



Rigorous empirical  
research on  
intellectual property

**Submission by 4iP Council to the**

**European Commission**  
*Call for evidence for an impact assessment*

**for the**

*Intellectual property – new framework for  
standard-essential patents initiative*

## **4iP Council: The leading European research council on intellectual property**

[4iP Council](#)<sup>1</sup> is a European research council dedicated to developing high quality academic insight and empirical evidence on topics related to intellectual property and innovation. We work with academia, policy makers, regulators, business stakeholders of all sizes, educators, and students to facilitate a deeper understanding of the invention process and of technology investment decision-making. An [advisory committee](#) of eminent intellectual property experts provides independent guidance on 4iP Council's research agenda as well as input on the organisation's structure and governance.<sup>2</sup>

4iP Council was established in February 2013 and is a non-for-profit organisation.

### **In what capacity are we responding to this call for evidence?**

4iP Council appreciates the opportunity to provide empirical academic research papers on whether the standard essential patents (SEPs) licensing ecosystem is functioning efficiently and effectively and striking the right balance for all entities involved. We submit our comments based upon our extensive experience and expertise in delivering sound academic research on intellectual property and innovation generally, and on SEPs specifically. In fact, a large part of the independent research we openly share is dedicated to SEPs. Within 4iP Council's activities we offer a variety of [summaries of European case-law related to SEPs](#),<sup>3</sup> [webinars on SEP related topics](#)<sup>4</sup> where we invite experts in the field to share their views, and [transparent academic research that seeks evidence in the field of IP and standardisation](#).<sup>5</sup>

Against this background, 4iP Council respectfully shares with the European Commission the key findings of the [SEP related research freely available](#) on the 4iP Council's website, providing evidence and corresponding to the objectives and policy options identified in the Initiative. A table of contents on page 36 provides a list of all the empirical academic research papers covered in this submission.

Finally, we invite you to consult our [infographic on national court guidance](#)<sup>6</sup> illustrating the interpretation of European national courts regarding the legal framework provided by the CJEU *Huawei v ZTE* decision. This infographic provides further clarity on the appropriate behaviour of SEP owners and SEP users to be considered by courts in the determination whether to grant an injunction. Moreover, we offer a [database with the summaries of national courts decisions related to SEPs](#) following the CJEU ruling.<sup>7</sup>

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<sup>1</sup> See more on 4iP Council at <https://www.4ipcouncil.com/>

<sup>2</sup> See our advisory committee members at [https://www.4ipcouncil.com/about/advisory\\_committee](https://www.4ipcouncil.com/about/advisory_committee)

<sup>3</sup> Available at <https://caselaw.4ipcouncil.com/>

<sup>4</sup> Available at <https://www.4ipcouncil.com/webinars>

<sup>5</sup> Available at <https://www.4ipcouncil.com/research>

<sup>6</sup> Available at <https://caselaw.4ipcouncil.com/guidance-national-courts>

<sup>7</sup> Available at <https://caselaw.4ipcouncil.com/>

## 1. Enhancing transparency on SEPs

The following articles present answers and evidence related to the first policy pillar *enhancing transparency on SEPs*.

### [1] ‘Does Over-Declaration Impede Access to Cutting-Edge Standardised Technologies?’ (2021) by Ya-Lan Wang

Full paper available at <https://www.4ipcouncil.com/research/does-over-declaration-impede-access-cutting-edge-standardised-technologies>

This paper contends that over-declaration ensures access to patents essential to a standard is granted under FRAND terms and conditions leading to wide dissemination of the standard. Under-declaration, on the other hand, risks leaving implementers without access. As a policy matter it would be advisable to continue to allow and even promote over-declaration. In this context, it is important that courts and regulators do not accept such disclosures as an indicator of essentiality as they only reflect potentially essential patents and patent applications. The paper recommends for courts to determine FRAND using ‘comparable agreements’.

The paper presents the following **key findings**:

1. The phenomenon of over-declaration may appear troubling at first glance considering the significant gap created between the number of so-called disclosed (potentially essential) patents and patent applications and the patents that are actually essential to the standard. Ultimately, it is common for the right holders to over-declare, in particular “when they are still in the application phase and when the standard is not itself settled”.
2. **Over-declaration should not be a cause for concern.** After all, the goal of linking disclosure with licensing declarations is to ensure access to the patents essential to the practice of a certain standard under FRAND terms and conditions. As recognised by the Japanese Patent Office “having a certain amount of over-declaration is much better than under-declaration.”
3. **Under-declaration would leave users of the standardised technology without assurance of access (on FRAND terms)**, leading to less visibility on the landscape of potentially essential patents and, in some cases, uncertainty on the terms under which under-declared patents will be licensed, if at all.
4. The more patents are disclosed, the more certainty of access on FRAND terms should they be essential and, thus, the higher the chances of a wide dissemination of the standard.
5. It seems advisable, therefore, as a policy matter to continue to allow and even promote “over-declaration”, but for courts and regulators not to accept disclosures or licensing

declarations as proper proxies of what is actually essential. Rather, because these declarations are not an indicator of essentiality, it is advisable for courts to continue applying ‘comparable agreements’ as proper evidence of reasonable licensing terms over actually essential patents, or to apply a rigorous and transparent methodology for any top-down crosscheck to filter those patents that are not actually essential.

## [2] ‘SMEs and Standard Essential Patents: Licensing Efficiently in the Internet of Things’ (2017) by Haris Tsilikas and Claudia Tapia

Les Nouvelles - Journal of the Licensing Executives Society, Volume LII No. 4, September 2017, available at <https://www.4ipcouncil.com/research/smes-and-standard-essential-patents-licensing-efficiently-in>

The article provides guidance for SMEs to, as licensors or licensees, efficiently engage in good faith licensing negotiations of SEPs.

The paper presents the following **key findings**:

1. SME participation and contribution can greatly benefit standardisation. SMEs can offer disruptive and targeted innovations that bring substantial value to consumers. SMEs on their part would also benefit from increased involvement in standards development.
2. Standards provide the opportunity to SMEs to compete with larger firms on the merits and qualities of proposed technologies. SMEs also have significant benefits from implementing standards, including economies of scale, better access to large international markets, reduction in compliance costs and increased consumer demand for standard-compliant products.
3. In order to obtain the fruits of their participation in standardisation, whether as contributors or implementers, SMEs need to develop an efficient IP strategy.
4. The article provides some guidance for SMEs to efficiently engage in licensing negotiation of SEPs either as licensors or licensees.

**Key recommendation for SMEs as licensors:**

1. Ensure adequate IP protection for technologies.
2. Contact SME associations specialised in standardisation and their SDO representatives to inform themselves of the benefits that they can enjoy by participating in a standard development process.

3. Seek financial support in the commercialisation phase of their technologies, as access to private-sector professional services is expensive.
4. Establish a mechanism to accurately determine FRAND terms for their SEPs. An SME would first need to determine the reasonable cumulative rate, which can be done by looking at declarations made by main contributors to the standards as well as market studies, companies' annual reports and other reliable data. However, studies based on purely theoretical models should be avoided. Next, an SME would need to determine the proportion of the cumulative rate it is entitled to.

#### **Key recommendations for SMEs as implementers:**

1. Engage with expert advice, either from industry associations or from patent licensing professionals.
2. Reject any FRAND determinations based exclusively on SDO databases of patents declared as 'potentially' essential, as SDOs do not assess the essentiality. SMEs need to be aware that a database is not a list of all essential patents for a standard, but rather a commitment that those patents from the list that become essential will be accessible on FRAND terms.
3. Gain an understanding of what is an appropriate FRAND rate to which an SEP holder is entitled. For this, the same recommendations as mentioned above for SME licensors apply.
4. Identify the most important patent holders in the relevant field and negotiate a FRAND licence simultaneously.
5. Request claim charts (or in their absence a detailed technical explanation on the patents, the standard and the infringement) to better understand the essentiality of the technology being negotiated.
6. Understand the rights and obligations established in the *Huawei v ZTE* ruling of the CJEU as later interpreted by national courts.

#### **[3] 'How IP Rights Keep Markets Free' (2021) by Jonathan Barnet**

Forum for Intellectual Property, Hudson Institute June 2021, available at <https://www.4ipcouncil.com/research/how-ip-rights-keep-markets-free>

The short article is a summary of the author's book *Innovators, Firms, and Markets: The Organisational Logic of Intellectual Property* (Oxford University Press 2021).

This paper analyses how patent rights favourably impact market structure. It explains why large technology firms have advocated for the weakening or the elimination of patent rights (e.g. no injunction for SEPs) to the disadvantage of smaller firms that have strong innovation but weak commercialisation capacities.

This article presents the following **key findings**:

1. In times **when patent protection is strong**, it enables the entry of entrepreneurial innovators backed by outside risk capital—a potent combination that can challenge existing technological paradigms, threaten market leaders, and drive high-intensity innovation ecosystems.
2. However, **when patent protection is weak**, innovation is undertaken and commercialised principally by large integrated firms that are protected by non-IP advantages or supported by government subsidies, and tend to **focus on incremental, rather than transformative, R&D projects**.
3. Looking at the data on R&D expenditures by firm size in the US from 1967-2017, the author shows that the long period of weak patent protection through the 1970s exhibited a heavy concentration of R&D among large firms (which often relied on federal R&D funding or defence procurement contracts). While the advent of strong patent protection in the early 1980s was soon followed by **a shift of innovation activity toward small firms**, which represented almost 24% of total company R&D expenditures by 2006, as compared to about 5% in 1966.

## 2. Providing clarity on various aspects of FRAND

The following articles present answers and evidence related to the second policy pillar *providing clarity on various aspects of FRAND*.

### [4] ‘The Value of Cellular Connectivity – From Mobile Devices to the Internet-of-Things (IoT)’ (2021) by Bowman Heiden

Working Paper, available at <https://dx.doi.org/10.2139/ssrn.3670222>. Summary available at <https://www.4ipcouncil.com/research/the-value-of-cellular-connectivity-from-mobile-devices-to-the-internet-of-things-iot>

This study offers **data on the value that cellular connectivity provides to the mobile device market and the emerging IoT market across multiple industry verticals**. It provides (1) an overview of the (r)evolution of cellular connectivity from an organisational, market, and technology development perspective, (2) a theoretical overview of valuation

from a technology context, (3) a quantification of the value of cellular connectivity from both a macroeconomic and microeconomic viewpoint, and (4) an illustration of cellular use-cases for mobile devices and IoT solutions.

The study presents the following **key findings**:

1. The adoption of cellular connectivity has been spectacular. In 2016 the number of cellular subscriptions surpassed the global population.
2. Each cellular generation (G) of wireless standards, such as 4G and 5G, requires investments of tens of billions of dollars in R&D, millions of person-hours in standard development by hundreds of market actors through an open, consensus standardisation process. Cellular standard development at 3GPP results in tens of thousands of technical contributions and over a thousand technical documents per year.
3. Cellular standards advance in performance by orders of magnitude across generations in addition to providing interoperability. This process combines revolutionary development of functional capabilities with evolutionary progress within each generation. 5G is a good example of a revolutionary step that is opening up completely new capabilities and markets, such as new connecting devices and uses in agriculture, automotive, energy and utilities, healthcare and manufacturing, as did the smartphone with 3G.
4. Macroeconomic studies have shown that cellular standards have a positive impact on GDP growth, ranging from 0.3-0.6% (GDP per capita) and 0.5-1.2% (gross GDP) for a 10% increase in mobile adoption globally across different time periods.
5. The total market value based on revenue from five interrelated cellular markets was calculated at \$2.1 trillion (\$2.1 T) in 2019 with a growth estimated to approximately \$3T in 2025. The total economic value (including consumer surplus) in 2019 was estimated at \$4.8T, with a projected growth to \$7.5T in 2025. Other microeconomic studies have forecasted \$13.2T in gross output by 2035.
6. A smartphone is a market platform, not simply a device, where most of the value is generated upstream of the device sale. The total market value based on revenue for the smartphone-related markets was calculated at approximately \$1,600 per smartphone sold (\$2,800 including consumer surplus) compared to \$392 for only the smartphone device in 2017 in the US.
7. Growth in mobile applications (direct revenue and advertising) and IoT solutions will drive overall market growth enabled by 5G. The largest source of value generated by

IoT will likely come from efficiency/productivity gains that will generate both direct and indirect increases in revenues, but primarily a decrease in costs.

8. The Cellular Value Added for Apple and Samsung cellular devices was calculated based on current and historical price for devices with and without cellular functionality. This included the iPhone (\$275-500), iPod (\$130-150) and Galaxy Tab (\$80-140), and Apple Watch (\$100) and Galaxy Active 2 (\$140) and Galaxy Watch (\$40).
9. The **mid/long-term growth in the value of cellular connectivity** will be based on a **dynamic set of factors, including** among others:
  - The **growth of IoT solutions** across numerous industry verticals based on roll-out of 5G functionality and pace of adoption of innovative use-cases.
  - The **growth in applications and services** delivered through mobile devices.
  - The **growth of mobile internet** in emerging and developing economies.
  - The **growth in performance of and competition** among connectivity standards.
  - **Governmental policies and regulations**.

These factors will need to be re-examined over time as the mobile device and IoT industries evolve to better understand the changing contribution of connectivity across all sectors.

10. Future market norms, as well as **public policies and regulations**, will **need to strike the right balance** to incentivise both the development of new, advanced cellular standards and innovative industrial implementations that facilitate the generation of value for producers, consumers, and society as a whole.

### [5] ‘The Value of Connectivity in the Automotive Sector’ (2020) by Bowman Heiden

Working Paper, available at <https://www.4ipcouncil.com/research/value-connectivity-automotive-full-report>

This study takes a first look at the actual value that wireless connectivity in vehicles can bring to society and different business sectors. It also emphasises the need to consider the total economic value, including consumer surplus and relevant externalities, when determining the value of connectivity in the automotive sector or regulation of the sector.

The paper presents the following **key findings**:

1. Connectivity is transforming the automotive industry towards a new mobility sector.  
In the near future, most new vehicles will be increasingly equipped with embedded

connectivity capabilities due to safety regulations, development of vehicle-to-everything functionality, and the potential service revenue.

2. The value of connectivity in the automotive sector is predicated on the development of high performance, open telecommunication standards (such as 4G and 5G).
3. The vehicle is becoming the next big digital platform.
4. Connected vehicle applications are still small but are growing. Estimates are that automakers obtain a revenue from the vehicle ecosystem of \$670 (US) and \$593 (world-wide) per connected vehicle, based on a subset of existing applications in 2018.
5. The total revenue from connectivity-enabled products and services in the automotive sector was calculated to grow from \$223 billion to \$483 billion from 2018-2023, with forecasts predicting as much as \$2 trillion by 2030.
6. Market revenues do not provide the whole picture, especially when multi-sided business models are deployed. Therefore, it is vital to bear in mind the total economic value, including consumer surplus and relevant externalities, when determining the value of connectivity in the automotive sector or regulation of the sector.

## [6] 'The Value of Standardised Technology to Connected Cars' (2020) by Sunil Arya

GRUR International, Volume 69 No. 4, April 2020, available at <https://academic.oup.com/grurint/article-abstract/69/4/365/5820182>. Summary available at <https://www.4ipcouncil.com/research/value-standardized-technology-connected-cars#>

The article analyses the value of standardised technologies to connected cars, by providing data collected from 15 car manufacturers of their services and prices related to the connectivity. The paper trusts the market will adjust to recent challenges and names the Avanci patent platform as an example for connected cars.

The paper presents the following **key findings**:

1. **An indication of the value that standardised technologies bring to cars can be found in the prices paid by consumers** to enjoy connectivity-based features in vehicles.
2. The data is presented in the form of the accumulated price that a user would have to pay for the connected car services for a period of eleven years (which is the average

time that consumers maintain a new car in Europe). Corresponding prices are collected for each tier of connected car services that the automobile manufacturer offers. Additional one-time expenses (if any) and free subscription periods included with new vehicle purchases are also taken into account.

Automobile Manufacturer	Price for Best-Possible Connected Car Package (Euro/11 Years)
Audi	2,548
BMW	3,152
Fiat	600
Ford	761
Honda	3,303
Hyundai	6,168
Jaguar	2,603
Mercedes Benz	4,396
Opel	300
Porsche	20,586
Skoda	1,430
Tesla	896
Toyota	3,151
Volkswagen	1,846
Volvo	1,467

3. For accurate measurement, other costs and additional value enjoyed by automobile manufacturers are needed. They may cover improved car maintenance through over-the-air software updates or the prognosis of problems in cars by ‘on the fly’ monitoring of car parameters. Unfortunately, such data is largely not publicly available.
4. The market has shown that it is able to offer alternatives to bilateral licensing negotiations that further facilitate licensing. An example can be found in Avanci, a licensing platform which offers licences for the essential patented technologies used by commercial cars.

### [7] ‘SEP Royalties: What Theory of Value and Distribution Should Courts Apply? (2019) by Alexander Galetovic and Stephen Haber

The Ohio State Technology Law Journal, 2021, available at [https://www.law.berkeley.edu/wp-content/uploads/2021/05/Galetovic\\_Haber.pdf](https://www.law.berkeley.edu/wp-content/uploads/2021/05/Galetovic_Haber.pdf). Summary available at <https://www.4ipcouncil.com/research/sep-royalties-what-theory-of-value-and-distribution-should-courts-apply>

The authors argue that in adjudicating the value of SEPs, courts should rely on information from the market – the “comparables” technique. Courts should ask experts about observed market outcomes — the royalty bases and rates actually paid by other licensees for a comparable patent portfolio licensed under similar temporal circumstances. There is a functioning SEP licensing market for smartphones, which is not characterised by the exercise of monopoly power. Courts should not rely on either the “bottom-up” or “top-down” techniques because they are based on flawed theories and depart from mainstream economics.

The paper presents the following **key findings**:

## 1. The Comparables Technique

The “comparables” technique starts from the premise that when a functioning licensing market exists, observed royalties are the market rental price of assets — the SEPs — which can be used to value similar transactions. It is based on price theory, the standard theory of value and distribution in economics, which answers two key questions: 1) where does value come from; and 2) how is value distributed among inputs in a production chain?

In the smartphone market, the value created by the entire production chain is equal to how much consumers value the final product – the smartphone. The share of SEP royalties in the generated value is the equilibrium outcome of a complex process of cost minimisation and profit maximisation, where no stage of the production chain is independent of and separable from the others. Any attempt by an expert to apportion the value of SEPs, must consider consumer demand for the final product, the payments to all inputs across the entire production chain (not simply at one stage of the production chain), and the rents earned by all the firms in the supply chain, including the implementer that sells the final product into the consumer market.

As with any input, the equilibrium rental price of a given SEP portfolio is determined by the interaction of the derived demand for it and its supply. That derived demand is a product of two forces: the demand for the final product (*i.e.*, smartphone), which consumers value; and the possibilities for other firms, the production chain, to substitute away from it, which might include different physical inputs or different patented technology. In short, in a functioning market, the rental market price of SEPs — the royalty payment — is the value assigned to it by the market.

## 2. Absence of Monopoly Power in the Market of SEPs

Claims made by some academics and competition authorities that SEPs grant different types of monopoly power — one on the basis of the patented technology and a second

based on the appropriation of the value of standardisation, and that these are independent and separable — have no basis in economic theory.

Had there been a monopoly at work — had any single one of the many firms that license SEPs been operating as a monopoly, or had the SEP holders joined together to operate as a single monopolist, the royalties would have been 15 to 20 times higher than those that have been actually observed. Market data shows that firms which design and market smartphones perceive opportunities for substitution such that SEP holders are unable to operate as monopolists.

### **3. Evidence of a Functioning SEP Licensing Market**

One hallmark of a functioning SEP licensing market is that there is a set of market-specific practices according to which firms behave. In the smartphone market, the nature and outcome of each licensing negotiation depends on the specific characteristics of each deal, but several licensing practices are well established in the industry (e.g., portfolio level licensing, cross licences).

A second indicator of a functioning SEP licensing market in the smartphone industry is the fact that there is a remarkable degree of vertical separation across the smartphone production chain, in which there are numerous firms that specialise in developing and licensing the necessary technologies.

A third indicator of a functioning SEP licensing market is the steady royalty rates earned by the firms that specialise in technology development. The stability of the average cumulative royalty yield over time is remarkable, considering the large changes in the mobile phone market since 2007. For example, the composition of sales between feature and smartphones changed significantly over the period and the value of sales roughly doubled — yet the average cumulative royalty yield remained stable. This suggests an equilibrium market price and outcome.

### **4. The Bottom-Up and Top-Down Techniques**

There are deep conceptual flaws with both bottom-up and top-down techniques. They are based on “patent holdup” and “royalty stacking” theories, which have been shown to fail tests for logical consistency, logical completeness, and the fit between predictions and the empirical evidence. Evidence from industries that should be canonical cases of “patent holdup” and “royalty stacking” display outcomes that are completely at variance with the predictions of these two theories.

The bottom-up technique (*i.e.*, value of SEPs is equal to the incremental value of the patented technology compared to its next-best alternative at the time that the SEP became part of an industry standard) cannot be determined when the next-best alternative never came to market because it was not selected by an SDO into a standard.

Plainly stated, no one can claim to know the market price of a technology that was never sold in a market.

The top-down technique starts with a fundamental fallacy: a single expert or court is in a position to determine the combined value created by all patented technologies in a standard. The second fallacy relates to the use of some algorithm to allocate the cumulative royalty to particular SEP portfolios or even individual SEPs. It is not clear how a court should apportion the aggregate value of the standard among its component patents. A number of methods have been proposed and used by courts and experts. None, however, is based on any theory of economics that we know of.

### [8] 'Economic Efficiency and Field-of-Use Pricing of SEP Licences Under FRAND Terms' (2019) by Eskil Ullberg

Queen Mary Journal of Intellectual Property, Volume 9, 2019, available at <https://www.elgaronline.com/view/journals/qmjip/9-4/qmjip.2019.04.02.xml>. Summary available at <https://www.4ipcouncil.com/research/economic-efficiency-and-field-use-pricing-sep-licences-under#>

The paper is concerned with patented technology markets, and whether price differentiation based on field-of-use is economically efficient. The focus relies on the licensing of SEPs on FRAND terms and conditions, also including Internet of Things (IoT) applications, and the economic growth in the digital economy, especially for SMEs.

The difference in the value between usages of standardised technologies determines whether a single price for all usages or specific field-of-use prices are economically efficient.

The paper presents the following **key findings**:

1. The difference in the value between usages of standardised technologies determines whether a single price for all usages or a specific field-of-use prices are economically efficient.
2. When considering the increasing range of applications of standardised technology (including also the Internet of Things and 5G) the values for usages of SEPs can be considerably different. This is in particular the case if we also include differences in willingness to pay in emerging markets and developed markets where applications typically are different.
3. Field-of-use prices are efficient and socially preferable if:
  - the values of using standardised technology between the fields-of-use are dissimilar. Conversely, if the values are not dissimilar, a single price can be more efficient

- prices are based on users' short-run marginal opportunity cost. Prices should not follow long-run marginal cost (including investments). This makes field-of-use pricing key to sustain technology development.
- differential prices enable markets to expand through distributing technology into new products and services.
- price differentiation is necessary based on users' willingness to pay to provide enough revenues for IP holder.
- in the long-term, dynamic effects allow for testing out which inventions can be implemented economically in innovations, contributing to growth. Such learning from markets on what technology is economically useful directs future research on technology.

### [9] 'FRAND Determination in TCL v Ericsson and Unwired Planet v Huawei: Same Same But Different? (2020) by Peter Picht

(May 13, 2018) Max Planck Institute for Innovation & Competition Research Paper No. 18-07, available <http://dx.doi.org/10.2139/ssrn.3177975>. Summary available at <https://www.4ipcouncil.com/research/Research-FRAND-Determination-in-TCL-v-Ericsson-and-Unwired-Planet-v-Huawei>

The article focuses on the treatment of the two approaches in FRAND calculation: “top-down” and “comparable licences” as discussed in the TCL v Ericsson and Unwired Planet v Huawei cases. Comparable licences, which can document patterns of customary market behaviour, are more relevant regarding the facts at issue in both cases. On the other hand, top-down valuation creates more problems than solutions.

The paper presents the following **key findings**:

1. The article contends that comparable licences seem more relevant regarding the facts at issue in the cases. If good comparable licences are at hand, they should loom large and produce the default results. Comparables and, in particular, the way in which they were concluded, come into play because they can document patterns of customary market behaviour.
2. The top-down valuation methodology creates more problems than solutions to treat publicly announced royalty rates as a form of binding “pledge”, and extensive “mid-point guessing” by judges/parties can be problematic. It is quite questionable whether top-down calculations should loom larger than the collective “market intelligence” embodied in comparable licences, especially when the licences were negotiated by experienced players and absent impending litigation or similar pressure factors.

**3. Comparable licences can arguably inform FRAND determination in three closely interconnected ways:**

- Their conditions provide data points showing how the market values a particular patent portfolio. Since the “fair” and “reasonable” conditions for licensing a portfolio are not preordained by the gods but depend on the economic potential a licensee can reap by using the licensed technologies, and since the licensee’s willingness to offer the patent holder cash and non-cash benefits expressed in the licensing conditions is directly related to this potential, comparable licences are valid indicators for the “FR” prong of FRAND.
- When combined with information on the market position and other characteristics of the licensees, comparable licences become the single most important reference for assessing the “ND” prong of FRAND.
- Comparable licences can also have an informative value with regard to the “procedural” aspect of FRAND. A key goal of the FRAND mechanism, the peaceable and effective conclusion of licence contracts providing a reliable framework for standard-based market activity, cannot be achieved without parties acting in a proactive and cooperative manner.

**4. Concerning the top-down valuation methodology, uncertainties in the determination of an appropriate aggregate royalty rate, of the total and the patentee owned SEP portfolio, and of the portfolio patents’ value can add up and make top-down results quite fragile. In particular:**

- What is the legal basis for a binding effect of unilateral royalty announcements?
- Are ex-ante royalty announcements intended to be binding forever or for a limited period of time?
- Would it be legitimate to give past announcements an (unconditionally) binding effect?
- If each patentee is bound by its individual announcement this could result in differing aggregate royalty rates for different patentees. Evidently, such an outcome contradicts the concept of a coherent, top-down determined royalty framework for all SEPs.
- A counting-only approach that neglects the argument that fair royalties should depend on a patent’s market value weakens the reliability of top-down royalty calculations.

5. **Distributing the value resulting from standardisation**, *i.e.*, from the fact that the technology was integrated into a standard and, thus, became part of a “bundle” of technology crucial for operating on the respective standard-based market(s), **seems fair**. There is no reason a SEP holder, should receive nothing of the added value. Accordingly, the additional value standardisation generates results from the contributions of many parties, including patentees contributing their protected technology, participants that further the standard-development process in other ways, implementers producing and distributing standard-compliant products, and the society as it sets the legal and economic framework standardisation needs to succeed.

**[10] ‘License to All or Access to All? A Law and Economics Assessment of Standard Development Organisations’ Licensing Rules’ (2020) by Anne Layne-Farrar and Richard Stark**

88 George Washington Law Review 1307, available at <https://ssrn.com/abstract=3612954>. Summary and webinar available at <https://www.4ipcouncil.com/research/license-all-or-access-all-organizations-licensing-rules>

This article evaluates both the legal and the economic arguments underlying the following debate: should FRAND commitments be interpreted to require licensing to anyone requesting it (license to all), or access to standards to everyone via less rigid means (access to all). It advocates against a ‘license to all’ interpretation, as it is not required by the law and would likely harm social welfare.

The paper presents the following **key findings**:

1. Proponents of “**license-to-all**” argue that all entities in the chain of production of standardised products need licences to SEPs to be able to participate in the relevant industries. Because of the need for licences, the FRAND commitments entered into by SEP holders should be interpreted to require the holders to grant licences to all comers to carry out their part of the production chain.
2. Proponents of “**access-to-all**” argue that not all entities need SEP licences. FRAND commitments do not necessarily require that SEP holders grant licences to all comers, only that they make their patented technologies available by granting licences on FRAND terms and conditions.
3. Neither the law nor economic welfare justifies a ‘license to all’ interpretation of FRAND commitments. Such a regime is not supported by patent, contract, or antitrust law, and would likely be harmful to social welfare.

4. At its root, the license-to-all argument concerns the amount of royalties to be paid. The license-to-all argument is a strategy to try to force SEP holders to license their patents to component makers, in an endeavour to focus discussions about royalties on the prices of components rather than end-user devices. Essentially, it is a tactic to game FRAND obligations and exhaustion law to the detriment of SEP holders.
5. **Policy recommendations:**
  - an SEP holder may adopt a licensing practice of only asserting its SEPs and seeking to license them at one level of the production chain.
  - SDOs could request SEP holders commit to making a FRAND offer before seeking an injunction.
  - SDOs could encourage SEP holders to charge royalties in terms of fixed dollar amounts per end- user unit e.g. \$1 per device. As long as the SEP holder gets its price, it should be indifferent to who pays that price.

### [11] ‘FRAND Licensing Levels Under EU Law’ (2020) by Jean-Sebastien Borghetti and Igor Nikolic and Nicolas Petit

European Competition Journal, 2021, available at <https://doi.org/10.1080/17441056.2020.1862542>.  
Summary available at <https://www.4ipcouncil.com/research/frand-licensing-levels-under-eu-law>

This paper investigates whether EU or national law provides legal authority to impose a direct or indirect obligation on SEP holders to license at all levels of the value chain, including at component level (‘license to all’). It concludes that neither patent law, competition law nor general principles of EU law impose an obligation on SEP owners to license at all levels of the production chain.

The paper presents the following **key findings**:

1. Current industry practice is for SEP owners to choose at which level of the production chain to license, which is usually the end-product device (“access to all” or ATA). ATA has been justified by arguments that functionality of the standard is realised in end-product devices, as well as on efficiency grounds:
  - transaction costs savings in negotiating with one group of licensees;
  - the ease of monitoring and compliance with royalty payments and use of products;
  - the possibility to obtain mutual cross-licences and
  - to ensure non-discrimination between similarly situated licensees.
2. Under an ATA approach, SEP holders exercise their patent rights by choosing the level of the supply chain at which they want to conclude licences, and firms located

elsewhere in the value chain indirectly benefit by having access to the standard without the need to directly obtain a licence

3. There are arguments that SEP owners must license at all levels of the value chain to any company that requests a licence (“**license to all**” or **LTA**). The LTA approach considers that components (such as a baseband chip) best reflect the value of a standardised technology and, therefore, that licences should be concluded with component manufacturers, or some other intermediate supplier.
4. Whether there exists a ‘license to all’ obligation is primarily a matter of contract law and depends on the precise text of the FRAND commitment made to the relevant SDOs. The ETSI FRAND commitment, which is of special relevance in the European context and is governed by French law, does not impose a ‘license to all’ regime. With the exception of IEEE, other SSOs also do not seem to impose a contractual duty to license to all levels of the production chain.
5. However, what EU law and FRAND commitments do require is access to the standard. Such access can be achieved in different ways: by having a direct licence; by selling standard-implementing components to licensed end-device manufacturers (indirect licence including ‘have-made’ rights); by concluding non-assertion agreements; or even without any licence or authorisation at all if the SEP owner has a policy of monetising its SEPs only at one level of the production chain and does not enforce its patents against others.

## [12] ‘SSPPU vs EMVR’ (2020) by Mirza Usam Bbaig, Ingra Marangoni and Tugce Ozkepir

Full paper and summary available at <https://www.4ipcouncil.com/research/ssppu-vs-emvr>

The paper analyses two different methodologies for the calculation of royalties: Smallest Saleable Patent-Practising Unit (SSPPU) and Entire Market Value Rule (EMVR), favouring the EMVR methodology.

The paper presents the following **key findings**:

1. Companies negotiate with each other when licensing SEPs. One of the most frequent discussions is about the royalty fees, the calculation of which requires the use of a royalty base.
2. This paper focus on two different methodologies for the calculation of royalties: Smallest Saleable Patent-Practising Unit (SSPPU) and Entire Market Value Rule

(EMVR) and warns about the negative consequences of applying a too low basis (by applying SSPPU).

3. The use of SSPPU is a deviation from the industry practice and could easily lead to an insufficient reward for SEP owners.

### [13] ‘Patent Pools: A Practical Perspective’ (2021) by Julia Brito and Hector Axel Contreras-Alvarez

Part I of the paper in Les Nouvelles - Journal of the Licensing Executives Society, December 2021. Part II in Les Nouvelles - Journal of the Licensing Executives Society, forthcoming March 2022. Summaries of Part I and II available at <https://www.4ipcouncil.com/research/patent-pools-practical-perspective#>

The paper gives an overview of SEP licensing models, explains the main reasons why SEP owners may decide to create and/or join a patent pool, and explains some of the challenges they face when doing so, such as essentiality assessments and gathering the relevant portfolio.

The paper presents the following **key findings**:

1. SEP owners may decide to license their SEPs either individually in bilateral negotiations or by joining a patent pool.
2. In deciding whether or not to join a pool a SEP holder usually considers its business model, the standardised technology involved, the distribution of the collected royalties and whether it already has a licensing program in place for such technology. The main reasons, however, for the creation of a pool and for patent owners to join is to react to market needs.
3. The measure of success of a pool is the completeness and/or relevance of the portfolio. A pool is more likely to do well if a vast number of SEPs are licensed through the pool.
4. Pools test the essentiality of submitted patents. Essentiality assessments are an expensive exercise but are necessary to ensure that only complementary patents are included in a pool. However, a patent owner does not have a guarantee that implementers will accept such evaluation as they retain the right to challenge the essentiality before courts and some pools use caps on the number of patents to be evaluated for the purposes of distribution of revenues.

### [14] ‘Mandatory Patent Pools’ (2020) by Luca Maggioni, Diana Marin, Laura Natalia Morales Charry, Paolo Orlando and Victoire Guegan

This paper explains the link between patent pools and standardisation in telecommunications and analyses the potential impact of mandatory pools for innovation.

The paper presents the following **key findings**:

1. Patent pools are often perceived as a significant tool for widespread innovation. Yet, in theory they could also lead to monopolistic behaviour.
2. In practice, patent pools are used by some stakeholders as a tool to organise the licensing of standard essential patents. Thus, pools are encouraged by the European Commission, especially for the information and communication technology (ICT) field with complex products incorporating multiple patents.
3. To be efficient and pro- competitive, pools need to incorporate large portfolios, and to achieve reasonable cumulative royalty rates for standardisation users, thus reducing the risk of royalty stacking and providing the efficiency of one-stop-shop licensing.
4. Even considering the benefits of voluntary patent pools, mandatory patent pools raise serious concerns:
  - there is no conclusive opinion between academics whether pools increase innovation.
  - If a numeric proportionality method is used for the distribution of royalties that values all patents the same, that would encourage members to contribute low quality patents, and to make narrower and more incremental patents in order to increase portfolio size.
  - It would obliterate a fundamental premise of the patent system – that the inventor has a monopoly on its invention for a fixed period of time in exchange for contributing that invention to society when the patent expires. It is likely that mandatory pools would disincentivise innovation.

### **3. Improving the effectiveness and efficiency of enforcement**

The following articles present answers and evidence related to the third policy pillar *improving the effectiveness and efficiency of enforcement*.

**[15] ‘A Policy Governance Framework for SEP Licensing: Assessing Private Versus Public Market Interventions’ (2021) by Bowman Heiden and Justus Baron**

This paper strives to provide a balanced, evidence-driven policy governance framework for SEP licensing. It warns about the negative impact to standards-enabled markets of engaging in the SEP policy debate without empirical evidence about some of the most fundamental issues. To avoid this, the authors propose an adjusted framework for impact assessments that could be used as a template for analysis for any future investigation by public or private organisations in the SEP context.

The paper presents the following **key findings**:

1. An SEP policy governance framework can benefit from a clearer understanding of private ordering (i.e., enforcement of the rule of law) and public ordering (i.e., regulation by the administrative state), as well as of their market implications.
2. The same governance policies implemented through private and public ordering can produce very different results. For example, patent pools, which are seen as pro-competitive when arranged voluntarily by market actors, can clearly devolve into mechanisms for price regulation when implemented by the state as a mandatory mechanism.
3. The SEP licensing context is largely a story of collective, private ordering through the creation of open, consensus-based SDOs, FRAND-based IPR policies, and patent pools. These developments can be an explanation for why to date theories of market failure in SEP-enabled markets have not been supported by any empirical evidence in the mobile economy. Innovation by the active contributors to ICT standards development and by the producers of novel standard implementations has produced trillions of Euros in consumer surplus and many high-paid jobs in Europe and elsewhere. The authors review the private ordering mechanisms and economic implications across the issues of transparency of SEP exposure, licensing in the value chain, FRAND licensing terms and conditions, and patent pools and compare them to received theories of market failure to provide potential explanations for the market success of the mobile economy.
4. In market contexts characterized by open, collective innovation and a strong private ordering regime, governments should resist the unproven counterfactual belief that public ordering can produce solutions that will obviously improve the situation for all actors (i.e. Pareto efficiency). Because of the market complexity, the fragile balance of incentives, and potential strategic market responses to changes in SEP licensing policy, government intervention is more likely to generate trade-offs that redistribute value and

costs (i.e. Kaldor-Hicks efficiency) or unintentionally generate a systemic change that lowers social welfare (i.e. government failure).

5. Indirect public ordering can strongly influence private ordering decisions made in the shadow of regulation, which the authors label as market capture. This shadow is apparent in the IPR policy developments at both the IEEE-SA and ETSI. Market contexts experiencing high levels of capture activities are particularly vulnerable to Nirvana Fallacies and thus require an extra focus on evidence-based policy assessment.

6. As stipulated in the EC Impact Assessment Guidelines, problems cited as the reason for government policy intervention need to be studied in-depth and measured holistically. This problem determination assessment needs to start from the beginning of any governmental market investigation, instead of as the last step before policy approval. This lack of thorough investigation into the theoretical problems associated with SEP licensing has led to institutional capture, whereby theories of market failure have grown to become facts in the absence.

7. **The authors strongly recommend achieving a shared understanding of the relevant problems and policy objectives before making a significant step impacting SEPs and standards-enabled markets.** In the authors' view, working towards a consolidated assessment of the existing system and its strengths and weaknesses is at least as urgent a task as formulating proposed improvements on how to reform it.

The above-mentioned **principles** are **elaborated** as follows:

1. The primary objective of a policy framework for SEP licensing and of ICT standardisation more generally is to support technological innovation and the further growth of wealth and welfare in society. **The success story of ICT standards hinges on a supportive regulatory environment.**

Patent protection of standardised technologies and the necessity to negotiate SEP licences produce transaction costs. While these transaction costs may be large in absolute terms, they pale by comparison to the benefits of innovation linked to ICT standards. The institution of patent protection itself rests on the idea that society incurs a static cost in exchange for the much greater dynamic benefits of technological innovation. While it is worthwhile exploring opportunities to increase efficiencies in the system, tinkering with the SEP licensing system that produces significant benefits to society should not be undertaken lightly. Any adverse effects on innovation incentives, should they occur, are bound to outweigh potential transaction cost savings. **It is thus imperative that innovation incentives occupy a central place in the future debate on SEP policy reform.**

**2. The regulatory framework in which SEP licensing** takes place has evolved over many decades. It **has proven flexible and resilient throughout multiple periods of significant technological change and profound transformations in industry structure**. Central to the strength of the framework is its governance. ICT standardisation takes place in an astonishing diversity of organisations. Each of these organisations was created according to its own specific circumstances, and there is no one-size-fits-all that could be applicable to each of these.

Nevertheless, the European Commission can, as seen for many decades, contribute through a wide variety of different roles. For example, as a facilitator of discussions among stakeholders, as a guardian against abuses by individual actors or colluding groups, and as a source of non-binding guidance on the implementation and interpretation of existing policies. However, only exceptionally has the Commission advocated for specific policy changes within SDOs, and there is even less precedent for the Commission to act as the originator of experimental and controversial SDO policy innovations.

**3. Looking to the future of ICT, there is broad agreement that the IoT and other significant technological evolutions will continue to impact the way in which SEP licensing takes place. Nevertheless, the nature of the anticipated effects is subject to an open debate.** All expert assessments are limited in their ability to forecast the future. While a useful debate on possible solutions to potential problems is encouraged, more direct calls for **regulatory interventions would need to be based on evidence of the actual occurrence and magnitude of such problems**. Conjectures about the future are malleable and prone to being used by any interest group to its advantage. Instead of anticipatory regulation of future evolutions, the authors recommend monitoring the most relevant trends and to intervene in a tailored manner when observed problems in the system are causing social welfare loss.

4. In the authors' view, **the SEP policy debate will struggle to progress productively if there continues to be a lack of empirical evidence about some of the most fundamental and important issues**. Thus, while this paper presents a logical governance framework and updated impact assessment methodology, it does not supplant the important and arduous task of collecting empirical observations, debating the relevance of observable data, and taking stock of the state of the evidence.

#### **Proposed adjusted impact assessment framework**

The article provides the following adjusted framework **for impact assessment that can be used as a template for analysis for any future investigation** by public or private organisations in complex policy areas with high levels of capture activities, such as **in the SEP context**.

1. Make explicit the hypothesised problem to be addressed

2. State the supporting theory and empirical evidence
3. State and assess how the problem has already been addressed by previous private and public ordering mechanisms?
  - a. 1<sup>st</sup> private ordering level
  - b. 2<sup>nd</sup> private ordering level
  - c. 3<sup>rd</sup> private ordering level
4. Calculate the level of impact
  - a. Minor v. major
  - b. Distributional v. systemic
5. State why a substantial, systemic problem still exists
6. Postulate the potential strategic behaviour of market/ecosystem actors given the proposed solution
7. Calculate the level of impact of the new solution given potential strategic behaviour

### [16] 'Patent Hold-up and Patent Hold-out: Evolutions in Europe and the US' (2018) by Marie Barani

Update from the article 'From Patent Hold-Up to Patent Hold-Out' published in the Corporate and Global Standardization Initiatives in Contemporary Societies, 2018, available at <https://www.4ipcouncil.com/research/patent-hold-and-patent-hold-out-evolutions-europe-and-us#>

This paper looks at hold-up and hold-out with respect to SEPs in the ICT sector. It examines the evolution from a hold-up focused view in the US and in Europe towards consideration of hold-out by their regulatory authorities and courts. Similarities and differences regarding SEP licensing and enforcement in both regions are addressed.

The paper presents the following **key findings**:

1. In the US, there has been a long-standing advocacy from the FTC and the DOJ suggesting limits or denying injunctions on SEPs to avoid patent hold-up, but without assessing the potential hold-out from the side of the implementer. Similarly, courts have often denied injunctions on SEPs. Moreover, the revisions made by IEEE, a US SDO, in 2015 limited injunctive relief, creating an IPR policy that favours implementers and incentivises hold-out.
2. In 2018 the DOJ recognised that hold-out is an even more concerning threat to antitrust law than hold-up.
3. In Europe, the European Commission in its *Motorola* and *Samsung* decisions used FTC's notion of a 'willing licensee' and considered that threatening or seeking an injunctive relief against a 'willing licensee' should be an abuse of dominant position. However, the Commission's notion of 'willing licensee' was too vague and may have

in fact encouraged a hold-out strategy from companies merely claiming to be ‘willing’ while their behaviour in the negotiations suggested otherwise.

4. The subsequent decision by the CJEU in *Huawei v ZTE* seems to have brought back some balance in negotiations, with clear duties on both SEP-holders and implementers, intended to both prevent hold-up as well as hold-out.
5. After years of hold-up claims, the attention has recently moved from an exclusive focus on hold-up to an understanding that hold-out may threaten innovation as well. Authorities in Europe and the US seem to recognise the need for a balanced antitrust system to encourage both SEP-holders and implementers. There is a recognition that regulatory authorities should be less intrusive in SEPs licensing and enforcement. Both jurisdictions also underlined that an injunction should remain available to SEP-holders against holding-out implementers.

### [17] ‘Patent ‘Trespass’ and the Royalty Gap: Exploring the Nature and Impact of Patent Holdout’ (2018) by Bowman Heiden and Nicolas Petit

34 Santa Clara High Technology Law Journal 179 (2018), available at <https://digitalcommons.law.scu.edu/chtlj/vol34/iss2/1/> and <https://www.4ipcouncil.com/research/patent-trespass-and-royalty-gap-exploring-nature-and-impact>. Summary available at <https://www.4ipcouncil.com/research/patent-trespass-and-royalty-gap-exploring-nature-and-impact#>

This paper studies ‘patent holdout’ and advocates in favour of using the term ‘patent trespass’, i.e., the technology implementers’ attempt to evade the conclusion of licensing agreements with patent owners. Patent trespass is a significant phenomenon, which deserves as much attention from courts and policy-makers as patent holdup. The study recommends moving towards a new holistic framework in policy-making, one that grasps the asymmetric bargaining power that may exist between patent holders and implementers.

The paper presents the following **key findings**:

1. Patent hold-up has been the theory that gained more attention from academic and policy circles. However, the patent hold-up literature dispenses with explaining how the proposed theory can stand in the real world, absent the basic conditions of opportunism and asset specificity required for the theory to apply. There are ambiguities regarding the connection between transaction cost economics and the patent holdup theory. There is a need for more empirical investigation in this area.
2. In a trespass scenario, a systemic effect can be envisioned as a tax on new R&D products. In the context of SEPs, this would manifest itself in a reduction in performance (i.e. delay) in the development of new standards.

3. Interviews conducted with market players point to several important factors that can expand patent trespass into systematic and systemic issues (such as the relative size, resources and reputation of patent owners and implementers). It is suggested that a systematic patent trespass effect can be deemed to occur when 30% or more of a relevant market is unlicensed.
4. Markets which exhibit a long tail of unlicensed implementers may be the by-product of collective action problems and the likelihood of patent trespass is influenced by the clarity, predictability and stability of the legal framework in relation to patent enforcement.
5. The systemic effect of patent trespass is primarily experienced through its impact on the technology market created through the development and performance of consensus-based standards.
6. The term patent ‘trespass’ may be more appropriate than patent ‘hold-out’ because the concept captures the idea that the product of a technology implementer involves a “relatively gross invasion” over a technology developer’s patent claims. Patent trespass can be said to arise when a SEP holder’s licensing revenues decrease because technology implementers avoid the conclusion of a licensing agreement on terms that correspond to recognised industry practices.
7. Interviews conducted highlight that patent trespass is intentional and that trespassing firms may pursue strategic goals that go beyond pure revenue sharing.
8. While patent trespass consists in a refusal to take a licence, it often manifests itself through less explicit strategies and even if the patent owner can successfully claim compensatory damages with interest rates, patent trespass is not simply akin to a deferred payment.

### **[18] ‘Patent=Monopoly – a Legal Fiction’ (2015) by Sven Bostyn and Nicolas Petit**

Full paper and summary available at <https://www.4ipcouncil.com/research/patent-monopoly-legal-fiction>.

This paper has been selected due to its relevance to fostering the continuous R&D investments required for a successful development of wireless standards, which technology is typically protected by SEPs. The paper highlights that (i) the exclusionary right of a patent incentivises innovation (as it protects and encourages R&D investment), (ii) a patent is not a monopoly in the economic sense, (iii) holders’ patent protection strategies are not per se abusive, and (iv) in principle patent protection strategies do not require scrutiny under the antitrust rules.

The paper presents the following **key findings**:

1. A patent right is an exclusionary right, *i.e.*, it allows a patent holder to exclude third parties from making, using, selling, etc. products or processes protected by the patent. In the past, this right has also been referred to as a ‘monopoly right’ and this has led to considerable confusion about the scope of patent rights and the role of the patent system in a modern economy. Society allocates exclusionary rights to patent holders for a simple, compelling reason: to incentivise innovation. Innovation is a costly and risky business. It requires considerable upfront investments in activities that may not yield any fruits. Yet as soon as an innovative technology appears, anyone can copy it, and compete for a trivial cost with the inventor.
2. Obviously, no inventor is ready to make significant investments absent a prospect of reasonable recoupment. Patent rights seek precisely to solve this “underinvestment” market failure. In exchange for the disclosure of his invention, the inventor receives the right to be the first to place the invention on the market, and to limit third parties’ ability to use his technology. This system is of critical importance in many sectors (for instance, in the high-tech, pharmaceutical and biotech sectors, where investments are high, and the costs of replication are low).
3. Despite the above, a patent in itself comes nowhere close to a monopoly. From a legal perspective, a patent simply offers a market opportunity for the patentee to commercialise a product implementing the patented technology successfully. A patent is however not a guarantee at all that the patented technology will gain such massive traction on the market as to hold a monopoly (for instance, because there may be no market for the patented technology). Put simply, patents reward invention, not commercialisation.
4. Similarly, a patent is not a monopoly in the economic sense, because:
  - the possession of a patent does not unravel into the “single supplier” setting typical of most monopolies.
  - the vast majority of products which are based on a patent cannot be marketed at a monopoly price, for the existence of substitutes on the market allows buyers to choose amongst different products.

### [19] ‘Injunctions in European Patent Law’ (2019) by Lea Tochtermann

Zeitschrift für Geistiges Eigentum, Volume 11 No. 3, 2019, available at <https://www.mohrsiebeck.com/artikel/injunctions-in-european-patent-law-101628zge-2019-0018>.

Short version in English available at <https://www.4ipcouncil.com/research/injunctions-european-patent-law#>

The paper studies the conditions for the grant of patent injunctions in selected European jurisdictions. It warns about the negative impact of requiring a general proportionality assessment for the grant of an injunction, which could severely disturb the balance of the patent system as a whole.

The paper presents the following **key findings**:

1. Some argue the grant of a patent injunction is ‘disproportionate’ where the patent concerned protects a minor component of a much more complex system. In that context, the potential effect of the injunction is seen as excessive.
2. A general proportionality assessment as a requirement for the grant of an injunction may be hazardous. Without specific standards defined by law it could severely disturb the balance of the patent system as a whole.
3. Patent law is driven by the underlying idea that the technology behind patents shall be made available to the public to further the technical knowledge of society in general. This is supposed to reduce the necessary investment in research of new technologies and to focus these investments better. Disclosing existing knowledge allows others to build upon this knowledge and to develop it further. The risk of parallel inventions – generating double costs – is reduced and society can steadily continue to innovate. Thus, disclosure is an efficient means of innovation.
4. While this evidently is desirable from society’s point of view, the prospect of inventions being used and copied is a disincentive to innovators. Accordingly, there must be an incentive to disclose their innovations, which is offered by the patent system. Patent holders are granted a temporary monopoly by virtue of their exclusive right, which allows them to decide who may use the patented invention. Patent laws clearly define the scope and the restrictions of the patent right as a temporary monopoly to ensure it does not go overboard. The injunction is central to the effective enforcement of this right, bearing much more deterrent potential than the remedy of damages because the former has the power to exclude competitors from the market.
5. Introducing a **general proportionality requirement for an injunction**, however, would equal an unwritten restriction of the patent right as such. In essence it **would mirror a compulsory licence**. To question the grant of an injunction in case of infringement by applying a vague proportionality requirement would in addition massively endanger legal certainty. It would cast doubt on the deliberate choice of the legislator to balance the interests concerned.

[20] ‘Negotiating SEP Licences in Europe After *Huawei v ZTE*: Guidance from National Courts’ (2018) by Claudia Tapia and Spyros Makris

This paper reviews the national case law in Europe following the Court of Justice of the EU's *Huawei v ZTE* judgment. It reveals that national courts have, in general, managed to effectively capture and implement the spirit expressed by the Court.

The paper presents the following **key findings**:

1. In 2015, by its landmark decision in the matter *Huawei v ZTE* the Court of Justice of the European Union established a well-balanced framework for licensing negotiations regarding FRAND-accessible SEPs, imposing obligations of good faith conduct on both parties involved in such negotiations.
2. Since the Court's decision, national courts in Europe have been steadily providing further guidance to stakeholders on how to live up to these obligations in practice, such as the SEP owner's notification of infringement; implementer's willingness to obtain a licence; the SEP holder's licensing offer; implementer's reaction and counteroffer and provision of security and rendering of accounts.
3. A review of the national case law following the *Huawei v ZTE* judgment reveals that national courts have, in general, managed to effectively capture and implement the spirit expressed by the Court.
4. Although there will always remain legal points requiring judicial intervention, it is clear that national courts in Europe grappling with FRAND licensing disputes are providing increasing legal clarity on the scope of obligations and liabilities at play.

## [21] 'Anti-suit Injunctions for Standard-Essential Patents: The Emerging Gap in International Patent Enforcement' (2022) by Haris Tsilikas

Journal of Intellectual Property Law & Practice, Volume 16 Issue 7, July 2021, available at <https://academic.oup.com/jiplp/article-abstract/16/7/729/6291432?redirectedFrom=fulltext&login=false>. Summary available at <https://www.4ipcouncil.com/research/anti-suit-injunctions-standard-essential-patents-emerging-gap-international-patent-enforcement#>

This paper illustrates that anti-suit injunctions may undermine relations of comity between national courts, i.e., their mutual recognition of legislative, executive, and judicial acts. Anti-suit injunctions represent a challenge from a rule of law perspective by interfering with a patent owner's right to property and effective judicial protection.

The paper presents the following **key findings**:

1. In standard essential patent (SEP) disputes, situations of overlapping national jurisdictions often arise. These overlaps are occasionally resolved with the issuance of an anti-suit injunction (ASI), *i.e.*, an order barring the initiation or continuation of overlapping proceedings in foreign jurisdictions.
2. In the context of SEP disputes, an ASI has been issued in the US on one occasion (by the 9th Circuit in *Microsoft v. Motorola*), while UK courts have also left open the possibility of an ASI being granted in the SEP context. Courts in China appear, however, increasingly willing to issue ASIs.
3. ASIs may undermine relations of comity between national courts and represent a challenge from a rule of law perspective by interfering with a patent owner's right to property and effective judicial protection.

## [22] 'Global Standard Essential Patent Litigation: Anti-Suit and Anti-Anti-Suit Injunctions' (2022) by Igor Nikolic

Webinar and summary available at <https://www.4ipcouncil.com/research/global-standard-essential-patent-litigation-anti-suit-and-anti-anti-suit-injunctions#>

The article examines the use of anti-suit and anti-anti suit injunctions in SEP litigation in the US, Europe, and China. It warns against harmful effects of global jurisdictional battles and makes suggestions to incentivise parties to focus on the resolution of FRAND licensing terms.

The paper presents the following **key findings**:

1. The litigation of SEPs is seeing jurisdictional battles between national courts. Some courts are issuing anti-suit injunctions (ASI) to prohibit parallel litigation and consolidate the dispute at a single venue, while others retaliate with anti-anti-suit injunctions (AASI), barring parties from seeking or enforcing foreign ASIs.
2. Multiple ASIs and AASIs have negative consequences on SEP licensing. They increase legal uncertainty as to which court will resolve the case, incentivise parties to sue first in the most favourable jurisdiction rather than focus on licensing negotiations, and increase litigation costs and risks of fines and imprisonment of company officials. The situation calls for a framework that leads the parties to agree on the key issue behind every SEP dispute – the appropriate FRAND licensing terms - rather than to engage in global forum shopping and jurisdictional challenges.

3. Courts may adopt the following measures that would discourage parties from requesting ASIs and, at the same time, facilitate the resolution of FRAND licensing terms, which are central to every SEP dispute.

- **Judicial restraint - return to the original strict criteria for the grant of ASIs**  
ASIs are an exceptional remedy used only: i) in strictly limited circumstances and ii) where they do not appreciably impact international comity. In SEP cases, comity is always impacted as an ASI prevents the enforcement of national patents before the only competent national court. Thus, as a general rule, ASIs in SEP cases should not be granted.

However, a limited exception may be possible for anti-enforcement injunctions. They have a narrower impact on comity as they do not stop foreign litigation but are targeted only at the enforcement of the foreign judgment until the case is resolved by the issuing court. As such, it might be possible to use them exceptionally when a foreign patent injunction would impact a domestic case that has a stronger connection with the parties than a foreign one.

- **ASI as a sign of ‘unwillingness to license’**  
The innovative approach of the Munich Regional Court in holding companies that request ASIs as an ‘unwilling licensee’ or ‘unwilling licensor’ under the *Huawei v ZTE* framework could be more widely applied. Such an approach would act as a further deterrent to seeking ASIs in the first place.
- **Facilitate arbitration**  
Arbitration may be an efficient mechanism to determine global FRAND licensing terms between parties at a single forum, without conflicting parallel national litigation.

### [23] ‘Licensing Negotiation Groups for SEPs – Collusive Technology Buyers Arrangements: Pitfalls and Reasonable Alternatives’ (2021) by Igor Nikolic

Les Nouvelles - Journal of the Licensing Executives Society. December 2021, available at <https://ssrn.com/abstract=3926650>. Summary available at <https://www.4ipcouncil.com/research/licensing-negotiation-groups-seps-collusive-technology-buyers-arrangements-pitfalls-and-reasonable-alternatives>

This paper analyses the proposal to introduce licensing negotiation groups (LNGs) of implementers to collectively negotiate licences with SEP owners. It warns about its serious competition law risks, such as the possibility of collective industry hold-out. It also proposes less restrictive alternatives for the efficient licensing of SEPs in the form of patent pools

which may gather input from implementers during the formation of their royalty programmes.

The paper presents the following **key findings**:

1. The European Commission's SEPs Expert Group report included a compilation of individual proposals made by the SEP Expert Group. One of these proposals was the formation of licensing negotiation groups (LNGs) by implementers to collectively negotiate with SEP owners and patent pools. Accordingly, LNGs could be used for a more efficient SEP licensing, particularly relevant in the Internet of Things with increasingly new stakeholders entering the market.
2. Proposed LNGs have a serious risk of **turning into hidden buyers' cartels**:
  - As currently proposed, LNGs constitute a serious danger of implementers acting as a disguised buyers' cartel. The proposal is for LNG members to agree, before the start of negotiations, on: i) the licensed product, ii) the level in the value chain where to license and iii) the maximum amount of acceptable royalty. In order to reach an agreement on these points, implementers would have to exchange sensitive commercial information. Such exchanges are clear violations of competition laws.
  - Moreover, it is plausible that the maximum acceptable royalty for LNG members could be lower than the minimum acceptable royalty for SEP owners. Then there would be nothing left to negotiate.
  - LNG members will be in a conflict of interests as they would be simultaneously using the technology and negotiating its price – their main incentive would then be to cut their licensing costs as much as possible rather than to properly value the technology.
3. Proposed LNGs may also **produce serious hold-out risks**. Implementers would reasonably use the additional venue for negotiations provided by the LNG even if they do not genuinely want to take a licence in order to be shielded from litigation and possible injunctions. Furthermore, even in bilateral negotiations implementers would have an incentive to insist on maximum licensing terms agreed within LNGs rather than engage in serious negotiations.
4. As a less restrictive alternative, this article explains how existing patent pools and other similar licensing platforms that provide one-stop-shops for licensing already enable efficiency and transaction costs savings in the IoT with no harmful anti-competitive effects. By gathering inputs from individual implementers before the formation of royalty programs, some licensing platforms can ensure that implementers are consulted and participate in royalty formulations without the risk of collusive outcomes.

## [24] ‘The Economic Case Against Licensing Negotiation Groups in the Internet of Things’ (2021) by Jonathan Barnett

(January 10, 2022). USC CLASS Research Paper Series No. CLASS22-1, USC Legal Studies Research Paper Series No. 22-1, available at

[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3999461](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3999461)

Summary available at: <https://www.4ipcouncil.com/research/economic-case-against-licensing-negotiation-groups-internet-things#>

The article examines the economic effects of proposed licensing negotiation groups (LNGs) of implementers and finds that the proposal has no sound basis in economic theory or evidence and may bring negative welfare effects and jeopardise successful standard-development.

The paper presents the following **key findings**:

1. Empirical studies find little evidence that wireless technology markets widely suffer from patent hold-up or royalty stacking. Rather, these studies find modest aggregate royalty rates that are consistent with the exceptionally rapid and broad adoption of wireless-enabled technologies around the world.
2. Licensing negotiation groups are a form of buyer coordination that inherently poses a risk to the free play of competitive forces in determining prices for technology inputs and the devices that rely on those inputs.
3. In the short term, LNGs would simply redistribute economic value from innovators (net licensors) to implementers (net licensees) in the technology supply chain without necessarily passing on cost-savings to consumers.
4. In the medium to longer term, LNGs would pose a risk to the standard development and licensing-based monetisation strategies that have supported the wireless communications industry’s iterative model of technology development. Through these patent-dependent structures, wireless markets have funded continuous R&D investment, promoted dissemination of technology inputs, maintained interoperability, facilitated entry in device production, and enabled transformative business models across a wide range of industries.
5. Information technology markets have a demonstrated history of using independently administered patent pools to achieve transaction-cost savings and, compared to licensing negotiation groups, can do so at a lower risk of competitive harm

## [25] ‘Are Collecting Agencies a Model that Fits to SEP Licensing?’ (2021) by Hector Axel Contreras and Rui Li

Journal of Intellectual Property Law & Practice, Volume 16, Issue 10, October 2021, Pages 1109–1114, available at <https://doi.org/10.1093/jiplp/jpab101>. Summary available at

<https://www.4ipcouncil.com/research/are-collecting-agencies-model-fits-sep-licensing>

The article considers a proposal to establish collective management organisations (CMO) for the licensing of SEPs, similar to what already exists in the field of copyright. It concludes that CMOs would only add a new layer of complexity and lead to increased litigation in the SEP framework. Bilateral licensing negotiations and patent pools, on the other hand, appear to be better placed to address the international nature of SEP licensing.

The paper presents the following **key findings**:

1. In recent years, cellular standards have reached new sectors and markets due to the increasing number of ‘things’ being connected via the Internet (Internet of Things or IoT). To facilitate smoother licensing, decision-makers are exploring different ways for the determination of FRAND terms. Specifically, a similar model to collective management, currently applied in the copyright field, has been suggested for the licensing of SEPs.

Collective management organisations (CMOs) were created with the intention to facilitate the transactions between licensors and licensees. The main reason was that the countless number of right holders and consumers in the copyright field made it impossible to identify each right holder for every work for which a licence was desired. In general, CMOs have improved the economic efficiency of copyright licence transactions and play an important role in the enforcement of copyrights.

2. After a thorough analysis, the authors **concluded** the following:
  - **CMOs for SEPs would in practice act as a limitation to the rights of the SEP holders, potentially harming FRAND negotiations, even for those not licensing via the agencies.** The automatic creation of the agencies, combined with their power to license all SEPs of the standard, would amount to mandatory collective management, in contradiction to FRAND commercial practices and interfering with the rights of SEP holders. Even in the copyright field, mandatory management has been applied only under very specific circumstances and with clear definitions, e.g., with regard to remuneration rights for rental and lending in Germany.
  - Another downside of such a proposal would be **the passive role that the agency would play** by not approaching infringers to try to obtain a licence. In practice, an implementer could in principle infringe SEPs and, only after being sued and/or after a non-favourable result in litigation, seek a licence from the agency. In the meantime, it would enjoy a competitive advantage versus those who have paid for the SEPs they are using.
  - It is **unclear how the agency would be able to accurately estimate the royalty rates and properly distribute the revenues**, considering that highly experienced

stakeholders usually invest significant time and resources to determine FRAND terms. This exercise requires an ample understanding of the patent's technical value, how to analyse the market, a deep legal knowledge, and familiarity with the standardisation and the business. This know-how generally relies on the parties. However, when this is not the case, one or both parties can hire experts for advice, or license via e.g., a patent pool.

- **The time required for the suggested agency to process revenue sharing is far too long.** Companies which rely on the licensing income would not be able to continue contributing to standardisation, leading to lower quality standards or more expensive standardised products.
- **As copyrighted works and patented technologies represent totally different types of rights, they should not be licensed in the same way.** Copyright comprises a bundle of exclusive rights such as reproduction, distribution, performance, adaptation, transformation, and more. CMOs only license a part of the whole bundle of rights. The owners maintain control of most of the rights which they can efficiently license, while CMOs are allowed to license purely those rights which require greater effort given the market structure, such as broadcasting rights. Nevertheless, in the case of SEPs, there is no division of rights since a patent confers an integrated exclusive right to commercially exploit an invention. Moreover, SEP licensors are easily identifiable, and standardised technology is already available on FRAND terms.
- **To conclude, while CMOs may suit well for the licensing of certain rights within the copyright field, they would only add a new layer of complexity and lead to increased litigation in the SEP framework.** On the other hand, bilateral licensing negotiations and patent pools appear to be better placed to address the international nature of SEP licensing. Therefore, for the time being, it seems unnecessary to create new structures to fulfil similar roles.

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