STANDARD DEVELOPMENT ORGANIZATIONS AND IPR POLICIES: THEIR ROLE IN REALIZING FUTURE TECHNOLOGIES

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I. INTRODUCTION

We live in an interconnected world with more than three billion people having Internet access worldwide. Information and Communication Technology ("ICT") has become all-pervasive and its rapid growth is a key driver for innovation and the build-up of knowledge in a wide range of sectors.

Internet of Things ("IoT") technologies are increasingly used to interconnect smart devices, vehicles, household appliances and industrial machines using wireless communication, software or sensors. According to some estimations, IoT systems could represent a market of more than $11 trillion per year by 2025.[2]

Industry is therefore rapidly transforming itself through the adoption of a wide range of innovative digital technologies, while traditional sectors of the economy, including those which were not previously significant users of digital technologies, have now expressed the need to be part of the digital revolution.[3]

In turn, the need for connectivity of different systems across multiple devices has spurred a great demand for interoperability solutions; and this is why commonly agreed technical specifications, namely standard documents, come into play. Standards, being the most effective known way to ensure efficient use of multiple devices across different domains, have taken center stage as enablers of the visions for the new digital economy.

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2 Chee, Reuters: U.S. LEGAL NEWS, October 2, 2017 "Apple faces down Qualcomm, Ericsson over EU patent fees."

3 See also the Communication of the Commission on a Digital Single Market of June 6, 2015, which also emphasizes the expected impact of interoperability in many different sectors, such as e-health, e-transport, e-education, e-environment, e-energy, etc. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52015DC0192.

It is clear that interoperability through standards may increase efficiency because of network externalities and economies of scale. In addition, it is expected to stimulate demand and development of complementary products. According to a study, the economic impact of interoperability IoT systems could deliver $3 trillion out of an estimated total $11 trillion of IoT impact.[4]

And what is the role of the Standard Development Organizations ("SDOs") in this digital revolution? Taking into account that the digitalization of the economy is shortening the lifecycle of technological solutions, SDOs are not only facing demand for faster standardized solutions, but also increasingly confronted with ever closer interlink between the development of their standards and the R&D investment that companies participating in the development of those standards dedicate to advance the performance of the relevant technologies being standardized. The financial interests and corporate strategies of such companies come into actual effect to this point. The debate within SDOs' Technical Committees is therefore no longer confined just among technical experts, i.e. engineers.

As part of this trend, the expected increase in the patent density in interoperability standards is also triggering intense interest from industry and stakeholders contributing to the SDOs' work, as well as regulators, on the crucial aspects of IP licensing and enforcement which are linked to the exploitation of ICT and IoT technologies.

Clearly SDOs, being at the center of this debate, are facing a real challenge regarding the management of their IP policies. Notably when coming across patents that are deemed essential for the use of their standards.

II. SDOs' POLICIES ON STANDARD ESSENTIAL PATENTS ("SEPs")

A. SEPs and the Competition Law Challenges

The further increase of interaction between standardization and companies' financial strategies also brings competition law considerations into focus. This is particularly relevant in the framework of SDOs' IP policies on the management of those patents that are essential for the use of the related standards in the market. Before elaborating further on this point, we first need to clarify some general concepts around the notion of SEPs, their compliance with competition law, and why these are so critical for SDOs.

In the typical market model, when a company registers a patent, such registration does not – *per se* – give the patent owner any dominant position in the relevant market. Of course, that patented technology may always become dominant, but this will normally occur in the event that the embedded innovation proves to be successful in the market. Eventually, the patent owner's dominant position in the relevant market is the result of the market appeal and the high volume of licensing requests from other "players"— competitors operating in the same market, who may prefer to pay for the use of that patented technology rather than develop their own alternative technological solutions.

In the standardization context, the dominant position reflected on a patent is generated through a different process. SDOs usually offer the possibility to patent owners to declare if their patents will be "essential" to the future use of the standard under development. Hence, by the simple fact that a patent owner has made a declaration of the "essentiality" of its patent, this patent is registered by the SDO as a (potential) SEP. Consequently, this declaration gives the presumption that implementers of the future standard may be "locked into" the SEP, as they cannot "work around" with other available technology solutions and still implement that standard. Therefore, a declaration of SEP gives the patent owner a *de facto* dominant position in the market that will be covered by the standard.

Furthermore, while participants working in the development of a standard within SDOs' technical committees are often also competitors, they consensually accept to agree on common technological solutions that will be incorporated in the text of a standard. Hence, if the standard includes one or more SEPs, from a competition law perspective this could offer a dominant position to the SEP holders. This dominant position is the result of a collective decision by competitors involved in the standard making process.

4 McKinsey Global Institute, Study on "The Internet Of Things: Mapping The Value Beyond The Hype," June 2015.

In principle, antitrust authorities widely acknowledge that standardization agreements and competition law are compatible and, if all the conditions are fulfilled, the former could even enhance the latter. In Europe these competition aspects have been dealt with by the European Commission ("Commission") in its Guidelines on the applicability of Article 101 TFEU, and confirmed by the European Court in its Judgment of March 31, 1998 known as the *EMC* case.[5] The Commission Guidelines essentially state that standardization agreements are in line with competition law as long as they abide by a few criteria; fair reasonable and non-discriminatory access ("FRAND") to standards – and to SEPs – is one of those criteria.

Many SDOs have developed policies to minimize the risk of anti-competitive behaviors of stakeholders. Of course, compliance with competition law can be further facilitated when SDOs are able to provide policies that ensure balancing the interests of the patent holder of a declared SEP and the future patent implementers.

B. SEP, Interoperability Standards and the Open Source Challenge

Digitalization also brings new "players" and new solutions within standardization activities, and SDOs' IP policies need to address these aspects effectively. Let's take the example of open source software. If a truly interoperable technological revolution is to materialize, the co-existence of the open source projects and standards development needs to come into maturity, by providing important solutions for both.

The involvement of the open source community in the standardization process as early as possible can certainly contribute to the successful implementation of standard solutions in the interoperable economy.[6] Open source developers can feed the standardization system with revolutionary technologies to be introduced at minimal cost within the IoT. Open source developers and the industry can jointly transform the underlying technology into new innovative customer oriented solutions.

The open source community has a great deal to offer SDOs. However, open source solutions represent the antitheses of a proprietary technology strategy. Rather than using formal IP protection for the extraction of royalties, open source enlists all contributors as collaborators, maximizing adoption throughout the value chain, while minimizing the options for appropriation of fees resulting from the software.

The challenge for open source developers is that often standards in open source projects require the use of underlying technologies which are necessary for the implementation of the standard itself, i.e. SEPs, and for which specific licensing agreements need to be reached with the individual SEP holders.

In this debate, a source of some confusion is often the perception that open source can only coexist with SDOs' "open" standards. Let's clarify the misunderstanding on the meaning of "open" in the context of standards.

When we refer to "open source," the word "open" denotes the ability of the users to have full access to it and to be able to further modify and distribute the source code to subsequent users. There are of course variations of licensing models for open source solutions, however, in principle they all aim to spread the use of a technology as widely as possible.

When we refer to "open standards" the meaning of the word "open" refers to the ability of the industry and stakeholders to participate to the standard making process, and to the fact that said standards can be accessible to the general public for use.[7]

5 Judgment of March 31, 1998, *French Republic and Société commerciale des potasses et de l'azote (SCPA) and Entreprise minière et chimique (EMC) v. Commission*, Community control of concentrations between undertakings - Collective dominant position. - Joined cases C-68/94 and C-30/95.

6 Siegel & Soley, "Open Source and Open Standards: Working Together for Effective Software Development and Distribution," Technology Innovation Management Review, November 2008.

7 See also the definition of "openness" for standards and the interplay with open source as defined in the European Interoperability Framework in Public Services.

Some SDOs choose to make their standards available free of charge, while others have introduced a paid-for-fee policy for their distribution. Whatever distribution policy SDOs implement, the important aspect is the openness and accessibility to the standard making process and to the technical specifications themselves.

Where the concept of open source and open standards come to the same conclusion is that they both aim to spread the use of their deliverables to as wide an audience as possible.

This is an important factor, which leads to the assertion that open source and standardization are not mutually exclusive, but rather they can coexist within the same SDO and supplement each other when needed, since they eventually serve the same purpose of maximizing distribution and implementation of proposed technological solutions.

The next core aspect which needs to be addressed is how SDOs can manage the ability of open source technology to coexist with the proprietary licensing models for SEPs. This touches on the wider fundamental policy discussions regarding the fair access to proprietary technologies embedded in standards that is currently taking placing at a global scale, and it is something that we examine below.

C. SEP and the FRAND Conditions

An important element that needs to be considered is that stakeholders' and companies' participation in the standardization process is on a voluntary basis. Hence, a company will invest time and resources in the standard making only if it can get a reasonable return on investment from such participation.

SDOs can attract companies' interest to participate in standardization as long as participants in their technical group meetings have the assurance that they can contribute within a level playing field that is acknowledged by all "players" as being truly neutral.

The neutrality concept is therefore intimately linked with the SDOs' IP policies to the extent these provide a fair symmetry to opposing interests between patent holders and standards implementers.

With this in mind, most SDOs try to keep this balance by requiring that holders of patents covering technology incorporated into standards (i.e. SEPs holders) commit to making patent licenses available to an unlimited number of potential licensees on licensing terms and conditions that are "fair reasonable and non-discriminatory."

The concept of FRAND licensing though is not a clearly defined concept, and it has generated a great deal of policy discussions[8] and litigation at a global scale.[9] In many cases SDOs policies do not provide detailed guidance as to what FRAND licensing terms should be, nor a specific calculation model on "reasonable pricing." For instance, ISO, IEC, CEN, CENELEC and ETSI follow this approach. On the other hand, some SDOs have IP policies which give specific instructions on the way to calculate FRAND licensing. This is the case of IEEE. We will not debate the merit and challenges of the above different approaches in policies. However, it is worth highlighting some factors that come into play.

When an SDO's policy cannot warrant that contributors who are patent owners can get the expected return from the future licensing of their SEP, such patent owners will likely decide not to invest in R&D associated with that standard development activity. In other words: an SDO's policy that creates the conditions for under-compensation (or potential for under-compensation) of SEP will eventually result in slowing down the involvement of the most advanced technology companies and, consequently, the development of new technology of standards.

8 See e.g. Communication from the Commission on Standard Essential Patents for a European digitalised economy (Roadmap) of April 10, 2017, available at: https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-1906931_en.

9 See e.g. latest Decision from the UK High Court on the case *Unwired Planet International v. Huawei Technologies*, of April 5, 2017.

On the other hand, over-compensation (or potential for over-compensation), will be detrimental to the use of the standard once this will be in the market. If an SDO implements a policy that is favoring over-compensation for patent holders, it will risk eventually hampering the broad adoption of that standard by implementers.

From a practical perspective, to reach such a balance within a policy that can fit all cases is clearly not an easy task. Furthermore, the more diversified sectors and domains an SDO covers the more difficult it is to define a FRAND policy that can ensure in all occasions the balance between these divergent stakeholders' interests in SEP implementation. As a matter of principle, the SDOs' room for maneuver in setting their IP policies on SEP may be fairly limited.

Things get even more complicated if we associate the practical implication of FRAND with open source. We have already seen the difficulties in linking SEPs with the collaborative approach of the open source community. Applying the FRAND concept does not seem to solve the core issue.

Indeed, there are opinions within the open source community arguing that, even if licensing is done at FRAND conditions, the holder of a SEP patent still gets undue financial benefit from the implementation of the SEP "encumbered" standard by the open source project developers. Even if the licensed SEP does not add further value to the development of the open source project itself.[10]

Many in the open source community support royalty free implementation of SEPs, particularly at higher levels of the technological implementations.[11] However, if progress is to be made in this debate, the open source community collectively should acknowledge that the FRAND approach is inherently linked with innovation, and that FRAND licensing remains, at the moment, the most appropriate mechanism to recognize that R&D is costly and there is a need for return on investment which in turn can fuel the drive for new interoperable solutions.

If this role of FRAND is accepted, FRAND can become an attractive level playing field for all interested parties, including the open source developers.

III. THE WAY FORWARD: MORE TRANSPARENCY IN COMPANIES' BEHAVIOR?

A. A Behavioral FRAND Commitment

The debate within the standardization systems between patent holders and open source communities shows that the best way forward is to depart from the interpretation of FRAND as a pricing mechanism, and instead to approach it as a participative instrument that seeks to foster stakeholders' *ex-ante* incentives to get aboard the SDO's standard making process. In other words, the nature of a FRAND commitment should be procedural and behavioral, not distributional.

SDOs' patent policies on FRAND shall essentially provide an early assurance that patent owners and standard users of protected technologies will themselves enter into negotiations in good faith with the ultimate objective of agreeing to licensing conditions. Hence, SEPs licensing is an issue that should be governed by private negotiations between the parties outside of SDOs.

The maximum that SDOs should do in this domain is to set some general guidance encouraging patent holders and implementers who encounter problems to reach a mutually agreeable understanding of FRAND to seek either judicial or extrajudicial determination by third party experts or alternative dispute resolution bodies (such as mediation or arbitration) before engaging in court cases.

10 Open Forum Europe, The Interplay between IPRs and Standardisation in the Open Innovation Ecosystem, April 12, 2017.

11 See supra note 6.

This view on FRAND as a "behavioral" tool of bilateral fair play obligations, recognized by the accepted commercial practices between the patent owner and prospective licensees in a given market, has also been recognized in the EU by the European Court of Justice in its regularly referenced judgment *Huaweï v. ZTE*.[12] This judgment clarifies that FRAND commitments entail good will obligations on both SEP owners and prospective licensees.

While SDOs should not interfere with the determination of FRAND licensing conditions, there are other areas where SDOs policies can yet encourage a better understanding and use of FRAND commitments. For instance, SDOs could set pre-standard adoption transparency policies requesting SEP owners to make further efforts in the provision of relevant information in their SEP declaration for the benefit of the future patent users. More transparency at an early stage will enhance the management of the SEPs by the patent holders and improve the predictability on the SEP licensing conditions and implications for patent users.

In practice, when a patent holder, contributing to the elaboration of the standard, declares a SEP on that standard, it shall also identify the relevant section in that standard to which the SEP will be essential. Furthermore, it should also provide a detailed list of all those patents that are actually to be considered as essential to implement that section of the (future) standard. "Blanket" declarations (i.e. general declarations by the patent owners regarding claims to hold essential patents over a standard without any identification these patents) cannot facilitate the creation of an effective transparency process.

This effort of transparency will allow all participants in the development of a standard to make better informed consensual decisions when incorporating a specific contribution involving proprietary technology. At a later stage, prior to the finalization of the standard, the SDOs may request patents holders who claim SEPs on that standard to re-assess their position in order to confirm the linking between their claimed SEPs and the identified section of the standard.

These are only a few examples of possible improvements that SDOs' IP policies could implement. However, irrespective of the solutions examined, with the well thought pre-standard adoption transparency approaches SDOs can eventually enhance predictability for implementers, who will benefit from a clearer understanding on (i) who is the SEP holder; (ii) the claims linked to the implementation of the specific part of the standard; and (iii) the corresponding FRAND commitment.

Certainly not all challenges will be addressed, however SDOs' IP policies that successfully address these aspects can be an important step towards balancing the relevant interests while ensuring truly interoperable innovative solutions that incorporate the best available technologies from all sectors of the economy.

12 Judgment of the Court (Fifth Chamber) of July 16, 2015 (request for a preliminary ruling from the Landgericht Düsseldorf — Germany) — *Huawei Technologies Co. Ltd. v. ZTE Corp.*, ZTE Deutschland GmbH (Case C-170/13).