This newsletter contains an overview of recent publications concerning intellectual property issues. The abstracts included below are as written by the author(s) and are unedited.

**IP & Antitrust**

**Reasonable patent exhaustion**  
Herbert J. Hovenkamp (University of Pennsylvania)  
*U of Penn, Inst for Law & Econ Research Paper No. 17-29*  

A lengthy tug of war between the Supreme Court and the Federal Circuit Court of Appeals may have ended when the Supreme Court held that the sale of a patented article exhausts the patentee seller’s rights to enforce restrictions on that article through patent infringement suits. Further, reversing the Federal Circuit, the parties cannot bargain around this rule through the seller’s specification of conditions stated at the time of sale, no matter how clear. No inquiry need be made into the patentee’s market power, anticompetitive effects, or other types of harms, whether enforcement of the condition is socially costly or valuable, or has a positive or negative impact on innovation. None of this is relevant.

Lexmark was attempting to use patent law to impose a variable proportion tie – in this case, a requirement that users of its printers also use its own original equipment toner cartridges. The general although not unanimous consensus is that such arrangements are economically beneficial, and largely everyone agrees that they are beneficial when the seller lacks market power, as Lexmark did in this case.

Impression Products reveals an economic deficiency that manifests all too frequently when patent law is brought to bear on market practices. Economic concepts such as market power or output effects which are commonly used in antitrust law are virtually unknown in patent law. This fact has inclined the courts to go to wild extremes – such as equating every patent with monopoly, or concluding that a patent is a mere property right and that anything done within the scope of the patent should therefore be permissible. The result, as in this case, can be draconian rules that are indifferent to effects on innovation, competition, economic efficiency, or any other measure seems relevant to innovation policy.

One thing the Supreme Court did not discuss is the Patent Misuse Reform Act, which provides that no patent owner shall be denied relief in an infringement action because it “conditioned…the sale of the patented product on the…purchase of a separate product…., unless…the patent owner has market
power…” That language clearly creates an exception to the exhaustion rule for tying arrangements where the defendant lacks market power. This paper considers whether the Supreme Court was correct to ignore that statute.

The exhaustion rule also produces odd result of giving patentees an incentive to argue that components that they sell do not embody their own patents. If the product is not covered by a patent, then it is not exhausted. At this writing the issue is being litigated in the Apple v. Qualcomm dispute over Qualcomm’s post-sale restrictions on telecommunications components.

The Supreme Court based its patent exhaustion holding on concerns about restraints on alienation, which it presented as rooted in the common law. But the common law’s rules on restraints on alienation are much more complex than the Supreme Court acknowledged. The common law typically upheld restraints that were limited in time, and restraints enforced by patent infringement actions are by definition limited by the life of the patent.

This paper concludes by arguing that the Supreme Court would have been wise to develop a more nuanced exhaustion rule that examined actual effects likely to result from a particular restraint.

The High Court judgment on Unwired Planet vs. Huawei narrows the scope of competition law defence in SEP litigation
Marco Lo Bue (BonelliErede)

On 5 April 2017 the High Court of Justice of England and Wales (Hon. Justice Birss) issued its long awaited judgment on the patent dispute between Unwired Planet and Huawei. The ruling is of high relevance, as it is the first decision adopted by a judge in the UK after the Court of Justice of the European Union (“CJEU”), in its preliminary ruling on the Huawei case, provided the stakeholders with detailed guidance on how the holders of standard-essential patents (“SEPs”) and implementers have to comply with competition law during negotiations for the license of SEPs.

Differently from what the Court of Appeal of Dusseldorf did in another “post-Huawei” case (Sisvel v. Haier), the UK judge does not offer a formalistic interpretation of the principles expressed by the CJEU in Huawei and leaves wide room for a case-by-case approach which keeps into account specific features such as the defendant’s sophistication and its countervailing buyer power.

This ruling enriches the existing case law on SEP. In particular, it provides an interesting analysis on two aspects:

(i) the legal nature of FRAND commitments and their enforceability under contract law;

(ii) the scope of the competition law defence in light of CJEU’s ruling in Huawei.
IP & Innovation

**Have R&D spillovers changed?**  
Brian Lucking (Stanford University)  
Nicholas Bloom (Stanford University – Department of Economics; National Bureau of Economic Research (NBER))  
John Van Reenen (Massachusetts Institute of Technology (MIT))  
*Working paper*  

This paper revisits the results of Bloom, Schankerman, and Van Reenen (2013) on the impact of R&D spillovers on growth. We extend their analysis to include an additional 15 years of data on firm R&D and performance, and update the measures of firms’ interactions in technology space and product market space. We show that the magnitude of spillovers appears to have been broadly stable over the past few decades. In comparison to the earlier analysis, indeed we find stronger evidence of strategic complementarity in R&D and a larger gap between the marginal social return and the marginal private return to R&D, with the marginal social return exceeding the marginal private return by a factor of 4.

**Complex innovation and the patent office**  
Ryan Whalen (The University of Hong Kong – Faculty of Law)  
*Chicago-Kent Journal of Intellectual Property, Forthcoming*  

As the universe of available information becomes larger and innovation becomes more complex, the task of examining patent applications becomes increasingly difficult. This Article argues that the United States Patent Office has insufficiently responded to changes in the information universe and to innovation norms. This leaves the Patent Office less able to adequately assess patent applications, and more likely to grant bad patents.

After first demonstrating how innovation has been responsive to contemporary innovation norms for hundreds of years, this Article uses information and data science methods to empirically demonstrate how innovation has drastically changed in recent decades. After empirically demonstrating the changed innovation system and the inadequate response to these changes by the USPTO, this Article concludes with policy prescriptions aimed to help the Patent Office implement examination procedures adequate to assess 21st century innovation. These prescriptions include more granular crediting for the time spent by examiners assessing applications, an increased focus on teamwork at the Patent Office, improvements to the inter partes review process, and alterations to the analogous art doctrine.

**Shooting ourselves in the foot to kill a fly? Patent enforcement and market for technology**  
Senem Aydin (Northeastern University – D’Amore-McKim School of Business)  
Pooyan Khashabi (Ludwig Maximilian University of Munich – Institute for Strategy, Technology and Organization (ISTO))  
*Working paper*  

This study examines the impact of patent enforcement strength on firms’ patenting and technology commercialization strategies. In addressing a patent dispute between eBay v. MercExchange, in 2006, a precedential U.S. Supreme Court decision has altered the strength of patent enforcement for all U.S. patents. Exploiting this shift in patent enforcement strength in the U.S. in comparison to the European
context, I evidenced that upon the diminution in patent enforcement, U.S. firms have decreased their patenting and licensing activities. In particular, the decline in licensing activities is more pronounced for small and medium sized firms. Likewise, upstream technology providers have faced a sharper decline in licensing activities compared to downstream manufacturers. Moreover, European firms ‘heavily patenting in the U.S.’ before the Supreme Court’s decision, are affected similar to the U.S. firms. I also observed that the weakening of patent enforcement does not impede entry by upstream technology providers although it adversely impacts royalty rates in license agreements. The study aims at contributing new insights to the innovation and market for technology literature by depicting how the patent enforcement strength influences firms’ patenting and technology commercialization activities, and discusses possible patent policy implications.

IP & Litigation

The other thirty percent: an economic assessment of duplication in PTAB proceedings and patent infringement litigation
Anne Layne-Farrar (Charles River Associates; Northwestern University)
*Working paper*

Congress “repeatedly stated [that] its paramount goal” in having inter partes review (IPR) before the Patent Trial and Appeal Board (PTAB or the Board) was to “serve as a cheaper, faster alternative to be used instead of – rather than in addition to – litigation in district court.” More than five years after IPR trials were established, however, it is unclear whether Congress will achieve its goal. Some argue that “rather than an absolute alternative to civil litigation, the AIA’s new proceedings increase the likelihood of duplicative concurrent inter partes administrative and judicial adjudication of a patent’s validity.” Duplicative patent challenges within and across IPRs and district court litigation is the focus of this article.

‘Examining the Supreme Court’s TC Heartland Decision’: testimony before the House Judiciary Committee, Subcommittee on Courts, IP, and the Internet
Adam Mossoff (George Mason University – Antonin Scalia Law School, Faculty)
*George Mason Law & Economics Research Paper No. 17-29*

In TC Heartland v. Kraft Foods, the United States Supreme Court construed the venue provision in the patent statute, limiting the filing of lawsuits against defendant corporations to the districts in which they are incorporated. Chief Justice Roberts’ opinion ostensibly frames the issue as one of only statutory interpretation. But we cannot assess TC Heartland’s impact on patent owners and on the innovation economy generally without first understanding the past decade of extensive lobbying and strategic litigation that have narrowed or outright eliminated U.S. patent rights.

TC Heartland is part and parcel of this broader campaign to weaken U.S. patent rights. Empirical studies confirm that TC Heartland does not change the concentration of patent lawsuits in a few districts -- the alleged ill that TC Heartland was supposed to end. It merely shifts lawsuits from one district to two other districts that are widely recognized as favorable to defendants sued for patent infringement. Thus, it increases costs for the enforcement of all U.S. patent rights -- harming the patent owners who are the foundation of the innovation economy, such as individual inventors, startups, universities, and small businesses, among others.

If Congress considers further revisions to the patent statutes, it should not pursue any legislation that further weakens the patent rights that have been the fountainhead of the U.S. innovation economy for
over two hundred years. A decade of court decisions, regulatory actions, and legislation already have undermined the promise of stable and effective property rights once secured by the gold-standard U.S. patent system. Congress should do no further harm to the U.S. patent system, killing the jobs and economic growth created by the innovation economy.

**Patent examination quality and litigation: is there a link?**  
Alan C. Marco (United States Patent and Trademark Office)  
Richard Miller (United States Patent and Trademark Office)  
*USPTO Economic Working Paper No. 2017-09*  

In this study, we use carefully constructed matched samples of litigated and non-litigated patents to investigate the characteristics that predict litigation. We define different control groups based on filing characteristics and value correlates (or both), and test the extent to which examination characteristics predict litigation. This paper is the first to use detailed examination characteristics to understand the resulting patent rights. By controlling (at least in part) for patent value, the estimation strategy has implications for the degree to which patent examination characteristics are correlated with uncertainty. We find that some examination characteristics predict litigation, but that the bulk of the predictive power in the model comes from filing characteristics.

**Behavioral claim construction**  
Jeremy W. Bock (University of Memphis – Cecil C. Humphreys School of Law)  
*Minnesota Law Review (Forthcoming)*  

Existing proposals for enhancing predictability in patent claim interpretation focus primarily on the process of adjudication and doctrinal issues, while rarely delving into the underlying psychological and environmental factors that might influence different readers to interpret the same claim very differently. Drawing on lessons from behavioral economics and cognitive psychology, this Article undertakes the first detailed exploration of the behavioral elements—such as, cognitive biases, priors, and situational factors—that may affect how a given reader interprets a claim. To mitigate the influence of behavioral elements in claim construction, this Article proposes the extension of means-plus-function analysis to all claim terms. Means-plus-function analysis may be more resistant to behavioral influences than the current interpretive regime for non-means-plus-function claims, because it limits the realm of plausibility for answers molded through motivated reasoning, while also accommodating certain cognitive biases that may help yield a construction that the vast majority of the readers of a patent claim are likely to reach naturally as a “cognitive default.”

**IP Law & Policy**

**Patent nonuse: are patent pools a possible solution?**  
Alireza Chavosh (University of California, Berkeley – Coleman Fung Institute for Engineering Leadership)  
*Working paper*  

Studies have depicted that the rate of unused patents comprises a high portion of patents in North America (35% Non-use on average), Europe (37% Non-use on average) and Japan (64% Non-use on average). The importance of the issue of patent non-use is also highlighted within the literature on strategic patenting, IPR policy and innovation economics and in this regards, the literature has paid particular attention to blocking patents.
Moreover, the current literature has emphasized on the role of patent pools in dealing with potential issues such as excessive transaction cost caused by patent thickets and blocking patents (overlapping IPRs) that might hamper the use of patents in the market for technology. Accordingly, patent pools may favor the use of the pooled patents through decreasing licensing transaction cost and providing equal and non-discriminatory access of all the members and potential licensees to the pool’s technology. Hence, companies willing to license their patents through patent pools might consider taking advantage of faster, easier, broader and less costly access to the pool licensees.

Nevertheless, in this study we argue that the willingness to commercialize patents through pool participation by a pool member is not limited to the commercialization of those patents that the company includes in the patent pool.

Becoming a member of a patent pool may also favor the commercialization of blocking and non-blocking patents held by a pool member outside the pool (non-pooled patents) by providing the opportunity to commercialize the patent internally or externally in collaboration with other members. Using the data from a large scale survey on European inventors of 22,533 EPO patents resident in Europe, USA, Japan and Israel (PatVal II) as primary data and a considerably large database of patent pools in Consumer electronics, and Telecommunication technologies a secondary data (the largest constructed by 2014), in this study we show that pool members participating more intensively in patent pools are more likely to be willing to commercialize their non-pooled patents through pool participation. Furthermore, we show that pool licensors are more likely to be willing to commercialize their non-pooled patents by participating in patent pools with higher level of technological complementarity to their own technology. The robustness of our results is further checked using instrumental variable approach and linear probability model. This study contributes to the current discussion on social, economic and technological benefits of patent pools. The results of this study have practical implications for strategic decision-making and for policy makers dealing with the issue of patent non-use, overlapping IPRs, and technology commercialization.

**Intellectual property in the new technological age: 2017 – Chapters 1 and 2**

Peter S. Menell (University of California, Berkeley – School of Law)  
Mark A. Lemley (Stanford Law School)  
Robert P. Merges (University of California, Berkeley – School of Law)


Rapid advances in digital and life sciences technology continue to spur the evolution of intellectual property law. As professors and practitioners in this field know all too well, Congress and the courts continue to develop intellectual property law and jurisprudence at a rapid pace. For that reason, we have significantly augmented and revised "Intellectual Property in the New Technological Age.

The 2017 Edition reflects the following principal developments:

- **Trade Secrets:** Congress passed the Defend Trade Secrets Act of 2016, one of the most momentous changes in the history of trade secret protection. The new law opens up the federal courts to trade secret cases, provides for ex parte seizures of misappropriated trade secrets in “extraordinary circumstances,” and establishes immunity for whistleblowers.

- **Patents:** The past several years have witnessed some of the most significant developments in U.S. patent history — from the establishment of the new administrative review proceedings at the Patent Office to important shifts in patent-eligibility, claim definiteness, enhanced damages, and equitable remedies at the Supreme Court and means-plus-function claim interpretation and infringement doctrine at the Federal Circuit.
We have restructured the patent chapter to illuminate these areas. We have also significantly expanded coverage of design patents in response to the growing importance of this form of protection.

- **Copyrights:** The Supreme Court issued important decisions addressing the useful article doctrine, public performance right and the first sale doctrine. The past few years also witnessed important developments in the Online Service Provider safe harbor, fair use, and state protection for pre-1972 sound recordings. We have also integrated the digital copyright materials into a unified treatment of copyright law and substantially revamped the fair use section to reflect the broadening landscape of this important doctrine.

- **Trademarks:** We have integrated important cases on federal registrability of disparaging marks, merchandising rights, likelihood of confusion on the Internet, and remedies.

- **Other State Protections:** We have updated material on the right of publicity, an active and growing area. We have also reorganized the chapter and focused it on IP regimes.

**Brexit and IP: the great unraveling?**

Graeme B. Dinwoodie (University of Oxford – Faculty of Law)
Rochelle Cooper Dreyfuss (New York University – School of Law)
Cardozo Law Review, Forthcoming

In theory, exit from Brexit will free the United Kingdom from the constraints and burdens of EU membership. It will transfer sovereignty back to the people from the technocratic rule of Brussels; replace the jurisprudence of the Court of Justice with the adjudicative power of national courts; and allow the UK to tailor its market regulation in the particular exigencies of the UK economy. Whether, as a general matter, the restoration of a classic Westphalian state enhances value either nationally or globally is an issue we leave to others to debate.

We ask a different question: we explore how well the rhetoric of Brexit comports with the reality and the institutional economics of nation-state lawmaking in an era of global trade and digital communication technologies. We use intellectual property law as a concrete example. We think it a good place to consider, with potentially broad significance. Copyrights are deeply intertwined with culture and education; patents have significant implications for health and safety; and trademark law sets the rules of the road for the marketplace in products and services. Since the critique of one-size-fits-all intellectual property regimes is well-known and widely accepted, some might think that this were an area where the United Kingdom would quickly move to restore self-rule.

And yet global intellectual property rights are intimately associated with the incentive system of the Knowledge Economy writ large. Moreover, intellectual property mediates the infrastructure of the modern-global-business environment. We conclude that, not only are some of the supposed sovereignty gains of Brexit unlikely to be realized by the United Kingdom (because of the web of international, regional and bilateral obligations that exist in the field) but that many of the efficiency gains of harmonization that flowed from EU membership have been vitally important to the climate for innovation in the United Kingdom. If wholly jettisoned, they would adversely affect that climate in the EU. Thus, we explore how such gains might be reconstructed in a post-Brexit environment.

We foresee some room for national experimentation. But we also predict an increased importance of transnational private ordering as means of efficiency gains, the rise of “technocratic” harmonisation, and the development of different forms of political convergence. While our study is limited to Intellectual Property, we believe that many of the features that we discuss are true of other areas of law as well.
Symbols, systems, and software as intellectual property: time for CONTU, Part II?
Timothy K. Armstrong (University of Cincinnati College of Law)
*Michigan Telecommunications and Technology Law Review, Forthcoming*

The functional nature of computer software underlies two propositions that were, until recently, fairly well settled in intellectual property law: first, that software, like other utilitarian articles, may qualify for patent protection; and second, that the scope of copyright protection for software is comparatively limited. Both propositions have become considerably shakier as a result of recent court decisions. Following *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014), the lower courts have invalidated many software patents as unprotectable subject matter. Meanwhile, *Oracle America v. Google Inc.*, 750 F.3d 1339 (Fed. Cir. 2014), extended far more expansive copyright protection to functional software components than precedent suggested. The result of these developments has been a new period of uncertainty regarding the existence and scope of intellectual property protection for computer software.

The root of the problem lies in Congress’s relative inattention to the question what legal regime (if any) should govern the creation of computer software. Congress extended copyright protection to software largely without grappling with the consequences of applying a body of law designed to promote creative expression to functional, useful code. Meanwhile, Congress has spoken only obliquely to the question whether software warrants patent protection. The turmoil in the courts reflects a general lack of legislative guidance. This article asks whether the time is ripe for remedial legislation and suggests some questions that ought to guide Congressional inquiry.

Individual versus institutional ownership of university-discovered inventions
Dirk Czarnitzki (KU Leuven – Department of Managerial Economics, Strategy, and Innovation)
Thorsten Doherr (Centre for European Economic Research (ZEW))
Katrin Hussinger (Universite du Luxembourg; Catholic University of Leuven (KUL); Centre for European Economic Research (ZEW))
Paula Schliessler (Centre for European Economic Research (ZEW))
Andrew A. Toole (US Patent and Trademark Office)
*USPTO Economic Working Paper No. 2017-07*

We examine how the ownership of intellectual property rights influences patenting of university-discovered inventions. In 2002, Germany transferred patent rights from faculty members to their universities. To identify the effect on the volume of patenting, we exploit the researcher-level exogeneity of the 2002 policy change using a novel researcher-level panel database that includes a control group of academic researchers not affected by the law change. For professors who had existing industry connections, the policy decreased patenting, but for those without prior industry connections, it increased patenting. Overall, fewer university inventions were patented following the shift from inventor to institutional ownership. Our results highlight the critical importance of understanding the nature and strength of faculty-industry relationships before undertaking policy initiatives intended to foster technology transfer.
The CJEU Pirate Bay Judgment and its impact on the liability of online platforms
Eleonora Rosati (University of Southampton – School of Law)
European Intellectual Property Review, Forthcoming

In its 2017 judgment in The Pirate Bay (C-610/15) the CJEU developed further its construction of the right of communication to the public within Article 3(1) of Directive 2001/29 (the InfoSoc Directive), and clarified under what conditions the operators of an unlicensed online platform are potentially liable for copyright infringement. The Court held that the operators of a platform that makes available to the public third-party uploaded copyright content and provides functions such as indexing, categorization, deletion and filtering of content may be liable for copyright infringement, jointly with users of the platform. For a finding of liability it is not required that the operators possess actual knowledge of the infringing character of the content uploaded by users.

The decision encompasses different types of platforms and operators with different degrees of knowledge of the character – lawful or unlawful – of the content made available therein. It calls into consideration the relationship between liability for (harmonized) primary copyright infringement and (unharmonized) secondary copyright infringement. In relation to the current EU policy discussion of the so called ‘value gap proposal’, the judgment reinforces the position of the European Commission, especially the basic idea that the making available, by a hosting provider, of third-party uploaded copyright content may fall within the scope of the right of communication to the public. The Court’s reasoning also prompts a reflection as to whether a hosting provider that is primarily responsible for acts of communication to the public is actually eligible for the safe harbour within Article 14 of Directive 2000/31 (the E-Commerce Directive).

The perfect match – civil law judges and open-ended fair use provisions
Martin Senftleben (VU University Amsterdam – Faculty of Law)

In the debate on the introduction of open-ended fair use provisions in the copyright legislation of civil law countries, it is often argued that judges with a civil law background do not have the experience necessary to apply open-ended norms in an appropriate way. The argument poses an obstacle to a meaningful debate about fair use because of its destabilizing effect. Policy makers are concerned that the adoption of fair use provisions could cause legal uncertainty and erode the traditional civil law culture in the field of copyright. The situation in the EU can serve as an example. Despite strong pleas for the introduction of an opening clause and the emergence of more and more fair use legislation in other regions, the current reform proposals of the European Commission do not include the adoption of an open-ended fair use norm. While the 2013/2014 Public Consultation on the Review of the EU Copyright Rules explicitly addressed the need for more flexibility, the proposed new copyright legislation is silent on the issue.

Against this background, the following analysis seeks to dispel unfounded concerns about overstrained judges. It aims to pave the way for new initiatives to arrive at fair use legislation in the EU by showing that there is no reason to believe that civil law judges are incapable of applying open-ended fair use norms adequately and consistently. To lay groundwork for this analysis, the legislative traditions underlying copyright limitations in civil law countries (the majority of EU member states) and common law countries (such as the U.S.) will be outlined before emphasizing the need for the introduction of open-ended fair use legislation in civil law systems, in particular in EU copyright law. On this basis, strategies
for translating lessons to be learned from the U.S. fair use approach into the EU system will be discussed. In this context, it will be demonstrated that the introduction of a flexible copyright limitation is unlikely to fail because of an inability or reluctance of civil law judges to apply open-ended norms. The example of the existing defence of “due cause” in EU trademark law shows that the opposite is true. Moreover, a flexible copyright limitation in civil law jurisdictions need not be a verbatim copy of the U.S. fair use doctrine. It seems preferable to apply traditional limitation prototypes by analogy in situations that require new use privileges. To establish a system that allows this analogous application, the role of the international three-step test in EU copyright law would have to be recalibrated.

Libel and copyright in the satire of Peter Pindar
James R. Alexander (University of Pittsburgh at Johnstown)
Working paper

In 1802, the English Chancery Court denied the satirical poet John Wolcot ('Peter Pindar') injunctive relief for copyright infringement claimed against his publisher John Walker. While the original agreement between the parties was ambiguous, the ruling was more procedural rather than interpretive. As Wolcot's verse was always scandalous and arguably libelous, Eldon ruled that Wolcot should first establish his property in the contested works at law before seeking equitable relief, to thereby clear away any question of their criminality. This was arguably the first application to copyright of an eighteenth-century maxim that there could be no property in criminally-libelous literary works. Almost immediately and for over the next century in equity cases and both English and American legal treatises, Eldon's ruling was interpreted as establishing the Court as censor morum, authorized under common law to rule exceptions to copyright protection based on a determination of illicit or illegal content, regardless of whether copyright statutes specified content-based exceptions. However, a careful review of the Chancery records reveals the ruling warrants a more tempered reading, and that the long-assumed legal precedent may have followed a hoped-for rather than established principle.

IP & Asia

National disparities and standards-essential patents: considerations for India
Jorge L. Contreras (University of Utah – S.J. Quinney College of Law)

Patents on standardized technologies are being issued with increasing frequency, and the majority of these patents are held by large multinational firms based in developed economies. As a result, firms from less-developed economies with sparse patent holdings are disadvantaged in both domestic and foreign markets. While protectionist governmental policies can address these disparities, such measures are potentially contrary to international treaty obligations and generally unsuccessful in the long term. An alternative approach involves greater participation in international SSOs by firms from less-developed economies. This increased participation is likely to benefit such firms both in terms of technology development, strengthening of patent positions, and influence over SSO policies. To facilitate increased participation, both financial and institutional support will be required from local governments, NGOs, multinational organizations and SSOs themselves. To the extent that participation in international SSOs by firms in developing economies such as India can be increased, it could have a meaningful impact on domestic innovation, job creation, technical capability and manufacturing output.
**Trends in innovation activities in manufacturing industries across development echelons**

Abdullah M. Khan (Claflin University School of Business)

*International Journal of Business and Social Research, 07(06), 13-40.*


This empirical paper explores trends in innovation activities measured by a country's total patent application submission intensity relative to its population, and by analyzing U.S. granted patents data for cohorts of developed countries and developing countries. In addition to tabular and graphical analyses, I use a baseline regression model and a variant model thereof to assess the relative influence of a set of aggregate variables on innovation activities in eight manufacturing industries across two cohorts of countries (developed and developing) where each cohort contains eight individual countries. Eight industries included in this study are: Chemical, Petroleum, electrical and electronics equipment, machinery, pharmaceutical, plastic, computer, and textile. The cohort of developed countries includes Australia, Canada, Czech Republic, France, Italy, Poland, Switzerland, and the United States. The cohort of developing countries includes Brazil, China, India, Malaysia, Mexico, Russia, South Africa, and Turkey. Per regression results, ethnic diversity is a statistically significant positive determinant of innovation for all industry aggregate patent count for both high income and developing countries. Also, per capita electricity usage, R&D expenditure as percent of GDP, and percent of population with internet access are three positive factors of innovation irrespective of industrial subsectors and position of a country in the development echelon. Interestingly, impact of ICT-services export is statistically significant and innovation boosting in developing countries in the cohort relative to countries in the cohort of developed countries. It also appears that trade openness served as a stronger stimulant of innovation activities for developing countries' but not as much for the cohort of developed or high-income countries. This paper attempts to extend the literature on cross-country comparison of innovation activities by using two measures of innovation activities across developed and developing countries, and by analyzing both aggregate and sector-level data for eight manufacturing industries both graphically and utilizing panel regression models.

**IP & Biotechnology**

**CRISPR, surrogate licensing, and scientific discovery**

Jorge L. Contreras (University of Utah – S.J. Quinney College of Law)

Jacob S. Sherkow (New York Law School)


Several research institutions are embroiled in a legal dispute over the foundational patent rights to CRISPR-Cas9 gene-editing technology, and it may take years for their competing claims to be resolved. But even before ownership of the patents is finalized, the institutions behind CRISPR have wasted no time capitalizing on the huge market for this groundbreaking technology by entering into a series of licensing agreements with commercial enterprises. With respect to the potentially lucrative market for human therapeutics and treatments, each of the key CRISPR patent holders has granted exclusive rights to a spinoff or "surrogate" company formed by the institution and one of its principal researchers. Although this model, in which a university effectively outsources the licensing and commercialization of a valuable patent portfolio to a private company, is not uncommon in the world of university technology transfer, we suggest it could rapidly bottleneck the use of CRISPR technology to discover and develop useful human therapeutics.
In response to a letter from Lawrence Horn, MPEG LA, suggesting patent pools for CRISPR licensing, we respond that while patent pools have been successfully deployed in the consumer electronics and other markets, we question whether patent pooling would offer the optimal balance of openness and incentive for CRISPR therapeutics.

Other IP Topics

*Discrimination in the patent system: evidence from standard-essential patents*
Gaétan de Rassenfosse (Ecole Polytechnique Fédérale de Lausanne)
Emilio Ratieri (Ecole Polytechnique Fédérale de Lausanne)
Rudie Bekkers (Eindhoven University of Technology (TUE))

This paper tests for traces of discrimination against foreigners in the patent prosecution process. It focuses on the case of China and looks specifically at patent applications declared as essential to a technological standard, so called standard-essential patents. The identification strategy exploits the timing of disclosure to the standard-setting organization in a difference-in-differences framework. Specifically, we track whether the patent application was disclosed as standard essential before or after it enters substantive examination at the Chinese patent office, and whether it is filed by a local or a foreign firm. We find that patent applications by foreign firms are treated unfavorably when examiners know that they are declared standard essential. Such patent applications are less likely to be granted, take longer to examine, and are more extensively amended. We interpret this result as evidence of violation of the national treatment principle.

About the editor

*Dr. Anne Layne-Farrar* is a vice president in the Antitrust & Competition Economics Practice of CRA. She specializes in antitrust and intellectual property matters, especially where the two issues are combined. She advises clients on competition, intellectual property, regulation, and policy issues across a broad range of industries with a particular focus on high-tech and has worked with some of the largest information technology, communications, and pharmaceuticals companies in the world.

Contact

For more information about this issue of *IP Literature Watch*, please contact the editor:

Anne Layne-Farrar
Vice President
Chicago
+1-312-377-9238
alayne-farrar@crai.com

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