



IP Literature Watch

CRA Charles River
Associates

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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 & Licensing

The Economic Case Against Licensing Negotiation Groups in the Internet of Things

Jonathan Barnett (University of Southern California Gould School of Law)

USC CLASS Research Paper Series No. CLASS22-1

USC Legal Studies Research Paper Series No. 22-1

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3999461

Competition policy generally prohibits coordination among buyers or sellers, especially coordination on price, price-related inputs, and output. In licensing markets for standard-essential patents (“SEPs”), it has been periodically proposed that this rule should be relaxed to permit the formation of licensing negotiation groups (“LNGs”), which is expected to reduce transaction costs and the purportedly “excessive” royalties paid to SEP licensors. Based on the economic structure of wireless technology markets, and empirical evidence from over three decades of SEP licensing, this policy intervention is likely to degrade, rather than enhance, competitive conditions in wireless communications and other 5G-enabled markets encompassed by the “Internet of Things.” In the short term, LNGs would most likely result in a redistributive (not an efficiency) effect that shifts economic value from innovators to implementers in the wireless technology supply chain without necessarily passing on cost-savings to consumers. In the medium to longer term, LNGs are liable to impose significant efficiency losses by endangering the viability of licensing-based monetization models that have funded continuous R&D investment, promoted broad dissemination of technology inputs, facilitated robust entry in device production, and enabled transformative business models across a wide range of industries. While LNGs may reduce the transaction costs of SEP licensing, pooling structures have a demonstrated record of having achieved the same objective in patent-intensive information technology markets at a substantially lower risk of competitive harm.

On the Timing of ETSI Disclosures

Gustav Brismark (Kazehara AB)

Working Paper

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3988411

State-of-the-art ETSI standards for cellular communications are developed by adopting technologies based on technical merit, without consideration to potential patent ownership. A development principle which has helped make them the globally selected and deployed cellular standards, leading to increased competition and economic surplus. Implementers of this technology generally have an interest

in continuing to utilize and benefit from the standards development, but at the same time to reduce their cost of access to the intellectual property driving those standards. In particular, some companies have argued that compensation for standards development and IP declared to the standards are overvalued in the market. This article analyses one such argument, “late disclosures,” in light of publicly available data on disclosure practices in ETSI and through conducting deep interviews with standardization experts. The legal position on “late disclosures” taken by multiple implementers in litigation is shown to be at odds with industry expectation and against industry practice.

‘In the Public Interest’ - University Technology Transfer and the Nine Points Document – An Empirical Assessment

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

University of Utah College of Law Research Paper No. 476

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3990450

In 2007, eleven major US research universities and the Association of American Medical Colleges signed an accord titled “In the Public Interest: Nine Points to Consider in Licensing University Technology.” The Nine Points document outlined a range of issues that universities should consider when licensing their technology to the private sector - from reservations of rights and limitations on exclusivity to refraining from dealing with patent assertion entities to making medical technologies accessible at affordable prices. More than talking points, the document proposed specific contractual clauses intended to promote the educational and public welfare missions of universities. Today, more than one hundred academic institutions and associations around the world have signed the Nine Points document. Yet in the fourteen years since it was created, there has been no systematic, empirical assessment of its effect on university licensing practices. This article fills that gap with the first empirical study of the effect of the Nine Points document on university licensing practices. Through a review of 224 publicly available university patent licenses signed both before and after the adoption of the Nine Points document, this article finds that the document prompted few measurable changes in university licensing practices. Universities largely continued to include in their licensing agreements the contractual clauses that they had previously included, and did not, to any meaningful degree, add new clauses recommended by the Nine Points document. To the extent they did, such new clauses protected university interests rather than the public interest. The lackluster adoption of the recommendations made by the Nine Points document suggests that, by and large, universities have prioritized commercial interests over the public-oriented goals of the document. As such, a reorientation of university technology transfer policy may be in order – a shift that may be facilitated through greater engagement of academic faculty, senior administrators, students, alumni, and other institutional stakeholders in setting policy for university technology transfer.

IP & Litigation

Patent Enforcement and Subsequent Innovation

Marek Giebel (Copenhagen Business School - Department of Economics)

Working Paper

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3992810

How does patent enforcement affect subsequent innovation? I exploit patent infringement litigation in the United States to analyze the effect of patent enforcement on cumulative innovation. The results imply that subsequent innovation increase after a case is filed in a court. While there is a strong increase during the litigation period, the relative effect size decreases in the years following the closure of the case. Further results imply that signals about the value of the patent and reductions in asymmetric information are particular driver of the increase in follow-on innovation. Although there is a general

positive effect, subsequent innovation show a low degree of novelty and are close to the litigated patents in terms of technological proximity and general similarity.

The Truth About Design Patents

Sarah Burstein (The University of Oklahoma College of Law)

Saurabh Vishnubhakat (Texas A&M University School of Law; Duke University School of Law)

American University Law Review, Vol. 71, 2022, Forthcoming

Texas A&M University School of Law Legal Studies Research Paper No. 22-08

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4001099

Design patents are hot. Scholars and policymakers are increasingly focusing on this once-niche area of law. However, many of the empirical studies in this area—including old ones that still get cited—rely on statistics and empirical conclusions that were methodologically questionable from the start, or have become outdated, or both. In this paper, we make two sets of contributions to that important and underdeveloped literature. First, we review the empirical studies of design patents thus far, including those that pre- and post-date the creation of the Federal Circuit, and we update the findings of those studies. Second, we consider a set of institutional questions that, to our knowledge, the prior literature has not even broached. Beyond the federal courts, we explore design patent enforcement at the ITC and the use of administrative process to challenge design patents in the Patent Trial and Appeal Board. These contributions put the design patent system into much-needed context with broader debates about US intellectual property policy.

IP & Innovation

Health and Creativity: Evidence from Corporate Innovation

Truc (Peter) Do (University of Queensland - Faculty of Business, Economics and Law)

Kelvin Jui Keng Tan (University of Queensland - Business School; Financial Research Network (FIRN))

Yanhui Wu (Queensland University of Technology - School of Economics and Finance; Financial Research Network (FIRN))

Working Paper

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4010280

We examine how overall workforce health affects corporate innovation output. Using 26,962 firm-year observations in the US. from 2008-2019, we document that better workforce health is associated with better innovation output. To address the endogeneity inherent in our research design, we use instrumental variable regression and difference-in-differences analysis, and our results remain robust. We further document that the positive association between health and innovation is stronger when firms face more creative destruction and higher product market competition. Further, workforce health improves innovation efficiency and firm profitability. Our study contributes to the innovation literature by highlighting an important driver of innovation.

Innovation on Tools and the Rise of Skill Premium

Hyejin Park (University of Chicago - Department of Economics)

Younghun Shim (University of Chicago - Department of Economics)

Working Paper

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3996417

This paper measures innovation on tools used by different occupations and studies its impact on the increasing skill premium. First, we match the description of tools from Wikipedia with patent text data using textual analysis to measure the innovation on tools. Then, we study its relation with the labor market variables at the occupation level. We find 1) innovation on tools grew more in skill-intensive

occupations. 2) it is positively associated with wage and employment growth across occupations. 3) it is positively correlated with the skill premium and skill intensity growth within each occupation. Motivated by this reduced-form evidence, we build a model where tool innovation increases the demand of occupations, potentially more for skilled workers. Parameters are estimated through the Generalized Method of Moments. We find that tool innovation accounts for 61% of the total demand factor that contributed to the skill premium increase in 1980-2015.

Driving Innovation? Carbon Tax Effects in the Swedish Transport Sector

Nils aus dem Moore (RWI - Leibniz Institute for Economic Research)

Johannes Brehm (RWI – Leibniz Institute for Economic Research)

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USAE Working Paper No. 21-538

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3995632

This paper examines the impact of a carbon tax on innovation in clean technologies in the transport sector. Rapid advances in clean technologies are critical to reaching the ambitious sector climate targets. We contribute to the understanding of the link between carbon pricing and clean innovation by providing the first empirical estimate in the transport sector using patent data and applying the synthetic control method (SCM). We estimate the local effect on clean innovation of the Swedish tax reform in 1990/91 which introduced a carbon tax and expanded the VAT on the sale of motor fuels. Across various specifications and multiple robustness checks, we consistently find positive and economically significant effects of the tax reform on the invention of clean transport technologies between 1990 and 1999. By disentangling the two components of the tax reform package, we provide indicative evidence that the salience of the carbon price in terms of innovation effects is larger than that of the pure fuel price, and thereby find that the carbon tax induced the majority of the overall effect. These results suggest that a salient carbon price can be an effective instrument to foster the transition to a decarbonized transport sector by inducing clean innovation. In particular, a carbon tax may be more effective in regard to its innovation effects than previous estimates using fuel price elasticities have suggested.

The Impact of Technology Identification Policy on Firm Innovation Evidence from China

Hongsheng Fang (Zhejiang University)

Xiao Wu (Zhejiang University)

Jim Huangnan Shen (School of Management, Fudan University; Center for International Development, Harvard Kennedy School, Harvard University)

Working Paper

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3994413

Using the firm level data on companies listed on China's A-shares market from 2006 to 2017, this paper applies a difference-in-differences (DID) empirical method to test whether the exogenous state policy in China used for identifying firms as either "high-tech" or "frontier technology" can enhance their innovative capabilities. The findings of this paper are shown as follows: (1) multiple robustness tests confirmed that the state technology identification policy does improve the total number of patent applications as well as the number of patent inventions applications; (2) subsidies and cash flow are two important channels through which this policy affects a firm's innovation capabilities; (3) this exogenous state policy has a more prominent and positive effect on innovation capabilities for those firms located in regions with a higher taxation burden and relatively more developed products and factor markets. The empirical results presented in this paper have far-reaching policy implications for China's state innovation policies.

IP Law & Policy

Legal Implications of a Ubiquitous Metaverse and a Web3 Future

Jon Garon (Shepard Broad College of Law)

Working Paper

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4002551

The metaverse is understood to be an immersive virtual world serving as the locus for all forms of work, education, and entertainment experiences. Depicted in books, movies, and games, the metaverse has the potential not just to supplement real-world experiences but to substantially supplant them. This article explores the rapid emergence and evolution of the Web3 technologies at the heart of the metaverse movement. Web3 itself is a paradigmatic shift in internet commerce.

The article begins by exploring the competing economic and philosophical approaches to the future of the internet, which is being driven on one hand by the most successful internet advertising firms (Facebook and Google) as well as their videogame competitors (Roblox, Microsoft's Minecraft, Epic Games, and Valve) and on the other hand by Web3 advocates focusing on cryptocurrencies, nonfungible tokens, decentralized finance ("DeFi"), and distributed autonomous organizations (DAOs). Limiting the focus on US law, the article reviews three core areas for the development of the metaverse: the regulatory environment; the transactional essentials; and the limits on governmental intrusion into the metaverse.

The review of the regulatory environment includes state and federal gambling laws, money transfer laws, securities laws, and regulation of unfair and deceptive trade practices used to enforce privacy and cybersecurity obligations. The section on transactional essentials focuses on contracts between metaverse enterprises and their customers, antitrust and competition restraints, copyright protections, protections of biometric data and rights of publicity, and protections of customer speech in metaverse environments. Finally, the article addresses the need for the continuing evolution of the Fourth Amendment protection from search and seizures, the third-party doctrine limitations on reasonable expectations of privacy, and the statutory protections under the Stored Communications Act.

The article highlights that although these doctrinal issues are not new, the scope of the metaverse and its potential social importance will reshape these doctrine in sometimes unpredictable ways. Technologists, practitioners, and regulators must be open to these shifts to appropriately develop the correct mix of user control, industry practice, and regulatory oversight.

Administrative Revocation in Trademark Law

Saurabh Vishnubhakat (Texas A&M University School of Law; Duke University School of Law)

RESEARCH HANDBOOK ON THE LAW AND ECONOMICS OF TRADEMARKS, Glynn S. Lunney, Jr., ed., Edward Elgar Publishing, 2022, Forthcoming

Texas A&M University School of Law Legal Studies Research Paper No. 22-07

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4001072

Although the use of administrative adjudication as a revocation mechanism US intellectual property law has been well established in trademark law for over 60 years, it is patent law's more recent, but more frequent, engagement with agency process that has influenced the IP-administrative interface. Much of that influence has borrowed tacitly from trademark practice, and proposals for remaining reform also look to trademark as a template. Now, the cycle is resuming, and theoretical and empirical work on administrative patent revocation offers lessons back to the trademark system for its own future reform. These lessons rest on the court-agency substitution thesis, which favors administrative process over judicial process in revoking vested IP rights primarily on the basis of agency expertise and access. This

book chapter sketches out an agency for analytical, empirical, and normative exploration of court-agency substitution in trademark revocation.

Copyright Law

The Rise of NFTs: These Aren't the Droids You're Looking For

Balázs Bodó (University of Amsterdam - Institute for Information Law (IViR))

Alexandra Giannopoulou (University of Amsterdam - Institute for Information Law (IViR))

João Quintais (University of Amsterdam - Institute for Information Law (IViR))

Péter Mezei (University of Szeged, Institute of Comparative Law and Legal Theory)

European Intellectual Property Review 2022

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4000423

Non-fungible tokens (NFTs) are hailed as revolutionary tools that will empower artists and revolutionize copyright management and remuneration. This article explores their copyright relevance, and it describes how copyright might apply in relation to NFT creation and trading. In doing so, it provides an overview of the ecosystem of actors built around NFTs, and it analyzes the role of these actors according to the European copyright normative framework.

A Theoretical Analysis of Orphan Works

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Forthcoming, Cardozo Arts & Entertainment Law Journal, Vol. 40, 2022

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3988859

In American libraries, museums, and archives, there currently are tens of millions of cultural treasures, such as photos, manuscripts, and sound recordings, which hold extraordinary academic, cultural, and historical value. But these valuable items, known as “orphan works,” remain out of public reach. Orphan works are subject to copyright, but their copyright owners cannot be located. These works are stuck in limbo—as copyright works, they cannot be used without permission, but permission cannot be granted because the copyright owner is unknown. This exceptional predicament has not escaped the attention of legislators and academics, yet thus far, the United States has not established a coherent framework for dealing with orphan works. Other jurisdictions, such as the EU, Canada, and the United Kingdom, have frameworks in place, but data suggest that these are largely ineffective. Rather than freeing orphan works, they intensify the problem by requiring heavy investment in clearing copyright.

This article advances an original approach to this problem, by arguing that one ought to reassess the issue from the point of view of copyright theory. Current approaches in other jurisdictions and in academic writing focus on formulating practical, ad-hoc solutions to the orphan works predicament but do not consider how these solutions cohere with the philosophical underpinnings of copyright law. To correct this oversight, we analyze orphan works through the lens of four prominent theories of copyright—the utilitarian, natural rights, personality, and democratic culture theories—and propose a novel typology of orphan works. Analyzing orphan works through a theoretical lens allows for subtle distinctions between different categorizations of orphan works that are in fact dissimilar and which the current legal frameworks and academic literature lump together. Thus, we assert that not all orphan works are the same and should not be treated as such. Rather, we identify a spectrum of orphanage and explain how different theories approach different types of orphan works. We then propose general principles for a practical framework that is attentive to copyright law and is aligned with copyright theory.

Copyright and the Creative Process

Mark Bartholomew (SUNY Buffalo Law School)

Notre Dame Law Review, Vol. 97, No.1, pp.357-416, 2021

University at Buffalo School of Law Legal Studies Research Paper No. 2021-009

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3974615

Copyright is typically described as a mechanism for encouraging the production of creative works. On this view, copyright protection should be granted to genuinely creative works but denied to non-creative ones. Yet that is not how the law works. Instead, almost anything—from test answer sheets to instruction manuals to replicas of items in the public domain—is deemed creative and therefore eligible for copyright protection. This is the consequence of a century of copyright doctrine assuming that artistic creativity is incapable of measurement, unaffected by personal motivation, and incomprehensible to novices and experts alike. Recent neuroscientific research contradicts these assumptions. It turns out that creativity can be partially measured, that authorial intent is critical to creative production, and that expertise and creative output are highly correlated. If copyright law's goal is truly to promote creativity, it should define that foundational concept to accord with scientific fact.

Trademarks in Conversation: Assessing Genericism After Booking.com

Laura A. Heymann (William & Mary Law School)

Cardozo Arts & Entertainment Law Journal, Forthcoming

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4009060

It is a fundamental principle of US trademark law that to serve as a trademark, a word or phrase must “indicate the source” of the goods or services with which it is associated and, conversely, that a term that is understood to be the common name of a good or service is “generic” and cannot be protected as a trademark. Yet it still seems difficult to determine exactly what each concept means, particularly when the actual “source” of any goods or services might be opaque to consumers.

In part, this difficulty comes from the fact that status as a trademark or as a generic term is necessarily contextual. The Supreme Court's 2020 opinion in *United States Patent and Trademark Office v. Booking.com B.V.* emphasized the relevance of consumer understanding to this inquiry. Words are not inherently generic or distinctive out of context; APPLE is a trademark for computers but not for fruit.

Although individuals encounter trademarks in a variety of settings, we ultimately care about this understanding in the context of a consumer's experience, since that is where relevant confusion is operationalized. To use a supermarket analogy, the consumer is, at least conceptually, first searching for the right aisle (“soft drinks” or “colas”) and then searching among the shelves for the product they want (“Pepsi” rather than “Coca-Cola”). The genericism inquiry is therefore about assessing terms to determine whether they are related to an aisle search or a shelf search.

Framing the inquiry in this way can help us to see that the question is ultimately about consumer understanding of terms, not consumer use of terms. Looking at how consumers talk about trademarks, whether through corpus analysis, surveys, dictionaries, or other sources, can be helpful, but it is equally important to consider how consumers understand those communications. By thinking of trademarks as elements of conversations among consumers, and borrowing from Gricean implicature, we might be able to determine whether a term is related to finding the right aisle or related to finding the right product on the shelf.

IP & Trade

Human Mobility and the Globalization of Knowledge Production: Causal Evidence from Multinational Enterprises

Dany Bahar (Brookings Institution; Harvard University - Center for International Development (CID))

Prithwiraj Choudhury (Harvard University - Business School (HBS))

James Sappenfield (The Brattle Group)

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Harvard Business School Technology & Operations Mgt. Unit Working Paper No. 22-047

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4005693

We investigate how reforms that ease or restrict human mobility affect global innovation. We leverage a unique dataset merging patent data with exhaustive information on business-related migration reforms that take place in 15 countries over 26 years, and employ a novel event study approach. Our results show that reforms favoring inventor mobility increase the patenting, including global collaborations, of MNEs within a country, while the opposite is true for reforms discouraging inventor mobility. Further, we show that positive migration reforms partly explain the increasing share of global knowledge production by countries with low initial patenting observed over the past decades. This suggests that policies affecting human mobility contributed to the global shift in the geography of innovation towards emerging markets.

The Shifting Contours of Trade in Knowledge: The New 'Trade-Related Aspects' of Intellectual Property

Antony Scott Taubman (World Trade Organization; University of Melbourne - Melbourne Law School; University of South Australia - School of Law)

Antony Taubman, Jayashree Watal (eds), Trade in Knowledge - Intellectual Property, Trade and Development in a Transformed Global Economy, Cambridge: Cambridge University Press, 2021

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3972110

This paper charts the evolution and diversification of trade in knowledge that has taken place in the quarter-century since the WTO TRIPS Agreement came into force. Entirely new markets have come into being, potentially redefining the very character of 'trade'. The disruptive effect of digital technology has led to much of the content - formerly conceived of as 'added value' embedded in physical carrier media, traded and measured as 'goods' - can be traded in the form of specific licences that use IP rights covering the content that is increasingly accessed online in digital form.

These new forms of exchange in valuable intangible content confront fundamental assumptions about the nature of trade and its interaction with the IP system, forcing a rethink of what constitutes the 'trade-related aspects' of intellectual property. The issues examined include the principle of territoriality of IP rights and the segmentation of markets according to national jurisdictions; the structuring of cross-border commercial exchanges into the two discrete categories of 'goods' and 'services'; the emerging disparity in regional trade agreements between provisions on digital IP standards and on digital products and e-commerce; and the significance of IP rights being treated as assets in investment treaties. Whatever formal or legal overlay is applied to these new trading arrangements - it is essential to understand that this is now trade in IP licences as such, rather than trade in goods that have an IP component as an adjunct or ancillary element. TRIPS came about at a time when economic growth theory incorporated intangible knowledge as an endogenous factor, rather than maintaining it as exogenous to models of growth. Trade policy must similarly work to incorporate an understanding of the trade in IP licences itself within cross-border commercial exchanges as an integral element of international trading relations: sale and licensing of IP rights can then be considered 'endogenous' to trade. This is essential for an accurate empirical picture of trade relations today, given the economic significance both of dispersed global value chains and of trade in 'pure' IP content as such particularly in the creative sectors.

Other Topics

Intellectual Property and the Manufacture of Aura

Stefan Bechtold (ETH Zürich)

Christopher Jon Sprigman (New York University School of Law; New York University (NYU) - Engelberg Center on Innovation Law & Policy)

Working Paper

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4002717

This preliminary draft working paper, presented at the NYU Law faculty workshop in November 2021, draws from the famous 1936 essay, “The Work of Art in the Age of Mechanical Reproduction,” in which Frankfurt School theorist Walter Benjamin noted that the foundation of an artistic work’s authenticity and also much of its aesthetic power reside in a particular physical embodiment understood as original.

“[E]ven the most perfect reproduction of a work of art,” Benjamin asserted, is lacking in one element: Its “presence in time and space, its unique existence at the place where it happens to be.” This unique attribute of the art object, this halo of preciousness that marks it as authentic, is what Benjamin referred to as its “aura.”

In this article, we pursue Benjamin’s idea and consider how it applies in today’s digital environment where reproduction technologies have grown immensely more powerful. Contrary to Benjamin’s expectations, it turns out that ubiquitous reproduction both mechanical and digital has not led to the withering away of aura. It has, if anything, strengthened our desire for auratic experience and has also provoked new strategies to produce and sustain aura or some simulacrum of it.

We describe an environment in which artifacts are promiscuously reproduced but where aura persists, or is even manufactured. We show that aura and strategies to produce it are not confined to works of fine art. Producers seek to create auratic experience for works of artistic craftsmanship or even for more mundane consumer products—tables, chairs, automobiles, bottles of wine, or salami. Nor are strategies for producing auratic experience necessarily connected to the identification of an original or authentic copy. In fact, in today’s world where technology proliferates copies by design, we see efforts—most notably perhaps, in the strange new market for NFTs—to produce aura without privileging any particular copy of a work.

We outline several examples of the modern manufacture of aura. In all these cases, auratic experience is engineered through a combination of reproduction techniques, social norms, community building, and interlocking business and legal strategies. Most of these strategies leverage intellectual property protections in some way. We explore whether IP’s connection to the manufacture of auratic experience can serve as another consequentialist justification for IP—at least for copyright, design patent (as opposed to utility patent), trademark rights in product design (often referred to as “trade dress”) and trademarks in general. We analyze what happens to the justification, scope, and boundaries of IP protection if the goal is not to incentivize the creation of products or services, but to instill products with meaning which may otherwise be treated more as commodities than as cultural artifacts.

The Inventive Step Requirement and the Rise of the AI Machines

Noam Shemtov (Queen Mary University of London, Centre for Commercial Law Studies)

Garry Gabison (Queen Mary University of London, School of Law)

Queen Mary Law Research Paper No. 375/2022 Forthcoming in Ryan Abbott (ed), Research Handbook on Intellectual Property and Artificial Intelligence (Edward Elgar 2022)

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4011200

This article investigates the future of the inventive-step requirements for patents as Artificial Intelligence becomes a more common tool of the trade. While the statute on inventive-step test may not need to

change, its implementation will need adapt to accommodate the use of AI. The patent examiners will need to augment the person skilled in the art as AI machines become more common in a field. However, what AI would become part of the person skilled in the art remains a question of fact. The incentive theory also supports this approach. It also suggests that the threshold for patentability may increase with the use of AI in a field for the patent system to maintain the same aims.

Carbon emission regulation, input-output networks, and firm dynamics: The case of low-carbon zone pilot in China

Xiangyu Shi (Yale University)

Chang Wang (Fudan University)

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4004340

We provide the first theoretical and empirical study on how the carbon emission regulation affects firm dynamics, including entry, exit, and innovation. Using a difference-in-difference-in-differences empirical strategy, we find that in low-carbon zone pilot cities, in carbon-intensive sectors, and after the policy is implemented, there are significantly less entry and exit, but more patent applications related to energy efficiency. The effects of the regulation diffuse in the input-output networks. In the downstream sectors of the carbon-intensive sectors, there are more entry, exit, and environment-related patent applications; in the upstream sectors, there are less entry, exit, and patent applications. These facts can be rationalized by a firm-dynamics model with input-output linkages.

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