in the Qualcomm Investigation*, 7 ANTITRUST CHRONICLE (2015).

<sup>508</sup> European Commission - Press release, *Antitrust: Commission opens two formal investigations against chipset supplier Qualcomm* (16 Jul. 2015).

<sup>509</sup> European Commission - Press release, *Antitrust: Commission sends two Statements of Objections on exclusivity payments and predatory pricing to Qualcomm* (8 Dec. 2015).

<sup>510</sup> *Id.*

<sup>511</sup> *Id.*

Concluding, it can be stated that overall China's competition authorities have interpreted and applied the AML aggressively and expansively against foreign companies, especially requiring FRAND licensing of IPRs in conditional merger and acquisition approvals. In particular, although Article 55 of the AML excludes from its remit the use of IPR, it specifies that "*however, this Law is applicable to conduct of undertakings that abuse their intellectual property rights to eliminate or restrict competition.*"<sup>512</sup>

### 3.5 CHINESE COMPETITION POLICY AS A REGULATORY TOOL APPLIED TO NATIONAL INDUSTRY

It could arguably be inferred that the implications of *Qualcomm v. NDRC* go beyond this specific proceeding and are likely to represent a concern for all major companies that have a rich patent portfolio and aim to license it and do business in China. Indeed, prices could be imposed on them that may be much lower than the ones they charge in other countries. More and more, the AML is employed as a tool "*to tackle perceived 'monopolistic' strangleholds in technology development and transfer*". However, as it has been observed, "*Due to the fact that most valuable technologies are not controlled by Chinese companies, it goes with little doubt that the AML might be used as a strategy to protect Chinese licensees*".

This is even more so in the mobile manufacturing sector, which has become fundamental to the Chinese economy. Several international smartphone producers have relocated their activity to China, whilst the other many Chinese smartphone producers have expanded, for example, Huawei, ZTE, and Xiaomi,

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<sup>512</sup> AML Ch. VII, Art. 55. See also Xiaoye Wang, *The New Chinese Anti-Monopoly Law: A Survey of a Work in Progress*, 54 ANTITRUST BULLETIN (2009), p. 580. In this context, SAIC's final Regulation on the Prohibition of Conduct Eliminating or Restricting Competition Through the Abuse of Intellectual Property Rights (IPR Regulation) issued on April 7, 2015 should also be taken into account. In particular, Articles 4 to 15 address in depth the potential prohibited uses of IPRs, especially pointing at "*undertakings with dominant market positions.*" See Draft IP Rules Arts. 4-15. Article 1 notes that the rules have been drafted "*in order to protect competition and encourage innovation, as well as to prohibit the use of [IPRs] by undertakings to eliminate or restrict competition.*" See Draft IP Rules Art. 1. Article 2 adds that "[t]he AML shares the same goal with intellectual property protection, which is to promote innovation and competition, improve efficiency and consumer welfare and public interest of the society." See Draft IP Rules Art. 2. The IPR Regulation efficiently imposes obligations on dominant undertakings to license their IPR on "*reasonable terms*" in cases where that IPR amounts to an essential facility for production or operation and except where a valid reason for not doing so is provided. *Id.*

whose further development is linked, prominently, to the lowered royalty fees charged by SEP holders, such as Qualcomm.<sup>513</sup>

Although this consideration is not sufficient for the conclusion to be drawn that China is systematically using its AML to foster a form of neo-protectionism, there appear to be hints that China's competition policy, or at least the NDRC's practice, primarily emphasizes boosting national industrial policy interests rather than achieving a level playing field. The development of domestic technology is central to China's development strategy. In this context, as IPRs are often vested in technology, creating competition concerns, laws and policies relating to IPRs (and competition) can play a vital role in implementing the strategy.<sup>514</sup>

Specifically regarding the *Qualcomm v. NDRC* case, the NDRC's practice could offer a means to shield domestic smartphone producers. It has been observed that "*while China is currently one of the world's leading producers of electronic devices, when it comes to semiconductors it is still a major importer (USD 232 billion in 2013).*" It has been observed that "[h]itting Qualcomm and other international companies may contribute to the development of the nation's semiconductor industry: the infant-industry argument meets competition policy".<sup>515</sup>

The strategic, protectionist use of AML is not something novel. Although China is entering into only its ninth year of competition regulation, as the AML came into effect in August 2008, "*the country's relatively young antitrust regime is moving towards a more complete and enforced regulatory framework*",<sup>516</sup> and key patterns of competition enforcement are appearing. What seems to emerge is that China is basing its current AML activity on the objective in Article 1 of the AML of "*promoting the healthy development of the socialist market economy*".<sup>517</sup> Moreover, Article 4 provides that "*the State formulates and implements competition rules compatible with the socialist economy, strengthens and perfects macro regulation and control, and completes a unified, open, competitive and*

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<sup>513</sup> Liyang Hou, *Qualcomm: How China has Invalidated Traditional Business Models on Standard Essential Patents*, 7 JOURNAL OF EUROPEAN COMPETITION LAW & PRACTICE 10 (2016), p. 686.

<sup>514</sup> *Ibid.*

<sup>515</sup> Luis Cabral, *Competition policy in the global era*, New Zealand Economic Papers, May 2016.

<sup>516</sup> Wing Gar Cheng, *China's Watchdog intensifies efforts to enforce regulatory conditions*, Financial Times (26 Nov. 2013).

<sup>517</sup> AML, Ch. I, Art. 1.

orderly market system.” From the outset, China’s AML does not simply focus on efficiency and consumer welfare, but it factors in the regulatory elements impacting on its industrial policy, political, economic, social, and employment concerns.<sup>518</sup> In the same vein, the ruling Communist Party has emphasized that the public interest “is a critical part of the law,”<sup>519</sup> and that China’s competition regulation is construed as part of the State’s control over an orderly market system designed to promote the healthy development of China’s socialist market economy, and “the universal good of the Chinese people.”<sup>520</sup>

Indeed, although the shift from planned economy towards a market system is clearly occurring, with China following precedent development patterns of advanced Western countries, it is evolving in its own fashion, “aggressively charting its own course”.<sup>521</sup> China has been adopting elements taken from the Western tradition, as reflected, within the competition framework, by the fact that the central provisions of the AML were modeled on EU competition law, and to a lesser degree, on the laws of the United States,<sup>522</sup> Germany, Japan, and other countries.<sup>523</sup> However, it is also shaping its own development course.

Hence, having confirmed the particular nature of China’s competition regulation and its close link with the country’s development agenda as a whole, which implies, to a certain extent, a sort of subordination of the AML to national policy objectives, it should come as no surprise that China’s competition

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<sup>518</sup> Thomas J. Horton, *Confucianism and Antitrust: China’s Emerging Approach to Anti-Monopoly Law*, 47 INTERNATIONAL LAW 193, 204 (2013), at 213. See Lawrence S. Liu, *All About Fair Trade? - Competition Law in Taiwan and East Asian Economic Development*, 57 ANTITRUST BULLETIN 259, p. 298 (2012), asserting that China “resorts to serious industrial policy to foster national champions in strategic sectors”.

<sup>519</sup> XIAOYE WANG, *THE EVOLUTION OF CHINA’S ANTI-MONOPOLY LAW* (EDWARD ELGAR, 2014), p. 322.

<sup>520</sup> *Ibid.*

<sup>521</sup> See MARTIN JACQUES, *WHEN CHINA RULES THE WORLD*, 582 (2d ed. 2012): “It would be wrong to assume that [China] will behave like the West; that cannot be discounted, but history suggests something different”. See also Thomas Velk, Olivia Gong, Ariel S.N. Zuckerbrot, *A Trans-Pacific Partnership*, 60(1) ANTITRUST BULLETIN 4, 5 (2015), which argues that “By means of a unique, clearly evident capacity to mix, balance, and then apply its own special plays and stratagems, China will evolve into a highly efficient but quite different superpower from the United States”; and Thomas Jeffrey Horton, *Confucianism and Antitrust: China’s Emerging Evolutionary Approach to Anti-Monopoly Law*, THE INTERNATIONAL LAWYER 47.2 (2013), at 212: “China’s long and impressive history and culture, however, ensure that China will do what it has done throughout its long history - chart its own course”.

<sup>522</sup> AML came into effect in August 2008, 118 years after the Sherman Act and 50 years after the Treaty of Rome entered into force.

<sup>523</sup> H. STEPHEN HARRIS, JR., PETER J. WANG, YIZHE ZHANG, MARK A. COHEN, SEBASTIAN J. EVRARD, *ANTI-MONOPOLY LAW AND PRACTICE IN CHINA* (OXFORD UNIVERSITY PRESS, 2011).



enforcement constitutes an integral part of its mission of “*safeguarding market order and achieving social fairness and justice [in] establish[ing] an initial law regime for the socialist market economy.*”<sup>524</sup> Such interests are perceived as central in “*building a harmonious socialist society,*” and in encouraging “*the prosperity of the nation, and the vitality and happiness of the Chinese people.*”<sup>525</sup> This background, beset by heterogeneous non-competition concerns, gives wide leverage for critics to point out, just like the United States Federal Trade Commissioner Maureen K. Ohlhausen has done, the fear that there is a “*continuing impulse to factor in effects on Chinese industry and employment rather than focusing simply on efficiency and consumer welfare, as well as ongoing support for more direct government intervention in the market.*”<sup>526</sup>

China’s competition rules are highly “*culturally embedded*”.<sup>527</sup> In China, the question of whether competition enforcement is being used to attain a certain degree of protectionism in favor of domestic companies, “*is perceived as one relating to the place of competition law within the more general framework of economic policy.*” Scholar Liyang Hou has noted that “*Although boasted as the economic constitution or the last watchdog of the market economy, competition law, when boiled down to its hardcore, remains one type of economic policy. As an economic policy, it has to fit into the national development strategy.*”<sup>528</sup> This trait necessarily accentuates the divergence with competition laws elaborated in Western societies, which are an expression of different competition enforcement and regulatory focuses, which “*may arise from the unique and economic-specific national policies each country’s antitrust laws are designed to promote.*”<sup>529</sup> Consequentially, it is no surprise that the competition authorities are evaluating

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<sup>524</sup> The State Council Info. Office, *China, China’s Efforts and Achievements in Promoting the Rule of Law*, 7 CHINESE JOURNAL OF INTERNATIONAL LAW (2008), pp. 514-517.

<sup>525</sup> XIAOYE WANG, *THE EVOLUTION OF CHINA’S ANTI-MONOPOLY LAW* 322-323 (2014), quoting the Communist Party of China Central Committee’s October 11, 2006 Decisions Regarding Several Major Issues With Building a Harmonious Society.

<sup>526</sup> See e.g. Maureen K. Ohlhausen, Commissioner, Federal Trade Commission, Second Annual GCR Live Conference, *Antitrust Enforcement in China - What’s Next?* (Sept. 16, 2014), p. 8.

<sup>527</sup> Lawrence S. Liu, *All About Fair Trade? - Competition Law in Taiwan and East Asian Economic Development*, 57 ANTITRUST BULLETIN (2012), p. 269.

<sup>528</sup> Liyang Hou, *Qualcomm: How China has Invalidated Traditional Business Models on Standard Essential Patents*, 7 JOURNAL OF EUROPEAN COMPETITION LAW & PRACTICE 10 (2016), p. 686.

<sup>529</sup> Susan Beth Farmer, *The Impact of China’s Antitrust Law and Other Competition Policies on U.S. Companies*, 23 LOY. CONSUMER L. REV. 34 (2010), p. 41.

*“specific social and economic circumstances in China, rather than uncritically importing the legislative models used in the U.S. and the E.U.”*<sup>530</sup>

This trend in reality reflects China’s development model as a whole, not limited to the competition perspective, as it has been observed that “[t]he reason for China’s transformation [...] has been the way it has succeeded in combining what it has learnt from the West, and also its East Asian neighbors, with its own history and culture, thereby tapping and releasing its own native sources of dynamism”.<sup>531</sup> Under these conditions, it is arguably plausible that this trend in development will endure and that China will continue “selectively adapting elements of Western learning and technology to [its] needs”<sup>532</sup> and, at the same time, develop “in very much its own way, based on its own history and traditions, which will owe little or nothing to any Western inheritance”.<sup>533</sup> Critics have highlighted a number of sectors where China’s AML enforcement is showing a propensity to rely on “non-competition factors”<sup>534</sup> and instead focus on “help[ing] domestic companies to catch up in industries in which they are lagging”.<sup>535</sup>

China’s propensity to enforce AML in an aggressive manner is increasingly coming under international scrutiny and increasingly being subjected to criticism.

The U.S. Chamber of Commerce is one of the most vocal in raising such concerns. In a comprehensive and far-reaching report issued on September 9,

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<sup>530</sup> Dr. Yijun Tian, *The Impacts of the Chinese Anti-Monopoly Law on IP Commercialization in China & General Strategies for Technology-Driven Companies and Future Regulators*, 4 DUKE LAW & TECHNOLOGY REVIEW (2010).

<sup>531</sup> MARTIN JACQUES, WHEN CHINA RULES THE WORLD, 582 (2d ed. 2012), p. 562.

<sup>532</sup> JONATHAN D. SPENCE, THE SEARCH FOR MODERN CHINA (NORTON, 1990).

<sup>533</sup> MARTIN JACQUES, WHEN CHINA RULES THE WORLD, 582 (2d ed. 2012), p. 563.

<sup>534</sup> See e.g. Maureen K. Ohlhausen, Commissioner, Federal Trade Commission, Second Annual GCR Live Conference, Antitrust Enforcement in China - What’s Next? (Sept. 16, 2014), pp. 3-4 (“a growing chorus is claiming that the Chinese are using the AML to promote industrial policy [and] the AML may be used to protect and promote domestic industry”); and U.S. Chamber of Commerce, Competing Interests in China’s Competition Law Enforcement, Sept. 9, 2014, at (ii) (“China’s remedies often appear designed to advance industrial policy and boost national champions, AMEAs [anti-monopoly enforcement authorities] rely insufficiently on sound economic analysis, intellectual property rights have been curtailed in the name of competition law, and AML enforcement suffers from procedural and due process shortcomings. These patterns in AML enforcement give rise to growing concern about the quality and fairness of enforcement, and they raise legitimate questions about China’s commitment to the global antitrust commons”).

<sup>535</sup> Thomas Velk, Olivia Gong, Ariel S.N. Zuckerbrot, *A Trans-Pacific Partnership*, 60 ANTITRUST BULLETIN 1 (2015). See also *China Targeting Foreign Companies, American Chamber Says*, Bloomberg News, Sept. 2, 2014.

2014, titled “Competing Interest in China’s Competition Law Enforcement,”<sup>536</sup> the U.S. Chamber of Commerce claims that AML is being employed by Beijing “to advance policy and boost national champions.”<sup>537</sup> The U.S. Chamber of Commerce specifically focuses on China’s approach to FRAND licensing of IPRs as the single area where Chinese competition enforcers have been the most hostile against foreign companies, implementing what it considers to be China’s “[s]ystemic, officially sanctioned curtailment of IP rights,”<sup>538</sup> relying on a number of “[d]ue process deficiencies, [which] facilitate these problems.”<sup>539</sup> The report underlines that “foreign companies suffer disproportionately from China’s patterns of enforcing the AML. In fact, all transactions blocked or conditionally approved to date have involved foreign companies, and the curtailment of IP rights appears designed to strengthen the bargaining position of domestic licenses.”<sup>540</sup> Against this background, the U.S. Chamber of Commerce concludes that AML enforcement is breaching the commitments that China assumed in joining the WTO.<sup>541</sup>

Thomas J. Horton has remarked how these concerns are far more widespread.<sup>542</sup> For example, in September 2014, the U.S. China Business Council (the “USCBC”) detected that “foreign companies have well-founded concerns about how investigations are conducted and decided.” Indeed “Chinese competition practices can create de facto discrimination against foreign companies by not giving proper weight to market considerations.”<sup>543</sup> Along the same line, the USCBC filed a report with the United States Congress in November, 2014,<sup>544</sup> observing that “[t]he bilateral trade imbalance is driven, in large part, by China’s mercantilist and state directed policies,”<sup>545</sup> and alleging that “[i]n 2014, China ramped up its use of Anti-Monopoly Law (AML) against foreign firms in what appears to be unequal

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<sup>536</sup> United States Chamber of Commerce, *Competing Interests in China’s Competition Law Enforcement: China’s Anti-Monopoly Law Application and the Role of Industrial Policy*, Sept. 9, 2014.  
<sup>537</sup> *Id.* at (ii). The Chamber also holds that “[t]he beneficiaries of these policies are often Chinese national champions in industries that China considers strategic, such as commodities and high technology.”

<sup>538</sup> *Id.* p. 77.

<sup>539</sup> *Id.* p. 78.

<sup>540</sup> *Id.* p. 2.

<sup>541</sup> Neil Gough, *China’s Antitrust Campaign Seen as Possible Breach of W.T.O. Rules*, N.Y. Times (8 Sept. 2014).

<sup>542</sup> Thomas J. Horton, *Antitrust or Industrial Protectionism?: Emerging International Issues in China’s Anti-Monopoly Law Enforcement Efforts*, 14 SANTA CLARA JOURNAL OF INTERNATIONAL LAW 109 (2016).

<sup>543</sup> U.S.-China Bus. Council, *Competition policy and enforcement in China* 13 (2014).

<sup>544</sup> *Ibid.*.

<sup>545</sup> *Id.* p. 3.

*enforcement in order to create favorable market conditions for Chinese competitors.*<sup>546</sup> Similar concerns have been voiced by the American Chamber of Commerce in China and the EU in 2014 reports, “*accusing China of unfair enforcement of the AML.*”<sup>547</sup>

In conclusion, the review of China’s AML enforcement activities in the standardization sector, strongly supports the allegations that China is using competition enforcement as an opportunity “*for protectionism and industrial policy to sway decisions.*”<sup>548</sup> The licensing sector has been one of the areas where the Chinese aggressive stance, which discriminates against foreign companies, has been considerable, causing grave concerns and paving the way for significant conflict.<sup>549</sup> In this strategic sector, China has arguably resorted to industrial policy to foster national champions.

The opportunistic use of AML to support national companies’ access to IPRs held by foreign companies is also evident in MOFCOM’s use of IPR licensing requirements in the conditional approval of Merck’s acquisition of AZ Electronic Material. In that case MOFCOM held “*that there were high barriers to entry,*” comprising Merck’s holding more than 3,500 patents in the liquid crystals display market.<sup>550</sup> MOFCOM voiced similar concerns about high barriers to entry in its decision unconditionally blocking the proposed P3 Network Shipping Alliance merger between Maersk, Mediterranean Shipping, and CMA CGM. MOFCOM observed that the transaction would “*increase the already high barriers to entry, [and] suppress competitors’ room for development.*”<sup>551</sup>

In a stark departure from EU competition policy, Article 31 of the AML obliges mergers or acquisitions involving foreign companies or investors, “*which implicate national security*”, to “*go through national security reviews according to*

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<sup>546</sup> *Id.* p. 60.

<sup>547</sup> *Id.*

<sup>548</sup> *Id.*

<sup>549</sup> See, e.g., Arthur Kroebe, Donald Clark, *Is a Trade War with China Looming? A ChinaFile Conversation*, CHINAFILE (12 Sept. 2014).

<sup>550</sup> MOFCOM Conditionally Approves Merck’s Acquisition of AZ Electronic Materials, China Competition Bulletin 3 (32nd ed. 2014).

<sup>551</sup> MOFCOM Prohibits the Formation of the P3 Network Shipping Alliance Among Maersk, Mediterranean Shipping, and CMA CGM, China Competition Bulletin 4 (32nd ed. 2014).

relevant laws and regulations.”<sup>552</sup> Article 27 of the AML furthermore requires China’s competition authorities to review “*the effect of [a] concentration on national economic development,*” and also “[o]ther factors affecting market competition as determined by the [Anti-Monopoly Enforcement Authorities].”<sup>553</sup> Assuming that China’s AML enforcement is protectionist, it is similar to other protectionist approaches taken by the Chinese market.

It has been observed, for example, that this regulatory trend is visible in the regulation of the internet.<sup>554</sup> The Chinese government has constantly been hindering and restricting Google-owned web platforms such as Facebook, Twitter and YouTube. On the contrary, Chinese indigenous counterparts, for instance Renren, Youku and Weixin have progressively surged to become market-dominant players, as powerful as their Western equivalents in Europe and the United States.<sup>555</sup> The Chinese government has also been engaging in blocking virtual private networks (“VPNs”).<sup>556</sup> Western companies have expressed apprehension over certain industries being required to rely solely on technology for which the Chinese government has the means to circumvent data encryption native to the product or service that uses that technology, fearing that “*new regulations...would force foreign technology and telecom companies to give government ‘back doors’ to their hardware and software and require them to store data within China*”.<sup>557</sup> It follows that “*as domestic Chinese corporations have fewer gains to access foreign websites for collaboration, and Western firms, concerned*

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<sup>552</sup> AML Ch. IV, Art. 31.

<sup>553</sup> AML Ch. IV, Art. 27. See also Maureen K. Ohlhausen, *Illuminating the Story of China’s Anti-Monopoly Law*, ANTITRUST SOURCE (Oct. 2013), p. 6: discussing how AML Article 27 expressly allows for consideration of broad factors that are inconsistent “*with market competition analysis [including] the effect of the proposed deal on the development of the national economy, and any other factors determined by the State Council Anti-Monopoly Enforcement Authority*”.

<sup>554</sup> Jillian Bray, *Firmly Grasping the Knife: An Investigation of the Asymmetric Application of Chinese Antitrust Law as a Protectionist Tool*, 24 CARDOZO JOURNAL OF INTERNATIONAL & COMPARATIVE LAW (2015), p. 372.

<sup>555</sup> Andrew Jacobs, *China Further Tightens Grip on the Internet*, N.Y. Times, 29 Jan. 2015.

<sup>556</sup> Bray notes that: “*Over the past couple of months, China has increased its censorship efforts, blocking smart phones from being able to receive Grail, Outlook, or Apple Mail; Gmail on regular internet browsers has become “almost impossible to use” in China, and several VPN companies, such as Astrill, StrongVPN and Golden Frog, have been the victims of official “disrupted services” actions from the government, which aim at establishing “cyber-sovereignty” in light of “soaring VPN use among ordinary Chinese citizens*”. Jillian Bray, *Firmly Grasping the Knife: An Investigation of the Asymmetric Application of Chinese Antitrust Law as a Protectionist Tool*, 24 CARDOZO JOURNAL OF INTERNATIONAL & COMPARATIVE LAW (2015), p. 373, quoting Andrew Jacobs, *China Further Tightens Grip on the Internet*, N.Y. Times, 29 Jan. 2015.

<sup>557</sup> Andrew Jacobs, *China Further Tightens Grip on the Internet*, N.Y. Times, Jan. 29, 2015.

*about data privacy, have new disincentives to competing in the Chinese market, this policy seems to provide a significant boon to domestic corporations*".<sup>558</sup> Nonetheless, this regulatory approach could ultimately be detrimental to the Chinese economy, given that by means of hindering channels of communication, the government could in due course choke the pursuit of entrepreneurial innovation.<sup>559</sup>

#### 4. EU AND CHINESE APPROACHES TO COMPETITION LAW ENFORCEMENT

The next sections will compare EU and Chinese competition law through enforcement priorities and ultimate policy goals to disclose China's relatively protectionist enforcement history. Although influenced by US and EU competition law, the Chinese AML has Chinese characteristics and therefore varies in a number of substantive and procedural features. Most prominently, it requires industrial policy concerns to be considered when applying competition rules. Indeed, Article 4 specifies that competition rules must be "*compatible with*" the socialist market economy, while Article 7, concerning the special status of state-owned enterprises, stresses their relevance to "*the national economy or national security*".

The EU has adopted its competition rules to "*prevent competition from being distorted to the detriment of the public interest, individual undertakings and consumers, thereby ensuring the well-being of the EU*".<sup>560</sup> The competition laws of the EU and the US are "*ostensibly very broad in scope*", the "*ideas of 'competition' and 'anticompetitive' behavior are applied as filters, thus bringing within the ambit of antitrust only those activities detrimental to the competitive process.*"<sup>561</sup>

Conversely, China's competition policy seems "*less concerned with the goal of keeping a level playing field and more with fostering its own interests*".<sup>562</sup> As

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<sup>558</sup> *Id.*

<sup>559</sup> See Liyang Hou, *Qualcomm: How China has Invalidated Traditional Business Models on Standard Essential Patents*, 7 JOURNAL OF EUROPEAN COMPETITION LAW & PRACTICE 10 (2016), p. 686.

<sup>560</sup> Case C-52/09 *Kokkurrensverket v TeliaSonera Sverige*, Judgment of 17 Feb. 2011, 2011 4 CMLR 482, para 20. See also Case C-94/00 *Roquette Frères* 2002 ECR I-9011 2003 4 CMLR 46, para 42.

<sup>561</sup> NIAMH DUNNE, *COMPETITION LAW AND ECONOMIC REGULATION* (CAMBRIDGE UNIVERSITY PRESS 2015), p. 26.

<sup>562</sup> Luís Cabral, *Competition policy in the global era*, NEW ZEALAND ECONOMIC PAPERS, 2016. This also emerges plainly from the National People's Congress members' standpoint during the AML drafting in 2006: "[i]f we allow pillar companies which the country has fostered for years to be taken over by

remarked above, objectives of the AML include protecting the public interest and promoting the socialist market economy (see Articles 1 and 4). Chinese competition policy expressly places emphasis on the primary concern of protecting and strengthening China's national and economic security. A number of AML provisions mirror the national security issue concern. Furthermore, as discussed above, China's AML specifically identifies the protection of "*the public interest and the impact on the Chinese national economy*" as key goals and objectives.<sup>563</sup> However, the difficulty in curtailing these vague, broad concepts,<sup>564</sup> which are hardly transposable into legal terms and hardly justifiable according to EU competition doctrine, cannot be concealed.

There are also structural differences between EU competition policy and Chinese antitrust enforcement. Unlike EU competition regulation that is enforced by one single agency, the Chinese competition architecture is based on the co-existence of multiple authorities with potentially coinciding decisions. China's AML is applied by three dissimilar regulators, each assigned partially overlapping competences. The Ministry of Commerce ("MOFCOM") is in charge of merger control. However, the State Administration for Industry and Commerce ("SAIC") and the National Development and Reform Commission (the "NDRC") both have competence over monopoly agreements and abuses of a dominant market position. SAIC is responsible for non-price issues. The NDRC is responsible for price-related issues, such as horizontal price-fixing between competitors, and vertical price-fixing, for example, resale price maintenance, between manufacturers and distributors. Additionally, Chinese courts are not bound by rulings of other courts, and even decisions of the nation's highest courts have

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*multinationals, the country will face the danger of losing dominant power on industrial development and technological progress... We welcome the investment of large foreign companies in China but will prevent them from taking market monopolistic positions which are not good for fair competition in a market economy." Competing Interests in China's Competition Law Enforcement, U.S. Chamber of Commerce, International Affairs Division, 14 (2 Jul. 2014), p. 22.*

<sup>563</sup> Gregory K. Leonard, Yizhe Zhang, *Considering the Unique Aspects of the Merger Review Process in China*, ANTITRUST SOURCE (2014). See also AML, Ch. I, Arts. 1 and 4.

<sup>564</sup> Xiaoye Wang, Adrian Emch, *Five Years of Implementation of China's Anti-Monopoly Law - Achievements and Challenges*, 23 JOURNAL OF ANTITRUST ENFORCEMENT (2013).

uncertain authority.<sup>565</sup> Accordingly, Chinese competition law and policy is far more unpredictable and sometimes uncertain, than the written law may suggest.

## 5. CONCLUSIONS: DIVERGENCES IN THE APPLICATION OF COMPETITION LAW TO IPRs IMPACTING ON INTERNATIONAL TRADE

The comparative analysis of the competition enforcement concerning standards and SEPs in the EU and China highlights that the present economic reality of globalization has not been reflected in a globally uniform legal framework applicable to competition and IP law concerns. Indeed, “[d]espite the extensive harmonization of procedural and substantive patent norms through international agreements, patent rights are still local”.<sup>566</sup> The territoriality of IP rights clashes with the purpose of SSOs setting standards for the use of SEPs. Standardization aims at coordinating the fragmented landscape of contacts, rights, and industry customs, through a self-regulation instrument adopted voluntarily among heterogeneous market participants. The global nature of the commercial impacts of disputes concerning standards and SEPs force local courts “to consider not only local judicial standards and doctrines, but also those used elsewhere that may be relevant to understand complex facts of disputes”.<sup>567</sup> It follows that “[T]he courts hearing the disputes on SEPs need to balance the principle of territoriality of law and the underlying rights, with the need to respect a commercial commitment affecting global businesses.”<sup>568</sup>

This gives rise to an exchange of jurisprudential knowledge, doctrinal development and economic analysis across jurisdictions, which can be interpreted as a push towards informal norm exchanges, termed as “judicial globalization”.<sup>569</sup> This exchange is desirable considering the scope of the impact that questions regarding standardization have on the global market.

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<sup>565</sup> Stephen Tung, *As Chinese Courts Announce Guiding Cases, Stanford Law School Helps to Spread the Word*, STANFORD REPORT (6 Feb. 2012).

<sup>566</sup> Nari Lee, Yang Li, *European Standards in Chinese Courts - A Case of SEP and FRAND Disputes in China*, in N. LEE, N. BRUUN, M. LI (EDS.), GOVERNANCE OF INTELLECTUAL PROPERTY RIGHTS IN CHINA AND EUROPE (EDWARD ELGAR PUBLISHING, 2016), p. 1.

<sup>567</sup> *Ibid.*, p. 2.

<sup>568</sup> *Ibid.*, p. 16.

<sup>569</sup> Edward Lee, *The New Canon: Using or Misusing Foreign Law to Decide Domestic Intellectual Property Claims*, 46 HARVARD INTERNATIONAL LAW JOURNAL 1 (2005); and Pamela Samuelson, *Intellectual property arbitrage: How foreign rules can affect domestic protections*, 71 THE UNIVERSITY OF CHICAGO LAW REVIEW 1 (2004), pp. 223-239.



However, upon closer scrutiny, there appear to remain major differences when it comes to the application of legal doctrine to the actual circumstances of cases. Indeed, if we consider the landmark case *Huawei v. IDC*, notwithstanding the fact that for the first time the Shenzhen Intermediate Court<sup>570</sup> and Guangdong High Court<sup>571</sup> made a commendable effort to determine what constitutes FRAND terms in China, resolve the case and calculate the FRAND royalty rate, the reasoning of courts is to a certain extent debatable and leaves much room for interpretative speculation.

To make this scenario more unstable, China seems to enforce and make an effort to apply locally the many legal concepts related to standardization. In doing so, China nonetheless reinterprets them to strategically serve, and arguably defensively, to some extent, the goals of the country's industrial and economic agenda, first and foremost the promotion of its indigenous industry.

In this context, the issue of the treatment of IP rights in standards and their related competition concerns reflects the fragmentation of patent rights. Currently, "*national competition laws embody a host of different assumptions about the role of economics; the proper scope and nature of competition law prohibitions, rules, and remedies; procedural issues; and the influence non-competition policy concerns should have on competition law enforcement decisions*".<sup>572</sup> This has resulted in inconsistent outcomes and the sub-optimal enforcement of competition policy.

Markets are increasingly global in nature and the boundaries of national trade are more and more blurred, making standardization and ultimately harmonized objectives a crucial facilitator for international trade.<sup>573</sup> It is thus clear that the analysis of standards and competition cannot take place without an appreciation of the regulatory perspective of international trade. As long as the

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<sup>570</sup> *Huawei v InterDigital Communications (IDC)*, Shenzhen Intermediate People's Court, Decision of Feb. 2013, No. 2011 深中法知民初字第 858 号.

<sup>571</sup> *Huawei v InterDigital Communications*, Guangdong Higher People's Court No. 2013 粤高法民三 终字第 306 号.

<sup>572</sup> Alden F. Abbott, Shanker Singham, *Competition Policy and international trade distortions*, in C. HERRMANN ET AL. (EDS.), EUROPEAN YEARBOOK OF INTERNATIONAL ECONOMIC LAW (EYIEL), VOL. 4 (2013), p. 25.

<sup>573</sup> World Trade Organization, World Trade Report 2005; K. BLIND, THE ECONOMICS OF STANDARDS: THEORY, EVIDENCE, POLICY (EDWARD ELGAR, 2004), p. 219.

issue of patents incorporated into standards and their use as trade barriers “*is not resolved at a normative level, developing countries will be forced to create more competing and complementary standards*”.<sup>574</sup> Consequently, “*competing standards may raise considerable non-tariff barriers to international trade and to free/open markets*”.<sup>575</sup>

Indeed, anticompetitive practices have an impact on market access, and the protectionist stance of China has itself been perceived as a trade barrier.

The anticompetitive measures that are relevant to this analysis include:

- I. *anticompetitive private conduct*, such as business methods, that are backed by government actions that which empower them giving an advantage over foreign competitors or companies not falling within a certain group of favored companies or sectors to be supported;
- II. *government protectionist measures* that create trade barriers by fostering national industrial and economic policy, and/or private indigenous industries, and discriminate against foreign competitors.

These anticompetitive measures are likely to impact on international trade the more they concern issues, such as SEPs and standardization that are globally used and can at the same time be perceived as market enablers or barriers to trade. In this vein measures concerning IPRs in standards have noticeable effects on trade also outside the jurisdiction where the anticompetitive measure is imposed.

The adoption of an international trade perspective is arguably the more adequate as this phenomenon cannot be challenged by the domestic enforcement of national competition rules, due to the dual and mutually reinforcing

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<sup>574</sup> Yogesh Pai, *Private Proprietary Standards and Public Law: Invoking WTO's Competition Dimension to Avoid Global Market Distortion*, (November 16, 2012). See also P. Gao, *Counter-networks in Standardization: a perspective from developing countries*, 17 INFO SYSTEMS JOURNAL (2007), pp. 391-420.

<sup>575</sup> *Id.* See also John S. Wilson, *Standards, Trade and Development*, in LAURA DENARDIS (EDS.), *OPENING STANDARDS: THE GLOBAL POLITICS OF INTEROPERABILITY* (MIT PRESS, 2011), p. 119.

complementary relationship between anticompetitive practices and global trade, both aimed, ultimately, at promoting welfare. Commentators have remarked that modifications to trade regulation aimed at reducing or removing national barriers to trade and investment, such as high tariffs, quotas, and investor nationality restrictions, “*promote welfare-enhancing contractual relations that expand trade and, more generally, raise aggregate welfare in the liberalizing nations. The benefits of trade liberalization are magnified by competition law rules that lower the incidence of consumer welfare-reducing restrictions*”<sup>576</sup> on the competitive process”.<sup>577</sup>

Hence, there is arguably a preeminent role for international competition law policy in an increasingly globalized economy through voluntary efforts aimed at entering into an understanding across jurisdictions and thus progressively globally moving together towards best or better practices.<sup>578</sup> This calls for the identification of international efforts to streamline and enforce competition policies. These efforts include, as discussed below, the WTO framework. The concerns related to IPRs in standards should be analyzed from the regulatory perspective of both competition and international trade as the issues concerning one aspect cannot be resolved irrespective of the other.

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<sup>576</sup> The term “*consumer welfare*” is used here to describe the sum of consumers’ and producers’ surplus. See ROBERT H. BORK, *THE ANTITRUST PARADOX* (FREE PRESS 1993), pp. 90-106. Consumer welfare-reducing restrictions could be either private (e.g., price fixing, division of markets among competitors, and other anticompetitive contracts) or public (e.g., onerous licensing requirements, other restrictions on entry into businesses or professions, and prohibitions on truthful advertising). On the detrimental nature of government restraints on competition, see William E. Kovacic, James C. Cooper, *US Convergence with International Competition Norms: Antitrust Law and Public Restraints on Competition*, 90 *BOSTON UNIVERSITY LAW REVIEW* (2010), p. 1555.

<sup>577</sup> Alden F. Abbott, Shanker Singham, *Competition Policy and international trade distortions*, in C. HERRMANN ET AL. (EDS.), *EUROPEAN YEARBOOK OF INTERNATIONAL ECONOMIC LAW (EYIEL)*, VOL. 4 (2013), pp. 23-24.

<sup>578</sup> *Id.*, p. 25.

# CHAPTER V

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## THE INTERNATIONAL DIMENSION OF STANDARDIZATION: TRADE DISTORTIONS AND COMPETITION POLICY

- 1. INTERNATIONAL TRADE AND COMPETITION: MUTUALLY AFFECTING EACH OTHER**
- 2. THE MISSING COMPETITION POLICY PERSPECTIVE WITHIN THE INTERNATIONAL TRADE REGIME**
  - 2.1. THE FAILURE OF COMPETITION POLICY NEGOTIATIONS WITHIN THE WTO
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## 1. INTERNATIONAL TRADE AND COMPETITION: MUTUALLY AFFECTING EACH OTHER

The previous chapter illustrated how differential legal and policy treatment of patented technology through the application of national competition laws has given rise to inter-jurisdictional regulatory frictions. These differences ultimately fail to prevent IPR holders from exercising their market power by means of exploiting incorporated standards as trade barriers. This causes a harmful lack of consistency within the international trading regime.

To adopt a perspective limited to competition law, namely, a perspective that solely addresses the anticompetitive danger produced by standardization in relation to lack of compliance with the antitrust rules, would fall short of appreciating the implications of standardization in the international trade arena.

An approach exclusively concentrated on competition is necessarily jurisdiction-specific. Focusing on a purely national perspective is not sufficient as more far-reaching international engagement is necessary. This is all the more evident given the costs of the current sources of disharmony among countries and the opportunities that exist for collaboration among competition authorities as well as trade and competition authorities, including the WTO, which can play a constructive role in developing a common understanding of the issues surrounding the intersection between trade and competition policy for both developed and developing economies. A greater role for the WTO is nonetheless conditional on the support and pursuit of additional steps to deepen the work already under way at the intersection between trade and competition policy, to make the WTO a more competition policy friendly environment.

Indeed, excluding a competition policy perspective from the WTO regime, ultimately rejecting the mutual relationship between competition and international trade, cannot represent a winning strategy for advanced, developing and emerging economies, regardless of divergences in institutional and legal traditions. Indeed, the literature has remarked how international trade policy and competition policy, suitably enforced, are “*mutually reinforcing methods for promoting welfare*”. This means that “[c]hanges to trade laws and regulations that

*reduce or eliminate national barriers to trade and investment (such as high tariffs, quotas, and investor nationality restrictions) promote welfare-enhancing contractual relations that expand trade and, more generally, raise aggregate welfare in the liberalizing nations”.*<sup>579</sup>

Conversely, the implications of standardization in the international trade arena should be scrutinized in light of the inherent intertwined tension between patent rights embodied in technical standards, innovation and the international trade regime.

Indeed, competition law is only one side of the problem. The following points must be taken into account:

- I. the difference in views and uncertainty that has characterized the tensions between patents and standards from a competition standpoint (see Chapter IV) has allowed developed countries to use standards as trade barriers;
- II. dissimilarities in laws and public policies concerning standardization that have posed significant obstacles to cross-border trade,<sup>580</sup> have led latecomers in the international economy to call for more penetrating government intervention. In particular, supporting the development and adoption of competing homegrown complementary standards as a source of economic catch-up,<sup>581</sup> which, in return, has arguably given rise to a novel type of substantial, protectionist, non-tariff barrier to trade.<sup>582</sup>

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<sup>579</sup> Alden F. Abbott, Shanker Singham, *Competition policy and international trade distortions*, EUROPEAN YEARBOOK OF INTERNATIONAL ECONOMIC LAW (2013).

<sup>580</sup> Yogesh Pai, *Standards-Essential Patents: A Prolegomena*, 19 JOURNAL OF INTELLECTUAL PROPERTY RIGHTS (2014), p. 59; Baisheng An, *Intellectual Property Rights in Information and Communications Technology Standardization: High Profile Disputes and Potential for Collaboration between the United States and China*, 45 TEXAS INTERNATIONAL LAW JOURNAL (2009), p. 175; Christopher S. Gibson, *Globalization and Technology Standards Games: Balancing Concerns of Protectionism and Intellectual Property in International Standards*, 22 BERKLEY TECHNOLOGY LAW JOURNAL (2007), p. 1403.

<sup>581</sup> Richard P. Suttmeier, Xiangkui Yao and Alex Zixiang Tan, *Standards of Power: Technology, Institutions, and Politics in the Development of China's National Standards Strategy*, THE NATIONAL BUREAU OF ASIAN RESEARCH (2006), p. 11.

<sup>582</sup> See generally Branislav Hazucha, *Technical Barriers to Trade in Information and Communication Technologies*, in TRACEY EPPS AND MICHAEL J. TREBILCOCK (EDS.), RESEARCH HANDBOOK ON THE WTO AND TECHNICAL BARRIER TO TRADE (CHELTENHAM: EDWARD ELGAR PUBLISHING 2014), pp. 539-540; Robert

It follows that international trade is arguably hindered by governmental measures that distort domestic markets and ultimately have substantial effects on trade outside the jurisdiction that imposes the restrictions. Indeed, a wide-range of acts of governments can hamper international trade. Notably, formal governmental actions, which may “*immunize some firm conduct*”, as well as “*tak[ing] measures that are excessively trade-restricting and anticompetitive*”.

Governments may also act indirectly, by backing private initiatives that lessen competition, while applying competition enforcement aggressively against foreign companies that seek to do business in the country, imposing restraints. In other words, governments might also use the indirect strategy of supporting private arrangements that have hostile effects on international trade and on access to markets. In this way, “*practices that may be anticompetitive or exclusionary may not fall neatly into a category of either purely private restraints or governmental practices*”.<sup>583</sup>

It is thus necessary to be skeptical of arguments that exclusively focus on purely private business practices or solely on governmental restrictive policies, because restraints of a mixed private and public nature can also have significant trade-distorting consequences.

Confronted with such problems, trade and competition policies are better understood as two mutually supportive methods of addressing such issues. However, neither trade nor competition policy tools offer comprehensive solutions to the problems that originate from this mixture of governmental and private restraints.

These challenges cannot be successfully addressed by national competition authorities of the home countries of the affected foreign companies. Indeed, it is practically impossible to rely upon national competition rules as an extraterritorial tool, given issues of jurisdictional reach and divergences, as

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Howse, *A New Device for Creating International Legal Normativity: The WTO Technical Barriers to Trade Agreement and “International Standards”*, in CHRISTIAN JOERGES AND ERNST-ULRICH PETERSMANN (EDS.), *CONSTITUTIONALISM, MULTILEVEL TRADE GOVERNANCE AND SOCIAL REGULATION* (Oxford: Hart Publishing 2006), pp. 392-393.

<sup>583</sup> International Competition Policy Advisory Committee to the Attorney General and Assistant Attorney General for Antitrust, Final report Annex 2-c (2000), Executive Summary, chapter 5.

illustrated, in the competition laws and enforcement of countries, which have diverging industrial policy objectives.

The missing link in legal analysis that the present study strives to address concerns the issue that protectionism of latecomers and the skewing of regulatory systems in favor of national champions or, in the case of standards, national technology, is arguably caused, at least in part, by advanced countries' opportunist use of IP tools, which is, in return, allowed, or at least not adequately addressed, by inconsistent competition enforcement and uncertainty concerning fundamental notions on IP and competition tensions, such as the definition of clear and widely-accepted licensing requirements.

This missing link calls for a normative solution to the competition-related uncertainties and inconsistencies. It also calls for deeper insight into exploring whether the WTO might represent the most useful forum in which to assess these restraints, given its extraterritorial reach, and the fact that protectionist strategies might trigger its provisions. Against this background, the following remaining issues should be assessed:

- I. how competition interacts with the WTO regime; and
- II. whether the integration of competition policy within the WTO is advisable to address the trade-restrictive measures implemented by latecomers, caused, at least partially, by the differences in views and uncertainty that characterizes the tensions between patents and standards as well as the strategic use of IP to extract higher royalties on the part of advanced countries.

These issues will be addressed below.

## **2. THE MISSING COMPETITION POLICY PERSPECTIVE WITHIN THE INTERNATIONAL TRADE REGIME**

The first issue to be addressed relates to the need to integrate a global competition policy perspective into international economic law in order to intervene and restrain the exclusionary consequences created by the



opportunistic use of standardization across several jurisdictions, coupled with the unpredictable, occasionally lax, level of antitrust scrutiny. Accordingly, the establishment of a comprehensive competition policy framework matching the tenets of international trade and IP law should be explored.

This analysis, which is even more needed today, cannot be deferred anymore as the integration of developing countries into the global economy has exacerbated potential conflicts. As markets are increasingly global and intertwined, standardization is becoming an important enabler in international trade. At the same time, developing countries are increasingly facing trade barriers in the form of patents embodied into standards, which have been opportunistically used by developed countries as entry-deterrents to ICT markets.

## **2.1. THE FAILURE OF COMPETITION POLICY NEGOTIATIONS WITHIN THE WTO**

The WTO is a multilateral organization having a unique place among international organizations and rulemaking bodies by reason of its comprehensiveness, comprising 164 members from developed and developing economies, and its significance as a forum for negotiating binding rules governing the economic behavior of nations. The WTO's core focus has been on the trade-distorting conduct of governments. As such, with the exception of antidumping and countervailing duty laws, it has not concentrated its actions on the conduct of firms. However, "*while several WTO agreements have elements that implicate competition policy, and while many WTO principles are supportive of competition policy objectives*", for example, transparency, nondiscrimination, and national treatment, the "*treatment of competition policy as such in WTO agreements has been only fragmentary*".<sup>584</sup>

Indeed, it is important to take into account a preliminary consideration. Namely, that national competition regimes have not been accompanied by a legally binding international regime on competition policy.

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<sup>584</sup> *International Competition Policy Advisory Committee to the Attorney General and Assistant Attorney General for Antitrust*, Final report Annex 2-c (2000), Executive Summary, chapter 5.

Yet, there is an important global competition issue that needs to be better considered by the appropriate policymakers. The relevance of competition policy to international trade has become recognized by more and more nations. Competition is now understood as *“a tool for spurring innovation, economic growth, and the economic well-being of countries around the world”*.<sup>585</sup> This is all the more clear in light of the economic liberalization and the technological advancements that are themselves an *“engine for liberalization”*. In turn, both *“economic liberalization and technological development - are in turn driving economic integration”*.<sup>586</sup> Understood this way, competition policy can contribute to *“facilitate economic liberalization”* and *“produce more goods and services from scarce resources and provide a set of rules and disciplines that are not based on privilege and that are conducive to and responsive to efficient marketplace behavior”*.<sup>587</sup>

Numerous international competition policy issues are matters of significance for international trade. Indeed, as formal governmental barriers to international trade and investment are reduced, attention is turning more to anticompetitive practices occurring within nations that affect trade flows from other nations. As a result, in the last decade, *“perceived restrictions emanating from exclusionary or anticompetitive practices have generated economic and political tensions between nations and firms”*.<sup>588</sup>

Efforts to define an overarching legal framework for competition date back to the first historic attempt to legally regulate trade relations between states on a multilateral basis.<sup>589</sup> Namely, the Havana Charter, signed in 1948, which established the unsuccessful International Trade Organization (the “ITO”). The intention was to create an institution like the ones established through the Bretton Woods Agreement, namely, the World Bank and the International Monetary Fund.

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<sup>585</sup> *Id.*, chapter 1.

<sup>586</sup> *Ibid.*

<sup>587</sup> *Ibid.*

<sup>588</sup> *Id.*, chapter 5.

<sup>589</sup> P. PICONE, A. LIGUSTRO, DIRITTO DELL'ORGANIZZAZIONE MONDIALE DEL COMMERCIO (CEDAM, 2002).

The Havana Charter specifically addressed restrictive business practices, and its Chapter V, including Articles 46 to 54, was aimed at preventing, on the part of private or public commercial companies, business practices hindering international trade that restrain competition, limit access to markets, or nurture monopolistic control, each time such practices having detrimental effects on the development of production or trade and hampering the achievement of any of the other goals of the ITO. However, the provisions on competition in the Havana Charter never entered into force as other provisions, notably the ones granting robust powers of enforcement to the ITO, caused apprehension in the US, whose Senate rejected the Charter.<sup>590</sup> As a result, the making of the ITO was stopped and no international rules on competition policy were adopted. The only provisions of the Havana Charter that came into effect were the ones concerning trade, namely, the General Agreement on Tariffs and Trade (“GATT”), concluded in 1947, which was applied as an interim discipline until the instituting of the WTO, on January 1, 1995, which replaced GATT as an international organization.<sup>591</sup>

The WTO is meant to “*provide the common institutional framework for the conduct of trade relations among its Members in matters related to the agreements*”.<sup>592</sup> In particular, it is meant to attain higher standards of living, full employment, growth of income and demand, expansion of trade and production of goods and services, whilst trying to find a balance between commercial and environmental values, as stated in the preamble of both GATT and the WTO settlement agreement. In order to achieve these objectives, the WTO has to guarantee that “*trade flows as smoothly, predictably and freely as possible*”. It does so through the formation of a platform for negotiation of trade, the

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<sup>590</sup> GARY CLYDE HUFBAUER, JISUN KIM, INTERNATIONAL COMPETITION POLICY AND THE WTO (PETERSON INSTITUTE FOR INTERNATIONAL ECONOMICS, 2008).

<sup>591</sup> For a review of the transition from GATT to the WTO, ROBERT HUDEC, THE GATT LEGAL SYSTEM AND WORLD TRADE DIPLOMACY (BUTTERWORTH LEGAL PUBLISHERS, 1993); Gabrielle Marceau, *Transition from GATT to the WTO: A Most Pragmatic Operation*, 29 JOURNAL OF WORLD TRADE (1995) p. 147; JOHN H. JACKSON, WORLD TRADE AND THE LAW OF GATT (BOBBS-MERRILL, INDIANAPOLIS 1969); DAVID LUFF, LE DROIT DE L'ORGANISATION MONDIALE DU COMMERCE. ANALYSE CRITIQUE, (BRUYLANT, BRUXELLES 2004), pp. 771-775. See also PAOLO PICONE, ALDO LIGUSTRO, DIRITTO DELL'ORGANIZZAZIONE MONDIALE DEL COMMERCIO (CEDAM, 2004); MARCELLA DISTEFANO, SOLUZIONE DELLE CONTROVERSIE NELL'OMC E DIRITTO INTERNAZIONALE (CEDAM, 2001); PAOLO PICONE, GIORGIO SACERDOTI, DIRITTO INTERNAZIONALE DELL'ECONOMIA (F. ANGELI, 1991); GABRIELLA VENTURINI, L'ACCORDO GENERALE SULLE TARIFFE DOGANALI ED IL COMMERCIO (GIUFFRÈ, 2004); PIET ECKHOUT, EXTERNAL RELATIONS OF THE EUROPEAN UNION, LEGAL AND CONSTITUTIONAL FOUNDATIONS (OXFORD UNIVERSITY PRESS, 2004).

<sup>592</sup> WTO, Agreement establishing the World Trade Organisation, Uruguay Round, Preamble.

accomplishment of full equality between states and the dropping of trade barriers. Accordingly, the WTO promotes the “Most Favored Nation” and the “National Treatment” principles and its chief objective is to “*constrain governments from imposing or continuing a variety of measures by restraint or distortion of international trade*”.<sup>593</sup>

Regarding competition policy, the WTO provided a new stimulus to the debate on the inclusion of provisions dealing with anticompetitive practices in the international trade law framework. In particular, in light of the gradually globalizing economy and the increasing dismantling of government restraints on trade, such as tariffs and non-tariff barriers to trade. Not least concerns that private restraints on trade were merely replacing the previous public restraints on trade, particularly in those economies where extensive privatization and deregulation increased the room for private monopolies and market dominance.

Against this background, at the WTO Ministerial Conference in Singapore in 1996, the Working Group on the Interaction Between Trade and Competition Policy (the “Working Group on Competition Policy”) was created “*to study issues raised by Members relating to the interaction between trade and competition policy, including anti-competitive practices, in order to identify any areas that may merit further consideration in the WTO framework*”.<sup>594</sup> The Ministerial Conference, however, decided that “*future negotiations, if any, regarding multilateral disciplines in these areas, will take place only after an explicit consensus decision is taken among WTO Members regarding such negotiations*”.<sup>595</sup>

The EU was the chief advocate in the WTO for the inclusion of competition policy within the WTO regime.<sup>596</sup> It proposed a multilateral framework to the Working Group on Competition Policy, grounded on core principles, cooperation

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<sup>593</sup> J. H. JACKSON, W. J. DAVEY, A. O. SYKES, *LEGAL PROBLEMS OF INTERNATIONAL ECONOMIC RELATIONS* (5TH EDITION, THOMSON WEST, 2008), p. 215.

<sup>594</sup> World Trade Org., Singapore Ministerial Declaration of Dec. 13, 1996, WT/MIN(96)/DEC, 36 I.L.M. 218, para 20 (1997).

<sup>595</sup> *Id.*

<sup>596</sup> Julien Moiroux, *The Internationalization of Competition Policy: The EU and the WTO Between Boldness and Rally*, 2 GLOBAL ANTITRUST REV. 38 (2009).

and support for developing countries.<sup>597</sup> In particular, the EU argued that “WTO negotiations on competition should [focus] on three key issues: core principles on domestic competition law and policy; cooperation modalities, including both case-specific cooperation and more general exchanges of experiences; and support for the reinforcement of competition institutions in developing countries, including through a more coherent and enhanced approach to technical assistance for capacity building.”<sup>598</sup>

Developing countries have energetically opposed the inclusion of a competition framework in the WTO. This opposition has mainly been due to developing countries’ fear of potential restrictions on their policy margin of maneuver. In particular, in relation to being able to adopt suitable strategies for their development.<sup>599</sup> Also, it has been due to the reluctance of developing countries to adopt a proposed regime that would give rise to burdensome costs of implementation and enforcement, which would be a further drain on their small economies.<sup>600</sup>

At the WTO Ministerial Conference in Doha, in 2001, the “*case for a multilateral framework to enhance the contribution of competition policy to international trade and development, and the need for enhanced technical assistance and capacity-building in this area*”,<sup>601</sup> was included in the Work Program of the WTO Doha Development Round of negotiations. Ministers then envisaged that negotiations would take place at the next ministerial conference “*on the basis of a decision to be taken, by explicit consensus, at that Session on*

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<sup>597</sup> Working Group on the Interaction Between Trade and Competition Policy, Communication from the European Community and Its Member States, WT/WGTCP/W/152 (Sept. 25, 2000), p. 5.

<sup>598</sup> *Id.*, p. 4.

<sup>599</sup> Working Group on the Interaction Between Trade and Competition Policy, Background Note by the Secretariat: Core Principles, Including Transparency, Non Discrimination and Procedural Fairness, WT/WGTCP/W/209, § 31 (19 Sept. 2002). See also Martin Khor, *Analysis of the Doha Negotiations and the Functioning of the World Trade Organization*, South Ctr., Research Paper No. 30, May 2010, p. 16, observing that “[i]n December 2003, several leading developing countries proposed to the WTO [...] that [...] the three issues of investment, competition, and government procurement [...] be dropped from the Doha agenda”.

<sup>600</sup> Martin Khor, *The “Singapore Issues” in the WTO: Implications and Recent Developments*, THIRD WORLD NETWORK (2004), p. 5.

<sup>601</sup> World Trade Org., Ministerial Declaration of Nov. 14, 2001, WT/MIN(01)/DEC/1, 41 I.L.M. 746, 23 (Nov. 20, 2001).

modalities of negotiations.”<sup>602</sup> Nonetheless, at the Ministerial Conference in Cancun in 2003, a consensus on those modalities was not achieved.<sup>603</sup>

During the Doha Conference the Ministers also provided that the Working Group on Competition Policy should focus “on clarification of: core principles, including transparency, nondiscrimination and procedural fairness, and provisions on hard core cartels; modalities for voluntary cooperation; and support for progressive reinforcement of competition institutions in developing countries through capacity building”.<sup>604</sup>

Despite movements during negotiations, some members fiercely opposed the inclusion of competition policy in the Doha Round agenda.<sup>605</sup>

Although it is not the aim of the present research to rehearse the main arguments put forward by WTO members for and against integrating competition and trade regimes, it should be observed that the US opposed the multilateral competition policy framework within the WTO for several reasons.<sup>606</sup> Principally, it was skeptical that international competition rules would give rise to benefits that the US could not achieve on its own. It was also concerned that competition could be used as a bargaining chip in negotiations between WTO members, eventually watering down good competition rules and practices and creating an onerous bureaucratic architecture.

The US asserted that “*the WTO as a forum for review of private restraints is not appropriate. Given the possible risks, and the lack of international consensus on the content or appropriateness of rules or dispute settlement in this area, [...] the WTO should not develop new competition rules under its umbrella. Various concerns animate the [...] skepticism toward competition rules at the WTO, including the possible distortion of competition standards through the quid pro quo nature of WTO negotiations; the potential intrusion of WTO dispute settlement*

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<sup>602</sup> *Id.*, para 20.

<sup>603</sup> World Trade Org., Cancun Ministerial Conference Summary of Sept. 14, 2003, para 6.

<sup>604</sup> *Id.* § 25.

<sup>605</sup> Martin Khor, *Analysis of the Doha Negotiations and the Functioning of the World Trade Organization*, South Ctr., Research Paper No. 30, May 2010, p.16.

<sup>606</sup> See International Competition Policy Advisory Committee (“ICPAC”) to the Attorney General and Assistant Attorney general for Antitrust, Final report Annex 2-c (2000).

panels into domestic regulatory practices; and the inappropriateness of obliging countries to adopt competition laws. While recognizing that in some instances it may not be a fully satisfactory result, the Advisory Committee believes that national authorities are best suited to address anticompetitive practices of private firms that are occurring on their territory". Moreover, "[o]ver the longer term, the WTO may be called upon to resolve disputes between nations that hinge on whether private practices that foreclose access to markets are ultimately attributable to governmental practices. The ability of the WTO to resolve such disputes is not fully tested under the WTO's existing rules or jurisprudence and is an area that [...] needs particular study and consideration by trade and competition policymakers in the years ahead." The US has however acknowledged that "[a]s the world moves into the next century, and as new countries join the WTO, the problems of market access will surely deepen, and the line between public and private restraints will become increasingly opaque. Hence, it is a particularly important area of attention by trade and competition policymakers".<sup>607</sup>

Developing countries, instead, opposed a competition regime in the WTO as they feared that it "*might be another Trojan horse*", as many of them had perceived TRIPS to be,<sup>608</sup> in due course restraining their ability to use competition as a strategic tool to achieve their development goals, including industrial policy and promotion of domestic champions.

The discussions on integrating a competition policy within the WTO regime were abandoned mainly due to the opposition of developing countries, fuelled by concerns that a multilateral framework on competition could have a number of negative effects on their fragile economies rather than foster development scenarios.

These concerns mainly stem from the perceived limitations that a potential competition policy agreement within the WTO could impose on their ability to

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<sup>607</sup> *Id.*, Executive Summary, chapter 5.

<sup>608</sup> Joel Trachtman, *Legal Aspects of a Poverty Agenda at the WTO: Trade Law and 'Global Apartheid,'* 6 JOURNAL OF INTERNATIONAL ECONOMIC LAW 3 (2003); Jerome Reichman, *From Free Riders to Fair Followers: Global Competition Under the Trips Agreement*, 29 N.Y.U. JOURNAL OF INTERNATIONAL LAW & POLICY 11 (1997).

adopt suitable measures to stimulate economic development.<sup>609</sup> As developing economies strongly rely on governments to support public enterprises by means of subsidies and other regulatory tools to shield domestic companies from strong competition, developing countries feared that under the aegis of the WTO, a multilateral framework for competition would have meant giving up a number of policy instruments. For example, *“monopolies granted by the state, preventing resellers from setting prices independently, requiring that unrelated products be sold as a package (product sale bundling), promoting cartel behavior by a few state-supported firms, putting high barriers to entry such as technical, financial or nationality requirements, geographical market restrictions, arbitrary blacklisting, price fixing, tied purchasing arrangements, product and price dumping”*.<sup>610</sup>

As it has been noted, *“in the early stages of industrialization, governments may wish to promote ‘national champions’, that is, large industrial groups which are likely to compete with foreign firms both in domestic and possibly in regional markets. Hence, governments may want to encourage, at least initially or temporarily, some market concentration. A competition policy primarily concerned only with the obsessive quest for maximum competition is likely to prevent mergers leading to market concentration whereas industrial policy objectives might encourage the same mergers”*.<sup>611</sup>

However, the economic perspective was only one side of the issue. Developing countries also perceived, arguably reasonably, competition to be intrinsically incompatible with their institutional *status quo*. In particular, the enforcement of the competition frameworks proposed by the Western countries to be integrated in the WTO presupposed *“the existence of a strong state, with adequate institutional, human and financial capacity to conduct investigations, monitor markets and sanction prohibited practices.”*<sup>612</sup> On the contrary, developing countries generally did not have the institutional architecture in place necessary

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<sup>609</sup> MICHAEL BAILEY, OXFAM ET AL., UNWANTED, UNPRODUCTIVE AND UNBALANCED: SIX ARGUMENTS AGAINST AN INVESTMENT AGREEMENT AT THE WTO (2003).

<sup>610</sup> VICENTE PAOLO B. YU III, SOUTH CTR., DEVELOPMENT CHALLENGES OF COMPETITION POLICY IN THE ECONOMIC PARTNERSHIP AGREEMENTS 2 (2007).

<sup>611</sup> SOUTH CTR., Understanding the economic partnership agreements (EPAS): Fact Sheet No. 1, para 18 (2007).

<sup>612</sup> *Id.*, para 17.



to implement such policies. To subject them to advanced countries' competition regimes would have amounted to an *“unnecessary administrative and fiscal burden.”*<sup>613</sup>

Developing countries therefore opposed the approach to competition policy that underpinned the proposals brought before the WTO. Developing countries instead advocated a competition framework bespoke to their development needs, preserving ample policy space to put in place policy instruments affecting trade and competition. China was no exception. It has constantly used competition law enforcement strategically to attain industrial policy objectives. In particular, it has varied its enforcement of competition principles depending on the stages of economic development and productive capacity. It has therefore tactically varied the level of intra-firm rivalry depending on its view of the susceptibility or power of firms in the context of a strategy to promote national champions.<sup>614</sup>

Eventually, in August 2004, the WTO General Council decided that competition policy “[would] *not form part of the Work Program set out in that Declaration and therefore no work towards negotiations [...] [would] take place within the WTO during the Doha Round*”.<sup>615</sup> As a result, the Working Group on Competition Policy also stopped its activity.

This research is not intended to be a comprehensive analysis of the pros and cons of advocating for the inclusion of a specific competition policy within the WTO regime and the means by which to include it. However, a general understanding of the underlying conflicts that would affect the relationship between competition policy and international trade distortions within the context of standards is necessary.

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<sup>613</sup> VICENTE PAOLO B. YU III, SOUTH CTR., DEVELOPMENT CHALLENGES OF COMPETITION POLICY IN THE ECONOMIC PARTNERSHIP AGREEMENTS 2 (2007).

<sup>614</sup> Paul Kuruk, *Negotiating Competition Policy in Multilateral Trade Agreements: European Union Overtures to West Africa and the WTO*, UNIVERSITY OF PENNSYLVANIA JOURNAL OF INTERNATIONAL ECONOMIC LAW 36 (2014), p. 651.

<sup>615</sup> Doha Work Programme: Decision Adopted by the General Council on Aug. 1, 2004, WT/L/579, para 1(g).

## 2.2. CHINA'S ACCESSION TO THE WTO

An analysis of the role of the WTO in addressing issues related to the strategic use of standardization cannot be carried out without an appreciation of China's role within the WTO regime.

Indeed, China's accession to the WTO in 2001 represented a milestone not only for China but for the entire global economy. It was attained after nearly fifteen years of extensive negotiations, having many legal, political and social implications for all parties, at the end of which China was eventually able to persuade WTO members that without China, the WTO would not be a worldwide trade organization.<sup>616</sup>

China's accession to the WTO was preceded by bilateral negotiations between China and WTO members on China's market access commitments and concessions,<sup>617</sup> which were eventually incorporated into China's Goods and Services Schedules, applying to all WTO members.<sup>618</sup> The final Protocol of accession echoes the terms and conditions of the various Chinese bilateral agreements<sup>619</sup> with the US,<sup>620</sup> the EU<sup>621</sup> and Canada.<sup>622</sup>

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<sup>616</sup> PAOLO D. FARAH, FIVE YEARS OF CHINA WTO MEMBERSHIP: EU AND US PERSPECTIVES ABOUT CHINA'S COMPLIANCE WITH TRANSPARENCY COMMITMENTS AND THE TRANSITIONAL REVIEW MECHANISM LEGAL ISSUES OF ECONOMIC INTEGRATION (KLUWER LAW INTERNATIONAL, VOL. 33, NO. 3, 2006), p. 264.

<sup>617</sup> USTR, U.S.-China Trade Relations: Entering a New Phase of Greater Accountability and Enforcement, Top-to-Bottom Review ("Top-to-Bottom Review") (Feb. 2006), p. 11.

<sup>618</sup> *Id.*

<sup>619</sup> Fabio Spadi, *L'evoluzione del protocollo di accessione della Repubblica Popolare Cinese all'Organizzazione mondiale del commercio* (DIRITTO DEL COMMERCIO INTERNAZIONALE, 2000), p. 205-207.

<sup>620</sup> Chinese-US negotiations lastly came to an end in Nov. 1999 with a bilateral agreement for China's accession. In 2000, China was acknowledged by the US Congress with a permanent normal trade status. For an overview of the US-China policy for the accession of China to the WTO, see generally Alan Alexandroff, *Concluding China's Accession to the WTO: the U.S. Congress and Permanent Most Favored Nation Status for China* 3 UCLA JOURNAL OF INTERNATIONAL LAW & FOREIGN AFFAIRS (1998-1999).

<sup>621</sup> The bilateral EU-China agreement on WTO was signed in Beijing on May 19, 2000. For a scrutiny of the outcomes attained by the EU in addition to the Sino-US accord, see the Sino-EU Agreement on China's Accession to the WTO: Results of the Bilateral Negotiations. For further analysis, see Eberhard Sandschneider, *China's Diplomatic Relations with the States of Europe*, THE CHINA QUARTERLY (2002), pp. 33-44; Markus Taube, *Economic Relations between the PRC and the States of Europe*, THE CHINA QUARTERLY (2002), pp. 79-105; Olivier Prost, Song Li Wei, *China's Accession to the WTO: How will this Benefit European Undertakings?*, 24 FORDHAM INTERNATIONAL LAW JOURNAL (2001), pp. 554-559.

<sup>622</sup> China and Canada signed in Toronto in Nov. 1999 their bilateral agreement on China's accession into WTO.

The WTO Working Group Party also started multilateral negotiations with China in order to define the rules that would govern trade with China, thus delineating China's Protocol of Accession and its Report of the Working Party,<sup>623</sup> which includes several central commitments by China regarding standards, in an effort to address the questions expressed by other Working Party members.

Concerns involved the opportunity for public consultation and comment on proposed Chinese standards, technical regulations and conformity assessment procedures. Moreover, some WTO members asked for further details concerning China's strategy for using international standards as a ground for new Chinese standards, and for reviewing present standards in order to achieve a deeper harmonization with international standards. On this point, the Chinese government stressed that China was an active member of ISO, IEC and the ITU, contributing to the development of international standards. Additionally, some feared that Chinese requirements for technical regulations did not sufficiently address vital obligations, such as transparency, non-discrimination, national treatment, and avoidance of unnecessary barriers to trade. To meet these concerns, the Chinese government assumed the obligation that, in order to eradicate needless barriers to trade, it would not uphold multiple or duplicative conformity assessment procedures, nor would it impose requirements exclusively on imported products.

Eventually, WTO members formally approved China's accession to the WTO and China became the WTO's 143<sup>rd</sup> member on December 11, 2001.<sup>624</sup>

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<sup>623</sup> WTO, Protocol of accession of the People's Republic of China to the WTO (hereinafter Protocol), Document WT/L/432. In Nov. 2001, during the fourth WTO ministerial conference in Doha, the text of the agreement for China's entry into the WTO was approved by consensus, so China has been an official member of the WTO since December 11, 2001. For a further description of the GATT/WTO negotiations, see Franco Algieri, *EU Economic Relations with China: An Institutional Perspective*, THE CHINA QUARTERLY (2002), pp. 73-77.

<sup>624</sup> The China's WTO accession documents are: the Protocol of China's accession to the WTO (WT/L/432), the Working Party Report (WT/ACC/CHN/49) and the Annexes containing market access commitments (WT/ACC/CHN/49/Add.2). On China's accession, see James Feinerman, *China's Quest to Enter the GATT/WTO*, 90 AMERICAN SOCIETY OF INTERNATIONAL LAW PROCEDURE (1996), p. 402: "PRC diplomats have been lobbying the GATT intensively since the early 1980s to gain admission". See also MARIA WEBER, *IL MIRACOLO CINESE: PERCHE BISOGNA PRENDERE LA CINA SUL SERIO* (IL MULINO, 2003), p. 83-84 ; Leila Choukroune, *Chine et OMC: l'état de droit par l'ouverture au commerce international?*, 6 REVUE DE DROIT DES AFFAIRES INTERNATIONALES (2002), p. 655.

During the accession negotiations, some parties had originally envisaged including specific language detailing China's responsibilities to use relevant international standards as a basis for China's technical regulations, standards and conformity assessment procedures, in compliance with Article 2 of the TBT Agreement.<sup>625</sup> However, an agreement was not found and the final Protocol of Accession is silent on specific responsibilities to use international standards, and instead provides only that China will comply with the TBT Agreement, bringing all technical regulations, standards, and conformity assessment procedures into conformity with it.<sup>626</sup> Furthermore, the Protocol of Accession is silent as to whether China is entitled to recourse as a developing country,<sup>627</sup> and it is thus entitled to "*special and differential treatment*" under Article 12 of the TBT Agreement.<sup>628</sup>

In the light of China's aggressive push towards national ICT standardization (see below, in particular, the WAPI case and its openly stated apprehensions about IP rights as an obstacle to following international standards, the concerns raised by China during the accession negotiations were revealing, signaling perhaps that the anticipated issues would soon arise to create tensions.

### 2.3. THE INTERNATIONAL TRADE IMPLICATIONS OF STANDARDIZATION

The international trade implications of standardization cannot be overstated. The 2005 World Trade Report explains how this standard-setting dynamic can play out in competition between countries "[T]o the extent that promoters of competing standards come from different countries and the winner can claim rents from the adoption of their standard, strategic trade policy considerations come into play". The protectionist concern is tangible, as "[a] government can try to tip the balance in favor of its national champion by mandating the use of the firm's standard at home. This would be in the hope that an

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<sup>625</sup> See Ichiro Araki, *China and the Agreement on Technical Barriers to Trade*, RIETI DISCUSSION PAPER SERIES 02-E-008, p. 8 (July 2002) (quoting paragraph 15 of the draft Protocol).

<sup>626</sup> *Id.* at paras 13.2 and 13.4(a).

<sup>627</sup> *Id.*

<sup>628</sup> *Id.*, p. 10.

*installed base of users would create a strong enough bandwagon effect to convince foreign suppliers to switch to the national firm's standard in other markets".*<sup>629</sup>

Government involvement in standardization, whether through regulation, preferential treatment to domestic firms, measures that make it more difficult for foreign firms, and even strategic use of antitrust, must be examined with caution and with due regard to trade considerations, as it may infringe WTO rules. As the 2005 World Trade Report puts it, the WTO *"deals with the rules of international trade and inevitably has to deal with the role of standards in international trade."*<sup>630</sup> Moreover, *"[i]n a global system, coherence between multilateral trade rules and standard-setting policies is necessary in order to avoid conflicts among trading partners"*.<sup>631</sup>

Standards play an undisputed crucial role, also recognized within the WTO, as trade facilitators. Indeed, *"a stable and mutually supportive relationship between standards regimes and international trade rules is central to the effective functioning of the trading system."*<sup>632</sup> However, standards must be construed in a way that prevents their use by governments as a protectionist weapon, *"avoid[ing] the misappropriation or capture of public policy in these areas to construct unwarranted obstacles to competition and trade"*.<sup>633</sup>

### **3. CHINA'S STANCE ON STANDARDIZATION: THE USE OF STANDARDS AS A PROTECTIONIST REGULATORY TOOL TO COUNTERVAIL STRATEGIC PATENTING**

In China, the Indigenous Innovation policy has raised concerns that directly implicate international trade obligations under the WTO's legal framework and hint at the possible protectionist goal of China's standardization policy. In other words, concerns have been raised, especially on the part of the US, that China is *"actively pursuing the development of unique requirements, despite the existence of*

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<sup>629</sup> See World Trade Organisation, World Trade Report 2005 – Exploring links between trade, standards and the WTO (2005), p. 41.

<sup>630</sup> *Id.*, at xxv.

<sup>631</sup> *Id.*, at xxxvi.

<sup>632</sup> These are the words used by WTO's former Director-General, Supachai Panitchpakdi, stressing that standards are key for abetting efficient markets where technical interoperability is indispensable, such as networked environments. Supachai Panitchpakdi, *Foreword to World Trade Report 2005*, at iii.

<sup>633</sup> *Ibid.*

*well-established international standards, as a means for protecting domestic companies from competing foreign standards and technologies”*.<sup>634</sup>

This policy is likely susceptible to function as a barrier to entry into the Chinese market, since foreign companies will have to comply with domestic standards, thus enacting costly switching and compliance policies. As highlighted in the 2006 Report to Congress on China’s WTO Compliance, “*China has continued to resort to industrial policies that limit market access for non-Chinese origin goods and foreign service providers [...] In some cases, the objective of these policies seems to be to promote the development of Chinese industries that are higher up the economic value chain than the industries that make up China’s current labor-intensive base*”.<sup>635</sup>

Of course, standardization cannot be considered good *per se* in all circumstances as the development of domestic competing and mandatory standards can raise substantial non-trade barriers to international trade and open markets.<sup>636</sup> Under certain circumstances, China’s emphasis on home-grown standards, diverging from existing international ones, is arguably defensively used to raise standards’ compliance costs for non-Chinese market participants and significantly restrain their market access.

From a global perspective, China’s adoption of competing national standards has implications on its WTO commitments; commitments which push towards the removal of trade and investment barriers, the fostering of greater integration into the world economy and fair competition.<sup>637</sup> Although, explicit barriers to international trade such as quotas on imports and high tariffs have been gradually reduced or even removed by the GATT, established in 1947, and the WTO, established in 1995,<sup>638</sup> current trade liberalization has moved on into

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<sup>634</sup> UNITED STATES TRADE REPRESENTATIVE (USTR), 2014 REPORT TO CONGRESS ON CHINA’S WTO COMPLIANCE (2014). In the same terms, USTR, 2006 REPORT TO CONGRESS ON CHINA’S WTO COMPLIANCE (2006), and USTR, 2003 REPORT TO CONGRESS ON CHINA’S WTO COMPLIANCE (2003).

<sup>635</sup> USTR, 2006 REPORT TO CONGRESS ON CHINA’S WTO COMPLIANCE 47 (2006), p. 7.

<sup>636</sup> John S. Wilson, *Standards, Trade and Development*, in *OPENING STANDARDS: THE GLOBAL POLITICS OF INTEROPERABILITY* (ED. LAURA DE NARDIS, MIT PRESS, 2011), p. 119.

<sup>637</sup> See ALICE AMSDEN, *ESCAPE FROM EMPIRE: THE DEVELOPING WORLD’S JOURNEY THROUGH HEAVEN AND HELL* (CAMBRIDGE, MA: MIT PRESS, 2007).

<sup>638</sup> Tariffs are the preferred trade barrier under GATT rules while quotas and other NTBs are disfavoured. Article 11 GATT establishes as follows: “*No prohibitions or restrictions other than duties,*

the less obvious area of implicit non-trade barriers (“NTBs”), which have become increasingly significant.<sup>639</sup>

Specifically, issues related to standards and trade were addressed under the GATT by the voluntary GATT Standards Code.<sup>640</sup> Following the Uruguay Round of negotiations, which resulted in the establishment of the WTO, the technical standards regime converted from voluntary rules to mandatory obligations under the Agreement on Technical Barriers to Trade (the “TBT Agreement”)<sup>641</sup>. China, as a WTO member, is subject to this TBT Agreement, which acknowledges the growing impact of standards on trade in goods and under international law, in particular, with its core principles prohibiting discriminatory trade practices and unnecessary barriers to trade.

It is important to note that the TBT Agreement also requires member states to use “*international standards*” if they “*exist or their completion is imminent*” (Article 2(4) of the TBT Agreement).

Against this background, many critics have claimed that China’s focus on domestic standards represents a form of protectionism contravening WTO and TBT principles. China maintains that the international standardization regime is the real barrier to trade.

The Chinese delegation to the WTO has constantly asserted that the mandatory imposition of proprietary technology standards impedes international trade. It contends that patents in international standards should be subordinated to some sort of FRAND licensing if observance to those standards is to be obligatory under the TBT Agreement.<sup>642</sup> It has been pointed out that this is an ostensibly straightforward position that the U.S. maintains it cannot even

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*taxes or other charges, whether made effective through quotas, import or export licences or other measures, shall be instituted or maintained by any contracting party on the importation of any product of the territory of any other contracting party or on the exportation or sale for export of any product destined for the territory of any other contracting party”.*

<sup>639</sup> ALAN O. SYKES, PRODUCT STANDARDS FOR INTERNATIONALLY INTEGRATED GOODS MARKETS (THE BROOKINGS INSTITUTION 1995).

<sup>640</sup> Agreement on Technical Barriers to Trade (with Annexes), 12 Apr. 1979, 1186 U.N.T.S. 276.

<sup>641</sup> Agreement on Technical Barriers to Trade, 15 Apr. 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex IA, Legal Instruments-Results of the Uruguay Round.

<sup>642</sup> Christopher S. Gibson, *Globalization and the Technology Standards Game: Balancing Concerns of Protectionism and Intellectual Property in International Standards*, 22 BERKELEY TECH. L.J. 1403, 1464 (2007), pp. 1429-1435.

grasp.<sup>643</sup> In other words, China maintains that the international standards that include proprietary IPRs, which are mainly designed and ultimately controlled by developed advanced countries, are harmful to fair competition and have a detrimental impact on international trade.

In this vein, China called for the WTO TBT Committee to reflect upon the relationship between IPRs and international standards in the TBT Agreement. In its submission, China stated: *“If Members are not clear of IPRs in the relevant international standard, whether all the IPRs have been disclosed, under what terms the IPRs are to be licensed by the IPR holders, all WTO Members will face difficulties when adopting international standards...From the governmental level, as well as the company level, there exists the kind of unwillingness of adopting international standards as the basis of their national standards and technical regulations if there is no common rule to regulate IPRs in standardization. Such a situation will bring a negative impact on implementation of a TBT Agreement”*.<sup>644</sup>

The perception of unfairness concerning standards derives from the very dynamics that characterize patent licensing. Research has suggested that patenting is not concentrated among firms of any one country. Rather, it is distributed at least among firms based in the major developed economies (the U.S. (Qualcomm, InterDigital and Motorola), Korea (LG and Samsung), and Europe (Nokia and Ericsson)). In this context, China’s Huawei represents an exception, as it has been extremely active in the area of Internet standardization and related patent holdings.<sup>645</sup>

Nonetheless, less-developed countries are still lagging behind. Firms based in advanced countries that participate in SSOs attain patents covering the standard globally, implementing the standards in products that are sold

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<sup>643</sup> After thoroughly reviewing the concerns raised by the Chinese delegation, the U.S.’s representative “could not see any such relationship” between SEP hold ups and the TBT Agreement’s focus on removing technical barriers to trade. *Id.*, p. 1431.

<sup>644</sup> Communication from the People’s Republic of China, Intellectual Property Right (IPR) Issues in Standardization, G/TBT/W/251/Add.1, November 9, 2006.

<sup>645</sup> As for Japanese firms such as Sony, Toshiba, Sharp and Panasonic, although they have played major roles in many areas of ICT standardization, Contreras notes that they are comparatively underrepresented in telecommunications and networking SSOs, due primarily to early policies adopted by the Japanese government. Jorge L. Contreras, *Divergent Patterns of Engagement in Internet Standardization: Japan, Korea and China*, 38 TELECOMMUNICATIONS POLICY (2014).



worldwide. As remarked by Contreras, when firms in less-advanced countries eventually become mindful of “*the potential for sales of such products in their own countries (possibly with locally-attractive features, lower costs or domestically-sourced components),the basic product technologies have already been patented by foreign [...] firms*”.<sup>646</sup>

Non-patent holding firms from less-developed countries are then forced to seek licenses from foreign patent-holding firms in order to produce standardized products in their domestic markets. Here comes the real issue: as remarked by the literature, the royalties requested by foreign patent-holding firms, although disputably reasonable on an international stage, may be regarded as inequitable by local firms and governments. This is especially true where foreign patent-holding firms enter the market and compete with the local non-patent holding firms.<sup>647</sup>

Facing this alleged unfairness, often non-patent holding developing countries may decide:

- I. to adopt protective regulations, and embark on enforcement efforts aimed at sheltering their local industries. These actions, where amounting to explicitly protectionist regulation, could infringe a number of international treaty obligations, such as the WTO Agreements;
- II. to strategically use existing regulation, competition law investigations and enforcement actions against large Western SEP holders. For example, the recent *Qualcomm/NDRC* case. In February 2015, China’s National Development and Reform Commission (the “NDRC”) fined Qualcomm approximately USD 975 million for a range of alleged violations of China’s Antimonopoly Law in connection with its licensing of SEPs.

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<sup>646</sup> Jorge L. Contreras, *Patents, Standards and Borders: Addressing National Disparities among Holders of Standard-Essential Patents*, East-West Center Workshop on Mega-Regionalism - New Challenges for Trade and Innovation, 2016.

<sup>647</sup> *Id.*

Some notable examples of efforts to use standards as a protectionist tool deserve brief scrutiny. They illustrate not only the dual nature of standards, but also the role of patenting practices perceived as unfair, generating a protectionist response by emerging economies.

### 3.1. THE WAPI CASE

The wireless LAN authentication (the “WAPI”) saga is an example of the Chinese government’s attempt to assist its ICT firms in moving up the global value chain by decreasing the encumbrance of royalties.

The Standardization Administration of China (the “SAC”) and the Administration for Quality Supervision, Inspection, and Quarantine (the “AQSIQ”) adopted a new encryption standard for wireless devices sold in China, which was termed WAPI.<sup>648</sup> The standard was issued in March 2003 and the Government imposed that by the end of 2003 all wireless devices entering the Chinese market had to conform to this standard.

Officially, the adoption of the WAPI standard was justified by alleging that the security specification for the IEEE-802.11 wireless standard (“Wi-Fi”) was not sufficiently secure.<sup>649</sup> Despite this official reason supporting the adoption of the new wireless security protocol, doubts were cast that this imposition was actually prompted by IPR concerns,<sup>650</sup> as the application of the WAPI standard was conditional on access to specific encryption technologies that were largely owned by Chinese firms, some of them being potential competitors with Western firms.

In order to comply with the WAPI standard, this scheme would have forced foreign microchip makers to acquire licenses and consequentially pay a per-microchip royalty from their Chinese counterparts.<sup>651</sup> This furthermore meant that foreign companies would have been required to cooperate with their Chinese

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<sup>648</sup> Administration for Quality Supervision, Inspection, and Quarantine (AQSIQ) and Standardization Administration of China (SAC)’s Notification regarding Implementation of National Mandatory Standard for WLAN (promulgated by AQSIQ and SAC) (November 26, 2003).

<sup>649</sup> For a detailed overview of the WAPI case, see Brian DeLacey, Kerry Herman, David Kiron, Josh Lerner, Wai-Shun Lo, *Government Intervention in Standardization: The Case of WAPI* (2006).

<sup>650</sup> Christopher S. Gibson, *Globalization and Technology Standards Game: Balancing Concerns of Protectionism and Intellectual Property in International Standards*, 22 BERKELEY TECHNOLOGY LAW JOURNAL (2007), p. 1435.

<sup>651</sup> *Id.*, pp. 1436-1437.

competitors in the R&D sector, thus sharing their proprietary technologies with potential competitors. The exclusionary effect on foreign companies would have been even more magnified by the fact that the WAPI standard was designed to be incompatible with the Wi-Fi standard. Accordingly, foreign micro-chip makers would have had to develop new products suitable for the Chinese standards, which, of course, would increase the manufacturing costs for non-Chinese companies.<sup>652</sup>

Once the WAPI standard was adopted, China lobbied for adoption of the WAPI standard as an international standard by the ISO, but the standard was ultimately rejected in favor of the IEEE 802.11i security protocol.<sup>653</sup> However, China stuck to WAPI, appealing ISO's decision and endorsing the WAPI technology through alternative channels. Indeed, in 2009, all three of China's mobile carriers incorporated WAPI-capability as a requirement for handsets on their networks, raising the suspicion of the Government's influence.<sup>654</sup> Lastly, China even resubmitted the standard for international consideration in 2009.<sup>655</sup>

Ultimately, in light of WAPI's distinctively indigenous character and the government's resolute support for it notwithstanding international political and commercial resistance,<sup>656</sup> the regulatory imposition of this domestic standard is generally perceived as an attempt to support local enterprises to gain a competitive advantage to the detriment of Western microchip makers, both in the Chinese market and internationally. For these reasons WAPI is considered the "*poster child for China's use of standards in the service of techno-nationalism*".<sup>657</sup>

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<sup>652</sup> See Lee Heejin, Oh Sangjo, *The Political Economy of Standards Setting by Newcomers: China's WAPI and South Korea's WIPI*, 32(9-10) TELECOMMUNICATIONS POLICY 662 (2008), p. 666; UNITED STATES INTERNATIONAL TRADE COMMISSION, CHINA: INTELLECTUAL PROPERTY INFRINGEMENT, INDIGENOUS INNOVATION POLICIES, AND FRAMEWORK FOR MEASURING THE EFFECTS ON THE U.S. ECONOMY (USITC PUBLICATION 4199, NOV. 2010), pp. 1-5; Aimee Boram Yang, *China in Global Trade: Proposed Data Protection Law and Encryption Standard Dispute*, 4 I/S: A JOURNAL OF LAW AND POLICY FOR THE INFORMATION SOCIETY 897 (2008-09), p. 919.

<sup>653</sup> Brian DeLacey, Kerry Herman, David Kiron, Josh Lerner, Wai-Shun Lo, *Government Intervention in Standardization: The Case of WAPI* (2006).

<sup>654</sup> *Ibid.* See also Owen Fletcher, *Years on, China Pushes WAPI in Mobile Phones*, CIO (8 May 2009).

<sup>655</sup> *Watch Out: WAPI is back on the Wi-Fi agenda*, EE TIMES (19 Jun. 2009).

<sup>656</sup> Owen Fletcher, *Years on, China Pushes WAPI in Mobile Phones*, CIO (8 May 2009).

<sup>657</sup> Christopher McElwain, *The World's Laboratory: China's Patent Boom, IT Standards and the Implications for the Global Knowledge Economy*, 14 SANTA CLARA JOURNAL OF INTERNATIONAL LAW 441 (2016), p. 451. See also Zia K. Cromer, *China's WAPI policy: security measure or trade protectionism?*, 4 DUKE L. & TECH. REV. 1 (2005); Richard P. Suttmeier, *A New Technonationalism? China and the Development of Technical Standards*, 48 COMMUNICATIONS OF THE ACM 35 (2005).

However, some commentators have remarked that the WAPI saga is “*something of an outlier ...a fixation that China developed while its new standardization regime was in its infancy and one that is arguably rooted as much in the security paranoia of particular state actors as in a broad national economic policy designed to give domestic companies a leg up*”.<sup>658</sup>

After WAPI, China’s alleged techno-nationalism in the ICT standardization sector has become “*more nuanced*”. McElwain and Fernandez, for example, have noticed how Chinese home-grown standards “*often incorporate significant amounts of foreign technology, making their effectiveness questionable as pure tools of techno-nationalism*”. Moreover, “*in nearly every case, government efforts to promote the standard have been far from unequivocal and have failed to result in the commercial success that Indigenous Innovation proponents supposedly crave*”.<sup>659</sup>

### 3.2. THE TD-SCDMA CASE

For instance, among all standards set by China, the 3G mobile Time Division-Synchronous Code Division Multiple Access (“TD-SCDMA”) technology standard has drawn most attention.

The TD-SCDMA is the only Chinese standard approved by an international organization (*i.e.* the ITU). Moreover, the Chinese government has constantly given preferential treatment to its development over competing standards like W-CDMA and CDMA2000, which were created and embraced by European and American multinational corporations, respectively.<sup>660</sup> The Chinese government has allocated tremendous resources and efforts to the TD-SCDMA, which raised

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<sup>658</sup> Christopher McElwain, *The World’s Laboratory: China’s Patent Boom, IT Standards and the Implications for the Global Knowledge Economy*, 14 SANTA CLARA JOURNAL OF INTERNATIONAL LAW 441 (2016), p. 451, see also Dan Breznitz, Michael Murphree, U.S.-CHINA Econ. & Sec. Review Comm’n, *THE RISE OF CHINA IN TECHNOLOGY STANDARDS; NEW NORMS IN OLD INSTITUTIONS* 3 (2013).

<sup>659</sup> Christopher McElwain, *The World’s Laboratory: China’s Patent Boom, IT Standards and the Implications for the Global Knowledge Economy*, 14 SANTA CLARA JOURNAL OF INTERNATIONAL LAW 441 (2016), p. 451

<sup>660</sup> M. Hess, N.M. Cowe, *Making connections: global production networks, standards, and embeddedness in the mobile-telecommunications industry*, 38 ENVIRONMENT AND PLANNING A 7 (2006), pp. 1205-1227.

the debate over its motivations.<sup>661</sup> For example, the Ministry of Information Industry, the NDRC and the MOST jointly subsidized TD-SCDMA R&D in the amount of RMB 700 million from 2002 to 2003<sup>662</sup> and RMB 1 billion from 2004 to 2006.<sup>663</sup> Moreover, state directed national banks, such as the Industry and Commerce Bank (the “ICBC”), the Construction Bank of China and the Huasia Bank, offered loans for approximately RMB 1.5 billion. Additionally, the China Development Bank offered RMB 38 billion during 2005 to 2007 for TD-SCDMA network building and testing.<sup>664</sup>

Yet, the TD-SCDMA standard was not a great success in the market as market forces managed to offset Government-sponsored favoritism and so the Government did not manage to “*have “foreign” telephony standards [...] actually excluded from China*”. Support from the Chinese Government was not sufficient to prevent the TD-SCDMA network from lacking industry-player backing and from losing market share to competing W-CDMA and CDMA2000 standards.

### 3.3. THE EVD CASE

A further illuminating example of domestic standards incorporating noteworthy amounts of foreign technology and that did not enjoy much commercial success, even within China, is the Enhanced Versatile Disk (the “EVD”).

Its adoption was directly encouraged by the Chinese government in an effort to develop an alternative to the DVD. In particular, it was developed as a response to China’s loss of dominance in the production of digital optical storage media (for example, CD players, DVD players, computer disk drives, and high-definition disk drives).<sup>665</sup> Indeed, the manufacturing sector’s profits were limited due to burdensome royalties that loomed over China’s downstream

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<sup>661</sup> H. Yan, *The 3G Standard Setting Strategy and Indigenous Innovation policy in China: Is TD-SCDMA a Flagship?* DRUID (DANISH RESEARCH UNIT FOR INDUSTRIAL DYNAMICS) WORKING PAPER NO. 07-01(2006).

<sup>662</sup> X.L. LIU, *GLOBALIZATION, CATCH-UP AND INNOVATION* (BEIJING: SCIENCE PUBLISHER, 2008).

<sup>663</sup> H. Yan, *The 3G Standard Setting Strategy and Indigenous Innovation policy in China: Is TD-SCDMA a Flagship?* DRUID (DANISH RESEARCH UNIT FOR INDUSTRIAL DYNAMICS) WORKING PAPER NO. 07-01(2006).

<sup>664</sup> J. Whalley, J., W. Zhou, X. An, *Chinese experience with global 3G standard-setting*. Working paper in CESIFO (Munich 2009).

<sup>665</sup> Michael Murphree, Dan Breznitz, *Innovation in China: Fragmentation, Structured Uncertainty, and Technology Standards*, 2013 *CARDOZO LAW REVIEW DE NOVO* 196 (2013), p. 204.

manufacturers, who did not have much leverage to renegotiate the licensing terms.<sup>666</sup> To assuage this adverse trend, the Chinese Ministry of Information Industry and the Chinese State Trade and Economic Commission started to develop an indigenous standard by bringing together government-funded research institutes and DVD manufacturers to develop the EVD, a competing format to the DVD.<sup>667</sup>

Despite this auspicious effort, the government support did not prevent the EVD from being a commercial fiasco, which was accelerated by the appearance of next-generation optical storage technologies, such as the high-definition digital video disk (HD-DVD) and Blu-Ray.<sup>668</sup>

### 3.4. CONCLUSIONS: NOT JUST PROTECTIONISM

The analysis of the efforts made by the Chinese government to use standards as a protectionist tool show that Indigenous innovation is not the ultimate aim of China's strategy, which appears to be more complex, articulated and nuanced. Although the chief objective of Chinese policy towards fostering home-grown standards remains to immunize domestic industries from foreign competition, it is a many-sided effort towards modifying international norms towards a paradigm closer to China's economic interests and, arguably, more in harmony with Chinese approaches towards proprietary technology.<sup>669</sup>

This conclusion seems to be confirmed by the EDV case illustrated above. Despite being a commercial debacle, this regulatory intervention partly succeeded in lowering the burden of royalty payments for Chinese manufacturers,<sup>670</sup> thus serving the interests of the Chinese ICT industry. Most importantly, the EVD standard allowed Chinese firms to guarantee leverage in the DVD royalty negotiations by augmenting their fallback position or "threat point", using the

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<sup>666</sup> *Ibid.*

<sup>667</sup> Greg Linden, *China Standard Time: A Study in Strategic Industrial Policy*, 6 BUSINESS & POLICY 1 (2004), p. 15.

<sup>668</sup> *Ibid.*

<sup>669</sup> Christopher McElwain, *The World's Laboratory: China's Patent Boom, IT Standards and the Implications for the Global Knowledge Economy*, 14 SANTA CLARA JOURNAL OF INTERNATIONAL LAW 441 (2016), pp. 452-453.

<sup>670</sup> For products using EVD standard, the licensing fee was \$2 per unit. By contrast, it was around \$13-\$20 per unit for those following foreign standards. Greg Linden, *China Standard Time: A Study in Strategic Industrial Policy*, 6 BUSINESS & POLICY 1 (2004), p. 15.

EVD standard and its availability as a negotiating weapon for about 30 % less of the licensing fees for the DVD standard. Chinese companies could, in case of a dispute, have restricted the sale of non-EVD players in China. Empirical evidence has shown that the development of the EVD triggered an increase in royalty concessions from major IP-rich Western companies who held patents vital to the DVD standard.<sup>671</sup>

In conclusion, although perhaps the Chinese drive for alternative ICT standards can sometimes be explained as a way to rely on competing technologies to force royalty concessions down,<sup>672</sup> protectionism is not the only driver. Rather, sheltering specific domestic industries represents an aspect of a greater strategy aimed at boosting Chinese firms' status within the world's supply chain and trade arena. The Chinese standardization policy aims to alleviate the alleged commercial encumbrance produced when manufacturers are forced to lease IPRs solely for purposes of international compatibility.<sup>673</sup>

#### **4. ADDRESSING PROTECTIONISM WITHIN THE WTO: THE GLOBAL DIMENSION OF COMPETITION POLICY AND IP RIGHTS IN STANDARDIZATION**

An analysis of the trade implications of standardization at the international level should assess whether there is a comprehensive multilateral framework to address the use of regulatory processes that threaten global trade. Indeed competition and efficiency have been the foundation stone of a globalized trading regime within the WTO's legal framework, attained by means of the non-discrimination principle.<sup>674</sup> Notwithstanding the absence of a competition regime at the multinational level, the issue of patenting in standards and the use of non-tariff barriers as a means to curtail international trade are at the core of the TBT and TRIP agreements.

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<sup>671</sup> For example, evidences reported that royalties for domestically sold DVD players were reduced from \$21 to \$12 per unit, and by early 2004, the overall licensing rate was further reduced to \$13.80. *Ibid.*

<sup>672</sup> Dan Breznitz, Michael Murphree, U.S.-CHINA Econ. & Sec. Review Comm'n, *THE RISE OF CHINA IN TECHNOLOGY STANDARDS; NEW NORMS IN OLD INSTITUTIONS* 3 (2013).

<sup>673</sup> Christopher McElwain, *The World's Laboratory: China's Patent Boom, IT Standards and the Implications for the Global Knowledge Economy*, 14 *SANTA CLARA JOURNAL OF INTERNATIONAL LAW* 441 (2016), p. 454.

<sup>674</sup> Guzman and Pauwelyn, *International Trade Law*, Kluwer Law International (2009), p. 19.

The TBT Agreement, as seen above, fosters the adoption of available international standards and encourages harmonization to counter obstacles to global trade. The TRIPS agreement is based on the “exclusive rights” granted to patent holders and the patent owners’ right to charge a market price for their inventions. Nonetheless, both the TBT and the TRIPS agreements do not tackle how competition policy should play out. Moreover, a comparative investigation of antitrust enforcement in different jurisdictions, namely the EU and China, shows a great margin of divergence on the issue of patents in standards. Moreover, competition law is prone to be misused by governments as a means to implement industrial policies by favoring regulatory intervention or inertia.<sup>675</sup> By the same token, technical standards can promote or stifle domestic trade and industrial policy aims.<sup>676</sup> Therefore, a mere competition perspective, prone to dynamic efficiency and deferential to strong IP protection, allowing patent holders to extract free market royalties in a standards context, would ultimately support the industrial policy objectives of, exclusively, IP producing countries.<sup>677</sup>

#### **4.1.1. NON-TARIFF BARRIERS TO TRADE (“NTBs”) AND THE TBT AGREEMENT**

From a preliminary analysis it emerges that the WTO has only a limited ability to combat the mentioned protectionist trend within the use of strategic domestic standardization. However, the WTO combines a package of multilateral agreements addressing a number of measures, such as NTBs, that could potentially have a protectionist purpose over domestic interests, thus impeding competition from imports.<sup>678</sup>

Gradually, along with the reduction of tariffs over the more than forty years of the GATT regime, NTBs have become more important, amounting to “*the*

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<sup>675</sup> There has been much evidence to the fact that, historically, domestic competition policy has been used as a tool to achieve industrial policy objectives. Jonathan Galloway, *The Pursuit of National Champions: The Intersection of Competition Law and Industrial Policy*, EUROPEAN COMPETITION LAW REVIEW (2007).

<sup>676</sup> KNUT BLIND, *THE ECONOMICS OF STANDARDS: THEORY, EVIDENCE, POLICY* (EDWARD ELGAR: UK, 2004).

<sup>677</sup> Xuan Li, Baisheng An, *IPR misuse: The core issue in standards and patents*, South Centre, 2009, pp. 21-25.

<sup>678</sup> JOHN H. JACKSON, *THE WORLD TRADE ORGANIZATION, CONSTITUTION AND JURISPRUDENCE* (ROUTLEDGE, 1998), p. 20.



*crucial terrain of trade policy today.*<sup>679</sup> NTBs can be described as non-tax measures adopted in international trade relations in order to narrow the amount of imports. They include quotas, which specify the quantity of a specific item that a country allows to be imported during a given time period, import licenses, subsidies to domestic production and technical regulations.<sup>680</sup>

Specifically addressing these NTBs, the Tokyo Round in the 1970s resulted in nine limited membership agreements on non-tariff measures, including realistically tangible obligations.<sup>681</sup> Among these agreements, the Agreement on Technical Barriers to Trade (“TBT Agreement”), signed in April 1979 was signed by more governments than any other of the specific agreements (with 47 governments eventually signing it).<sup>682</sup> Eventually, the Uruguay Round negotiations updated the TBT Agreement and fully integrated it under the WTO/GATT legal system,<sup>683</sup> with its provisions binding all WTO members and any disputes arising under it administered by the WTO’s dispute settlement rules.<sup>684</sup>

The TBT Agreement was adopted precisely to deal with barriers to international trade based on technical regulations, voluntary standards, and conformity assessment regulations. The main purposes of the TBT Agreement, laid down in its Preamble, include: (i) boosting international standards and conformity assessment systems, in recognition of “*the important contribution that international standards and conformity assessment systems can make [...] by improving efficiency of production and facilitating the conduct of international trade;*” and (ii) “*ensur[ing] that technical regulations and standards, [...] and*

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<sup>679</sup> *Id.*, p. 21. Professor Jackson continues on this point: “*Many domestic producer interests would begin turning to a variety of non-tariff barriers (more than a thousand) as a way to minimize the competition from imports, since tariffs would no longer provide that type of protection.*”

<sup>680</sup> J. H JACKSON, W. J DAVEY, A. O. SYKES, *LEGAL PROBLEMS OF INTERNATIONAL ECONOMIC RELATIONS* (5<sup>TH</sup> EDITION, THOMSON WEST, 2008), p. 215.

<sup>681</sup> *Id.*, p. 21.

<sup>682</sup> WTO Secretariat, *Guide to the Uruguay Round Agreements* (1999), p. 71.

<sup>683</sup> JOHN H. JACKSON, *THE WORLD TRADE ORGANIZATION, CONSTITUTION AND JURISPRUDENCE* (ROUTLEDGE, 1998), p. 22.

<sup>684</sup> WTO Secretariat, *Guide to the Uruguay Round Agreements* (1999), p. 71.

*procedures for assessment of conformity with technical regulations and standards, do not create unnecessary obstacles to international trade”.*<sup>685</sup>

The Preamble sets out that WTO members should nevertheless be entitled to take measures to protect national security and the environment, to ensure quality of exports and prevent deceptive practices, and to protect human, animal, or plant life or health, so long as these measures “*are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail or a disguised restriction on international trade*”.<sup>686</sup> The Preamble recognizes the “*contribution which international standardization can make to the transfer of technology from developed to developing countries*”, while acknowledging that “*developing countries may encounter special difficulties in the formulation and application of technical regulations and standards and procedures for assessment of conformity with technical regulations and standards*”.<sup>687</sup>

Moreover, the TBT Agreement extends the obligations of countries to non-governmental actors to guarantee compliance and abstain from actions that are irreconcilable with the provisions of the TBT Agreement.<sup>688</sup>

Notably, the recitals of the TBT Agreement<sup>689</sup> point in favor of international solutions over national ones to the problem of fragmented markets due to standards.<sup>690</sup> In this vein, the Appellate body has underlined that recital 3 of the TBT Agreement emphasizes the significant part played by international standards and conformity assessment systems in encouraging and enabling international trade.<sup>691</sup>

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<sup>685</sup> Agreement on Technical Barriers to Trade, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, Legal Instruments – Results of the Uruguay Round, at Preamble, §§ 1 & 3.

<sup>686</sup> *Id.*

<sup>687</sup> *Id.*

<sup>688</sup> Articles 3, 4, 7 and 8 of the TBT Agreement.

<sup>689</sup> The recitals of the TBT Agreement are equivalent to Preamble. *Appellate Body- US- Shrimps*, WT/DS58/AB/R ( §§129-131).

<sup>690</sup> See, Recital 4 of the TBT Agreement.

<sup>691</sup> *EC-Sardines* WT/DS231/AB/R.

The TBT Agreement, although not prohibiting altogether the development of national standards, provides “*systematic layers of obligations and rights*”<sup>692</sup> in order to establish and ensure that standards are implemented without putting into place an NTB to international free trade.

A number of obligations in the TBT Agreement become relevant in an endeavor to address the main concerns related to the interplay between standardization, competition and international trade. Accordingly, these WTO principles concerning standard-setting constitute a starting point to establish what good governance principles should be relied on under competition rules.<sup>693</sup>

Annex III of the TBT Agreement is the Code of Good Practice for the Preparation, Adoption and Application of Standards (the “Code of Good Practice”). In accepting the TBT Agreement, WTO Members agree to guarantee that their central government standardizing bodies agree to comply with this Code of Good Practice and to take reasonable measures to ensure that local government, non-governmental and regional standardizing bodies do the same. The Code of Good Practice sets the substantive principles with respect to the preparation, adoption, and application of standards by standardizing bodies. It represents a point of departure to protect competition indirectly, by regulating and upholding the good governance and the integrity of procedural rules of the standard-setting process. As such, it provides guidance for the standard-setting process and, in particular, addresses process qualities that are important for the development of international standards. In order “*to improve the quality of international standards and to ensure the effective application of the Agreement, [...] there was a need to develop principles concerning transparency, openness, impartiality and consensus,*

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<sup>692</sup> Yogesh Pai, *The International Dimension of Proprietary Technical Standards: Through the Lens of Trade, Competition Law and Developing Countries*, SOCIAL SCIENCE RESEARCH NETWORK (2012), p. 45.

<sup>693</sup> Bjorn Lundqvist, *Competition Law as the Limit to Standard-Setting*, in JOSEF DREXL AND FABIANA DI PORTO (ED), *COMPETITION LAW AS REGULATION* (EDWARD ELGAR, 2015). See Articles 2 and 5 and Annex III to the WTO/TBT Agreement and connected decisions. It is noteworthy that TBT Agreement is reviewed annually and triennially and the reviews become central interpretations of the document. Under the TBT, decisions and recommendations have been issued that define criteria outlining the principles of an international standards-developing organization. These decisions/principles stemmed from the Second Triennial Review (May 23, 2002) and stipulate that the WTO-TBT criteria for an “*international standards developing organization*” are: transparency, openness, impartiality, effectiveness, relevance, consensus, use of performance-based standards, coherence, due process and technical assistance. See WTO, Decisions and Recommendations adopted by the WTO Committee on Technical Barriers to Trade since January 1, 1995, G/TBT/1/Rev.10, 46, 48.

*relevance and effectiveness, coherence and developing countries' interests that would clarify and strengthen the concept of international standards under the Agreement and contribute to the advancement of its objectives".*<sup>694</sup>

The Code of Good Practice sets out substantive criteria, identifying the principles of an international standard-developing organization. The rules set out in the Code of Good Practice, given that “*standards come in such a multitude of different forms*”, “*must take into consideration the aim and ambit of the proposed standards and the market being regulated*”.<sup>695</sup> Nonetheless, the code does not address the issue of IP incorporated into standards.<sup>696</sup>

It is important to consider whether the TBT Agreement has the ability to address the international dimension of competition policy and IP rights in standardization.

As seen, given that SEPs amount to the specifications and technological requirements of products, standards could maintain a *de facto* discrimination against foreign products. This is especially the case where the IPR holder violates FRAND obligations or where the terms and conditions of licensing are not reasonable for stakeholders in third countries or implement anti-competitive policies. Whilst the TBT Agreement undeniably incorporates a series of relevant principles and provisions in this regard, the application of these principles and provisions to standardization is not explicit. The adequacy of the TBT framework

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<sup>694</sup> Committee on Technical Barriers to Trade, Second Triennial Review of the Operation and Implementation of the Agreement on Technical Barriers to Trade, 20, G/TBT/9 (Nov. 13, 2000).

<sup>695</sup> BJORN LUNDQVIST, COMPETITION LAW AS THE LIMIT TO STANDARD-SETTING, IN JOSEF DREXL, FABIANA DI PORTO (ED), COMPETITION LAW AS REGULATION (EDWARD ELGAR, 2015), p. 35.

<sup>696</sup> See Christopher S. Gibson, *Globalization and the technology standards game: Balancing concerns of protectionism and intellectual property in international standards*, 22 BERKELEY TECHNOLOGY LAW JOURNAL 4 (2007), pp. 1403-1484. The author has elaborately dealt on the limitation of the code of good practices and has suggested amending the code to take into account concerns regarding intellectual property in technical standards. According to the author: “*The new policy would thus send a strong signal to standard-setting organizations that do not already have such rules in place to address IP rights. At the same time, it would also send a message to countries like China, reinforcing their need to participate more fully in global standard setting activities, rather than object regarding the burden of IP rights in existing international standards. By providing China with incentive to become involved in the standards-setting process so that it could state potential objections (concerning IP rights or other matters) during the development cycle, the new policy would change the calculus that led China to develop and mandate the WAPI standard unilaterally, in a manner that potentially violated TBT Agreement obligations.*” *Id.*, p. 1483.

to address issues deriving from IPRs in standardization should therefore be assessed.

Against this background, the WTO provisions could be triggered in at least three circumstances:<sup>697</sup>

- I. **Discrimination against like products from other countries by means of standards.**

The principle of non-discrimination in the adoption and application of technical regulations and standards is a key provision. Article 2(1) of the TBT Agreement extends the rules on national treatment and MFN treatment in relation to technical regulations to the like products imported from the territory of any other WTO member, stating that “*Members shall ensure that in respect of technical regulations, products imported from the territory of any Member shall be accorded treatment no less favorable than that accorded to like products of national origin and to like products originating in any other country*” (Article 2(1) of the TBT Agreement).

The Code of Good Practice also extends the same standards to be applied by standardizing bodies in regard to standards: “*In respect of standards, the standardizing body shall accord treatment to products originating in the territory of any other Member of the WTO no less favorable than that accorded to like products of national origin and to like products originating in any other country.*”

Moreover, Article 2.2 of the TBT Agreement requires members to “*ensure that technical regulations are not prepared, adopted or applied with a view to or with the effect of creating unnecessary obstacles to international trade*”. The trade restrictive effect of technical regulations shall be assessed against the principles of necessity and proportionality. Consequently, technical regulations “*shall not be more trade-restrictive than necessary to fulfill a legitimate objective*”. The TBT Agreement applies the requirement of “least trade restrictiveness” for the adoption of technical regulations and standards regardless of the violation of the

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<sup>697</sup> Yogesh Pai, *The International Dimension of Proprietary Technical Standards: Through the Lens of Trade, Competition Law and Developing Countries*, SOCIAL SCIENCE RESEARCH NETWORK (2012), p. 51

national or MFN treatment. It also provides a non-exhaustive list of legitimate objectives including “*national security requirements; the prevention of deceptive practices; protection of human health or safety animal or plant life or health, or the environment*”.

By the same token, the Code of Good Practice mandates that the “*standardizing body shall ensure that standards are not prepared, adopted or applied with a view to, or with the effect of, creating unnecessary obstacles to international trade*”.

In case of discrimination against like products from other countries by means of standards, the recalled TBT Agreement’s principles of non-discrimination, necessity and proportionality, and the Code of conduct on the adoption and application of standards could come into play, by virtue of the exception under Article XX(d) of the GATT that allows nations to enforce IP rights.<sup>698</sup> However, the WTO case law does not clarify where measures violating the TBT Agreement could be justified under Article XX of the GATT.

## **II. SSOs protectionist practices backed by governmental policies. .**

Articles 3 and 4 of the TBT Agreement set out the responsibility of states for technical regulations and standards adopted by non-state actors.

Specifically, countries are entirely accountable for the compliance with the provisions relating to the preparation, adoption and application of technical regulations. They should also take “*reasonable measures as may be available to them to ensure that local government and nongovernmental standardizing bodies within their territories*” comply with these provisions. Regarding standards, countries are required to ensure that central government standardizing bodies accept and comply with the Code of Good Practice for the Preparation, Adoption and Application of Standards in Annex 3 to the Agreement. Moreover, the TBT Agreement includes best endeavor obligations on countries and to ensure that

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<sup>698</sup> WTO, *European Communities - Measures Affecting Asbestos And Asbestos-Containing Products*, Report of the Appellate Body, WT/DS135/AB/R, March 12, 2001, para 83.

local government and nongovernmental standardizing bodies, and regional standardizing bodies of which they or one or more bodies within their territories are members, accept and comply with the Code of Good Practice. Lastly, countries should not take measures that have the effect, directly or indirectly, of requiring or encouraging such standardizing bodies to act in a manner inconsistent with the Code of Good Practice.<sup>699</sup>

The WTO jurisprudence does not offer any interpretative support on the scope of Article 4 of the TBT Agreement with regards to the responsibility of governments in relation to SSO's practices and policies. The TBT Committee has set out the principles of transparency, openness, impartiality and consensus, effectiveness and relevance, and coherence, partially addressing the concerns of developing countries.<sup>700</sup> However, it appears that the responsibility of countries with respect to SSOs is not sufficient to allow third countries to challenge trade restrictive implications of standards affected by IP rights.<sup>701</sup>

### **III. WTO provisions could be triggered where preference to international standards is not given.**

Article 2(4) of the TBT Agreement specifically provides that “[w]here technical regulations are required and relevant international standards exist or their completion is imminent, Members shall use them, or the relevant parts of them, as a basis for their technical regulations except when such international standards or relevant parts would be an ineffective or inappropriate means for the fulfillment of the legitimate objectives pursued [...]”.

Indeed, in the *EC-Sardines* case, the Appellate Body expansively construed Article 2.4 of the TBT Agreement on harmonization and preference to international standards. The international standards seem to be better suited to overcoming the interests of solely domestic IPR holders and are to be understood

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<sup>699</sup> According to Article 4 of the TBT Agreement “the obligations of Members with respect to compliance of standardizing bodies with the provisions of the Code of Good Practice shall apply irrespective of whether or not a standardizing body has accepted the Code of Good Practice”.

<sup>700</sup> *European Communities - Trade Description of sardines*, Report of the Panel, WT/DS231/R, May 29, 2002, para 7.91.

<sup>701</sup> Yogesh Pai, *The International Dimension of Proprietary Technical Standards: Through the Lens of Trade, Competition Law and Developing Countries*, SOCIAL SCIENCE RESEARCH NETWORK (2012), p. 52.

as “a basis for” technical regulations “when used as the principal constituent or fundamental principle for the purpose of enacting the technical regulation.”<sup>702</sup> Specifically, the TBT Agreement requires countries to employ international standards, provided they exist or their completion is about to happen, as a foundation for national technical regulations.

Exceptions are foreseen when such international standards would be an ineffective or inappropriate means for the success of the legitimate purposes pursued under national technical regulations. The same exception applies to standards adopted by standardizing bodies where international standards exist or their completion is forthcoming. The exception is based on an insufficient level of protection (Annex 3 (F) of the TBT Agreement).<sup>703</sup>

More significantly, an international standard under the connotation of Article 2.4 has to be adopted by an international standardizing body (and not necessarily any organization) whose membership is open to all pertinent bodies of at least all WTO member countries.

#### **4.1.1. THE TERMS OF “INTERNATIONAL STANDARDS” WITHIN THE WTO REGIME AND DIVERGING REGULATORY APPROACHES TO STANDARDIZATION**

A recurrent issue for trade policy makers which has resulted in great tension between China and other WTO members, especially the US, concerns the term of “*relevant international standards*” within the meaning of the TBT Agreement. Indeed, although, as seen, Article 2.4 of the TBT Agreement requires WTO members to use “*relevant international standards as a basis for*” settling national standards,<sup>704</sup> it does not define the term of “international standards”, the definition of which has been far from unequivocal and has failed to result in legal certainty.

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<sup>702</sup> WTO, European Communities - Trade Description of Sardines, WT/15S231/AB/R, Sept. 2002, Report of the Appellate Body, paras 240-245.

<sup>703</sup> Article 2.6 of the TBT Agreement also imposes a best endeavor clause that “[...]ith a view to harmonizing technical regulations on as wide a basis as possible, Members shall play a full part, within the limits of their resources, in the preparation by appropriate international standardizing bodies of international standards for products for which they either have adopted, or expect to adopt, technical regulations.”

<sup>704</sup> The TBT Agreement, Article 2.4 (technical regulations), Article 4.1 and Annex 3 § F (standards).



The tension springs from two main schools of thought. One, which China embraces, assumes that only formal inter-governmental institutions like the ISO, the ITU and the IEC can set international standards triggering TBT obligations. The other, which is in line with the view taken by the US Government, holds that the term of “international standards” falling under the TBT Agreement also encompasses standards that are rubber-stamped by industry-led consortia or by NGOs, such as the Institute of Electrical and Electronic Engineers (the “IEEE”).<sup>705</sup>

Indeed, absent a definition of “international standards”, it is far from unequivocal which standard-setting organizations can legitimately set technical standards covered by the scope of Article 2.4 of the TBT Agreement.<sup>706</sup>

The identification of SSOs whose outcomes can be accepted as international standards triggering TBT obligation is crucial as the Appellate Body in the *US-Tuna II (Mexico)* case clarified the “characteristics of the entity setting a standard” that qualify a standard as an “international standard”.<sup>707</sup> It follows that a standard can amount to an “international standard” within the meaning of the TBT Agreement only if it is adopted by an entity that itself qualifies as an “international standardizing body”.<sup>708</sup> Accordingly, the qualification as an “international standard” is strictly dependent on the features of the standardization entity that adopt the alleged international standards itself.

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<sup>705</sup> Dan Breznitz, Michael Murphree, *The Rise of China in Technology Standards: New Norms in Old Institutions*, pp. 12-13.

<sup>706</sup> Robert Howse, *A New Device for Creating International Legal Normativity: The WTO Technical Barriers to Trade Agreement and “International Standards”*, in CHRISTIAN JOERGES, ERNST-ULRICH PETERSMANN (EDS.), *CONSTITUTIONALISM, MULTILEVEL TRADE GOVERNANCE AND SOCIAL REGULATION* (OXFORD: HART PUBLISHING, 2006), pp. 392-393. As highlighted by Han-Wei Liu, the issue has been raised on various occasions since the late 1990s: e.g., Committee on Technical Barriers to Trade, *U.S. Paper on the First Triennial Review*, G/TBT/W/40 (Apr. 25, 1997); Committee on Technical Barriers to Trade, *Issues Concerning International Standards and International Standardization Bodies: Submission from Japan*, G/TBT/W/113 (Jun. 15, 1999); and Committee on Technical Barriers to Trade, *On the Conditions for the Acceptance and Use of International Standards in the Context of the WTO Technical Barriers to Trade Agreement: Note from the European Community*, G/TBT/W/87/Rev.1 (Sept. 30, 1999). See Han-Wei Liu, *International Standards in Flux: A Balkanized ICT Standard-Setting Paradigm and Its Implications for the WTO*, 17 *JOURNAL OF INTERNATIONAL ECONOMIC LAW* 3 (2014), p. 20.

<sup>707</sup> *Ibid.*

<sup>708</sup> Appellate Body Report, *United States-Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products*, WT/DS381/R, adopted Jun. 13, 2012 (hereinafter Appellate Body Report, *US-Tuna II (Mexico)*), para 356.

#### 4.1.2. THE RISE OF REGIONAL STANDARD-SETTING ORGANIZATIONS AND INDUSTRY-LED CONSORTIA

The terminology issue is further confused by the increasing multiple actors in the ICT standard-setting panorama, which exacerbates the difficulty in identifying a definition for the term “international standardization body”. Notably, the debate on the term of “international standards” recently increased again following the vagueness created by the shift from a static ICT standard-setting landscape dominated by three formal institutions, the ITU, the ISO and the IEC,<sup>709</sup> to a fragmented one, marked by the rise of regional standard-setting organizations and industry-led consortia, this shift altered the former monopoly symbolized by the ITU-ISO-IEC group.<sup>710</sup> This paradigm transformation in the ICT standards’ world was driven by a number of elements.

1. First the privatization of the telecoms sectors in the 1980s and 1990s<sup>711</sup> forced incumbents to compete with several new private carriers, triggering intensive transnational competition and greater R&D investments.<sup>712</sup> The transnational scope of the expanding telecoms industry thus generated substantial incentives towards standards’ development to enable interconnection and interoperability across networks,<sup>713</sup> making the concept of national standards archaic.<sup>714</sup>

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<sup>709</sup> Kai Jakobs, ICT Standardisation: Coordinating the Diversity in Innovation in NGN - Future Network and Services: First ITU-T Kaleidoscope Academic Conference (IEEE 2008), p. 119.

<sup>710</sup> Tineke M. Egyedi, *Institutional Dilemma in ICT Standardization: Coordinating the Diffusion of Technology*, in KAI JAKOBS (EDS.), INFORMATION TECHNOLOGY STANDARDS AND STANDARDIZATION: A GLOBAL PERSPECTIVE (HERSHEY, PENNSYLVANIA: IGI GLOBAL BOOK, 2000), p. 52.

<sup>711</sup> Wei Li, Lixin Colin Xu, *The Impact of Privatization and Competition in the Telecommunications Sector Around the World*, 47 JOURNAL OF LAW AND ECONOMICS 395 (2004), p. 396, remarking on the growing percentage of privately-owned telecoms operators worldwide.

<sup>712</sup> Philipp Genschel, *How Fragmentation Can Improve Co-ordination: Setting Standards in International Telecommunications*, 18 ORGANIZATION STUDIES 603 (1997), p. 605.

<sup>713</sup> Krishna Jayakar, *Globalization and Legitimacy of International Telecommunications Standard-Setting Organizations*, 5 INDIANA JOURNAL OF GLOBAL LEGAL STUDIES 711 (1998), p. 723.

<sup>714</sup> Andrew Updegrove, *ICT Standard Setting Today: A System Under Stress*, 6 CONSORTIUM STANDARDS BULLETIN 4 (Apr. 2007), noting that due to the global nature of trade, travel, production and utilization, “[i]n ICT in particular, the concept of a national standard has become archaic”).

- II. Secondly, the constant flow of innovation in the computer and semi-conductor sectors also deeply affected standardization.<sup>715</sup> Notably, the end of IBM's *de facto* standards dominance - which had until the 1970s enjoyed an uncontested monopoly, absent any other commercially available non-proprietary network system - caused by the emergence of new firms.<sup>716</sup> Also the shift from analog to digital,<sup>717</sup> These factors led to the incorporation of different services and applications into telecoms networks. In this context, many standardization initiatives were launched, in order to ensure what new market participants could advantage of new business opportunities in the global supply chain, and to ensure interoperability between heterogeneous ICT devices.<sup>718</sup>
- III. A third aspect that contributed to revolutionizing the standard-setting landscape was the emergence of regional standardization bodies. At the EU level, for instance, the rise of regional SSOs took place in response to pressure exerted on the ITU-ISO-IES system, which proved unable to promote deeper cooperation with industry stakeholders.<sup>719</sup>

As remarked in a chapter of the present study, the European Commission greatly contributed to the rise of regional standard-setting organizations, introducing in 1985 a novel regulatory model, labeled the "New Approach". This New Approach was primarily aimed at further harmonization, overcoming the detrimental consequences on trade caused by diverging national standards developed by various Member States. Pursuant to the

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<sup>715</sup> TIMOTHY SCHOECHLE, *STANDARDIZATION AND DIGITAL ENCLOSURE: THE PRIVATIZATION OF STANDARDS, KNOWLEDGE, AND POLICY IN THE AGE OF GLOBAL INFORMATION TECHNOLOGY* (NEW YORK: INFORMATION SCIENCE REFERENCE, 2009), p. 33.

<sup>716</sup> JANET ABBATE, *INVENTING THE INTERNET* (CAMBRIDGE, MA: MIT PRESS, 1999), p.148.

<sup>717</sup> JAYRAJ UGARKAR, *THE ESSENTIALS OF TELECOMMUNICATIONS MANAGEMENT: A SIMPLE GUIDE TO UNDERSTANDING A COMPLEX INDUSTRY* (BLOOMINGTON, INDIANA: AUTHORHOUSE, 2008), p.170.

<sup>718</sup> On how technological format changes impacted standardization and telecoms policy at large, see STUART MINOR BENJAMIN ET AL., *TELECOMMUNICATIONS LAW AND POLICY*, 3RD ED. (CAROLINA ACADEMIC PRESS, 2012), pp. 35-36.

<sup>719</sup> Tineke M. Egyedi, *INSTITUTIONAL DILEMMA IN ICT STANDARDIZATION: COORDINATING THE DIFFUSION OF TECHNOLOGY*, IN KAI JAKOBS (EDS.), *INFORMATION TECHNOLOGY STANDARDS AND STANDARDIZATION: A GLOBAL PERSPECTIVE* (HERSHEY, PENNSYLVANIA: IGI GLOBAL BOOK, 2000), pp. 52-53.

New Approach framework, once national legislation requires a technical standard in order to be implemented has been drafted, a parallel European standard-setting initiative is triggered by one of the delegated three European standardization bodies, namely, the CEN, the CENELEC, and the ETSI. An observer of the European Commission participates, in this standard-developing process. The resulting standard provides a “safe harbor” for regulated entities in that, despite the fact that compliance with European standards is merely voluntary, proof of conformity results in a presumption of compliance with the equivalent law.<sup>720</sup>

- IV. Finally, another factor that has changed the standardization panorama is the appearance of industry-led consortia as standard-setting entities. They are generally described as loose alliances of firms, organizations, and individuals, which are funded by membership fees or for technical and commercial reasons,<sup>721</sup> and have a different legal forms.<sup>722</sup> Consortia standardize by operating outside the formal governmental standardization network, which has caused some scholars to describe them as “grey” SSOs.<sup>723</sup>

The emergence of industry-led consortia has been predominant in the US system, where the progressive deregulation and liberalization of national telecoms and product markets, stimulated, among other factors, by the country’s WTO accession, facilitated private-sector involvement in developing standards. This consequently promoted the establishment of standard-developing consortia

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<sup>720</sup> Council Resolution (EC) No 85/C 136/01 of May 7, 1985, O.J. (C 136), 3 (“[n]ational authorities are obliged to recognize that products manufactured in conformity with harmonized standards (or, provisionally, with national standards) are presumed to conform to the “essential requirements” established by the Directive. This signifies that the producer has the choice of not manufacturing in conformity with the standards but that in this event he has an obligation to prove that his products conform to the essential requirements of the Directive.”).

<sup>721</sup> Richard Hawkins, *The Rise of Consortia in the Information and Communication Technology Industries: Emerging Implications for Policy*, 23 TELECOMMUNICATIONS POLICY 159 (1999), p. 161.

<sup>722</sup> For an analysis of the several legal formalities characterizing different consortia, see Brad Biddle et al., *The Expanding Role and Importance of Standards in the Information and Communications Technology Industry*, 52 JURIMETRICS 177 (2012), pp. 185-91.

<sup>723</sup> Daniel Benoliel, *Technological Standards, Inc.: Rethinking Cyberspace Regulatory Epistemology*, 92 CALIFORNIA LAW REVIEW 1069 (2004), p. 1110.

by ICT product developers, outside the traditional international standards framework centered on the ITU-ISO-IEC triad.

This paradigm revolution was prompted and supported by legislative measures. In particular, in 1984, the US legislator enacted the National Cooperative Research Act, which decreased regulatory hurdles to the growth of consortia.<sup>724</sup> Along the same lines, in 1993 the National Cooperative Research and Production Act was adopted,<sup>725</sup> which encouraged R&D investment by ensuring that the outcome of a development or production venture or of joint research should be assessed according to the “rule of reason” criterion. The National Cooperative Research and Production Act also provides limited shield from antitrust liability to standard-developing consortia that comply with the notification procedures set out in the act.<sup>726</sup>

China’s approach echoes the EU’s centralized one, which advocates for the designation of specific SSOs, namely the ITU, the ISO and the IEC, as “international standardization bodies” for the purposes of the TBT Agreement. With regards to the ICT sector, the EU in its proposal to the which Negotiating Group on Market Access expressed the view that alternative standardization documents to those adopted by the ITU-ISO-IEC should not be construed as parts of the WTO and TBT regime.<sup>727</sup> At the most, they could be allowed after approval by the ITU-ISO-IEC, provided that they satisfy certain requirements concerning, *inter alia*, the scope of products, timing, licensing and disclosure.<sup>728</sup>

However, it does not seem plausible that the EU could possibly prevent access to local markets, for products based on standards set by industry-led consortia or other non-profit entities acting as SSOs. Indeed, it has been observed that “*under conditions of trade liberalization, products can be sold directly to*

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<sup>724</sup> National Cooperative Research Act of 1984, Pub. L. No. 98-462, 98 Stat. 1815.

<sup>725</sup> National Cooperative Research and Production Act of 1993, Pub. L. No. 103-42, 107 Stat. 117. See also, The Standards Development Organization Advancement Act of 2004, Pub. L. No. 108-237, 118 Stat. 661 (further extending the provisions of the NCRPA to standards development organizations).

<sup>726</sup> U.S. Department of Justice- Antitrust Division Manual 11-29 (2008).

<sup>727</sup> WTO Negotiating Group on Market Access, Communication from the European Union: Negotiating Text: Understanding on the Interpretation of the Agreement on Technical Barriers to Trade as Applied to Trade in Electronics, at 3, TN/MA/W/129, Dec. 7, 2009.

<sup>728</sup> For an in-depth analysis, Han-Wei Liu, *International Standards in Flux: A Balkanized ICT Standard-Setting Paradigm and Its Implications for the WTO*, 17 JOURNAL OF INTERNATIONAL ECONOMIC LAW 3 (2014), p. 21.

*European producers and consumers that incorporate consortia-based standards, resulting in ad hoc recognition of de facto standards before de jure standards can be complete*". It follows that "[U]nder conditions of trade liberalization", to block access to products incorporating consortia standards, "would be difficult as a practical matter and politically controversial for EU regulators".<sup>729</sup>

From a global geopolitical and economic perspective, the EU's preference for a standardization regime dominated by the traditional international SSOs is not surprising given the US's significant lead in the ICT sector, which is home to most ICT industry-led consortia.<sup>730</sup> The EU attempts to counter the US's dominance in standardization by maintaining institutional links with the ITU-ISO-IEC triad through its regional SSOs. Indeed, the European standard-setting organizations have entered into a formal commitment to cooperate with ISO and IEC,<sup>731</sup> as part of a framework of coordination of standard-setting that orchestrates the work of national, European and international standard-developing organizations.<sup>732</sup> In this regard, the words used in Council Resolution 2000/C 141/01 are extremely indicative and enlightening, emphasizing "*the role of European standardization as a means to meet specific needs of the European market, to serve the public interest, in particular in support of European policies, to provide standards in new domains, to implement international standards in a coherent way and, while respecting the independence of national standards bodies, to facilitate mutual understanding between Member States' standards bodies and the preparation of coherent positions in international standardization*". This

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<sup>729</sup> Winn, pp. 207, 208. The WTO recognizes certain general exceptions to the obligation to permit trade with other members in Article XX of the WTO Agreement, which, inter alia, provides: "Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures: . . . (b) necessary to protect human, animal or plant life or health; . . . (d) necessary to secure compliance with laws or regulations which are not inconsistent with the provisions of this Agreement . . . [or] (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption [...]". General Agreement on Tariffs and Trade, Art. XX, Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194.

<sup>730</sup> Han-Wei Liu, *International Standards in Flux: A Balkanized ICT Standard-Setting Paradigm and Its Implications for the WTO*, 17 JOURNAL OF INTERNATIONAL ECONOMIC LAW 3 (2014), p. 22.

<sup>731</sup> International Organization for Standardization (ISO) & European Committee for Standardization (CEN), Agreement on technical co-operation between ISO and CEN (called the Vienna Agreement); see Han-Wei Liu, *International Standards in Flux: A Balkanized ICT Standard-Setting Paradigm and Its Implications for the WTO*, 17 JOURNAL OF INTERNATIONAL ECONOMIC LAW 3 (2014), pp. 22-23.

<sup>732</sup> See also Council Resolution 2000/C 141/01, 2000 O.J. (C 141) 1, 3-4, para 10.

collaboration arguably allows the EU to influence the world's standardization process, with non-EU industry-led consortia's standards in a secondary role. Indeed, the US has harshly criticized the collaboration between traditional SSOs and EU regional SSOs, as it has perceived these collaboration mechanisms as a way in which the EU countries sponsor their own standards, making them globally accepted international standards .<sup>733</sup>

Concluding, the diverging regulatory approaches towards standardization of China, the EU and the US reflect the different institutional endowments and political and economic cultures of these three trading powers.<sup>734</sup>

Indeed, China's standardization is, still, a matter of State (and, as we have noted, sometimes even competition law enforcement is a matter of industrial policy).

The EU's approach to standardization seems to be aligned to its regulatory stance. It reflects what has been described as a "coordinated market economy" regulatory philosophy,<sup>735</sup> as it favors a hierarchical framework marked by government oversight.<sup>736</sup>

The US's approach to standardization is, in contrast, a more "*individualistic, market oriented*" one, as illustrated by the fact that the US's standard-setting organizations operate "*largely outside any form of government oversight and focus intensively on market conditions*".<sup>737</sup> The preference for informal standardization predominantly in the hands of the private sector reflects a regulatory approach falling within a "liberal market economy".<sup>738</sup> This regulatory policy for the

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<sup>733</sup> See TIM BÜTHE AND WALTER MATTLI, *THE NEW GLOBAL RULERS: THE PRIVATIZATION OF REGULATION IN THE WORLD ECONOMY* (PRINCETON: PRINCETON UNIVERSITY PRESS, 2011), p.158.

<sup>734</sup> Kenneth W. Abbot, *US-EU Dispute over Technical Barriers to Trade and the "Hushkit" Dispute*, in ERNST-ULRICH PETERSMANN AND MARK A. POLLACK (EDS.), *TRANSATLANTIC ECONOMIC DISPUTES: THE EU, THE US, AND THE WTO* (OXFORD: OXFORD UNIVERSITY PRESS, 2003), pp. 257; Jane K. Winn, *Governance of Global Mobile Money Networks: the Role of Technical Standards*, 8 WASHINGTON JOURNAL OF LAW, TECHNOLOGY AND ART 197 (2013), pp. 203-04.

<sup>735</sup> Jane K. Winn, *Globalization and Standards: The Logic of Two-Level Games*, JOURNAL OF LAW AND POLICY FOR THE INFORMATION SOCIETY (2009), p. 200.

<sup>736</sup> *Id.*, p. 201.

<sup>737</sup> *Id.*, p. 190.

<sup>738</sup> Jane K. Winn, *Globalization and Standards: The Logic of Two-Level Games*, JOURNAL OF LAW AND POLICY FOR THE INFORMATION SOCIETY (2009), pp. 189-190.

management of technical standards puts a greater emphasis on the market incentives, rather than on central coordination of economic activity.<sup>739</sup>

These diverging stances exacerbate the differences between the US, and the EU and arguably China's approach to standards' development, while at the same time explain the preferences of different countries for different standard-setting paradigms. It has been correctly observed that reconciling these differences would hardly be attainable, as it would entail institutional changes that are not likely to take place. Indeed "*these domestic and regional institutional standard-setting systems [...] can be self-reinforcing and are likely to remain in place over time due to path dependence*".<sup>740</sup> This can, as scholar Bütte and Mattli emphasize, create "*powerful organizational and social interests that vehemently oppose any radical overhaul of the domestic institutional systems bound to undermine their power*".<sup>741</sup> In this vein, it has been observed that "*one might expect the persistence of this divergence between ... major trading powers for an extended period of time.*" Hence, "*One may wonder, then, what the WTO adjudicators' preference might be. When a dispute touches on new arenas that fall within the purview of those consortia, how would WTO adjudicators seat these new players under the TBT regime?*".<sup>742</sup>

The answer is far from certain and presumes an examination of relevant case law applied to ICT standardization.

#### **4.1.3. WTO JURISPRUDENCE ON TECHNICAL STANDARDS**

Having ascertained the difficulties in defining what amounts to an "international standard" and what constitutes an "international standardization body" within the TBT Agreement, it is important to seek guidance in the WTO case law.

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<sup>739</sup> *Id.*, p. 200.

<sup>740</sup> Han-Wei Liu, *International Standards in Flux: A Balkanized ICT Standard-Setting Paradigm and Its Implications for the WTO*, 17 JOURNAL OF INTERNATIONAL ECONOMIC LAW 3 (2014), p. 24.

<sup>741</sup> TIM BÜTHE AND WALTER MATTLI, *THE NEW GLOBAL RULERS: THE PRIVATIZATION OF REGULATION IN THE WORLD ECONOMY* (PRINCETON: PRINCETON UNIVERSITY PRESS, 2011), p. 219.

<sup>742</sup> Han-Wei Liu, *International Standards in Flux: A Balkanized ICT Standard-Setting Paradigm and Its Implications for the WTO*, 17 JOURNAL OF INTERNATIONAL ECONOMIC LAW 3 (2014), p. 24.



For this purpose, some passages of the reasoning of the WTO Appellate Body (“AB”) in the *US-Tuna II (Mexico)* case<sup>743</sup> can help overcome some of the ambiguities detected in the determination of certain requirements for “international standards” pursuant to the TBT Agreement.

Indeed, the AB attempted to shed some light on the definition, drawing on the differences in terminology used in different legal documents. The AB remarked that, in the absence of a specific definition, there is a discrepancy as to what sort of legal entity is suitable to approve an international standard in the 1991 ISO/IEC Guide 2: (the “ISO/IEC Guide 2”), to which Annex 1 to the TBT Agreement makes reference, and Annexes 1.2 and 1.4 of the TBT Agreement. The ISO/IEC Guide 2 defines an “international standard” as a “*standard that is adopted by an international standardizing/standards organization and made available to the public*”.<sup>744</sup> It thus uses the term “*organizations*” in relation to international standards. Conversely, Annexes 1.2 and 1.4 of the TBT Agreement, use the terms “*body*” and “*international body or system*”, respectively.<sup>745</sup> In this respect, the AB further elucidated that the term “*body*” is to be construed as a “*legal or administrative entity that has specific tasks and composition*”. Differently, the term of “*organization*” is to be interpreted as a “*body that is based on the membership of other bodies or individuals and has an established constitution and its own administration*”.<sup>746</sup>

Using this terminological analysis as a point of departure, the AB inferred that, within the meaning of the TBT Agreement, “*international standardizing bodies*”, “*may, but not necessarily, be organizations*”.<sup>747</sup> Hence, it has been observed by the literature that this interpretation “*would appear to allow a wide range of consortia to pass the formality test, regardless of which model these SSOs choose*”.<sup>748</sup> From these considerations, it would thus appear possible that the AB

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<sup>743</sup> Appellate Body Report, *United States-Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products*, WT/DS381/R, adopted June 13, 2012.

<sup>744</sup> The TBT Agreement, Annex 1.

<sup>745</sup> Appellate Body Report, *US-Tuna II (Mexico)*, para 356.

<sup>746</sup> *Id.*, para 355.

<sup>747</sup> *Id.*, para 356.

<sup>748</sup> Han-Wei Liu, *International Standards in Flux: A Balkanized ICT Standard-Setting Paradigm and Its Implications for the WTO*, 17 JOURNAL OF INTERNATIONAL ECONOMIC LAW 3 (2014), p. 33.

would be inclined to accept as falling within the scope of the TBT Agreement also standards developed by consortia and non-profit organizations.

Having clarified the terminology issues, in *US-Tuna II (Mexico)* the AB specified that from a substantive perspective, the qualification of an international standardizing body in the TBT-sense is dependent on its membership being open to the “*relevant bodies of at least all Members*”<sup>749</sup> It defines the adjective “*open*” as “*accessible or available without hindrance*”, “*not confined or limited to a few*”, “*generally accessible or available*”,<sup>750</sup> and ultimately, “*non-discriminatory*” to the relevant bodies of some WTO members as compared to other members.<sup>751</sup> Concluding, the AB held that for a body to constitute an “*international standardization body*”, it must be engaged in “*recognized activities in standardization*”.<sup>752</sup> The AB interpreted the meaning of the term “*recognize*” as “*acknowledge the existence, legality, or validity of, especially by formal approval or sanction; accord notice or attention to; treat as worthy of consideration*”.<sup>753</sup> It asserted that the scope of the term “*recognize*” spans from “*a factual end (acknowledgement of the existence of something) to a normative end (acknowledgement of the validity or legality of something)*”.<sup>754</sup>

In light of these observations, it appears that formal as well as substantive issues might impede the AB applying the TBT Agreement also to standards developed by consortia and non-profit organizations.

## 4.2. THE TRIPS AGREEMENT

The TRIPs Agreement one of the multilateral treaties adopted at the end of the Uruguay Round in 1994 represents an effort to overcome the dissimilarities in the manner in which member states protect IPRs, in order to bring them under common international rules. It sets the minimum requirements that the laws of the member states must satisfy in order to protect IP, including copyright, patents, trademarks, geographical indications, and industrial design.

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<sup>749</sup> Appellate Body Report, *US-Tuna II (Mexico)*, para 358.

<sup>750</sup> *Id.*, para 364.

<sup>751</sup> *Id.*, para 375.

<sup>752</sup> *Id.*, para 376.

<sup>753</sup> *Id.*, para 361.

<sup>754</sup> *Ibid.* See also *Id.*, paras 362 and 376.

The TRIPs Agreement sets out the “minimum standards” that WTO member states should guarantee in order to protect IPRs.<sup>755</sup> Accordingly, measures addressing the issues raised by IPRs in standards can be adopted as long as they are compatible with the TRIPS Agreement.<sup>756</sup>

The nondiscrimination principle plays a central role in the TRIPs Agreement. Article 3 of the TRIPs Agreement establishes the “National Treatment” principle, according to which locals and foreigners should be treated equally. It is a principle that is not only found in the other WTO multilateral agreements (GATT and GATS) but even in those WIPO international agreements adopted before the WTO was created and recalled in Article 2 of the TRIPs Agreement (the “Berne Convention” and the “Paris Convention”).<sup>757</sup>

Article 8 of the TRIPs Agreement provides that members may adopt measures necessary to protect public health and nutrition and to promote the public interest in sectors of vital importance to their socio-economic and technological development. The article further identifies the need for appropriate measures to prevent abuse of IPRs by rights’ holders as well as anticompetitive conduct and practices impeding international trade. In any case, the measures adopted by the members under Article 8 should be consistent with the provisions of the TRIPS Agreement.

The key principles under the TRIPS Agreement relevant to the concerns raised by IPRs in standardization concern: (i) the adoption of exceptions to rights conferred by IPRs (Article 30); (ii) the use of compulsory licensing (Article 31), (iii) the prevention of anticompetitive conduct in contractual licensing and abuse of IPRs (under Article 8, along with Article 40); (iv) provisions concerning the enforcement of IPRs (Article 41); and (v) injunctions (Article 44). These principles are examined below.

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<sup>755</sup> On the TRIPs Agreement, see DANIEL J. GERVAIS, *THE TRIPS AGREEMENT: DRAFTING HISTORY AND ANALYSIS* (SWEET & MAXWELL, 2003); Giuseppe Di Vita, *The TRIPs agreement and technological innovation*, 35 *JOURNAL OF POLICY MODELING* 6 (2013), pp. 964-977.

<sup>756</sup> Specifically, on China’s participation in the WTO Agreement, see Paolo Davide Farah, Elena Cima, *China’s Participation in the World Trade Organization: Trade in Goods, Services, Intellectual Property Rights and Transparency Issues*, in LOPEZ-TARRUELLA MARTINEZ, AURELIO (ED) *EL COMERCIO CON CHINA. OPORTUNIDADES EMPRESARIALES, INCERTIDUMBRES JURÍDICAS* (TIRANT LE BLANCH, 2010), p. 101.

<sup>757</sup> *Ibid.*

- I. **Article 30 of the TRIPS Agreement** (“Exceptions to Rights Conferred”). Article 30 establishes the requirements that should be cumulatively satisfied in order to adopt exceptions to rights conferred by a patent. Indeed, “[m]embers may provide [...] exceptions to the exclusive rights conferred by a patent”, “provided that such exceptions”: (a) are “limited”; (b) do “not unreasonably conflict with a normal exploitation of the patent”: and (c) do “not unreasonably prejudice the legitimate interests of the patent owner, taking account of the legitimate interests of third parties” (Article 30 of the TRIPs Agreement). Yet, it is contentious whether a remuneration of rights (i) mechanism can be reconciled with Article 30, given that Article 31 provides for use without authorization on a case-by-case basis (“authorization of such use shall be considered on its individual merits”. Article 31(a)). It follows that “any derogation of Article 30 to imply as providing for a remuneration of rights scheme deflates the compulsory license scheme enshrined in Article 31”. As far as patents in standards are concerned, the most relevant benefit of an Article 30 exception is that the “solution is ex ante and will not be subject to the requirement of prior negotiations or would not require the use of such mechanism on a case by case basis. While a blanket exclusion from patent infringement of standardized technologies is bound to deviate from the incentives that the patent system aims to foster, a system of remuneration based license can be articulated within the Article 30 framework”.<sup>758</sup>
- II. **Use of compulsory licensing.** Article 31 of the TRIPs Agreement (“Other Use Without Authorization of the Right Holder”) allows countries to use compulsory licensing. Such use “may only be permitted if, prior to such use, the proposed user has made efforts to obtain authorization from the right holder on reasonable commercial terms and conditions and that such efforts have not

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<sup>758</sup> Yogesh Pai, *The International Dimension of Proprietary Technical Standards: Through the Lens of Trade, Competition Law and Developing Countries*, SOCIAL SCIENCE RESEARCH NETWORK (2012), p. 43.

*been successful within a reasonable period of time*” (Article 31(b) of the TRIPs Agreement). It follows that where the use of essential patents in standards is not made available on reasonable commercial terms and conditions within a reasonable period of time, countries can take measures to offset the impact of such practice.<sup>759</sup> It should be remarked that compulsory licensing plays an important role in enforcing competition regulations in the IP and standardization realm as, unlike the limited exceptions pursuant to Article 30 of the TRIPs Agreement, which act as an *ex post* solution, compulsory licensing provides a solution only after the findings of anticompetitive conduct, or failure to achieve licensing “*on reasonable commercial terms and conditions*” “*within a reasonable period of time*”.

Moreover, Article 31(h) requires that “*the right holder shall be paid adequate remuneration in the circumstances of each case, taking into account the economic value of the authorization.*” It is thus central to assess whether the terms “*fair and reasonable*” as understood under FRAND terms depart from the “*adequate remuneration*” requirement.

Furthermore, except as a remedy to antitrust violations, products produced under a compulsory license shall “*be authorized predominantly for the supply of the domestic market of the Member authorizing such use*”, thus creating an additional deterrent to use compulsory licensing as a mechanism to operationalize FRAND.<sup>760</sup>

- III. **Anticompetitive conduct in contractual licensing and abuse of IPRs.** Article 8(1) of the TRIPs Agreement provides that “[a]ppropriate measures, provided that they are consistent with the provisions of this Agreement, may be needed to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect the

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<sup>759</sup> *Ibid.*

<sup>760</sup> *Ibid.*

*international transfer of technology*". By the same token, Article 40 of the TRIPs Agreement indicates that "[m]embers agree that some licensing practices or conditions pertaining to intellectual property rights which restrain competition may have adverse effects on trade and may impede the transfer and dissemination of technology".

For instance, countries can make use of compulsory licensing as a tool to address licensing practice, as well as of penalties and regulatory actions to challenge anticompetitive licensing conduct. Nevertheless, neither Article 8 nor Article 40 makes clear whether there is room for a general relationship between IP and competition policy. Indeed, "[e]ven while countries can take measures under Articles 8 and 40, they are in the nature of comity principles and do not place any WTO member under a mandate to remedy a particular antitrust violation". Where IPRs that protect essential technologies and information are embodied into standards, the greater risk concerns potential IPR infringement claims against producers of goods and service providers. The current upsurge in litigation concerning patent infringement by standards' implementers, when FRAND commitments were provided highlights why limiting of remedies for infringement is crucial. Against this background, the provisions of the TRIPs Agreement on enforcement of IPRs can be applied in appropriate cases involving IPRs in standardization as the TRIPs Agreement provides for the minimal standards for adoption of procedures for the enforcement of IPRs. The standards on enforcement procedures are supported by relevant standards for fair and equitable procedures and safeguard against abuse.

- IV. **Enforcement of IPRs.** Article 41 of the TRIPs Agreement obliges members to "*ensure that enforcement procedures [...] are available under their law so as to permit effective action against any act of infringement of intellectual property rights [...], including expeditious remedies to prevent infringements and remedies which*

constitute a deterrent to further infringements”. Moreover, these procedures “shall be applied in such a manner as to avoid the creation of barriers to legitimate trade and to provide for safeguards against their abuse” (Article 41(1), and “shall be fair and equitable” and not “unnecessarily complicated or costly, or entail unreasonable time-limits or unwarranted delays” (Article 41(2)).

Decisions “shall be made available at least to the parties to the proceeding without undue delay” (Article 41(3)).

The implementation of the general principles of enforcement can operate as a safety net against abuse of the enforcement procedures. Therefore, the relevant question is whether or not an injunction should follow against standards practitioners after FRAND commitments by the patent holders. Since the terms barriers to “legitimate trade” and “safeguards against [procedural] abuse” have not been considered by any dispute settlement panel, the prospect of a FRAND exception to patent infringements is contentious.<sup>761</sup> It should nonetheless be remarked that provisions of the TRIPs Agreement on IPR enforcement should be interpreted in light of the GATT provisions. Indeed, the WTO jurisprudence has remarked that the fact that legislation is applied as a means of IPR enforcement at the border does not provide a carve-out from the applicability of Article III (4) of the GATT,<sup>762</sup> the purpose of which is to avoid protectionism in the application of internal measures.<sup>763</sup>

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<sup>761</sup> *Id.*, p. 44.

<sup>762</sup> GATT (1989), Panel report on United States - Section 337 of the Tariff Act of 1930, L/6439, BISD 36S/345, 385-386, para 5.10. Article III(4) of the GATT reads: “The products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use [...]”.

<sup>763</sup> Appellate Body Report, *Japan -Alcoholic Beverages II*, p. 16: “The broad and fundamental purpose of Article III is to avoid protectionism in the application of internal tax and regulatory measures. More specifically, the purpose of Article III ‘is to ensure that internal measures “not be applied to imported or domestic products so as to afford protection to domestic production”’. Toward this end, Article III obliges Members of the WTO to provide equality of competitive conditions for imported products in

Consequentially, in the *United States- Section 337 case*, a GATT Panel established that measures for IPR enforcement cannot be justified under the general exception clause in Article XX(d) of the GATT, when they accord to imported goods, challenged as infringing patent rules, less favorable treatment than the treatment accorded to similar challenges to products of origin.<sup>764</sup> It follows that, it is important to assess the circumstances under which technical standards incorporating IPRs amount to barriers to “*legitimate trade*” for the purpose of border measures or other procedures for IPR enforcement. However, it has been remarked that the answer depends on the term, under both the TRIPs and the TBT Agreement of “*barriers to legitimate trade*”. As correctly pointed out by Yogesh Pai, the term “*legitimate trade*” “*should be understood in terms of trade that conforms to rules and normal expectations of trade. The legitimacy of trade in goods that conforms to technical regulations and standards but infringes IP rights obviously can be challenged. However, the concept should also be discussed in light of the adoption of technical regulations and standards incorporating IP rights.*”<sup>765</sup>

- V. **Injunctions.** According to Article 44 of the TRIPS Agreement, “[t]he judicial authorities shall have the authority to order a party to desist from an infringement” (Article 44(1)). The TRIPs Agreement emphasizes on the application of injunctions “*inter alia to prevent the entry into the channels of commerce in their jurisdiction of*

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*relation to domestic products. ‘[T]he intention of the drafters of the Agreement was clearly to treat the imported products in the same way as the like domestic products once they had been cleared through customs. Otherwise indirect protection could be given.’*

<sup>764</sup> GATT (1989), Panel report on the United States-Section 337 of the Tariff Act of 1930, L/6439, BISD 36S/345, 385-386, para 6.3. Article XX(d) of the GATT reads: “*Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures: [...]necessary to secure compliance with laws or regulations which are not inconsistent with the provisions of this Agreement, including those relating to customs enforcement, the enforcement of monopolies operated under paragraph 4 of Article II and Article XVII, the protection of patents, trademarks and copyrights, and the prevention of deceptive practices*”.

<sup>765</sup> Yogesh Pai, *The International Dimension of Proprietary Technical Standards: Through the Lens of Trade, Competition Law and Developing Countries*, SOCIAL SCIENCE RESEARCH NETWORK (2012), p. 50.



*imported goods that involve the infringement of an intellectual property right, immediately after customs clearance of such goods”.* Article 44 also provides the flexibility for countries not to allow injunction orders: against good faith dealers; use by governments or by third parties authorized by a government; and, in other cases, where ordering an injunction would be inconsistent with the domestic laws (Article 44(2)). Moreover, the application of this provision is to be read together with the general obligations concerning fairness and equitability of the enforcement procedures. In view of that, countries should make available injunctions and other procedural remedies in a way that safeguards the fairness and equitability of the availability of such procedural remedies.<sup>766</sup>

#### **4.1.3. THE TRIPs AGREEMENT AND IP RIGHTS IN STANDARDIZATION**

The TRIPs Agreement specifically touches upon the issues raised by IP in standards as it raises questions concerning rules for achieving public policy objectives and their interlinks with IPR enforcement.

From a domestic perspective, litigation on IPRs in standards can trigger remedies descending from competition and patent laws, depending on the national laws of each country. These remedies, however, barely tackle the issues raised by the use, certainty and efficiency of standards. Against this background, SSOs, as well as governments have strived to design, adopt and implement standardization policies capable of addressing these issues, focusing on IP misuse, anticompetitive conduct, as well as the definition of FRAND terms.

In this context, the appreciation of the relationship between IPRs, which mainly have a domestic scope as they are granted nationally, and standards which, in contrast, directly affect global trade, lags behind.

Hence, the TRIPs Agreement could be the right tool and step to tackle the relationship between IPRs in standards and international trade at the global level.

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<sup>766</sup> *Id.*, p. 44.

However, it presents several shortcomings, which stem directly from an analysis of the main articles of the TRIPs Agreement already scrutinized above.

For instance, Article 8 of the TRIPs Agreement endorses the need to adopt “*appropriate measures [...] to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology*”. However, the inducement to countries to actually adopt measures to prevent the detrimental effect on international trade and transfer of technology remains debatable.

Considering this gap, Article 40 of the TRIPs Agreement, calls for a cooperation principle concerning competition norms within the WTO regime in addressing the relationship of competition norms with IPRs. Article 40 of the TRIPs Agreement states that “[e]ach Member shall enter, upon request, into consultations with any other Member which has cause to believe that an intellectual property right owner [...] is undertaking [anticompetitive] practices in [contractual licensing]”. The country addressed “*shall accord full and sympathetic consideration to, and shall afford adequate opportunity for, consultations with the requesting Member, and shall cooperate through supply of publicly available non-confidential information of relevance [...] subject to domestic law and to the conclusion of mutually satisfactory agreements*”.

Article 40 thus calls for cooperation to enforce competition rules. However, this is restricted by the fact that cooperation is, in practice, dependent on subsequent arrangements, the coming into existence of which is not at all established. Moreover, cooperation on competition rules in this context is further endangered by the differences in the notions of substantive IPRs and competition law enforcement. The uncertainty surrounding the notions of FRAND terms in determining the amount of royalties (which are, ultimately, left to be determined by concerned parties, carrying the risk of having licensing terms set by advanced nations at a supposedly reasonable level only to be perceived as burdensome or unreasonable in less developed markets). As well as inconsistent IPR disclosure policies, with a certain standardization conduct in one jurisdiction being held as anticompetitive, while not being so held in another jurisdiction. As noted, in the

best scenario of cooperation in IP and standardization, “*a certain conduct in one jurisdiction considered anticompetitive from the angle of exporters may not be supported by market realities in importing countries.*” IPRs incorporated into standards are not necessarily understood in the same manner globally. Consequentially, the cooperation approach in Article 40 of the TRIPs Agreement, concerning competition norms within the WTO regime, in addressing the relationship of competition norms with IPRs falls short of overcoming the issues stemming from diverging treatments in different jurisdictions. The non-binding cooperation approach, is ultimately based on comity principles. The development of positive comity can be used to tackle anticompetitive restraints in foreign markets, such as foreclosure. Comity is also an instrument to encourage other nations to enforce their competition laws concerning anticompetitive conduct that takes place on their territory and has detrimental consequences abroad. However, comity is not sufficient and reveals the inadequateness of the competition policy perspective and remedies within the TRIPs Agreement context.

In addressing whether the TRIPs Agreement tackles the international trade perspective of IPRs in standardization, another aspect should be considered. As seen, the TRIPs Agreement requires the application of IP enforcement procedures which “*shall be applied in such a manner as to avoid the creation of barriers to legitimate trade and to provide for safeguards against their abuse*” (Article 41(1)). Moreover, Section 4 of the TRIPs Agreement (entitled “*Special Requirements Related to Border Measures under TRIPs*”) requires that when IPRs are incorporated into standards, the right holder can invoke border measures against the manufacturing and exporting of goods concerned that uses the IPRs without authorization.

## **5. CHALLENGES AHEAD**

### **5.1. OPENING THE WTO’S DOOR TO COMPETITION? A PRINCIPLE-BASED APPROACH TO TRADE BARRIERS THROUGH REGULATORY PROTECTION**

In conclusion, from the analysis carried out, it has emerged that the TBT Agreement and the TRIPs Agreement legal frameworks have numerous shortcomings in their capacity to address the frictions concerning IPRs in

standardization as they implicate competition-restrictive practices and measures likely to constitute trade barriers at the international level. The main gap concerns the absence of a comprehensive multilateral regime integrating competition policy principles on the whole. While the specifics of the interaction between trade and competition law are still being developed, there seems to be a reluctance to recognize the commonality of the objectives of competition policy and international trade regulation (see before). In particular, it appears that the WTO still struggles to integrate competition policy considerations within its regime, holding that “[t]rade law generally [...] focuses on the promotion of economic opportunities for importers through the elimination of discriminatory governmental measures which impair fair international trade. Thus, trade law addresses the issue of the potentiality to compete”. Conversely “[a]ntitrust law generally focuses on firms’ practices or structural modifications which may prevent or restrain or eliminate competition”.<sup>767</sup> In a way, competition law is the other side of the coin of liberal trade law, as it opens markets by prohibiting private and other commercial restraints. Differently, trade law opens markets by prohibiting public restraints.

As seen, the integration of a competition policy within the WTO regime has been extremely debated and fiercely opposed by developing countries, whose concerns about having their policy margin of maneuver limited have prevailed over the interests of developing a more consistent international level playing field that competition concerns. Members have therefore failed to come to a decision on whether the WTO should start looking at some new issues such as competition.<sup>768</sup>

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<sup>767</sup> Panel Report, *Korea- Alcoholic Beverages*, para 10.81.

<sup>768</sup> WTO DG Azevedo, at the closing ceremony of the Nairobi Ministerial Conference in 2015 pointed out the “persistent and fundamental divisions on [the]negotiating agenda” and called for “finding ways to advance the negotiations”. He said WTO members “have to face up to this problem [...]members must decide- the world must decide- about the future of the Doha Round.” He declared: “[t]his impasse is already harming the prospects of all those who rely on trade today - and it will disadvantage all those who would benefit from a reformed, modernized global trading system in future.”

I believe that it is time to embark on a new path of negotiations within the WTO on issues, such as competition policy, which is of great relevance to the current status of international trade.<sup>769</sup>

Among the various issues, competition policy is arguably a subject that should be the first to be discussed in the WTO. This is because competition, together with investment, has become fundamental in shaping global supply chains, as well as in promoting innovation and technological advancements. Nonetheless, competition policy at the international level is still governed in a fragmented manner, through rules diverging in every single country, which gives rise to inter-jurisdictional conflicts. WTO members will face a great loss if they remain idle on this subject. Indeed, this situation indeed is likely to create great hardship and economic burdens for operators in designing and implementing their world operation strategy. It does not serve country's protectionist industrial policies, which are implemented through, among other things, domestic technological standards, in the long run, as they might find themselves isolated from the global trade arena, which will be even more detrimental to economic development.

Establishing a comprehensive and elaborated competition policy within the WTO regime seems to be a difficult goal to achieve today. In light of the difficulties encountered so far and analyzed above, the focus should therefore shift to establish a WTO conceptual framework, adequately translated into policy recommendations and concrete actions, that acknowledges the need for a competition perspective within the international trade regime. This could be achieved by emphasizing a principle-based approach, rather than a rule-based approach within the global trade system.<sup>770</sup> It would entail interpreting WTO provisions in a way that guarantees the core values of competition policy. Nonetheless, internalizing the core values of competition policy and law within the international trade law regime would still require a normative solution to the questions concerning divergences in IP and competition notions in the

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<sup>769</sup> Xiankun Lu, *The WTO must open its door to new issues now* (2016).

<sup>770</sup> M. Hilf, *Power, rules and principles - which orientation for WTO/GATT law?*, 4 JOURNAL OF INTERNATIONAL ECONOMIC LAW 1 (2001), pp. 111-130.

standardization context, which currently stem from inconsistent competition rules and enforcement (see Chapter 4).

This conceptual re-framing of the competition policy space within international trade law is particularly needed in light of the inherent intertwined tension between IPRs into technical standards, innovation and the international trade regime. Also, given the mentioned commonality of purposes between international trade policy and competition policy as conjointly strengthening devices for stimulating welfare. Changes to trade laws and regulations that reduce or eliminate national barriers to trade and investment promote welfare-enhancing contractual relations that expand trade and, more generally, increase aggregate welfare in the liberalizing nations.<sup>771</sup> This illustrates the importance of serious reflection during future WTO negotiations. While an imminent negotiation on the inclusion of competition policy within the WTO regime seems unrealistic<sup>772</sup> serious discussion on this issue should be launched to start reflecting upon a more principle-based approach to it.

This approach stems from the circumstance that while it was discussed above that there is no such thing as an universally accepted competition law, there has been substantial agreement on core principles, namely the key principles of transparency and non-discrimination (between domestic and foreign companies). These principles have been gaining widespread recognition within competition law analysis at an international level as tools likely to depoliticize competition law and policy, ensuring the independence of competition authorities and removing any possibility of including industrial policy considerations in the competition framework.<sup>773</sup>

A noticeable example of the principles of transparency and non-discrimination can be seen within the “*Recommended Practices on Competition Assessment*”<sup>774</sup> and the “*Guiding Principles for Merger Control and Review*”<sup>775</sup> as

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<sup>771</sup> Alden F. Abbott, Shanker Singham, *Competition policy and international trade distortions*, EUROPEAN YEARBOOK OF INTERNATIONAL ECONOMIC LAW (2013).

<sup>772</sup> Xiankun Lu, *The WTO must open its door to new issues now* (2016).

<sup>773</sup> Jonathan Galloway, *The Pursuit of National Champions: The Intersection of Competition Law and Industrial Policy*, EUROPEAN COMPETITION LAW REVIEW (2007), p. 12.

<sup>774</sup> For the text of the Recommended Practices on Competition Assessment, see the ICN’s website.

<sup>775</sup> For the text of the Guiding Principles for Merger Control and Review, see the ICN’s website.

agreed within the International Competition Network (the “ICN”). The ICN principles are non-binding best practice recommendations, which, amongst other things, provide for transparency. In particular, that “[t]he process for conducting competition assessments should be transparent”<sup>776</sup> and “in order to foster consistency, predictability, and fairness, the merger review process should be transparent with respect to the policies, practices, and procedures involved in the review, the identity of the decisionmaker(s), the substantive standard of review, and the bases of any adverse enforcement decisions on the merits”.<sup>777</sup> They also provide for non-discrimination on the basis of nationality. In particular, that “[i]n the merger review process, jurisdictions should not discriminate in the application of competition laws and regulations on the basis of nationality.”<sup>778</sup>

A principle-based approach could ultimately encourage the so-called depoliticization of competition law, meaning that states would be “increasingly unable or unwilling to pursue industrial policy goals, such as the promotion/protection of national champions, through competition...”. This would decrease competition analysis being used to disguise industrial policy considerations, as these considerations would be increasingly excluded from the competition law framework and become highly visible. The question would then change from whether or not industrial policy is a factor in a competition analysis, to how to be determined which of the two interests should prevail in the event of conflict.<sup>779</sup>

However, notwithstanding the absence of a comprehensive competition policy within the WTO regime, existing international trade norms do influence the competition policy that WTO members can implement in a number of sectors. As Noonan has pointed out, these include rules that require members to take action against private anticompetitive conduct as well as rules that allow

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<sup>776</sup> ICN, Recommended Practices on Competition Assessment (III).

<sup>777</sup> ICN, Guiding Principles for Merger Control and Review (2).

<sup>778</sup> *Id.*, (3).

<sup>779</sup> Jonathan Galloway, *The Pursuit of National Champions: The Intersection of Competition Law and Industrial Policy*, EUROPEAN COMPETITION LAW REVIEW (2007), p. 14. The author asserts that “[i]t is surely arguable that the trend of depoliticising competition law, and merger control in particular, has been a factor in the increasing visibility of protectionism, or “economic patriotism”. The industrial policy considerations have been pushed out from the shadows of opaque public interest tests in competition analysis into highly visible conflict with independent, transparent and non-discriminatory competition regimes.” *Id.*, p. 15.

members to take action under competition law even though the action may result in lessening the benefits that other members might expect from WTO commitments.<sup>780</sup>

## 5.2. SOFT HARMONIZATION AND CONVERGENCE OF SYSTEMS: STRENGTHENING COMPETITION ADVOCACY

Irrespective of this evidence, national competition laws have been separate from the WTO-led trade law regime. As seen, a crucial point is to assess the role of competition policy within the international marketplace. In this regard, competition law is to some extent unique to each individual jurisdiction, while markets are not (and should not be) restricted by national boundaries. The key question arising here concerns whether national competition laws and their enforcement is sufficiently adequate to address the market issues of the current economy, given that the scope of markets is broader than national boundaries. Moreover, it may be useful to consider whether relying upon national competition laws is conducive to the development of an international trade regime that assists the working of global markets. Facing these challenges, the international community has made the most headway in increasing cooperation and networking among the competition agencies of the world.<sup>781</sup>

Opponents to the integration of competition policy within the international trade regime have observed that “*national competition laws embody a host of different assumptions about the role of economics; the proper scope and nature of*

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<sup>780</sup> CHRIS NOONAN, *THE EMERGING PRINCIPLES OF INTERNATIONAL COMPETITION LAW* (OXFORD UNIVERSITY PRESS, 2008), p. 405. Indeed, the WTO jurisprudence has had the chance to deal with concerns related to competition policy. See *Mexico- Measures Affecting Telecommunications Services* (WT/DS204/R, 2004), in which the WTO dispute panel decided the WTO’s first competition case. It resolved the matter in favor of the claim that Mexico had anticompetitively facilitated exploitative prices and a cartel that raised the price of terminating cross-border telephone calls in Mexico and thereby harmed trade and competition. On this case, see Eleanor M. Fox, *The WTO’s First Antitrust Case-Mexican Telecom: A Sleeping Victory for Trade and Competition*, 9 *JOURNAL OF INTERNATIONAL ECONOMIC LAW* 271 (2006); Marco Bronckers and Pierre Larouche, *Telecommunications Services*, in PATRICK MACRORY, ARTHUR APPLETON AND MICHAEL PLUMMER (EDS.), *THE WORLD TRADE ORGANIZATION: LEGAL, ECONOMIC AND POLITICAL ANALYSIS* (DORDRECHT: SPRINGER, 2005), pp. 999-1013; Damien J. Neven and Petros C. Mavroidis, *El mess in TELMEX: a comment on Mexico-measures affecting telecommunications services*, 5 *WORLD TRADE REVIEW* 271 (2006), pp. 290-292; Amedeo Arena, *The emergence of a WTO antitrust jurisprudence through cross-fertilization from other international antitrust institutions: the case for procedural fairness as a necessary precondition*, in PAUL NIHOUL, TADEUSZ SKOCZN (EDS.), *PROCEDURAL FAIRNESS IN COMPETITION PROCEEDINGS* (EDWARD ELGAR, 2015).

<sup>781</sup> International Competition Policy Advisory Committee to the Attorney General and Assistant Attorney General for Antitrust, Final report Annex 2-c (2000), Executive Summary, Chapter 5.



*competition law prohibitions, rules, and remedies; procedural issues; and the influence non-competition policy concerns should have on competition law enforcement decisions*". This entails that reaching a consensus on these issues in order to implement and enforce a uniform competition policy within the WTO would not be attainable as it would fail to take into account these divergences in private behavior of market operators that operate according to different rules and regulatory philosophies. Facing these challenges, observers have put forward a more flexible approach to foster a global competition policy, not relying on the WTO regime, but rather promoting voluntary regulatory efforts at building an understanding across jurisdictions and thereby gradually converging towards best or "better" practices.<sup>782</sup> Diverging national policies in this sphere require regulators to harmonize their activities through informal consultations in informal venues<sup>783</sup> in order to allocate regulatory competences between governments, such as, in the area of antitrust regulation.

In this vein, the role of the International Competition Network (the "ICN") in advancing this purpose is proposed. In other words, facing the difficulties in addressing anticompetitive trade distortive measures through competition enforcement or through the WTO regime, employing the advocacy and soft law toolkit of competition authorities should be investigated. The ICN was established in 2001 as an international network for the promotion of soft law convergence among competition policy regimes through the exchange of information among competition agencies and experts. Specifically, the ICN "*provides competition authorities with a specialized yet informal venue for maintaining regular contacts and addressing practical competition concerns. This allows for a dynamic dialogue that serves to build consensus and convergence towards sound competition policy principles across the global antitrust community*".<sup>784</sup>

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<sup>782</sup> Alden F. Abbott, Shanker Singham, *Competition policy and international trade distortions*, EUROPEAN YEARBOOK OF INTERNATIONAL ECONOMIC LAW (2013).

<sup>783</sup> Michal S. Gal, *Regional Competition Law Agreements: An Important Step for Antitrust Enforcement*, 60 U. Toronto L. J. 239 (2010); Eleanor M. Fox, *International Antitrust and the Doha Dome*, 43 VIRGINIA JOURNAL OF INTERNATIONAL LAW 911 (2003); and Andrew T. Guzman, *International Antitrust and the WTO: The Lesson from Intellectual Property*, 43 VIRGINIA JOURNAL OF INTERNATIONAL LAW 933 (2003).

<sup>784</sup> See ICN's website.

However, it should be remarked that China is the most notable jurisdiction with a competition law and no representation in the ICN is China. Although China participates in the work of the OECD Competition Committee as an observer and is a member of UNCTAD, the Chinese competition agencies (i.e. MOFCOM, NDRC, and SAIC) have not discussed their intentions concerning ICN membership. Arguably, China's participation in the ICN is an important determinant of the organization's future success.<sup>785</sup>

Within the ICN, an Advocacy Working Group has been established. Its purpose is to undertake projects, develop practical tools and guidance, and facilitate experience-sharing among ICN member agencies, in order to improve the effectiveness of ICN members in advocating the use of competition principles and to promote the development of a competition culture within society. Generally, "*competition advocacy*" refers to these activity conducted by the competition agency related to the promotion of a competitive environment for economic activities by means of non-enforcement mechanisms, mainly through its relationships with other government bodies and by increasing public awareness of the benefits of competition.<sup>786</sup>

The literature has increasingly underlined the role of competition advocacy in curbing government-sponsored restraints to competition. This being the case, a soft-convergence in competition practices would ultimately be mirrored in less restraints to trade imposed by latecomers in light of the strategic use of competition embraced by advanced countries and companies based in those countries. In this vein, the ICN has elaborated "*Recommended Practices on Competition Assessment*" that are intended to provide guidance to competition agencies on the competition assessment process. Although this guidance is addressed to competition agencies, it is recognized that other government bodies can carry out valuable competition assessment work, pursuing two main goals:

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<sup>785</sup> Hugh Hollman, William E. Kovacic, *The International Competition Network: Its Past, Current, and Future Role*, 20 MINNESOTA JOURNAL OF INTERNATIONAL LAW (2011), p. 275.

<sup>786</sup> Definition of advocacy from the 2002 ICN advocacy report, "Advocacy and Competition Policy", p. 1.

- I. to increase harmonization of competition theories and enforcement at the global level; and could be achieved through an international network of competition authorities;
- II. to promote the development of soft law practices and best practices addressing the anticompetitive conduct by both private companies and government. As it has been observed, international networks of competition authorities, could develop a stronger advocacy platform to push decision-makers not to back or implement regulation that is likely to restrict competition and support anticompetitive measures which aimed at favoring a certain industry.<sup>787</sup>

There is no single approach that responds to all aspects of competition policy and international trade problems in the global standardization context. The approaches toward developing broader multilateral engagement on competition policy matters should encompass several actions and forums and should be designed to take advantage of the opportunities to more global markets and expand meaningful cooperation on practical enforcement problems. The aims for this improved international engagement should comprise establishing a more largely worldwide standpoint on competition policy, with the goals of reducing jurisdiction-specific actions by firms and governments, encouraging soft harmonization of competition policy regimes and convergence of systems, and developing a greater degree of consensus on what amounts to “best practices” in competition policy and competition enforcement.

In this vein, an advocacy effort could give rise to instruments to establish explicit legal requirements that prohibit or severely limit the ability of government institutions to curtail business rivalry.<sup>788</sup>

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<sup>787</sup> James C. Cooper, William E. Kovacic, *U.S. Convergence with International Competition Norms: Antitrust Law and Public Restraints on Competition*, 90 BOSTON UNIVERSITY LAW REVIEW 4 (2010), p. 1582.

<sup>788</sup> See William E. Kovacic, *Lessons of Competition Policy Reform in Transition Economies for U.S. Antitrust Policy*, 74 ST. JOHN'S L. REV. 361, 363 (2000), pp. 400-404.

The competition provisions of the TFEU and the case law of the European courts could offer a valid standard as they severely restrict the power of EU Member States to enact anticompetitive legislation or regulations.<sup>789</sup> Indeed, these provisions, along with the prohibition on State aid, allow the EU competition policy regime to heavily emphasize achieving economic integration and forestall Member State actions that would frustrate the attainment of it. The laws of some jurisdictions make clear that State-owned enterprises are subject to the same competition policy obligations as private firms. Some competition systems enable the competition authority to veto government acts that curtail competition unless the restrictive measure has been approved by the national legislature.<sup>790</sup>

However, having faith in soft-law convergence does not entail completely rejecting a role for the WTO regime. Although, at present, no international set of rules directly addresses competition policy, a more robust discipline should be developed at the international level, or, at least, multilateral initiatives could be explored through existing international organizations such as the WTO. Indeed, as far as public sector restraints on trade are concerned, the WTO regime is relevant as it addresses several regulatory constraints that lessen welfare by impairing competition and ultimately negatively affecting trade. Suffice to mention the rules dealing with anticompetitive private sector restraints (GATT Article IX), and specific anticompetitive restraints on a sectoral basis (Basic Telecom Agreement and Reference Paper on Competition Safeguards). These initiatives, as remarked by commentators, “*extend beyond GATT 1947, provisions that are drawn from the competition lexicon*”.<sup>791</sup>

Yet, these initiatives fall short of covering all the facets of anticompetitive conduct that both private and public actors can impose on trade, specifically measures that raise *de facto* trade barriers by backing domestic interests over foreign rivals. These measures purportedly to promote certain favored firms,

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<sup>789</sup> Regarding State aid, see Arts. 107-109 of the TFEU, and legislation enacted under it.

<sup>790</sup> James C. Cooper, William E. Kovacic, *U.S. Convergence with International Competition Norms: Antitrust Law and Public Restraints on Competition*, 90 BOSTON UNIVERSITY LAW REVIEW 4 (2010), p. 1584.

<sup>791</sup> Alden F. Abbott, Shanker Singham, *Competition policy and international trade distortions*, EUROPEAN YEARBOOK OF INTERNATIONAL ECONOMIC LAW (2013), pp. 23-37.

rather than to discriminate against foreign firms. They often involve government initiatives aimed at supporting private vested interests and counter artificial competitive advantages over their competitors, especially foreign ones. These measures are particularly tricky to assess. Some scholars have attempted to develop method to estimate the impact of the anticompetitive measures on domestic and global markets by “*quantify[ing] the differences between the market premium with the market distorted by the regulation, and the equilibrium where the regulatory distortion was present*”.<sup>792</sup>

The difficulties in assessing the impact of the WTO rules vis-à-vis anticompetitive measures makes a stronger argument for a global competition policy based, among other things, on competition advocacy and soft-law tools. As such, national antitrust regulators insist on coordinating their activities through informal bilateral or multilateral coordination, rather than through a WTO-like international institution.

However, the value of competition advocacy and networks is also uncertain, as:

- I. it should be measured by the degree to which advocacy efforts impact and alter regulatory outcomes and by the value to consumers of those improved outcomes. Nonetheless, for practical purposes, “*both elements are difficult to measure with any degree of certainty*”;<sup>793</sup>
- II. the ICN consists of national competition agencies, and not national governments. This hinders its constituents’ ability to bind their jurisdictions internationally and some may lack substantial domestic political influence, or even be a mere extension of the

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<sup>792</sup> *Id.*, pp. 32-33, arguing that while historically analysis of trade barriers through regulatory protection has focused on the impact of these barriers on trade flows, a better methodology could be embraced, taking into account the impact on consumer welfare. The authors argue that a methodology simply based on the impact on trade flows, while it measures the impact of the barriers to external trade, does not properly measure the actual impact of the anticompetitive measures on the domestic economy of the country where they are in place.

<sup>793</sup> James C. Cooper, William E. Kovacic, *U.S. Convergence with International Competition Norms: Antitrust Law and Public Restraints on Competition*, 90 BOSTON UNIVERSITY LAW REVIEW 4 (2010), p. 1582.

national government and its policies as is the case in China, where competition agencies are far from independent from Beijing's political rulers; and<sup>794</sup>

- III. as far as developing countries and latecomers economies are concerned, the impact of competition advocacy is further ambiguous, as in their competition coordination advanced countries generally tend “to keep out the developing countries”.<sup>795</sup> As observed by Fox, antitrust regulators' coalitions focus mainly on their domestic markets without managing to fill the gap that exposes developing countries to anticompetitive practices. As Fox observes, “[m]any of these nations either do not have an antitrust law, or they have an antitrust law that is not given serious regard by their polity, or they simply do not have the resources to enforce the law. Particularly, they do not have the resources and credible deterrence power to control the anticompetitive acts of multinational corporations. In other words, they are easy targets.”<sup>796</sup>

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<sup>794</sup> Nevertheless, this could also be seen as an element of strength as the soft and non-binding normative value of ICN recommendations may allow agencies to sign up to recommendations even though they do not mirror the current national government policies. In the long run, however, the agencies may be able to win home state support for such recommendations, to the extent that they become more generally acknowledged and are perceived as replicating international best practices. Alden F. Abbott, Shanker Singham, *Competition policy and international trade distortions*, EUROPEAN YEARBOOK OF INTERNATIONAL ECONOMIC LAW (2013), p. 34.

<sup>795</sup> Eleanor M. Fox, *International Antitrust and the Doha Dome*, 43 VIRGINIA JOURNAL OF INTERNATIONAL LAW 911 (2003).

<sup>796</sup> *Id.*, p. 922: “Global mergers may have harmful effects in nations that constitute separate markets and lack the power to protect themselves. This is particularly true for developing countries, whose voices are not heard and who must live with whatever the industrialized countries decide is good for them. In Mannesmann/Italmimpianti, Italian and German makers of specialized pipes for oil drilling operations suitable only for developing countries merged to form a monopoly. China was the principal buyer of this stage of technology. Unusually, Italy conditioned merger clearance on the firms' acceptance of licensing obligations that could ease China's monopoly problem (if potential producers in Europe should seek a license). More typically, Germany declined to enforce the German law, allowing the merger because the German market- like the Italian market- was not hurt. While Italy's conditions on this proposed merger benefited China in this case, another China cannot count on any protection at all. It may become more, rather than less, common that multinational mergers impact developing nations with no voice.”

# CONCLUSIONS

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- 1. TOWARD A NEW INDUSTRIAL REGULATION: GLOBAL TRENDS IN SHAKY TIMES**
- 2. STRATEGIC PATENTING AND INDIGENOUS INNOVATION: TWO ALTERNATIVE INDUSTRIAL POLICY TOOLS**
- 3. THE BLURRED LINES OF COMPETITION**
- 4. SELECTIVE LIBERALIZATION THROUGH ECONOMIC NATIONALISM?**
- 5. RE-FRAMING THE ISSUE: DETECTING THE MISSING INTERNATIONAL TRADE PERSPECTIVE**
- 6. BEYOND PLAIN-VANILLA PROTECTIONISM**
- 7. PERSPECTIVES: TOWARDS A PRELUDE TO GLOBAL COMPETITION POLICY OR TO ECONOMIC BALKANIZATION?**

## **1. TOWARD A NEW INDUSTRIAL REGULATION: GLOBAL TRENDS IN SHAKY TIMES**

The situation for technology standards paints a challenging picture. Technical standardization, especially in the ICT sector, is key to international trade, competition and economic development. In today's innovation-driven society, ICT standards have attracted increasing attention due to the rise in litigation in this field, which spurred the so-called "patent wars", mainly focused on injunctions or FRAND fees suits. This has unsurprisingly spurred the need to develop a wide-ranging practical and theoretical legal framework capable of handling the whole bundle of dilemmas connected to competition, IP and trade. The task is far from easy, and the present study claims no ingenuity in providing a comprehensive answer to all these conundra, especially given the plethora of public and private interest objectives which are triggered by standardization.

Moving from these observations, the study approached two main areas of research.

First, my study investigated proprietary technologies in innovation-driven markets, combined with the lack of coherent competition policy and scrutiny of

IPRs incorporated in standards. The research sought to argue that the uncertainty prompted by divergent legal and policy approaches in different jurisdictions has, to some extent, empowered advanced countries to rely upon standards as a strategic regulatory tool to thwart competition, impeding the distribution of innovation gains in the long run.

Second, my study outlined the mutually influential relationship between competition law and trade law within the standardization realm. My hypothesis assumed this aspect to be strictly connected with the first one: to the extent that differences in laws and public policies regarding standardization create substantial interferences for international trade, this has triggered latecomers in the international economy – such as the Chinese indigenous innovation strategy demonstrates – to develop a more piercing government intervention strategy through the adoption, *inter alia*, of competing homegrown alternative standards as a source of economic catch-up,<sup>797</sup> which, in return, could amount to a new type of protectionist, non-tariff barriers to trade.

That said, the study adopted a comparative approach in examining the differences in the EU and Chinese standardization regimes. The Chinese standardization system was particularly illuminating as it is illustrative of how States try (and sometimes manage) to shape industrial policy via competition and trade regulation. The Chinese standardization regime – managed by the central government through overarching nationwide standardization – emerged as one mirroring the political philosophy underpinning the planned economy. Along the same line, the role of standardization in China shows how standards are, at the same time, reflecting and shaping the country's role in the global setting, seeing after thirty years steady growth in GDP, trade and investments and, zooming on the present study's focus, shifting from a mere standards implementer to a standards developer and innovator, despite the inevitable economic slowdown.

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<sup>797</sup> Richard P. Suttmeier, Xiangkui Yao, and Alex Zixiang Tan, *Standards of Power: Technology, Institutions, and Politics in the Development of China's National Standards Strategy*, THE NATIONAL BUREAU OF ASIAN RESEARCH (2006), p. 11.



The focus on China was indeed instrumental in order to scrutinize the main features of the competition law aspects implicating technical standards and IP in the ICT sector.

A series of tensions emerged:

First, a constant, fundamental friction between the interests of the R&D investors, who chase economic yields, and users of technology, who pursue access on reasonable and affordable terms, was detected. Competition-wise, issues arise when technical standards hamper effective competition through conduct such as lock-in and hold-up, whose occurrence is likely to happen when the implementation of a standard requires the inclusion of a proprietary technology. Here, SEPs constitute the core competition issue, as they empower their holders to prevent their competitors from employing certain technology or requesting excessive royalties. However, a challenge is presented in the difficulties in assessing and identifying which patents are “essential” for a standard, as today’s market features firms holding massive patent portfolios as well as a wide range of overlapping patent thickets incorporated into high-tech devices.

A second tension concerns the rationale of IP and standards. Indeed, while the patent regime allows for differentiation among products, services and the whole business, conversely, standardization has always been instrumental in the reduction of uncertainty, functioning as a selection mechanism that contours the diversity of technologies and allowing the ICT industry to minimize transaction costs related to compatibility and interoperability in network-based technologies.

The tension between IP and standards can also be envisaged as a tension between public good (standards) and private good (patents). Indeed, while technical standardization is conducive to converting ideas into a public good available to all, patent protection converts them into a private good, pursuing the objective of securing private property and their exclusionary effect.

My analysis sought to frame these issues as to strike a balance between the regulatory approaches aimed at nurturing the generation of further technological variety by the control by IP owners over proprietary knowledge and the regulatory

approaches that nurture wider distribution into the public sphere of new knowledge.

However, this study challenged the proposition that IP and standards are always in conflict. It argued that this conflict is mainly potential and that these instruments should instead be understood as complementary regulatory measures. As such, it was claimed that the incentive function of IPRs and the role of reducing uncertainty usually associated with standards work collectively in the interest of all stakeholders. Working in tandem allows these mechanisms to set the foundations for sustainable innovation.

Such conclusions, i.e., standards and IP as a joint regulatory tool conducive to innovation, find support in the conceptual framework that construes economic development as a “catching-up” process in which a developing country narrows the gap in productivity and income relative to a leading country.<sup>798</sup> In this regard, my analysis relied upon the theoretical outline assessing the relationship between innovation, competition and standards developed by Joseph Schumpeter’s theory on capitalism as an evolutionary process of creative destruction.<sup>799</sup>

## **2. STRATEGIC PATENTING AND INDIGENOUS INNOVATION: TWO ALTERNATIVE INDUSTRIAL POLICY TOOLS**

Drawing on this theoretical framework, the study sought to contextualize standardization in a globalizing, technology-driven economy, addressing the view of latecomers and zooming on China. Major literature on divergence and convergence in the innovation path, especially that involving inter-country comparison, has evidenced that in China, irrespective of the endless FDI flow and ensuing technology transfer occurring since the 80s, domestic manufacturers have long been “technology trapped”, that is, finding themselves in a situation of heavy dependence on foreign proprietary technology. This has made China prone to the impact of international technology standards and the different strategic patenting strategies used by patent holders to capitalize on their *de facto*

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<sup>798</sup> H. ODAGIRI, A. GORO, A. TSUNAMI, R. R. NELSON (EDS.), INTELLECTUAL PROPERTY RIGHTS, DEVELOPMENT, AND CATCH-UP (LONDON: OXFORD UNIVERSITY PRESS, 2012), Chapter 1.

<sup>799</sup> JOSEPH SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY (GEORGE ALLEN & UNWIN, 1976), p. 82.

standards and associated royalties. The study sought to show that ICT strategic patenting is often employed as a weapon to engage in anti-competitive behavior by a plethora of conducts, such as patent hold ups, patent ambush and strategic injunctive reliefs. In particular, patent holders can boost their market power when they, in violation of FRAND commitments, “demand ‘unreasonable’ royalties for their patents that are embedded in standards”.<sup>800</sup>

Facing the dull scenario of finding itself isolated as a subordinate actor in the innovation-driven market, China, since 2006, has started promoting the development of national standards incorporating self-owned IP, supporting “Indigenous Innovation” (in Chinese, “自主创新”, pinyin *Zìzhǔ chuàngxīn*) as a main policy as well as a strategic tool in the hand of late-industrializing countries, representing a response to the strategic patenting carried out by advanced countries aimed, in due course, at overcoming the natural disadvantage on the global market.<sup>801</sup>

I argue that both strategic patenting carried out by IP-rich advanced nations and China’s indigenous innovation are two alternative industrial policy’s strategic tools to achieve an optimal positioning in a market segment that represents today’s leading sector in the global political economy, that is to say, innovation technology.

However, my analysis goes a step further from previous literature, claiming that the investigation of standards and competition cannot forgo a scrutiny from the international trade regulatory standpoint. Here is the core of my assumption: the apparently protectionist stance taken by latecomers, such as China, is a response, *rectius*, a consequence, and not the triggering cause, of the widespread opportunistic conduct of patent holders who own patents on a technology essential to a standard.

A gap in current literature, needing, of course, further investigation, is thus spotted: how and under which circumstances diverging policies concerning IPRs

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<sup>800</sup> Y. A. Pai, *The international dimension of proprietary technical standards: Through the lens of trade, competition law and developing countries*, LAW, POLICY & ECONOMICS OF TECHNICAL STANDARDS JOURNAL (2013), p. 5.

<sup>801</sup> *Ibid.*

in standards, and the inter-jurisdictional normative conflict caused by diverging legal and policy treatment of SEPs in different jurisdictions through the application of competition law, negatively impact trade? The study approached this issue through the focus on China, which makes for an outstanding case study, although the problems that are being raised are global and reach beyond the single case adjudicated or the single jurisdiction as they impact on the global trade arena.

### **3. THE BLURRED LINES OF COMPETITION**

This study also singled out and analyzed the inconsistencies in the treatment of IPRs in standards, focusing on the EU and Chinese approaches to *ex ante* disclosure of SEPs and FRAND terms, appreciating their role as precautionary regulatory measures aimed at deterring anticompetitive conduct.

On the EU side, the analysis first investigated the Commission's approach to injunctions for SEPs. What emerged is a confused and unpredictable scenario.

In the 2014 Motorola and 2013 Samsung decisions, the Commission outlined a "safe harbor" for prospective licensees who are "willing" to take a license on FRAND terms. The Commission recognized that asserting SEPs by seeking an injunction or simply threatening to do so might infringe article 102 TFEU in case the patent holder had committed to a standardization body to grant licenses on FRAND terms, and the injunction is directed against a licensee genuinely willing to negotiate a license on FRAND terms.

However, the decisions does not offer any clarification on the notion of "willing" prospective licensee in cases falling outside the context of FRAND-pledged patents, simply calling for a case-by-case, fact-specific assessment as to whether the defendant has been willing to negotiate a license in good faith.

The analysis of these decisions suggest that the standard of good faith adopted by the Commission advocates for a far-reaching application of article 102 TFEU to injunctions brought by SEP holders and could be defined. This approach appears to be quite licensee-friendly, given that the assertion of SEPs is by and

large deemed abusive, as long as the would-be licensee is in good faith or willing to negotiate a license on FRAND terms.

Interestingly, the Commission's stance differs from the standard of good faith or willingness adopted by some national courts, for instance, the German Federal Court, which in the 2009 Orange-Book-Standard case, concerning Philips and Sony's *de facto* recordable CD standard, embraced a much more patentee-friendly approach by posing a high burden on alleged infringers.

Finally, an attempt towards striking a balance out of different approaches brought forward by the Commission and national courts is made by the latest CJEU case law. The 2015 preliminary ruling delivered in the *Huawei/ZTE* case, pending before the Düsseldorf Regional Court, imposes important obligations on SEP users (notably, to make a counter-offer on FRAND terms and to provide appropriate security for the prior use of the SEP), while SEP holders are in a stronger position than they appeared to be under the Commission's decisions in *Motorola* and *Samsung*.

The study also addressed the SSOs licensing requirements imposing that SEP holders license their patent on FRAND terms. It emerged that, irrespective of the fundamental significance of the FRAND undertaking, no competition authority has, up to the present day, defined the notion of FRAND terms within the standardization context. On the contrary, the "fair and reasonable" components of FRAND have been interpreted in a variety of ways, often divergently and inconsistently.

In my view, the hesitancy towards a more clear-cut definition of what is "fairness" and "reasonableness" may carry the advantage in letting companies freely operate while securing the margin of maneuver of the Commission to tackle anticompetitive conduct.

This suggests that in the assessment of whether license terms are fair and reasonable, all the components forming the economic context at issue should be taken into account looking at the circumstance and position of the licensor and licensee, as the same General Court has held. This balanced, case-specific approach is arguably advisable in the context of competition law, where a rigid

distinction between anticompetitive and procompetitive conduct would not be desirable. Indeed, it would thwart courts and competition authorities from sanctioning anti-competitive conduct which does not fall within the profile of the established anticompetitive behavior. Contrariwise, it may also thwart commercial conducts which do not carry any harm to effective competition. For instance, the barring of SEP holders from injunctions would likely “*tip the scale in favor of implementers which would then have little incentive to actively seek a license – a form of reverse hold-up*”.<sup>802</sup>

While acknowledging the rationale underpinning a blurry, broad definition of FRAND, this study suggests that legal certainty remains an issue, and a legal definition of FRAND may arguably be useful in allowing competition authorities to assess whether licensing terms are FRAND or not, as the absence of any precise definition naturally results in limiting antitrust intervention concerning SEPs’ licensing obligations.

The uncertain and evolving EU legal scenario concerning SEPs injunctions and FRAND licensing is corresponded, in China, by a seemingly confused legal background. The already articulated Chinese legal framework is exacerbated by a notable amount of uncertainty stemming directly from the 2008 AML as to the treatment of IPRs and FRAND-related concerns. This ambiguity, moreover, is conducive to aggravating the inconsistency of China’s standardization policy *vis-à-vis* its WTO commitments. It is thus clear that the encouragement of Indigenous Innovation – by use of competing, alternative, domestic technologies that can indeed serve the purpose of forcing royalties concessions – affects the way Chinese standard-setting agencies deal with patents in standards.

This statement is reinforced by an in-depth analysis of the few judicial cases concerning the antitrust issues raised by FRAND commitments in the context of the 2008 AML. In fact, given the absence of a specific guidance on patent royalties and given the not always coherent SAC and SAIC’s series of guidelines on national standards and IP enforcement, the study argues that the Chinese approach to FRAND appears to be quite aggressive and more advantageous to patent

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<sup>802</sup> DAVID TELYAS, *THE INTERFACE BETWEEN COMPETITION LAW, PATENTS AND TECHNICAL STANDARDS* (KLUWER LAW INTERNATIONAL, 2014), p. 235.

implementers, thus differing from a general global trend toward better protection for patent holders (at least, as far the EU is concerned, given the latest Huawei preliminary ruling). It follows that China seems determined to support an interpretation of FRAND aiming at plummeting royalty rates, coupled with the Government-led support for the development and implementation of competing home-grown standards.

This assumption appears to be supported by the examination of the *Huawei/InterDigital* cases concerning the interpretation of FRAND royalty rates in China. This judicial saga confirms a trend within the Chinese context towards a pretty rigid approach to FRAND determination, aimed at setting extremely reduced royalty rates. Again, this ratifies my previous postulation: this austere stance towards FRAND represents a plausible reaction to excessive pricing charged by advanced countries' patent holders. By pushing FRAND royalty rates down, the Chinese judges, to a certain extent not genuinely independent from the government's industrial policy, pauperize patentees' leverage, while patent implementers would eventually find themselves in a much better position. Ultimately, the study suggests that this licensing paradigm represents a form of shaping industrial regulation through economic regulation and selective competition enforcement.

However, my analysis also points out that this strategy could ultimately be detrimental. Indeed, although an aggressive stance to FRAND has arguably allowed China to attain the critical goal of reduction of royalties within its domestic market, this might unintentionally lead to a systemic slow-down in innovation as reduced FRAND would disincentive foreign SEP holders to enter the Chinese market. Such strategy would ultimately shield domestic competition from genuine global competition. Moreover, reduced economic incentives for SEP holders may also encourage patent implementers to engage in reverse hold-up conducts, thus stifling even more investments.

The effort in shaping industrial regulation through economic regulation and selective competition enforcement is also evident in the attempt made by Chinese competition authorities and courts in regulating the pricing practices of patent

holders. This sets a stark difference from the trend in the EU, where there is a general reluctance to review excessive pricing.

This is what happened with the *Qualcomm* case, which was decided in 2015 by the NDRC. According to this decision, SEP licensors of Chinese patents are now obliged to pay reasonable rates for cross-licenses of Chinese patents, and cannot insist on a cross-license of non-SEPs as a condition for an SEP license. This case suggests that the NDRC interpreted and applied AML aggressively and expansively against foreign companies in order to shield domestic smartphone producers. This lends strong credence to the circumstance that “[h]itting *Qualcomm* and other international companies may contribute to the development of the nation’s semiconductor industry: the infant-industry argument meets competition policy”.<sup>803</sup>

In conclusion, my review of China’s AML enforcement activities in the standardization sector lends strong credence to the allegations that China is using competition enforcement as an opportunity for protectionism and industrial policy to influence decisions.

#### **4. SELECTIVE LIBERALIZATION THROUGH ECONOMIC NATIONALISM?**

Having explored the idiosyncrasies of China’s competition regulation and its instrumental role in the country’s development agenda as a whole, a preliminary conclusion can be drawn. There seems to be, to a certain extent, a sort of subordination of the AML to national policy objectives: economic regulation, specifically through competition enforcement, is used to shape a novel industrial policy, favoring selected national champion firms as part of objectives other than just ensuring competition, remarkably concerning enhancing the overall economy, national prestige or political advantage. Ultimately, economic regulation advances industrial policy and matches its goals.<sup>804</sup>

This conclusion is supported by recent statist literature, which submits that state action, far from being retreating, still largely recur, although through novel

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<sup>803</sup> Luís Cabral, *Competition policy in the global era*, NEW ZEALAND ECONOMIC PAPERS, 2016

<sup>804</sup> Although several definitions of ‘industrial policy’ exist, at their core lies the concept that the state seeks to influence the supply side of the economy, see J.E.S. HAYWARD (ED.), *INDUSTRIAL ENTERPRISE AND EUROPEAN INTEGRATION* (OXFORD UNIVERSITY PRESS, OXFORD, 1995).



forms and measures, allowing the state to continue supporting domestic firms, regardless of liberalized markets.<sup>805</sup> Framing the issue this way, China appears to be implementing a selective liberalization, notwithstanding the internationally open economic markets preached by the WTO regime, pursuing policies that favor selected domestic firms and shield them from global competition, either by infusing competition or by impeding it,<sup>806</sup> engaging in what has been defined as “economic nationalism” or “economic patriotism”.<sup>807</sup>

Overall, this conclusion should be framed in the bigger picture concerning the design of China’s competition policy, which is, taking a distance from the EU and US stances on competition, less worried with the aim of keeping a level playing field and more with nurturing its own interests, i.e., protecting the public interest and promoting the socialist market economy. This goal clearly emerges from the text of the AML (notably articles 1 and 4), which specifically identifies the protecting of the public interest and the effect on the Chinese national economy as key objectives.

## **5. RE-FRAMING THE ISSUE: DETECTING THE MISSING INTERNATIONAL TRADE PERSPECTIVE**

A further conclusive remark should be drawn, which represents more of a logic linkage towards the section of the study focusing on the international trade implication of standardization. Indeed, the EU/China comparative examination of the competition enforcement regarding standards and SEPs has highlighted that the current economic reality of globalization has not been translated into a globally uniform legal framework applicable to competition and IP law-related issues.

However, the international scope of the trade and connected disputes on standards and SEPs urge local courts to adopt a more global, consistent and harmonized approach to assess complex transboundary conduct and disputes. On

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<sup>805</sup> J. LEVY (ED.), *THE STATE AFTER STATISM: NEW STATE ACTIVITIES IN THE AGE OF LIBERALIZATION* (HARVARD UNIVERSITY PRESS, CAMBRIDGE, 2006); V.A. Schmidt, *Putting the Political Back into Political Economy by Bringing the State Back Yet Again*, 61 *WORLD POLITICS* 3 (2009), pp. 516-548.

<sup>806</sup> Cf. S. VOGEL, *FREER MARKETS, MORE RULES* (CORNELL UNIVERSITY PRESS, ITHACA, N.Y., 1998).

<sup>807</sup> B. Clift-C. Woll, *Economic Patriotism: Reinventing Control Over Open Markets*, 19 *JOURNAL OF EUROPEAN PUBLIC POLICY* 3, 2012, pp. 307-323, E. HELLEINER-A. PICKEL, *ECONOMIC NATIONALISM IN A GLOBALIZING WORLD* (CORNELL UNIVERSITY PRESS, ITHACA, N.Y., 2005).

the one side, markets are growing more global in nature and the contour of national trade is more blurred. It is thus clear that the analysis of standards and competition cannot do without an appreciation of the international trade regulatory perspective. On the other side, however, upon closer scrutiny, there appear to remain major differences when it comes to the application of legal doctrine to the concrete circumstances of the case.

It follows a typical catch-22 situation: as long as the diverging approaches concerning patents incorporated into standards and their use as trade barriers are not resolved at a normative level, latecomer countries will be enticed to fashion competing and complementary standards, differing from international ones and which, consequently, are susceptible to posing significant non-tariff barriers to international trade and to open markets.

My study thus insists on the fact that current scholarship on standards and competition law cannot do without a thorough analysis of the trade implications, as both aspects are mutually causing one another: diverging approaches to competition issues related to standards and IP allow for a widespread use of strategic patenting; this is perceived by IP-poor countries as an unfair trade barrier, which in return triggers latecomers to adopt protectionist stances and a use of competition law and enforcement subjugated to political goals, economic development and industrial policy.

It follows that international trade could be hindered by governmental measures that distort domestic markets, ultimately having substantial effects on trade outside the jurisdiction that imposes the restrictions. That is, a plethora of acts of governments can hamper international trade, directly and indirectly.

This situation is likely to happen, as the notion of selective liberalism shows, even when competition is imposed by law, for instance, shaping and limiting competition through domestic standards, which favored national champions, while others, especially foreign companies, found such standards demanding and costly to comply with. Arguably, standards have performed as influential tools in supporting national champions in many industries. The present study thus advances the scholarship and arguments brought forward by recent statist

literatures<sup>808</sup> by suggesting and examining which regulatory instruments have arisen in the state toolkit aiming at shaping the liberalization and internationalization of markets.

## 6. BEYOND PLAIN-VANILLA PROTECTIONISM

The analysis then investigated how competition interacts with the WTO regime and whether an integration of competition policy within the WTO is advisable to address the trade-restrictive measures implemented by latecomers and caused, at least partially, by the differences in views and uncertainty that characterized the tensions between patents and standards, as well as the strategic use of IP to extract higher royalties on par with advanced countries.

Expanding recent scholarly literature, the study focused on China's stance on standardization and the use of standards as a protectionist regulatory tool to countervail strategic patenting by advanced countries. The US and the EU have recurrently raised critiques claiming China's support of domestic standards amounts to a national policy of protectionism, in violation of the WTO/TBT commitments. As a response, the Chinese delegation to the WTO has persistently raised the argument that mandatory imposition of proprietary technology standards fetters international trade.

My analysis investigated this perception of unfairness concerning standards, and embarked on an examination of the efforts made by the Chinese government to use standards as a protectionist tool.

Assessing a number of study cases, namely the WAPI case, the TD-SCDMA case and the EVD case, my analysis eventually suggested that Indigenous Innovation is not the ultimate aim of China's strategy. Rather, sheltering specific domestic industries represents only one aspect of a greater strategy designed at increasing Chinese firms' status within the world's supply chain and trade arena. It emerges as a many-sided effort towards modifying international norms towards a paradigm closer to China's economic interests and, arguably, more in harmony

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<sup>808</sup> B. Clift-C. Woll, *Economic Patriotism: Reinventing Control Over Open Markets*, 19 JOURNAL OF EUROPEAN PUBLIC POLICY 3, 2012, pp. 307-323.

with Chinese approaches towards proprietary technology.<sup>809</sup> This conclusion seems to be confirmed by the EDV case, whose empirical evidences have shown that the development of the EVD triggered a spark of royalty concessions from major IP-rich Western companies who held patents vital to the DVD standard.

However, incorporating competition in the WTO regime as well as standards is not an easy task, as a number of challenges arise.

The first challenge to be addressed concerns the absence of a competition regime at the multinational level. Indeed, developing countries opposed fiercely the integration of a competition policy within the WTO regime. Their concerns at having their policy margin of maneuver limited prevailed on the interests of establishing a more consistent international level playing field touching upon competition concerns. WTO members have then failed to come to a decision on whether the WTO should start looking at some new issues such as competition.

However, my study highlights that the WTO already features a bundle of provisions which address a number of measures, such as NTBs, that could ideally carry a protectionist purpose over domestic interests, thus impeding competition from imports. Moreover, several obligations set forth in the TBT Agreement come to play in an endeavor to address the main concerns related to the interplay between standardization, competition and international trade and which might constitute a starting point to delineate what good governance canons should be relied on under competition rules, namely provisions tackling discrimination against like products from other countries by means of standards, SSOs protectionist practices backed by governmental policies and, finally, cases where preference to international standards is not given, provided that recitals of the TBT Agreement point in favor of international solutions over national ones addressing the problem of fragmented markets due to standards.<sup>810</sup>

The second challenge to be addressed concerns the notion of “*relevant international standards*” within the meaning of the TBT Agreement. Actually,

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<sup>809</sup> Christopher McElwain, *The World's Laboratory: China's Patent Boom, IT Standards and the Implications for the Global Knowledge Economy*, 14 SANTA CLARA JOURNAL OF INTERNATIONAL LAW 441 (2016), p. 452-453.

<sup>810</sup> See, Recital 4 of the TBT Agreement.

even though article 2.4 of the TBT Agreement commands WTO members to use “*relevant international standards as a basis for*” settling national standards, it does not outline the notion of “international standards”, whose individualization has been far from unequivocal and has failed to result in legal certainty. The terminology matter is made yet even more equivocal by the spreading of numerous actors in the ICT standard-setting panorama, such as informal SSOs and consortia, which aggravates the effort in setting the meaning of “international standardization body”.

The answers to the challenges my research pointed out are far from certain and required an examination of the pertinent case law applied to the ICT standardization. It is thus sensible to seek guidance in the WTO’s jurisprudence on technical standards.

Arguably, the TRIPs Agreement, given that it touches upon the issues raised by IP in standards, also raises questions as to whether it is capable of addressing the international dimension of competition policy and IP rights in standardization.

Analyzing the TRIPs provisions specifically, it emerged that this legal instrument could be particularly useful. Indeed, from a domestic perspective, litigation on IPRs in standards can trigger remedies descending from competition and patent laws, depending on the national laws of each country. These remedies, however, barely tackle the issues raised by the use, certainty and efficiency of standards. Against this background, SSOs, as well as governments, strive to design, adopt and implement standardization policies capable of addressing these issues, focusing on IP misuse, and anticompetitive conduct, as well as the definition of FRAND terms. Therefore, the appreciation of the relationship between IPRs – mainly having a domestic scope as they are granted nationally – and standards – which, in reverse, directly affects global trade – lags behind. For these reasons, TRIPs could be the right tool and step in to tackle the relationship with IPRs in standards and international trade at the global level. However, it presents several shortcomings which stem directly from an analysis of the main articles of TRIPs my study scrutinized.

## **7. PERSPECTIVES: TOWARDS A PRELUDE TO GLOBAL COMPETITION POLICY OR TO ECONOMIC BALKANIZATION?**

The conclusion stemming from my analysis hints to the conviction that it is past time to embark on a new path of negotiations within the WTO on issues such as competition policy, which are of great relevance to the current status of international trade. However, I do not neglect that this conclusion clashes with the reality: competition policy at the international level is still disciplined in a fragmented manner, through rules diverging in every single country, giving rise to inter-jurisdictional conflicts. At the same time, I am convinced that WTO members will incur in an irreparable loss if they keep showing indolence to this situation, as it is likely to create a substantial economic burden for operators. Paradoxically, ignoring the competition dimension in international trade, as the standardization saga is showing, will also not serve national protectionist industrial policies implemented via economic regulation, and specifically, among others, by means of competing domestic technological standards. These policies might, in the long run, carry the risk of isolating the states that adopt them, as selective liberalism translates into economic balkanization of the global trade arena, and will be more detrimental to economic development than useful.

In an effort to outline a more feasible approach, I also pondered a more nuanced approach. Indeed, provided that instituting an overarching competition policy within the WTO regime seems to be a goal hard to be attained presently, in light of the oppositions encountered so far, the focus should shift to emphasizing a “principle-based approach”. This would call for an interpretation of the WTO provisions as to guarantee the core values of competition policy. As a matter of fact, although there is no universally accepted competition law nor policy, there has been considerable agreement on some core principles, to be precise, transparency and non-discrimination between domestic and foreign companies. A principle-based paradigm could ultimately be leading towards a depoliticisation of competition law, excerpting and identifying industrial policy considerations from the competition law framework and making them highly visible, and thus recognizable. I substantially share the view that the focus should not be on

whether or not industrial policy is a factor in a competition analysis, but rather on determining which of the two interests should prevail where conflict arises.<sup>811</sup>

However, my study acknowledges that internalizing the core values of competition policy and law within the international trade law regime would – still – call for a normative solution to the current divergences about IP and competition notions and theories stemming from inconsistent competition rules and enforcement.

On a different and complementary level, the hitches in gauging the role of WTO rules *vis-à-vis* anticompetitive conduct makes a more robust argument in favor of the development of a “global competition policy” based, among other things, on competition advocacy and soft legal tools. This could foster greater harmonization in competition theories and enforcement at the global level, as well as promotion of soft law practices and best practices addressing a series of anticompetitive actions, put in place by both private companies and governments to restrict competition and support anticompetitive measures which are aimed at favoring a certain industry.<sup>812</sup>

As a matter of facts, the present study has shed light on the fact that there is no one-size-fits-all solution responding to all and every competition policy and international trade, let alone in the ever-evolving standardization context.

Zooming into the contemporary time, it seems that future research in the field should also increasingly focus on uncovering how different competition and trade regulation approaches will impact China’s, EU’s and the US’s trade policies in a not too distant future.

The alleged Chinese protectionism might indeed have a wider effect than expected. Let’s take US President Trump’s promises, made along the course of his presidential campaign and reiterated after his inauguration, to embrace a protectionist trade policy such as placing import duties on goods coming from

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<sup>811</sup> Jonathan Galloway, *The Pursuit of National Champions: The Intersection of Competition Law and Industrial Policy*, EUROPEAN COMPETITION LAW REVIEW 2007, pp. 14-15.

<sup>812</sup> James C. Cooper, William E. Kovacic, U.S. *Convergence with International Competition Norms: Antitrust Law and Public Restraints on Competition*, 90 BOSTON UNIVERSITY LAW REVIEW 4 (2010), p. 1582.

certain countries, with China being its chief objective, and promoting several regulatory actions in support for domestic companies.

These announcements, whose becoming reality is far from clear, seem to echo what has been at the core of China's trade policy dynamic for the past three decades. This further supports the thesis that the economy must be expressive of and conducive to the shaping of industrial policies and economic development goals. As such, the seemingly protectionist approach embraced by the new US administration could be construed as a response to the stance taken by China's leadership concerning economic nationalism and selective liberalism.

The US's protectionist backlash and constant stance that China is to be held accountable for failing to honor its commitments is also paralleled in recent actions taken by the EU, whose Member States have often raised critical voices on the trade-restrictiveness strategies adopted by Beijing.

In this vein, the EU denied market status to China in 2016. Pursuant to Section 15 of the Chinese WTO Accession Protocol, China can be treated as a non-market economy ("NME") in anti-dumping investigations in case Chinese firms cannot demonstrate that they operate under criteria required to qualify as a market economy. This NME status is especially relevant in anti-dumping proceedings where it allows the use of non-standard methodologies for price comparisons in assessing the normal value of the goods, rather than using domestic prices to compute the dumping margin. This aspect is particularly relevant to China, as NME methodologies to calculate normal value have generally led to more onerous anti-dumping duties.<sup>813</sup> China has contended that, pursuant to Section 15(d) of the WTO Accession Protocol, the Section 15 provision allowing for NME methodology terminated after 11 December 2016, giving rise to a legal obligation to award market economy status to China after that date. The interpretation of this section, however, remains highly contentious. Moreover, the EU and US have resisted China's bid for market economy status, triggering Beijing

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<sup>813</sup> United States Government Accountability Office, *US-China Trade – Eliminating Non-Market Economy Methodology would lower Antidumping duties for some companies*, January 2006.



to launch action before the WTO on 12 December 2016 by requesting consultations with the EU.<sup>814</sup>

Moreover, in February 2017, EU member states officially requested that the European Commission create a legal basis for blocking Chinese investments in high-tech industries.<sup>815</sup> Specifically, Germany, France and Italy have called on Brussels to grant them a right of veto over Chinese high-tech takeovers, in what appears to be a mounting protectionist backlash against Chinese investment in the EU's most sensitive industries.<sup>816</sup>

The request was triggered, *inter alia*, by China's ambitious plan, termed "Made in China 2025" (in Chinese, "中国制造2025"), aimed at turning the country into a "manufacturing superpower" over the coming decades. This industrial policy targets virtually all high-tech industries that strongly contribute to economic growth in advanced economies, including the ICT sector. However, Chinese effort is far broader, such as avoiding being clutched by both recently emerging low-cost producers and more efficiently cooperating and competing with advanced industrialized economies.

Critics have argued that Made in China 2025 ultimately aims for substitution: "*China seeks to gradually replace foreign with Chinese technology at home – and to prepare the ground for Chinese technology companies entering international markets*".<sup>817</sup> In order to achieve these goals, government entities at all levels would provide large, low-interest amounts of money from state-owned investment funds and development banks.

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<sup>814</sup> DS516: *European Union — Measures Related to Price Comparison Methodologies*.

<sup>815</sup> See David Kleimann, *Conferring 'Market Economy Status' to China in the EU – A Mission Impossible?*, EJIL: Talk! (2016), arguing that "Art.15 CAP does not, after December 11, 2016, allow for the use of non-standard methodologies for price comparisons in anti-dumping investigations that are inconsistent with the provisions of the WTO Anti-Dumping Agreement. [...] In order to comply with its WTO obligations after December 11, 2016, [...] EU institutions need to bring EU secondary legislation and future anti-dumping measures against Chinese producers into conformity with the WTO Anti-Dumping Agreement. It is beyond doubt otherwise that the EU will be subject to a larger number of unfavorable legal decisions adopted by the WTO Dispute Settlement Body. In the aftermath of these decisions, in case of non-compliance, the EU will be confronted with hefty retaliatory measures authored by China and authorized by the WTO Dispute Settlement Body".

<sup>816</sup> The Financial Times, Guy Chazan, *EU capitals seek stronger right of veto on Chinese takeovers*, 14 Feb. 2017.

<sup>817</sup> JOST WUBBEKE ET AL., *MADE IN CHINA 2025: THE MAKING OF A HIGH-TECH SUPERPOWER AND CONSEQUENCES FOR INDUSTRIAL COUNTRIES*, MERCATOR INSTITUTE FOR CHINA STUDIES (MERICS), 2016.

Indeed, the terms used in the plan – such as “*indigenous innovations*” – support this thesis, showing that the strategy intends to increase the domestic market share of Chinese suppliers for basic core components and important basic materials to 70 per cent by the year 2025.<sup>818</sup> Examples especially telling of China turning into manufacturing “*self-sufficiency*” are not difficult to find. For instance, looking to move away from both the US’s Qualcomm and Taiwanese MediaTek, China’s Xiaomi is now exploring ways to make its own chipsets.<sup>819</sup> Prospectively, this latest development directly involves standardization as it targets a large plethora of high-tech industries. It is also likely to involve competition and international trade issues. Notably, whilst Chinese companies take advantage of immense state assistance, their foreign rivals entering the Chinese market are likely to face a bundle of barriers and obstacles consisting of discriminatory practices and restriction of market access. Again, the concern raised is that Chinese smart manufacturing standards for key technologies, principally those strategically central technologies with solid data security distresses, will present a limited compliance with international standards. In the worst case scenario, domestic standards would exclude foreign manufacturers from the Chinese market, unless they accept switching to Chinese indigenous standards and paying royalties for offering products relying on Chinese standards.

The political positions cited above indicate that the process of bringing Chinese legislation and practice into conformity with WTO law, as well as ensuring a more uniform enforcement of competition rules deprived of industrial policy concerns, could prove to be a tough mission, given that the EU and the US also are showing a trend towards a legally impracticable path of industry protection.

As we find ourselves in a time of uncertainty and are observing a strong escalation in populism, legal scholars must be cautious and adopt a balanced approach. More research is needed to understand which of the regulatory patterns discussed in this study are advisable in today’s technology-driven landscape.

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<sup>818</sup> *Id.*

<sup>819</sup> The Wall Street Journal, *China’s Xiaomi to Take On Top Tier With Smartphone Chip of Its Own*, Feb. 9, 2017.

## BIBLIOGRAPHY

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- J. ABBATE, *Inventing the Internet* (CAMBRIDGE, MA: MIT PRESS, 1999).
- K. W. ABBOT, *US-EU Dispute over Technical Barriers to Trade and the “Hushkit” Dispute*, in ERNST-ULRICH PETERSMANN AND MARK A. POLLACK (EDS.), *Transatlantic Economic Disputes: the EU, the US, and the WTO* (OXFORD: OXFORD UNIVERSITY PRESS, 2003).
- A. F. ABBOTT, S. SINGHAM, *Competition policy and international trade distortions*, EUROPEAN YEARBOOK OF INTERNATIONAL ECONOMIC LAW (2013).
- D. ACEMOGLU, G. GANCIA, F. ZILIBOTTI, *Competing engines of growth: Innovation and standardization*, 147 JOURNAL OF ECONOMIC THEORY (2012).
- R. ADAM, A. TIZZANO, *MANUALE DI DIRITTO DELL’UNIONE EUROPEA* (GIAPPICHELLI, 2014).
- T. ALTENBURG, H. SCHMITZ, A. STAMM, *Breakthrough: China’s and India’s transition from production to innovation*, 36 WORLD DEVELOPMENT 2 (2008).
- A. AMSDEN, *Escape from Empire: The Developing World’s Journey through Heaven and Hell* (CAMBRIDGE, MA: MIT PRESS, 2007).
- B. AN, *Intellectual Property Rights in Information and Communications Technology Standardization: High Profile Disputes and Potential for Collaboration between the United States and China*, 45 TEXAS INTERNATIONAL LAW JOURNAL (2009).
- S. D. ANDERMAN, *Microsoft e il problema dell’interoperabilità*, MERCATO CONCORRENZA REGOLE (2007).
- T. ANDERSON, *Technological Discontinuities and Dominant Designs: A Cyclical Model of Technological Change*, 35 ADMINISTRATIVE SCIENCE QUARTERLY (1990).
- R. AOKI, A. SCHIFF, *Promoting access to intellectual property: patent pools, copyright collectives, and clearinghouses*, 38 R&D MANAGEMENT (2008).
- D. ARCHIBUGI, DANIELE, A. FILIPPETTI, *The Handbook of Global Science, Technology, and Innovation* (JOHN WILEY & SONS, 2015).
- K. ARROW, *Economic Welfare and the Allocation of Resources for Invention*, in R. R. NELSON (ED), *The Rate and Direction of the Inventive Activity: Economic and Social Factors* (PRINCETON 1962).
- M. BAILEY, OXFAM ET AL., *Unwanted, Unproductive and Unbalanced: Six Arguments Against an Investment Agreement at the WTO* (2003).
- J. BARTON, *Antitrust Treatment of Oligopolies with Mutual Blocking Patent Portfolios*, 69 ANTITRUST LAW JOURNAL (2002).
- W. J. BAUMOL, A. S. BLINDER, *Economics: Principles and Policy* (5TH ED. FORT WORTH, TX: HARCOURT BRACE JOVANOVICH, 1991).

- M. BEDNAREK, M. INEICHEN, *Patent pools as an alternative to patent wars in the emergent sectors*, 16 INTELLECTUAL PROPERTY AND TECHNOLOGY LAW JOURNAL 7 (2004).
- M. BELL, *Time and technological learning in industrialising countries: How long does it take? How fast is it moving (if at all)?*, 36 INTERNATIONAL JOURNAL OF TECHNOLOGY MANAGEMENT (2006).
- BELLAMY AND CHILD, EUROPEAN UNION LAW OF COMPETITION (OXFORD UNIVERSITY PRESS, 2013).
- D. BENOLIEL, *Technological Standards, Inc.: Rethinking Cyberspace Regulatory Epistemology*, 92 CALIFORNIA LAW REVIEW 1069 (2004).
- J. BESSEN, M. J. MEURER, *Patent Failure: How Judges, Bureaucrats, and Lawyers Put Innovators at Risk* (PRINCETON, NJ: PRINCETON UNIVERSITY PRESS 2008).
- B. BIDDLE ET AL., *The Expanding Role and Importance of Standards in the Information and Communications Technology Industry*, 52 JURIMETRICS 177 (2012).
- K. BLIND, A. JUNGMITTAG, *The Impact of Patents and Standards on Macroeconomic Growth : A Panel Approach Covering Four Countries and 12 Sectors*, 29 JOURNAL OF PRODUCTIVITY ANALYSIS (2008).
- K. BLIND, N. THUMM, E. IVERSEN, K. HOSSAIN, R. VAN REEKUM, B. RIXIUS, R. BIERHALS, J. SILLWOOD, *Interaction between Standardisation and Intellectual Property Rights*, TECHNICAL REPORT EUR 21074 EN (2004).
- K. BLIND, *Standardisation: a catalyst for innovation; Inaugural address* (ERASMUS UNIVERSITY ROTTERDAM, 2009).
- K. BLIND, *The Economics of Standards: Theory, Evidence, Policy* (EDWARD ELGAR: UK, 2004).
- R. H. BORK, *The Antitrust Paradox* (FREE PRESS 1993).
- Y. BOTTEMAN, A. PATSA, *Towards a more sustainable use of commitment decisions in Article 102 TFEU cases*, 1 JOURNAL OF ANTITRUST ENFORCEMENT 2 (2013).
- J. BRAY, *Firmly Grasping the Knife: An Investigation of the Asymmetric Application of Chinese Antitrust Law as a Protectionist Tool*, 24 CARDOZO JOURNAL OF INTERNATIONAL & COMPETITION LAW (2015).
- M. BREDE, F. BOSCHETTI, *Commons and anticommons in a simple renewable resource harvest model*, 6 ECOLOGICAL COMPLEXITY (2008).
- D. BREZNITZ, M. MURPHREE, *The Rise of China in Technology Standards: New Norms in Old Institutions*, PREPARED FOR THE US-CHINA ECONOMIC AND SECURITY REVIEW COMMISSION 16 (2013).
- D. BREZNITZ, M. MURPHREE, *Run of the Red Queen: Government, Innovation, Globalization, and Economic Growth in China* (NEW HAVEN, CN: YALE UNIVERSITY PRESS, 2010).
- M. BRONCKERS, P. LAROUCHE, *Telecommunications Services*, in PATRICK MACRORY, ARTHUR APPLETON AND MICHAEL PLUMMER (EDS.), *The World Trade Organization: Legal, Economic and Political Analysis* (DORDRECHT: SPRINGER, 2005).

- G. BRUZZONE, M. BOCCACCIO, *Chapter 5: Standards under EU competition law: the open issues*; COMPETITION LAW AND INTELLECTUAL PROPERTY (KLUWER LAW INTERNATIONAL, Vol. 50) 2012.
- E. BRYNJOLFSSON, C. F. KEMERER, *Network Externalities in Microcomputer Software: An Econometric Analysis of the Spreadsheet Market*, 42 MANAGEMENT SCIENCE 12 (1996).
- D. BULMAN, M. EDEN, H. NGUYEN, *Transitioning from low-income growth to high-income growth: is there a middle-income trap?*, JOURNAL OF THE ASIA PACIFIC ECONOMY (2016).
- T. BÜTHE, W. MATTLI, *Setting International Standards – Technological Rationality or Primacy of Power?*, 56 WORLD POLITICS (2003).
- T. BÜTHE, W. MATTLI, *The New Global Rulers: The Privatization of Regulation in the World Economy* (PRINCETON: PRINCETON UNIVERSITY PRESS, 2011).
- P. CAMESASCA ET AL., *Injunctions for Standard-Essential Patents: Justice is not Blind*, 9 JOURNAL OF COMPETITION LAW & ECONOMICS 2 (2013).
- C. CAO, *Zhongguancun and China's High-Tech Parks in Transition*, 44 ASIAN SURVEY 5 (2004).
- C. CAO, R. P. SUTTMEIER, D. F. SIMON, *China's 15-year science and technology plan*, PHYSICS TODAY (2006).
- B. CARLSSON, R. STANKIEWICZ, *On the Nature, Function and Composition of Technological Systems*, in HORST HANUSCH (ED), *The legacy of Joseph A. Schumpeter. VOLUME 1 (1999) Intellectual Legacies in Modern Economics*, VOL. 4 (CHELTENHAM, U.K. AND NORTHAMPTON, MASS.: ELGAR 1999).
- M. A. CARRIER, *A roadmap to the smartphone patent wars and FRAND licensing*, CPI ANTITRUST CHRONICLE 2 (2012).
- C. CHAFFER, *Prohibiting discriminatory cross-licensing*, 21 INFORMATION & COMMUNICATIONS TECHNOLOGY LAW 2 (2012).
- E. CHAMBERLIN, *The Theory of Monopolistic Competition*, 56–70 (1933).
- L. CHOUKROUNE, *Chine et OMC: l'état de droit par l'ouverture au commerce international?*, 6 REVUE DE DROIT DES AFFAIRES INTERNATIONALES (2002).
- K. COATES, *Competition Law and Regulation of Technology Markets* (OXFORD UNIVERSITY PRESS, 2011)
- J.L. CONTRERAS, *Patents, Standards and Borders: Addressing National Disparities among Holders of Standard-Essential Patents*, EAST-WEST CENTER WORKSHOP ON MEGA-REGIONALISM - NEW CHALLENGES FOR TRADE AND INNOVATION (2016).
- J. L. CONTRERAS, *Divergent Patterns of Engagement in Internet Standardization: Japan, Korea and China*, 38 TELECOMMUNICATIONS POLICY 914-932 (2014).
- J. L. CONTRERAS, *Patents, Technical Standards and Standard-Setting Organizations: A Survey of the Empirical, Legal and Economics Literature* in PETER S. MENELL & DAVID SCHWARTZ (EDS.), RESEARCH HANDBOOK ON THE ECONOMICS OF INTELLECTUAL PROPERTY LAW, VOL. II – ANALYTICAL METHODS (EDWARD ELGAR 2016).

- J. C. COOPER, W. E. KOVACIC, *U.S. Convergence with International Competition Norms: Antitrust Law and Public Restraints on Competition*, 90 BOSTON UNIVERSITY LAW REVIEW 4 (2010).
- B. CORTESE, F. FERRARO, P. MANZINI, *Il diritto antitrust dell'Unione europea* (GIAPPICHELLI, 2014).
- A. COURNOT, *Recherches sur les Principes Mathematiques de la Theorie des Richesses* (HACHETTE, 1838).
- Z. K. CROMER, *China's WAPI policy: security measure or trade protectionism?*, 4 DUKE LAW & TECHNOLOGY REVIEW 1 (2005).
- D. CULLEY, M. DHANANI, M. DOLMANS, *Learning From Rambus: How to Tame Those Troublesome Trolls*, 57 THE ANTITRUST BULLETIN (2013).
- P. A. DAVID, *Some New Standards for the Economics of Standardization in the Information Age*, in DASGUPTA & STONEMAN (EDS.) *Economic Policy and Technological Performance* (CAMBRIDGE; CAMBRIDGE UNIVERSITY PRESS, 1987).
- M. D'ALBERTI, *Diritto della concorrenza e regolazione in una prospettiva ultranazionale*, in C. RABITTI BEDOGNI, P. BARUCCI (EDS.), *Vent'anni di antitrust. L'evoluzione dell'Autorità garante della concorrenza e del mercato* (GIAPPICHELLI, 2010).
- F. DENG, S. SUN, *Determining the FRAND Rate: U.S. Perspectives on Huawei v. InterDigital*, CPI ANTITRUST CHRONICLE (2014).
- S. DEN UIJL, R. BEKKERS, H.J. DE VRIES, *Managing Intellectual Property Using Patent Pools: lessons from three generations of pools in the optical disc industry*, 55 CALIFORNIA MANAGEMENT REVIEW 4(2013).
- M. DISTEFANO, *Soluzione delle controversie nell'OMC e diritto internazionale* (CEDAM, PADOVA 2001).
- M. DOLMANS, D. ILAN, *European Antitrust and Patent Acquisition: Trolls in the Patent Thickets*, 8 JOURNAL OF THE ANTITRUST COMMITTEE OF THE INTERNATIONAL BAR ASSOCIATION 2 (2012).
- M. DOLMANS, *Standards for standards*, 26 FORDHAM INTERNATIONAL LAW JOURNAL (2002).
- J. DREXL, *Anti-competitive Stumbling Stones on the Way to a Cleaner World: Protecting Competition in Innovation Without a Market*, 8 JOURNAL OF COMPETITION LAW & ECONOMICS (2012).
- J. DREXL, *Intellectual property in competition: How to promote dynamic competition as a goal*, in JOSEF DREXL ET AL (EDS.), *MORE COMMON GROUND FOR INTERNATIONAL COMPETITION LAW?* (EDWARD ELGAR, 2011).
- J. DREXL, *Competition Law as Part of the European Constitution*, in A. VON BOGDANDY, J. BAST (EDS.), *PRINCIPLES OF EUROPEAN CONSTITUTIONAL LAW* (HART PUBLISHING, 2010).
- G. DUFEY, *Patents and Standardisation: Competition Concerns in New Technology Markets*, GLOBAL ANTITRUST REVIEW 2013.

- N. ECONOMIDES, STEVEN C. SALOP, *Competition and integration among complements, and network market structure*, THE JOURNAL OF INDUSTRIAL ECONOMICS (1992).
- P. EECKHOUT, *External Relations of the European Union, Legal and Constitutional Foundations* (OXFORD UNIVERSITY PRESS, OXFORD 2004).
- C. D. EHLERMANN, *The Modernization of EC Antitrust Policy: A Legal and Cultural Revolution*, COMMON MARKET LAW REVIEW (2000).
- D. ERNST, *Innovation offshoring: root causes of Asia's rise and policy implications*, in JUAN J. PALACIOS, (ED), *Multinational corporations and the emerging network economy in the Pacific Rim* (LONDON: ROUTLEDGE, 2007).
- D. ERNST, *A new geography of knowledge in the electronics industry? Asia's role in global innovation networks*, 54 POLICY STUDIES, HONOLULU, HI: EAST-WEST CENTER, 2009.
- D. ERNST, *Complexity and internationalization of innovation: Why is chip design moving to Asia?* 9 INTERNATIONAL JOURNAL OF INNOVATION MANAGEMENT 1 (2005)
- D. ERNST, *Limits to modularity: Reflections on recent developments in chip design*, 12 INDUSTRY AND INNOVATION 3 (2005).
- D. ERNST, *Indigenous innovation and globalization: The challenge for China's standardization strategy* (2011).
- D. ERNST, H. LEE, J. KWAK, *Standards, innovation, and latecomer economic development: Conceptual issues and policy challenges*, 38 TELECOMMUNICATIONS POLICY 10 (2014)
- S. EZELL AND R. D. ATKINSON, *The Middle Kingdom Galapagos Island Syndrome: The Cul-De-Sac of Chinese Technology Standards*, INFORMATION TECHNOLOGY AND INNOVATION FOUNDATION (2014).
- P. D. FARAH, E. CIMA, *China's Participation in the World Trade Organization: Trade in Goods, Services, Intellectual Property Rights and Transparency Issues*, in LOPEZ-TARRUELLA MARTINEZ, AURELIO (ED) *El comercio con China. Oportunidades empresariales, incertidumbres jurídicas* (TIRANT LE BLANCH, 2010).
- P. D. FARAH, *Five Years of China WTO Membership: EU and US Perspectives About China's Compliance With Transparency Commitments and the Transitional Review Mechanism Legal Issues of Economic Integration* (KLUWER LAW INTERNATIONAL, VOL. 33, NO. 3, 2006).
- S. B. FARMER, *The Impact of China's Antitrust Law and Other Competition Policies on U.S. Companies*, 23 LOYOLA CONSUMER LAW REVIEW 34 (2010).
- A. FARRAR-LAYNE, *Nondiscriminatory pricing – is standard setting different*, 6 JOURNAL OF COMPETITION LAW & ECONOMICS 4 (2010).
- J. FARRELL ET AL., *Standard Setting, Patents, and Hold-Up*, 74 ANTITRUST LAW JOURNAL, 3 (2007).
- J. FARRELL, G. SALONER, *Standardisation, Compatibility and Innovation*, 16 RAND JOURNAL OF ECONOMICS 1 (1985).
- J. FARRELL, G. SALONER, *Economic issues in standardization* (1985).

- P. FATTORI, M. TODINO, *La disciplina della concorrenza in Italia* (IL MULINO, 2010).
- J. FAULL, A. NIKPAY, *The EC Law of Competition* (OXFORD UNIVERSITY PRESS, 2007).
- J. FEINERMAN, *China's Quest to Enter the GATT/WTO*, 90 AMERICAN SOCIETY OF INTERNATIONAL LAW PROCEDURE (1996).
- R. FELDMAN, T. EWING, S. JERUSS, *The AIA 500 Expanded: The Effects of Patent Monetization Entities*, 17 UCLA JOURNAL OF LAW AND TECHNOLOGY, 1 (2013).
- D. FORAY, *The economics of intellectual property rights and systems of innovation: the persistence of national practices*, in HAGEDOORN (ED) TECHNICAL CHANGE AND THE WORLD ECONOMY (EDWARD ELGAR, 1995).
- E. M. FOX, *The WTO's First Antitrust Case – Mexican Telecom: A Sleeping Victory for Trade and Competition*, 9 JOURNAL OF INTERNATIONAL ECONOMIC LAW 271 (2006).
- T. L. FRIEDMAN, *The world is flat: The globalized world in the twenty-first century* (LONDON: PENGUIN 2006).
- A. FRIGNANI, M. WAELBROEK, *Disciplina della concorrenza nella CE* (GIAPPICHELLI, 1996).
- A. FUCHS, *Patent ambush strategies and Article 102 TFEU*, in JOSEF DREXL ET AL (EDS.), MORE COMMON GROUND FOR INTERNATIONAL COMPETITION LAW? (EDWARD ELGAR, 2011).
- M. S. GAL, *Regional Competition Law Agreements: An Important Step for Antitrust Enforcement*, 60 UNIVERSITY OF TORONTO LAW JOURNAL 239 (2010).
- A. GALEOTTI ET AL, *Network games*, 77 THE REVIEW OF ECONOMIC STUDIES 1 (2010).
- J. GALLOWAY, *The Pursuit of National Champions: The Intersection of Competition Law and Industrial Policy*, EUROPEAN COMPETITION LAW REVIEW (2007).
- N. GANDAL, *Competing Compatibility Standards and Network Externalities in the PC Software Market*, 77 THE REVIEW OF ECONOMICS AND STATISTICS 4 (1995).
- P. GAO, *Counter-networks in Standardisation: a perspective from developing countries*, 17 INFORMATION SYSTEMS JOURNAL (2007).
- P. GENSCHEL, *How Fragmentation Can Improve Co-ordination: Setting Standards in International Telecommunications*, 18 ORGANIZATION STUDIES 603 (1997).
- D. GERADIN, M. RATO, *Can Standard-Setting Lead to Exploitative Abuse? A Dissonant View on Patent Hold-up, Royalty Stacking, and the Meaning of FRAND*, 3 EUR. COMPETITION J. 101 (2007).
- P. GEROSKI, *Markets for Technology: Knowledge, Innovation and Appropriability*, in P. STONEMAN (ED) HANDBOOK OF THE ECONOMICS OF INNOVATION AND TECHNOLOGICAL CHANGE (BLACKWELL: CAMBRIDGE, USA, 1995).
- A. GERSCHENKRON, *Economic Backwardness in Historical Perspective* (CAMBRIDGE, MA: HARVARD UNIVERSITY PRESS 1962); M. HOBDAY, *Innovation in Asian industrialization: A Gerschenkronian perspective*, 31 OXFORD DEVELOPMENT STUDIES 3 (2003).



- C. S. GIBSON, *Globalization and Technology Standards Games: Balancing Concerns of Protectionism and Intellectual Property in International Standards*, 22 BERKLEY TECHNOLOGY LAW JOURNAL (2007).
- R. J. GILBERT, *Deal or No Deal? Licensing Negotiations In Standard-Setting Organizations*, 77 ANTITRUST LAW JOURNAL 855 (2011).
- R. GILBERT, D. NEWBERRY, *Preemptive Patenting and the Persistence of Monopoly*, 72 THE AMERICAN ECONOMIC REVIEW (1982).
- D. S. GREWAL, *Network power: The social dynamics of globalization* (NEW HAVEN, CT: YALE UNIVERSITY PRESS, 2008).
- V. C. GUNGOR, D. SAHIN, T. KOÇAK, S. ERGÜT, C. BUCCELLA, C. CECATI, G. P. HANCKE, *Smart Grid Communication Technologies and Standards*, 7 IEEE TRANSACTIONS ON INDUSTRIAL INFORMATICS 4, (2011).
- A.T. GUZMAN, *International Antitrust and the WTO: The Lesson from Intellectual Property*, 43 VIRGINIA JOURNAL OF INTERNATIONAL LAW 933 (2003).
- A. HAGIU, D. B. YOFFIE, *The New Patent Intermediaries: Platforms, Defensive Aggregators, and Super-Aggregators*, JOURNAL OF ECONOMIC PERSPECTIVES (2013).
- M. HAN, K. LI, *Huawei v. InterDigital: China at the Crossroads of Antitrust and Intellectual Property, Competition and Innovation*, COMPETITION POLICY INTERNATIONAL (2013).
- H. S. HARRIS, JR., *An Overview of the NDRC Decision in the Qualcomm Investigation*, 7 ANTITRUST CHRONICLE (2015).
- B. HAZUCHA, *Technical Barriers to Trade in Information and Communication Technologies*, in TRACEY EPPS AND MICHAEL J. TREBILCOCK (EDS.), *Research Handbook on the WTO and Technical Barrier to Trade* (CHELTENHAM: EDWARD ELGAR PUBLISHING 2014).
- F. A. HAYEK, *New Studies on Philosophy, Politics, Economics, and the History of Ideas* (ROUTLEDGE AND K. PAUL, 1978).
- M. HELLER, *The gridlock economy: How too much ownership wrecks markets, stops innovation, and costs lives* (BASIC BOOKS, 2010).
- M. HELLER, R. EISENBERG, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCIENCE (1998).
- M. A. HELLER, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARVARD LAW REVIEW (1998).
- M.A. HELLER, *The tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARVARD LAW REVIEW (1997).
- M. HESS, N.M. COWE, *Making connections: global production networks, standards, and embeddedness in the mobile-telecommunications industry*, 38 ENVIRONMENT AND PLANNING A 7 (2006).
- T. HOEHN, A. LEWIS, *Interoperability Remedies, FRAND Licensing and Innovation: a review of recent case law*, 34 EUROPEAN COMPETITION LAW REVIEW 2 (2013).

- T. J. HORTON, *Confucianism and Antitrust: China's Emerging Approach to Anti-Monopoly Law*, 47 *INTERNATIONAL LAW* 193, 204 (2013).
- L. HOU, *Qualcomm: How China has Invalidated Traditional Business Models on Standard Essential Patents*, 7 *JOURNAL OF EUROPEAN COMPETITION LAW & PRACTICE* 10 (2016).
- H. J. HOVENKAMP, *Competition for Innovation*, UNIVERSITY OF IOWA LEGAL STUDIES RESEARCH PAPER No. 13-26 (2012).
- R. HOWSE, *A New Device for Creating International Legal Normativity: The WTO Technical Barriers to Trade Agreement and "International Standards"*, in CHRISTIAN JOERGES AND ERNST-ULRICH PETERSMANN (EDS.), *Constitutionalism, Multilevel Trade Governance and Social Regulation* (OXFORD: HART PUBLISHING 2006).
- R. HUDEC, *The GATT Legal System and World Trade Diplomacy* (BUTTERWORTH LEGAL PUBLISHERS, SALEM, NH 1993).
- D. HULL, *The EC's Investigation into the Pharmaceutical Sector: Trouble Ahead at the IP/Competition Intersection?*, 11 *COMPETITION POLICY INTERNATIONAL* 1 (2008).
- ITU, *Understanding patents, competition and standardization in an interconnected world*, 2014.
- M. JACQUES, *When China Rules the World* (2012).
- J. H. JACKSON, *The World Trade Organization, Constitution and Jurisprudence* (ROUTLEDGE, 1998).
- J. H. JACKSON, *World Trade and the Law of GATT* (BOBBS-MERRILL, INDIANAPOLIS 1969).
- J. H. JACKSON, W. J. DAVEY, A. O. SYKES, *Legal problems of International Economic Relations* (5TH EDITION, THOMSON WEST, 2008).
- A. B. JAFFE, J. LERNER, *Innovation and Its Discontents: How Our Broken Patent System is Endangering Innovation and Progress, and What to Do About It* (PRINCETON, NJ: PRINCETON UNIVERSITY PRESS, 2006).
- K. JAYAKAR, *Globalization and Legitimacy of International Telecommunications Standard-Setting Organizations*, 5 *INDIANA JOURNAL OF GLOBAL LEGAL STUDIES* 711 (1998).
- A. JONES, B. SUFRIN, *EU Competition Law, Text, Cases & Materials* (OXFORD UNIVERSITY PRESS, 2014).
- A. JONES, B. SUFRIN, *EC Competition Law Text, Cases and Materials* (OXFORD UNIVERSITY PRESS, 2008).
- M. KATZ AND CARL SHAPIRO, *Systems Competition and Network Effects*, 8 *JOURNAL OF ECONOMIC PERSPECTIVE* (1994).
- M. L. KATZ, C. SHAPIRO, *Network externalities, competition, and compatibility*, 75 *THE AMERICAN ECONOMIC REVIEW* 3 (1985).
- H. KHARAS, *The emerging middle class in developing countries*, OECD DEVELOPMENT CENTRE WORKING PAPER 285 (PARIS: OECD 2010).

- S. KIM, J. A. HART, *The Global Political Economy of Wintelism: A New Mode of Power and Governance in the Global Computer Industry*, in JAMES M. ROSENAU AND J. P. SINGH (EDS.), *Information Technologies and Global Politics* (ALBANY: STATE UNIVERSITY OF NEW YORK PRESS, 2002).
- C. P. KINDLEBERGER, *Standards as Public, Collective and Private Goods*, 36 *KYKLOS* (1983).
- W. E. KOVACIC, *Lessons of Competition Policy Reform in Transition Economies for U.S. Antitrust Policy*, 74 *ST. JOHN'S LAW REVIEW* 361, 363 (2000).
- W. E. KOVACIC, J. C. COOPER, *US Convergence with International Competition Norms: Antitrust Law and Public Restraints on Competition*, 90 *BOSTON UNIVERSITY LAW REVIEW* (2010).
- P. KURUK, *Negotiating Competition Policy in Multilateral Trade Agreements: European Union Overtures to West Africa and the WTO*, *UNIVERSITY OF PENNSYLVANIA JOURNAL OF INTERNATIONAL LAW* 36 (2014).
- J. KWAK, H. LEE, D. B. CHUNG, *The evolution of alliance structure in China's mobile telecommunication industry and implications for international standardization*, 36 *TELECOMMUNICATIONS POLICY* (2012).
- R. LAMPE, P. MOSER, *Do patent pools encourage innovation? Evidence from the nineteenth century sewing machine industry*, 70 *JOURNAL OF ECONOMIC HISTORY* 4 (2010).
- C. LANE, *The Social Regulation of Inter-Firm Relations in Britain and Germany : Market Rules, Legal Norms and Technical Standards*, 21 *CAMBRIDGE JOURNAL OF ECONOMICS* (1997).
- G. LEA, P. HALL, *Standards and intellectual property rights: an economic and legal perspective* *Information*, *ECONOMICS AND POLICY* 16 (2004).
- E. LEE, *The New Canon: Using or Misusing Foreign Law to Decide Domestic Intellectual Property Claims*, 46 *HARVARD INTERNATIONAL LAW JOURNAL* 1 (2005).
- H. LEE, O. SANGJO, *The Political Economy of Standards Setting by Newcomers: China's WAPI and South Korea's WIPI*, 32(9-10) *TELECOMMUNICATIONS POLICY* 662 (2008).
- K. LEE, *Schumpeterian analysis of economic catch-up: Knowledge, path-creation, and the middle-income trap* (CAMBRIDGE UNIVERSITY PRESS, 2013).
- N. LEE, Y. LI, *European Standards in Chinese Courts – A Case of Sep and Frand Disputes in China*, in N LEE, N BRUUN & M LI (EDS.), *Governance of Intellectual Property Rights in China and Europe* (EDWARD ELGAR PUBLISHING, 2016).
- R. LEMA, A. LEMA, *Technology transfer? The rise of China and India in green technology sectors*, 2 *INNOVATION AND DEVELOPMENT* (2012).
- R. LEMA, R. QUADROS, H. SCHMITZ, *Reorganising global value chains and building innovation capabilities in Brazil and India*, 44 *RESEARCH POLICY* 7 (2015).
- M. A. LEMLEY, *Antitrust and the Internet Standardization Problem*, 28 *CONNECTICUT LAW REVIEW* (1996).
- M. A. LEMLEY, *Intellectual property rights and standard-setting organizations*, 90 *CALIFORNIA LAW REVIEW* 6 (2002).

- M. LEMLEY, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CALIFORNIA LAW REVIEW 1889 (2002).
- M. A. LEMLEY, C. SHAPIRO, *Patent Holdup and Royalty Stacking*, 85 TEXAS LAW REVIEW (2007).
- T. LEVITT, *Marketing Success through Differentiation—Of Anything*, HARVARD BUSINESS LAW REVIEW 83 (1980).
- M. C. LIBICKI, *Standards: The Rough Road to the Common Byte*, in BRIAN KAHIN AND JANET ABBATE (EDS.), STANDARDS POLICY FOR INFORMATION INFRASTRUCTURE (Cambridge, MA: MIT Press 1995).
- W. LI, L.C. XU, *The Impact of Privatization and Competition in the Telecommunications Sector Around the World*, 47 JOURNAL OF LAW AND ECONOMICS 395 (2004).
- G. LINDEN, *China Standard Time: A Study in Strategic Industrial Policy*, 6 BUSINESS & POLICY 1 (2004).
- L. S. LIU, *All About Fair Trade? – Competitors Law in Taiwan and East Asian Economic Development*, 57 ANTITRUST BULLETIN (2012).
- H. W. LIU, *International Standards in Flux: A Balkanized ICT Standard-Setting Paradigm and Its Implications for the WTO*, 17 JOURNAL OF INTERNATIONAL ECONOMIC LAW 3 (2014).
- H. W. LIU, SHIN-YI PENG, *Managing Trade Conflicts in the ICT Industry: A Case Study of EU–Greater China Area*, 19 JOURNAL OF INTERNATIONAL ECONOMIC LAW 3 (2016).
- X.L. LIU, *Globalization, catch-up and innovation* (BEIJING: SCIENCE PUBLISHER, 2008).
- D. LUFF, *Le droit de l'Organisation mondiale du commerce. Analyse critique*, (BRUYLANT, BRUXELLES 2004).
- B. LUNDQVIST, *Competition Law as the Limit to Standard-Setting*, in JOSEF DREXL AND FABIANA DI PORTO (ED), COMPETITION LAW AS REGULATION (EDWARD ELGAR 2015).
- B. LUNDQVIST, *Standardization Under EU Competition Rules and US Antitrust Laws: The Rise and Limits of Self-regulation* (EDWARD ELGAR PUBLISHING 2014).
- F. MALERBA, R.R. NELSON, *Economic Development as a Learning Process: Variation Across Sectoral Systems* (EDWARD ELGAR PUBLISHING, 2012).
- V. MANGINI, G. OLIVIERI, *Diritto antitrust* (GIAPPICHELLI, 2012).
- G. A. MANNE, J. D. WRIGHT, *Introduction* to GEOFFREY A. MANNE AND JOSHUA D. WRIGHT (EDS.), COMPETITION POLICY AND PATENT LAW UNDER UNCERTAINTY: REGULATING INNOVATION (Cambridge University Press 2011).
- G. MARCEAU, *Transition from GATT to the WTO: A Most Pragmatic Operation*, 29 JOURNAL OF WORLD TRADE (1995).
- M. MARINIELLO, *European antitrust control and standard setting*, BRUEGEL WORKING PAPER 2012/01.

- J. MATHEWS, *Catch-up strategies and the latecomer effect in industrial development*, 11 NEW POLITICAL ECONOMY (2006).
- C. MCELWAIN, *The World's Laboratory: China's Patent Boom, IT Standards and the Implications for the Global Knowledge Economy*, 14 SANTA CLARA JOURNAL OF INTERNATIONAL LAW 441 (2016).
- J. MCGREGOR, *China's drive for 'indigenous innovation': A web of industrial policies*, US CHAMBER OF COMMERCE (2010).
- F. I. MICHELMAN, *Property, Utility, and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law*, 80 HARVARD LAW REVIEW 1165 (1967).
- J. MOIROUX, *The Internationalization of Competition Policy: The EU and the WTO Between Boldness and Rally*, 2 GLOBAL ANTITRUST REV. 38, 38 (2009).
- F.S. MORTON, C. SHAPIRO, *Strategic Patent Acquisition*, 79 ANTITRUST LAW JOURNAL 463 (2014).
- M. MOTTA, *Competition Policy; Theory and Practice* (CAMBRIDGE UNIVERSITY PRESS, 2004).
- M. MOTTA, M. POLO, *Antitrust, Economia e politica della concorrenza* (IL MULINO, 2005).
- Q. MU, K. LEE, *Knowledge diffusion, market segmentation and technological catch-up: The case of the telecommunication industry in China*, 34 RESEARCH POLICY 6 (2005).
- J. M MUELLER, *Patent Misuse Through The Capture Of Industry Standards*, 17 BERKELEY TECHNOLOGY LAW JOURNAL (2002).
- C. N. MURPHY, *Voluntary Standard Setting: Drivers and Consequences*, 29 ETHICS & INTERNATIONAL AFFAIRS 4 (2015).
- M. MURPHREE, D. BREZNITZ, *Innovation in China: Fragmentation, Structured Uncertainty, and Technology Standards*, 2013 CARDOZO LAW REVIEW DE NOVO 196 (2013).
- F. MURRAY, S. STERN, *Do formal intellectual property rights hinder the free flow of scientific knowledge? An empirical test of the anti-commons hypothesis*, 63 JOURNAL OF ECONOMIC BEHAVIOUR AND ORGANIZATIONS (2007).
- A. MUSELLI, *I diritti di proprietà intellettuale e l'abuso di posizione dominante - Rassegna delle decisioni comunitarie (1988-2010)*, CONCORRENZA E MERCATO (2012).
- B. NASCIBENE, *Giurisprudenza di diritto comunitario* (GIUFFRÈ, 2007)
- R. R. NELSON, *The co-evolution of technology, industrial structure, and supporting structure*, 3 INDUSTRIAL AND CORPORATE CHANGE 1 (1994).
- D. J. NEVEN, P. C. MAVROIDIS, *El mess in TELMEX: a comment on Mexico-measures affecting telecommunications services*, 5 WORLD TRADE REVIEW 271 (2006).
- M. E. J. NEWMAN, *The structure and function of complex networks*, 45 SIAM REVIEW 2 (2003).
- C. NOONAN, *The emerging principles of international competition law* (OXFORD UNIVERSITY PRESS, 2008).

- J. NIOSI ET AL., *National Systems of Production: In Search of a Workable Concept*, 15 TECHNOLOGY IN SOCIETY 207 (1993).
- H. ODAGIRI, A. GORO, A. TSUNAMI, AND R. R. NELSON (EDS.), *Intellectual Property Rights, Development, and Catch-Up* (LONDON: OXFORD UNIVERSITY PRESS 2012).
- R. O'DONOGHUE, J. PADILLA, *THE LAW AND ECONOMICS OF ARTICLE 102 TFEU* (HART PUBLISHING, 2013).
- E. ØSTERUD, *Identifying Exclusionary Abuses By Dominant Undertakings under EU Competition Law: the Spectrum of Tests*, (KLUWER LAW INTERNATIONAL, INTERNATIONAL COMPETITION LAW SERIES, 45, 2010).
- Y. A. PAI, *The international dimension of proprietary technical standards: Through the lens of trade, competition law and developing countries*, 1 LAW, POLICY & ECONOMICS OF TECHNICAL STANDARDS JOURNAL, 1(2013).
- Y. PAI, *Standards-Essential Patents: A Prolegomena*, 19 JOURNAL OF INTELLECTUAL PROPERTY RIGHTS (2014).
- Y. PAI, *The International Dimension of Proprietary Technical Standards: Through the Lens of Trade, Competition Law and Developing Countries*, SOCIAL SCIENCE RESEARCH NETWORK (2012).
- W. PAPE, *Socio-Cultural Differences and International Competition Law*, 5 EUROPEAN LAW JOURNAL 4 (1999).
- S.Y. PENG, *Standards as a Means to Technological Leadership? China's ICT Standards in the Context of the International Economic Order*, in LISA TOOHEY ET AL. (EDS.), *China in the International Economic Order: New Directions and Changing Paradigms* (CAMBRIDGE: CAMBRIDGE UNIVERSITY PRESS, 2015).
- N. PETIT, *Injunctions for FRAND-Pledged SEPs: The Quest for an Appropriate Test of Abuse Under Article 102 TFEU*, 9 EUROPEAN COMPETITION JOURNAL 677 (2013).
- P. PICONE, A. LIGUSTRO, *Diritto dell'organizzazione mondiale del commercio*, CEDAM, PADOVA 2002.
- P. PICONE, A. LIGUSTRO, *Diritto dell'Organizzazione Mondiale del Commercio* (CEDAM, PADOVA, 2004).
- P. PICONE, G. SACERDOTI, *Diritto internazionale dell'economia* (F. ANGELI, MILANO 1991).
- W. PING, W. YIYI, J. HILL., *Standardization Strategy of China--Achievements and Challenges*, EAST-WEST CENTER WORKING PAPER-ECONOMICS SERIES 107 (2010).
- N. PIRES DE CARVALHO, *Technical Standards, Intellectual Property, and Competition—A Holistic View*, 47 WASHINGTON UNIVERSITY JOURNAL OF LAW & POLICY 61 (2015).
- L. PROSPERETTI, *I rapporti tra regolazione e tutela della concorrenza. Teoria economica ed esperienze recenti*, MERCATO, CONCORRENZA, REGOLE (2002).
- O. PROST, S. LI WEI, *China's Accession to the WTO: How will this Benefit European Undertakings?*, 24 FORDHAM INTERNATIONAL LAW JOURNAL (2001).

- M. RATO, N. PETIT, *Abuse of Dominance in Technology-Enabled Markets: Established Standards Reconsidered?*, 9 EUROPEAN COMPETITION JOURNAL 1 (2013).
- J. REICHMAN, *From Free Riders to Fair Followers: Global Competition Under the Trips Agreement*, 29 N.Y.U. JOURNAL OF INTERNATIONAL LAW & POLICY 11 (1997).
- J. C. ROCHET, J. TIROLE, *Platform competition in two-sided markets*, 1 JOURNAL OF THE EUROPEAN ECONOMIC ASSOCIATION 4 (2003).
- J. ROHLFS, *A theory of interdependent demand for a communications service*, THE BELL JOURNAL OF ECONOMICS AND MANAGEMENT SCIENCE (1974).
- P. SAMUELSON, *Intellectual property arbitrage: How foreign rules can affect domestic protections*, 71 THE UNIVERSITY OF CHICAGO LAW REVIEW 1 (2004).
- E. SANDSCHNEIDER, *China's Diplomatic Relations with the States of Europe*, THE CHINA QUARTERLY (2002).
- F. SCHERER, *The Innovation Lottery*, in ROCHELLE DREYFUSS ET AL. (EDS.), *Expanding the Boundaries of Intellectual Property* (OXFORD UNIVERSITY PRESS, 2000).
- M.A. SCHILLING, F. IZZO, *Gestione dell'innovazione* (MCGRAW-HILL, 2013).
- H. SCHMITZ, T. ALTENBURG, *Innovation paths in Europe and Asia: Divergence or convergence?*, 43 SCIENCE AND PUBLIC POLICY 4 (2016).
- J. SCHUMPETER, *Capitalism, Socialism and Democracy* (BOSTON, MA: HARVARD UNIVERSITY PRESS 1942).
- S. SCHWAAG SERGER, M. BREIDNE, *China's Fifteen-Year Plan for Science and Technology: An Assessment*, 44 ASIA POLICY (2007).
- M. SCUFFI, *Le interferenze tra i diritti di proprietà intellettuale e la disciplina antitrust: problematiche processuali e sostanziali*, CONCORRENZA E MERCATO (2005).
- G. SHAFFER, C. SUTTON, *The Rise of Middle-Income Countries in the International Trading System*, in RANDALL PEERENBOOM AND TOM GINSBURG (EDS.), *Law and Development of Middle-Income Countries: Avoiding the Middle-Income Trap* (CAMBRIDGE: CAMBRIDGE UNIVERSITY PRESS, 2014).
- C. SHAPIRO, *Navigating the Patent Thicket: Cross Licenses, Patent Pools and Standard Setting*, in ADAM JAFFE ET AL. (EDS.), *Innovation Policy and the Economy* (MIT PRESS 2001).
- C. SHAPIRO, *Setting Compatibility Standards: Cooperation or Collusion?*, in ROCHELLE DREYFUSS ET AL. (EDS.), *Expanding The Boundaries of Intellectual Property* (Oxford University Press 2001).
- C. SHAPIRO, H. R. VARIAN, *Information rules: a strategic guide to the network economy* (HARVARD BUSINESS PRESS 2013).
- L. SHAVER, *Illuminating innovation: From patent racing to patent war*, 69 WASHINGTON AND LEE LAW REVIEW 3 (2012).
- D. H. SHIN, K. HONGBUM, J. HWANG, *Standardization revisited: A critical literature review on standards and innovation*, COMPUTER STANDARDS & INTERFACES 38 (2015).

- M. SIRAGUSA, *Le essential facilities nel diritto comunitario ed italiano della concorrenza*, in E. A. RAFFAELLI, *ANTITRUST FRA DIRITTO NAZIONALE E DIRITTO COMUNITARIO* (BRUXELLES-MILANO, 1998).
- D. D. SOKOL, D. A. CRANE, A. EZRACHI, *GLOBAL ANTITRUST COMPLIANCE HANDBOOK* (EDS. OXFORD UNIVERSITY PRESS, 2014).
- D. D. SOKOL, W. ZHENG, *FRAND in China*, 22 *TEXAS INTELLECTUAL PROPERTY LAW JOURNAL* (2013).
- F. SPADI, *L'evoluzione del protocollo di accessione della Repubblica Popolare Cinese all'Organizzazione mondiale del commercio*, *DIRITTO DEL COMMERCIO INTERNAZIONALE* (2000).
- J. D. SPENCE, *The search for modern China* (NORTON, 1990).
- R. STAIGER, A. SYKES, *International Trade, National Treatment and Domestic Regulation*, 40 *JOURNAL OF LEGAL STUDIES* (2011).
- W. E. STEINMUELLER, *The political economy of data communication standards*, in R. HAWKINS, R. MANSELL, J. SKEA (EDS.) *STANDARDS, INNOVATION AND COMPETITIVENESS* (ALDERSHOT, 1995).
- J. STIGLIZ, *Knowledge as a Global Public Good, Case Studies: Knowledge and information* (1999).
- S. STRAMBACH, B. KLEMENT, *The organizational decomposition of innovation and territorial knowledge dynamics. Insights from the German software industry*, in M. HEIDENREICH (ED), *Innovation and Institutional Embeddedness of Multinational Companies* (CHELTENHAM, UK: EDWARD ELGAR 2012).
- S. SUBRAMANIAN, *Patent Trolls in Thickets: Who is Fishing Under the Bridge*, 30 *EUROPEAN INTELLECTUAL PROPERTY REVIEW* (2008).
- Y. SUN, M. VON ZEDTWITZ, D. F. SIMON, *Globalization of R&D and China: An introduction*, 13 *ASIA PACIFIC BUSINESS REVIEW* (2007).
- R. P. SUTTMEIER, *A New Technonationalism? China and the Development of Technical Standards*, 48 *COMMUNICATIONS OF THE ACM* 35 (2005).
- R. P. SUTTMEIER, C. CAO, *China Faces the New Industrial Revolution: Research and Innovation Strategies for the 21st Century*, 23 *ASIAN PERSPECTIVE* 3 (1999).
- R. P. SUTTMEIER, X. YAO, A. Z. TAN, *Standards of Power: Technology, Institutions, and Politics in the Development of China's National Standards Strategy*, *THE NATIONAL BUREAU OF ASIAN RESEARCH* (2006).
- R. P. SUTTMEIER, X. YAO, *China's Post-WTO technology policy: standards, software, and the changing nature of techno-nationalism*, VOL. 7. WASHINGTON, DC: NATIONAL BUREAU OF ASIAN RESEARCH (2004).
- R.P. SUTTMEIER, X. YAO, A. ZIXIANG TAN, *Standards of Power: Technology, Institutions, and Politics in the Development of China's National Standards Strategy*, *THE NATIONAL BUREAU OF ASIAN RESEARCH* (2006).
- A. O. SYKES, *Product standards for internationally integrated goods markets* (THE BROOKINGS INSTITUTION 1995).



- K. TAMM HALLSTRÖM, *Organizing International Standardization – ISO and the IASC in QUEST OF AUTHORITY* (EDWARD ELGAR, 2004).
- Z.A. TAN, *Product cycle theory and telecommunications industry—foreign direct investment, government policy, and indigenous manufacturing in China*, 26 TELECOMMUNICATIONS POLICY 1(2002).
- G. TASSEY, *Standardization in Technology-based Markets*, RESEARCH POLICY 29 (2000).
- M. TAUBE, *Economic Relations between the PRC and the States of Europe*, THE CHINA QUARTERLY (2002).
- M. D. TAYLOR, *International Competition Law: A New Dimension for the WTO?* (CAMBRIDGE UNIVERSITY PRESS 2006).
- D. TELYAS, *The Interface between Competition Law, Patents and Technical Standards* (KLUWER LAW INTERNATIONAL 2014).
- Y. TIAN, *The Impacts of the Chinese Anti-Monopoly Law on IP Commercialization in China & General Strategies for Technology-Driven Companies and Future Regulators*, 4 DUKE LAW & TECHNOLOGY REVIEW (2010).
- A. TIZZANO, *I “grands arrêts” della giurisprudenza dell’Unione europea* (GIAPPICHELLI, 2012).
- J. TRACHTMAN, *Legal Aspects of a Poverty Agenda at the WTO: Trade Law and “Global Apartheid”*, 6 JOURNAL OF INTERNATIONAL ECONOMIC LAW 3 (2003).
- H. ULLRICH, *Patent Pools – Policy and Problems*, in JOSEF DREXL (ED.), RESEARCH HANDBOOK ON INTELLECTUAL PROPERTY AND COMPETITION LAW (EDWARD ELGAR PUBLISHING 2008).
- H. ULLRICH, *Patent Pools: Approaching a Patent Law Problem via Competition Policy*, in CLAUDIUS DIETER EHLERMANN & ISABELA ATANASIU (EDS.), EUROPEAN COMPETITION LAW ANNUAL/2005: THE INTERACTION BETWEEN COMPETITION LAW AND INTELLECTUAL PROPERTY LAW (HART PUBLISHING, 2007).
- J. M. UTTERBACK, W. J. ABERNATHY, *A dynamic model of process and product innovation*, OMEGA, 3 (1975).
- A. H. VAN DE VEN, *The Emergence of an Industrial Infrastructure for Technological Innovation*, JOURNAL OF COMPARATIVE ECONOMICS 17(1993).
- G. VENTURINI, *L’accordo generale sulle tariffe doganali ed il commercio* (GIUFFRÈ, MILANO 2004).
- B. VESTERDORF, *IP Rights and Competition Law Enforcement Questions*, 4 JOURNAL OF EUROPEAN COMPETITION LAW & PRACTICE 2 (2013).
- P. VICENTE, B. YU III, SOUTH CTR., *Development Challenges of Competition Policy*, in THE ECONOMIC PARTNERSHIP AGREEMENTS 2 (2007).
- X. WANG, *The Evolution of China’s Anti-Monopoly Law* (EDWARD ELGAR, 2014).
- X. WANG, *The New Chinese Anti-Monopoly Law: A Survey of a Work in Progress*, 54 ANTITRUST BULLETIN (2009).

- P. WANG, J. KWAK, H. LEE, *The latecomer strategy for global ICT standardization: Indigenous innovation and its dilemma*, 38 TELECOMMUNICATIONS POLICY 10 (2014).
- X. WANG, A. EMCH, *Five Years of Implementation of China's Anti-Monopoly Law—Achievements and Challenges*, 23 JOURNAL OF ANTITRUST ENFORCEMENT (2013).
- M. WEBER, *IL MIRACOLO CINESE : PERCHÉ BISOGNA PRENDERE LA CINA SUL SERIO* (IL MULINO, BOLOGNA 2003).
- J. S. WILSON, *Standards, Trade and Development*, in LAURA DENARDIS (EDS.), *Opening Standards: The Global Politics of Interoperability* (MIT PRESS (2011)).
- J. K. WINN, *Governance of Global Mobile Money Networks: the Role of Technical Standards*, 8 WASHINGTON JOURNAL OF LAW, TECHNOLOGY AND ART 197 (2013).
- WORLD ECONOMIC FORUM (WEF), *The Global Enabling Trade Report 2012 – Reducing Supply Chain Barriers*, 2012.
- WORLD TRADE ORGANISATION (“WTO”), *WORLD TRADE REPORT 2005*.
- H. YAN, *The 3G Standard Setting Strategy and Indigenous Innovation policy in China: Is TD-SCDMA a Flagship?* DANISH RESEARCH UNIT FOR INDUSTRIAL DYNAMICS. WORKING PAPER NO. 07-01(2006).
- A. B. YANG, *China in Global Trade: Proposed Data Protection Law and Encryption Standard Dispute*, 4 I/S: A JOURNAL OF LAW AND POLICY FOR THE INFORMATION SOCIETY 897 (2008–09).