UNITED STATES PATENT AND TRADEMARK OFFICE

uspto

ESMT BERLIN

WEIZENBAUM-INSTITUT
FÜR DIE VERNETZTE GESELLSCHAFT
DAS DEUTSCHE INTERNET-INSTITUT

EPIP

2018 Annual Conference of EPIP

September 5-7, 2018

IFEE Institute for Endowment Management and Entrepreneurial Finance

ESMT BERLIN

Max Planck Institute for Innovation and Competition

BCCP
BERLIN CENTRE FOR CONSUMER POLICIES

Paper abstracts Parallel Sessions—EPIP conference 2018

THURSDAY, SEPTEMBER 6

11:30 – 12:50 Parallel Sessions I

1. **Weizenbaum I: Towards a market model for big data**
2. **Patent based indicators**
3. **PANEL: Standard-essential patents: Governance and anti-trust policy in Europe, Japan, and the US**
4. **Does society need more trademarks? Social returns of trademarks under scrutiny**
5. **Labor markets for inventors**

THURSDAY, SEPTEMBER 6

13:50 – 15:20 Parallel Sessions II

1. **Weizenbaum II: Economics of data: A case for IP rights**
2. **IP and knowledge diffusion**
3. **Standard-essential patents: Empirical studies I**
4. **Trade secrets—Crime and policy in contemporary society**
5. **Empirical evaluation of IP & IP strategies**

THURSDAY, SEPTEMBER 6

15:40 – 17:00 Parallel Sessions III

1. **Weizenbaum III: Contracts on personal and big data: Conditions and limits of a market model**
2. **IP and knowledge production**
3. **Standard-essential patents: Empirical studies II**
4. **Economic models of IPRs**
5. **Patent strategies**

FRIDAY, SEPTEMBER 7

11:30 – 12:50 Parallel Sessions IV

1. **PANEL: The legal politics of news: An ancillary right for press publishers – Is evidence-based policy possible?**
2. **Current challenges in IP policy**
3. **Comparative studies of online piracy**
4. **IP and entrepreneurship**
5. **Weizenbaum IV: Competition on data and information markets**

FRIDAY, SEPTEMBER 7

13:50 – 15:20 Parallel Sessions V

1. **Copyrights**
2. **IP litigation**
3. **Trademarks**
4. **IP in a digital world**

THURSDAY, SEPTEMBER 6

11:30 – 12:50 Parallel Sessions I

1. Weizenbaum I: Towards a market model for big data

N. Cansin Karga Giritli

Balancing interests in the EU Data Ecosystem

Data is a valuable asset and if it is re-used efficiently by different undertakings, it can spur more innovative solutions. However, this can only be realised when the interests of those holding data and those demanding access are balanced. This paper focuses on the legal tools conferring protection and facilitating access to data in the EU, to illustrate that the current EU legal framework is not sufficient enough to strike the right balance. Following this analysis, the paper identifies the main reasons underlying inefficient data utilisation in the EU and proposes a possible initial action plan to overcome that problem.

Ingrid Graef / M. Husovec / R. Gellert

Towards a Holistic Regulatory Approach for the European Data Economy: Why the Notion of Non-Personal Data is Counterproductive to Data Innovation

The belief underlying the "European data economy initiative" is that data should be accessible and reusable in order to further the development of new, innovative services. The focus of this initiative is on so called 'non-personal data', as a way to complement data protection rules that regulate the processing of personal data. The paper argues that by making an artificial distinction between personal and non-personal data, the Commission is side-stepping data protection law even though personal data also has innovation potential and can also promote objectives associated with the European data economy. The paper shows that the existence of two separate regimes, one for personal data and another for non-personal data is not viable in practice and is even counterproductive to data innovation which instead requires a holistic regulatory approach.

Ingrid Schneider

Databases and data brokerage in the data driven economy: Models for dealing with data ownership, access and stewardship in the digital age

This paper argues from a political science and political economy perspective and is conceptual in nature. In order to conceptualise questions of access and disposition rights over data in the digital economy, various forms of product categories will be classified, as well as private and collective use and compensation models be discerned. Moreover, distinctions between different categories for economic goods shall also be applied on data. Thus, data will be conceptualised as private goods, as club goods, as common goods and as public goods. Another framework to be tested is the fiduciary trust model. Discussing the pros and cons of such categories and concepts will be useful for the development of a meta-level for data governance in the data driven economy.

2. Patent based indicators

Jonathan Ashtor

Measuring the Novelty of U.S. Patents

I construct a measure of patent novelty based on linguistic analysis of claim text. Specifically, I employ advanced computational linguistic techniques to analyze the claims of all U.S. patents issued from 1976-2014, nearly 5 million patents in total. I use the resulting model to measure the similarity

of each patented invention to all others in its technology-temporal cohort. Then, I validate the resulting measure using multiple established proxies for novelty, as well as actual USPTO Office Action rejections on grounds of lack of novelty or obviousness. I also analyze a set of pioneering patents and find that they have substantially and significantly higher novelty measures than other patents. Using this measure, I study the relationship of novelty to patent value and cumulative innovation. I find significant correlations between novelty and patent value, as measured by returns to firm innovation and stock market responses to patent issuance. I also find strong correlations between novelty and cumulative innovation, as measured by forward citations. Furthermore, I find that patents of greater novelty give rise to more important citations, as they are more frequently cited in Office Action rejections of future patents for lack of novelty or obviousness. I also investigate how novelty relates to the USPTO examination process. I find that novelty is an inherent feature of a patented invention, which can be measured based on the claim text of either an issued patent or an early-stage patent application. Finally, I use this measure to observe trends in novelty over a forty-year timespan of American innovation. This reveals a noticeable, albeit slight, trend in novelty in certain technology fields in recent years, which corresponds to technological maturation in those sectors.

Dietmar Harhoff / S. Baruffaldi / F. Gaessler / F. Pöge

Assessing the Impact of Scientific Contributions on the Value of Patented Inventions

The relationship between science and technology has been studied for decades, but it has remained unclear whether there is a stable relationship between the quality of scientific contributions and the value of technology building on science. We use non-patent literature references to scientific publications as a lens to study this nexus. First, we present the result of a matching exercise between the set of all non-patent literature citations of major patent offices, as captured by the EPO worldwide bibliographic database (DOCDB), with Web of Science and Scopus records. We document the quality of the resulting match. We find a robust positive relationship between the number of citations a publication receives and the measures of value of the patent right in which the scientific contributions are referenced.

Jun Byoung Oh / W. Hur

A man is known by the company he keeps? A structural relationship between backward citation and forward citation of Patents

Inventing is a recombinant process that involves searching and recombining different streams of knowledge, and the value of invention is associated with not only how many prior inventions are considered but also how they are related to each other. We introduce social network analysis broadly used in the social capital theory and extend the dimension of analysis for the evaluation of patent value. The study employs U.S. pharmaceutical patent data and investigates whether the network characteristics of backward citations have significant effect on the future patent value. The empirical results suggest that the various network feature of backward citations measured by cohesion, constraint, and efficiency have statistically significant implication on the value of invention in both level and depreciation rate. The study also provides empirical evidence that the exploration strategy is more significantly and positively correlated with the future value of invention compared to the exploration strategy of inventors.

Tetsuo Wada

Adoption of patent citations across the Atlantic

This paper looks at cited patent families added by European search reports that were issued posterior to first action by USPTO for the same citing patent family. It reveals that US examiners are more likely to adopt new patent citations added by European A4 reports than from non-supplementary A3 reports. Given that supplementary search reports are issued by EPO on top of

international search reports, and that prior art information shown on supplementary report is supposed to be more difficult to obtain ex ante by US examiners, it suggests that US examiners capture spillovers of search effort made by EPO.

3. PANEL: Standard-essential patents: Governance and anti-trust policy in Europe, Japan, and the US

Rudi Bekkers / Stuart Graham / Christoph Rademacher / David Kappos

This panel session will explore the cutting-edge of standards-development organization (SDO) governance – and the evolution of government policy – affecting Standards-Essential Patents (SEPs) in Europe, Japan, and the United States. The presenters include experts in this field drawn from law, economics, management, and technology, from universities in the three relevant jurisdictions (EU, JP, US). Each presenter and the discussant will spend approx. 15 minutes, with the remainder of the session reserved for audience questions and interaction.

Policy responses to how SEPs should be treated in competition, particularly in the electronics and information technology sectors, continue to be unsettled and inconsistent. Given that competition among firms operating in standard-compliant industries occurs around the globe, and their patent portfolios, licenses, and controversies now routinely cross borders, an international comparative discussion of SEP government policies is appropriate. Notably for the EPIP audience, Europe has been a policy innovator in some respects, and has moved with relative speed, while remaining silent in other relevant areas.

Because ex ante agreements made by SDO members on the licensing and treatment of SEPs are a primary source of controversy ex post, anti-trust authorities have called for better SDO governance.[1] Our panel will explore these issues, beginning with Bekkers who offers research and commentary on the evolving SEP competition-policy framework in Europe. Bekkers will review the European Commission's November 2017 guidance concerning SEP transparency, licensing royalties, and injunctions – offering analysis of the policies, issues not covered, and difficulties firms face in implementing this guidance. Rademacher follows, comparing these approaches to those recently taken in Japan, by examining the Japan Fair Trade Commission's re-interpretation of its guidance on SEP licensing in light of Japan's Antimonopoly Act, and parallel efforts taken by the Japan Patent Office (JPO) to issue "good faith" bargaining guidelines for SEP negotiations. Graham finishes the presentations by providing an analysis of how US policy on SEPs relates to firm strategy, with particular attention on how shifting constraints, and uncertainty in US government policy, have provided opportunities to deploy SEPs in innovative business strategies, the consumer welfare consequences of which is uncertain but controversial. Kappos, who has experience developing patent-office policies, counseling firms operating in standards competition, and negotiating over SEPs in industry (as former Senior VP & patent counsel, IBM), will serve as a discussant for the presentations. A lively conversation with the audience will end the session.

[1] Kuhn, K., Scott-Morton, F., and Shelanski, H. (2013). "Standard Setting Organizations Can Help Solve the Standard Essential Patents Licensing Problem." *Antitrust Chronicle*, vol. 3 (March), pp. 2-5.

4. Does society need more trademarks? Social returns of trademarks under scrutiny

Lavinia Brancusi

Challenging a mainstream narration: Discussing anti-competitive effects of trademark rights in the light of the EU jurisprudence

The paper discusses situations when trademarks may affect market competition as revealed by different EU anti-competitive proceedings. A first insight focuses on the transfer of trademarks or trademark licences which may qualify for control against concentration. In this context an important issue concerns the importance of brands as a factor reducing the interchangeability of products and becoming a barrier to entry. A separate topic addresses the exercise of a trademark right which could amount to an anticompetitive conduct within the frame of contractual relationships controlled on the grounds of Art. 101 and Art. 102 TFUE.

Carolina Castaldi

Profiting from creativity: firm-level and market-level effects of trademarks in the creative and cultural industries

Creative and cultural industries (CCIs) are often defined as the copyright-intensive industries. Yet, cases of specific CCIs already show how trademarks are used strategically to build recognizable brands. This paper builds upon insights from existing research to study the role played by trademarks in these industries, both in terms of private and social returns. This study also offers novel empirical evidence on the use and effects of trademarks across several CCIs. The analysis relies on survey data of 486 firms across five CCIs, of which 137 do trademark. Respondents report positive firm-level and market-level effects of trademarks, but these effects differ across firm types. The results are discussed in terms of their implications for research and policy.

Glynn Lunney

Trade Dress Functionality: Functional Is as Functional Does

In 1982, in re Morton-Norwich Products, Inc., Judge Giles Rich distinguished de jure functionality from de facto functionality in determining whether a product configuration or its packaging was eligible for protection as a trademark. Under his formulation, a product feature or packaging could serve a non- branding function in fact, yet not be functional in law. He thereby allowed applicants to claim exclusive rights in functional features through trademark law. This was a mistake. This article explains why.

Sandro Mendonca

The intellectual private property of public powers: Cities and regions as owners of brand names and commercial signatures

This work explores the trends and possible implications of the phenomenon of the (public) ownership of (private) intangible property. It presents the trademark footprint of 14 large European cities and compares their different marketing trajectories. It also reviews, for the Portuguese case, the recent rise of local trademarking behaviour by the municipal authorities of smaller cities and regions. The possible reasons for these developments are investigated.

Martin Senftleben

Shielding Cultural Creativity from Trademark Infringement Claims the Underestimated Corrosive Effect of Trademark Rights on Cultural Follow-On Innovation

In current trademark theory and practice, cumulative copyright and trademark protection of signs with cultural significance is often deemed unproblematic. However, a closer analysis of the impact of trademark protection on cultural follow-on innovation reveals considerable costs for society: indefinitely renewable trademark rights involve the risk of an impoverishment of the public domain of cultural expressions. Trademark protection may lead to free-riding on the reputation of cultural symbols, the blurring of a signs genuine cultural meaning through the attachment of commercial connotations, the devaluation of cultural symbols as source material for new artistic creations, and the impairment of an open communication process in the cultural domain. The talk will discuss these concerns from an interdisciplinary perspective. On the basis of aesthetic theories, it will shed light on the societal importance of cultural creativity. The sociological analysis of processes of artistic creation will serve as a reference point for the development of legal mechanisms that prevent undesirable effects of trademark protection.

---

5. Labor markets for inventors

Francesco Lissoni / G. Cristelli

Free Movement of Inventors: Open-Border Policy and Swiss Innovation

We study the effects of immigration on inventive performance, by means of a natural experiment related to Switzerland's gradual implementation of the Agreement on the Free Movement of Persons (AFMP) with the European Union, from 1999 to 2007. We exploit the heterogeneous geographical opening of the borders during the transitional phase, where only Switzerland's border region (BR) had access to cross-border workers (CBWs), many of whom are highly-skilled employees of R&D-intensive companies. Based on a dataset on Switzerland's full patenting output, difference-in-differences estimates show that the BR experienced a 6 percent increase in patent applications after the policy change, relative to the non-border region (NBR). The estimated treatment effect rises to roughly 10 percent when we consider higher-order differences based on technological classes reporting historically large shares of foreign-born inventors.

Rina Ray / R. Ashraf

Human Capital, Skilled Immigrants, and Innovation

Before 2004, by sourcing skilled labor in the international labor market, large, innovative U.S. firms effectively utilized an alternative to investing in the existing human capital stock of these firms. After the immigration policy shock of 2004, when new skilled immigrant hiring became constrained, the firms dependent on skilled immigrant workers reduced R&D investment proactively and contemporaneously. Firm-level innovation outcome, measured by patents and citations, declined but Sales, General, and Administrative (SG&A) expense increased for these firms beginning three years after the shock. An increase in SG&A suggests a plausible increase in investment in the human capital of existing employees.

Julien Seaux / S. Breschi / F. Lissoni / A. Vezzulli

Learning by moving: Are migrants more skilled than natives?

We discuss the methodological features and early evidence from a new database on US-resident inventors, with special emphasis on the latter migrant vs native status and education. The ultimate purpose of our research is to test the hypothesis of positive selection among highly skilled immigrants STEM workers (inventors), as per their productivity in term of number of patents and/or

highly cited patents, relative to natives.

Rosemarie Ziedonis / C. Serrano

How Redeployable are Patent Assets? Evidence from Failed Startups

Entrepreneurial firms are important sources of patented inventions. Yet little is known about what happens to patents 'released' to the market when startups fail. This study provides a first look at the frequency and speed with which patents originating from failed startups are redeployed to new owners, and the degree to which asset value is tied to the original venture and team. The evidence is based on 1,766 U.S. patents issued to 285 venture capital-backed startups. We find that most patents of these startups are sold, are sold quickly, and remain 'alive' through renewal fee payment long after the startups are shuttered. The patents tend to be purchased by another operating company in the same sector, and to be decoupled from the original inventors. The study provides new evidence on a phenomenon' of active markets for buying and selling patents" underexplored in the literature and consequential for both entrepreneurial and established firms.

THURSDAY, SEPTEMBER 6

13:50 – 15:20 Parallel Sessions II

---

1. Weizenbaum II: Economics of data: A case for IP rights

Wolfgang Kerber

Data Governance in Connected Cars, Access to In-Vehicle Data, Rights on Data and Competition Law

In the ecosphere of connected driving many stakeholders are interested in getting access to the huge amount of data that are produced in connected cars. Right now, there is a still nascent policy discussion in Europe about access to these "in-vehicle data". The paper analyzes this data governance problem from an economic perspective by taking into account the re-cent discussion about exclusive and access rights on data as well as the discussion about possible competition law solutions.

Nikos Koutras / E. van Zimmeren

Open Data and Open Science: Towards an Integration of Open Access in the European Copyright Governance

Open access is essential for safeguarding open science and enabled a global change towards making research outcomes freely available. The European Commission is committed to improve knowledge circulation and to accelerate the interpretation of open science theory into research practice. As far as the goal of knowledge circulation is concerned, access to information sources is of the utmost importance. However, the European copyright regimes are beset by practical difficulties regarding the copyright protection of online information. The first part of the paper is aimed at a thorough conceptualization of OS, OA and OD. The second part describes the emergence of OA at the international and the European level from a governance perspective, the third part focuses on the lack of implementation in practice and the lack of integration of OA in EU copyright law, in particular in the light of the Copyright Reform Package. The last part discusses the key role the EU has been playing regarding OA and OD through its model grant agreement of the H2020 program. We conclude with some recommendations as to how a further operationalization and integration of OA and OD in EU copyright policy could contribute to strengthening OA at various levels of the governance framework.

Freyja van den Boom

Trade secrets: driving forces or road blocks for access to vehicle data

This article focuses on the new EU Trade Secret Directive and looks at whether the use of Trade Secrets is likely to promote or hinder innovations based on the data vehicles generate. Analysis of the relevant legal framework in combination with expert interviews will provide insight into the potential for the use of Trade Secrets to control access, the likelihood of use within the automotive industry and possible impact for industry innovations based on vehicle data. This article is designed in two parts. The first part presents the legal analysis of the legal framework as presented by the Trade Secrets directive in the context of connected cars and use of data by stakeholders in the ITS environment. The second part includes the results of semi-structured interviews which will be concluded in August 2018.

---

2. IP and knowledge diffusion

Laurent Bergé / T. Doherr / K. Hussinger

The consequence of intellectual property rights on the production of university scientists

We investigate the impact of the introduction of software patents on the publication volume and quality of university researchers in the US. A difference-in-difference approach that compares US scientists to a benchmark group of European peers reveals that the introduction of software patents in the US led to a smaller quantity of higher quality publications. Our estimates suggest that US publication counts of software scientists dropped by 17% albeit compensated by an increase in quality- weighted publications by 13%. Based on these results we can reject the concern that the introduction of patent rights had a negative impact on university science.

Julian Boulanger

Patent Rights and Subsequent Innovation: Evidence from Patent Renewals

Using patent renewal data, I study the causal effect of patent rights on subsequent innovation. Renewal decisions being endogenous, I propose an instrumental variable approach based on a recent change in maintenance fees. I find large positive effects of patent expiry on subsequent innovation. These results hold in several robustness checks and are similar to the findings of Galasso and Schankerman (2015) who study the effects of patent rights on subsequent innovation using data on patent invalidation. I then explore how the blocking effect of patents varies with patent scope. Several tests suggest that broader patents induce larger blocking effects.

Laurie Ciaramella / G. de Rassenfosse

Distance and the Timing of Licensing

We study the effect of geographical distance between the contracting parties on the timing of the licensing deal. Using insights from the transaction costs theory, we argue that geographical distance increases the search, information and contracting costs. We investigate this question using a novel dataset of licensing deals in France, containing geo-localization of parties together with detailed demographic and patent information. To identity the effect of geographical distance as a market friction, we control for the confounding determinants of the timing of the transaction. Because of the possibility that firms with similar interests may gather in business clusters, we argue that it is also important to control for the market and technology characteristics of the parties. We find that geographic distance delays the transaction, and that this effect is strong for SMEs. We also find market proximity to be a significant delayer of the licensing transaction. Our findings provide evidence for the existence of a local characteristic to markets for technology, which are usually seen as global.

Dennis Verhoeven

Early Patent Disclosure and the Direction of Follow-on Inventive Activity

It is well-established that technological novelty can drive economic growth, transform industries and contribute to economic well-being. Knowledge is an important input to the creation of inventions, especially highly novel ones, which in turn is believed to generate positive externalities. As such, disclosure of information about inventions is often believed to positively impact society through cross- fertilization with other pieces of knowledge. However, empirical evidence on the effect of disclosure of technological knowledge through the patent system on follow-on inventive activity is scarce. This study uses the exogenous variation in the timing of public disclosure of patent rights induced by the American Inventor Protection Act to investigate how public disclosure affects the novelty and direction of follow-on inventive activity. Results suggest that on the intensive margin early disclosure does not affect follow-on activity in separate domains of knowledge, nor does it increase novelty of follow-on invention. However, because the mere amount of follow-on inventive activity increases, public disclosure is found on the extensive margin to have a positive effect.

---

3. Standard-essential patents: Empirical studies I

Maddalena Agnoli

Firms' influence in standard setting organizations: The importance of patents

This paper aims to study the patent acquisition strategies of firms entering a standard setting organization. Firms participate in the standardization process by offering their technological knowledge and compete for having their IPR included in the standards in order to ensure future licensing revenues. Their patent portfolios can serve as a negotiation tool in cross-licensing agreements and presumably as a motivation for the formation of alliances in the standard voting process. I develop a theoretical model that demonstrates how a firm's patent portfolio impacts its influence on the standard setting process. The model predicts that SSO entrants of standard setting organizations acquire more patents than non-entrants. Furthermore, I derive predictable hypotheses from the theory that I implement in an empirical model of patent acquisitions by SSO entrants.

Amandine Leonard

The role of fairness in warning letters - Analysis within the framework of negotiation of Huawei v. ZTE

In Huawei v. ZTE (C-170/13) the CJUE provided guidance on the framework of negotiations that must exist between holders of SEPs who have declared their willingness to license their patents under FRAND terms, and, potential implementers who are seeking such license. The element under scrutiny for this paper is the very first step of the negotiation framework, i.e. the duty of SEPs holders to alert implementers of the infringement before initiating infringement procedure. The aim of this paper is to shed some light on the relationship that exists between the notion of 'fairness' and such warning letters.

Dietmar Harhoff / L. Brachtendorf / Fabian Gaessler

Approximating the Standard Essentiality of Patents - A Semantics-Based Analysis

Standard-essential patents (SEPs) have become a cornerstone of technical coordination in standard-setting organizations (SSOs). Yet, in many cases it remains unclear whether a declared SEP is truly standard-essential. To date there is no automated procedure that would allow for a scalable and objective assessment of SEP status. This paper introduces a semantics-based method for approximating standard essentiality of patents. We provide details on the procedure that generates

the measure of standard essentiality and present descriptive results validating it. Moreover, we test our procedure in systematic comparisons of similarity scores between SSO technical documents and patents declared to be SEPs as well as control group patents. We discuss how further refinements of our approach could improve the precision of our method.

Maximilian von Laer / F. Ramel / K. Blind

The Influence of Standard Essential Patents on Trade in the ICT sector

An earlier version of this paper investigated a causal relationship between a country Standard Essential Patents (SEPs) and Trade in Value Added in Global Value Chains in the ICT sector. With new, more recent and more detailed data available, we will revisit this issue and rewrite the paper in a more descriptive manner, addressing the global distribution of SEPs, their observed link to trade flows and the catch-up of some economies in this market. The high concentration in the ICT market will also be investigated again and the available data might permit us to uphold the claimed cross licensing effect.

---

4. Trade secrets—Crime and policy in contemporary society

Katharina Behrend

Combating global trade secret theft in a digitized world – A utopia?

Combating trade secret violation is facing difficulties in the digital age. This is because the law is still geared to the 'analogue' world. For instance, § 1837 of the US Economic Espionage Act (EEA) (1996) requires that the perpetrator must be a US national or at least a 'permanent resident' in the US. However, due to technological progress, it is possible for citizens from third countries to hack the computer systems of a US company (via the Internet) in order to steal trade secrets without even leaving their home country. The EEA would not apply in this case and the company would face enormous problems regarding the investigation of the trade secret theft.

Interestingly, this debate also leads to a more basic aspect of trade secrets. The discussion whether trade secrets can be seen as a property and an intellectual property right has an impact on the adequate enforcement measures in trade secret law. Those who deny the proprietary character of trade secrets, also have to accept that there is no such crime as a trade secret 'theft'.

Haakon Thue Lie

Trade secrets and lead time advantages - understanding innovation appropriation mechanisms

"Lead time advantages" is not one, single innovation appropriation mechanism, but a composite, mainly of trade secrets. Researchers often confuse lead time with "first mover advantage" and "time to market". Thus, policymakers and managers get a skewed understanding of the importance of trade secrets. This theory paper discusses how appropriation mechanisms evolved in the scholarly literature and in norms. Trade secrets and "lead time advantages" are discussed as appropriation mechanisms. Appropriation mechanisms used in scholarly studies may be composites, often including trade secrets. When used, researchers should state how they are composed and the interaction with other mechanisms.

Suzana Nashkova

An Analysis of the Legal Implication Resulting from the Differential Approaches to Defining Know-How' in the United States (US), the European Union (EU) and Australia

This paper addresses some of the issues emerging due to the lack of an unanimously accepted definition of 'know-how' as a legal concept. The analysis of the legal theory, case law and legislation within the jurisdictions examined in the paper – the US, the EU and Australia – indicates that the lack of precise definition has spawned potentially significant differences in the understanding of 'know-

how'. Whilst the concept of 'know-how' in the US tends to be approximated with trade secrets, the EU treats 'know- how' as a corporate asset valuable in the process of production, Australia views it primarily as a set of personal skills of an employee. These differences have implications on the legal treatment and the protection of 'know-how', which can prove particularly challenging in cross-border transactions of its transfer.

Mark Schultz / D. Lippoldt

Litigating Trade Secrets: An International Comparative Assessment of Civil and Criminal Trade Secret Enforcement

The effectiveness of trade secret law is ultimately determined in the crucible of litigation – there is no other way to establish the existence of a trade secret. Building on the authors' previous empirical work for the OECD (Schultz and Lippoldt, 2014; Lippoldt and Schultz, 2014), the paper identifies key points of divergence: evidentiary requirements, procedures for investigating claims, protection during litigation, remedies – including criminal remedies, and legal system quality. The paper also includes several case studies, which illustrate that:

1) trade secret litigation is increasingly cross-border and international

2) the ability to investigate and seek remedies for trade secret theft across borders is also increasingly important, and

3) criminal law is an essential, but limited, tool for investigating particularly challenging trades secret claims. To achieve meaningful and effective change, any harmonization efforts will need to address these issues.

---

5. Empirical evaluation of IP & IP strategies

Federico Caviggioli / V. Butticé / C. Franzoni / G. Scellato / N. Thumm

Economic performance and innovative of companies affected by counterfeiting of intellectual property rights

Counterfeiting activities target companies in various sectors, including digital technology companies, defined as companies that produce and/or commercialize at least one physical product that incorporates a digital technology, excluding the merchandising related to the company brands. The actual impact of counterfeiting on the performance of companies has not been tested empirically, due to methodological problems, including the lack of data on counterfeiting at the firm-level. Furthermore, prior theoretical studies have speculated that counterfeiting could have in part a beneficial effect on the performance of companies, due to indirect advertising, calling for empirical investigations to shed light on the issue. This study relies a new database created combining data on counterfeiting activities during 2011-2013 (OECD-EUIPO, 2016) with financial information and patent data. The analysis of infringed companies with respect to control samples of non-infringed companies indicates that counterfeiting activities harm the economic performance of targeted digital technology companies, by eroding their operating profits. The effect on innovative performance is negative, but still inconclusive due to insufficient data, and cannot exclude that counterfeiting may harm the propensity to innovate of digital technology companies. The analysis rules-out the existence of any positive spillover from counterfeiting.

Kristofer Erickson / F. Rodriguez Perez / J. Rodriguez Perez

Estimating the value of free-to-use imagery on Wikimedia Commons: A data-driven approach

The Wikimedia Commons (WC) is a peer-produced repository of freely licensed images, videos, sounds and interactive media, containing more than 45 million files. This paper attempts to quantify the social value of the WC by tracking downstream use of images from the platform. We take a

random sample of 10,000 images from WC and apply an automated reverse-image search to each, recording when and where they are used in the wild. We detect 54,758 downstream uses of the initial sample and we characterise these at the level of generic and country-code top-level domains (TLDs). We analyse the impact of specific variables on the odds that an image is used. The random sampling technique enables us to estimate overall value of all images contained on the platform. Drawing on the method employed by Heald et al (2015), we find a potential surplus of GPB 20.8 billion per year from downstream use of Wikimedia Commons images. Estimating the economic contribution from free and open collaborations like Wikimedia is relevant to intellectual property policy, because it highlights the significance of alternative IP arrangements to value generating activity in the digital economy.

Luong Hanh La / R. Bekkers

The evolution of knowledge in patents and in publications: similarities, complementarities and differences.

To better understand the relationship between knowledge in patents and knowledge in publications, previous empirical studies mainly focused on observing similarities between publication and patent networks. This paper aims to extend our understanding of this relationship by analysing time patterns of their interaction, their knowledge content and knowledge structure. From these three types of analysis, we compared the evolution of two knowledge domains based on similarities, potentially complementarities and differences. We employed a novel method, called the concept approach, to select publications and patents in an emerging knowledge field, namely DNA Nanoscience/Nanotechnology, then performed the co-word and network analysis. Our results not only show that both elements of the stylised 'science push' and 'technology pull' view can be recognised, but also suggest that co-evolution plays a much more prominent role.

Georg von Graevenitz / A. Garanasvili

Never Let a Good Crisis go to Waste: The Impact of the Global Financial Crisis on R&D and IP Strategies

The Global Financial Crisis of 2008 raised uncertainty about economic prospects to crisis levels for the longest period since the 1930s. We document that financial markets valued R&D activity and patent portfolios differently after the GFC than before. We also show that firms removed patents from their portfolios that were less highly cited and had taken longer to get to grant after the crisis. We discuss the implications of these results for competition and economic welfare.

THURSDAY, SEPTEMBER 6

15:40 – 17:00 Parallel Sessions III

1. Weizenbaum III: Contracts on personal and big data: Conditions and limits of a market model

Niva Elkin-Koren / M. Gal

Data-Based Governance: The Conjunction of Enforcement and Market

Data is the new fuel of the digital economy. It is a major resource, as well as product, of the global digital firms that currently control significant parts of our digital markets. So far, the debate over who owns or controls the data assumed that the data will be used for commercial purposes only. Yet, increasingly, data that is collected, aggregated and analyzed by these platforms is also essential for governance. The use of data by global platforms for law enforcement purposes, either by governments or by the platforms themselves, raises an inherent tension between the market logic

which derives Data Capitalism and the public use of data for governance purposes. It is on this new use of the data that we wish to focus in this proposed research. As will be shown, this research touches upon many important and timely aspects, including incentives for innovation, data ownership and the limits to be placed upon it, and the challenges faced by countries in setting limits on the use of data by global platforms. The proposed research also sheds light on the unique twist that these considerations receive in a small economy such as Israel, in which the data is generally collected by multinational firms but used locally.

Jakob Metzger

The concept of consent within the GDPR: deficiencies of a model and possible solutions

The paper evaluates the consent as base of data procession from a consumer protection point of view. It offers insights into the deficiencies of the consent-approach including problems of information overload, the privacy paradox and a lack of real choice. It then investigates possible solutions to those deficiencies that involve either modifying the concept itself or improving other relevant factors, for example by reducing the amount of information provided to the consumer while improving the information's quality. The paper closes with recommendations on how to further investigate or implement viable solutions.

Julius Schrader

Protection of minors in Internet legal transactions with special regard to the General Data Protection Regulation

The thesis is intended to meet the requirement to assess the existing laws with regard to the scope of protection and the balance between private autonomy and paternalism. To this end, in a first part the general principles of the protection of minors in legal texts must first be set out. The basic principles necessary and sufficient for the author are to be worked out and defined, taking into account the various legal instruments and regulatory models. In a second part, on the basis of the results found, the applicable law and in particular the General Data Protection Regulation and its contents inserted into German law will be examined and reviewed. The aim of this analysis is to find out whether the current data protection legislation meets the specific objective of protecting minors to a sufficient extent or whether and where there is still room for improvement.

---

2. IP and knowledge production

Wenting Cheng

Intellectual Property in Chinese FTAs

China began to integrate intellectual property (IP) provisions into its FTAs in the last decade. Intellectual property first appeared in the China-Chile FTA as one article in the chapter focusing on cooperation. Thereafter, more detailed and comprehensive IP provisions appeared in the Chinese FTAs with New Zealand, Peru, Costa Rica, Iceland, Switzerland, South Korea, Australia and Georgia. This paper divides the nine Chinese FTAs including IP provisions into four categories (passive defensive, active defensive, active promotion, and TRIPS-plus) according to their relationships with the TRIPS Agreement. It argues that the majority of TRIPS-defensive IP provisions in the Chinese FTAs, either passive or active, indicate China basically takes a prodevelopment, developing country position in its bilateral IP engagement. These defensive provisions, to some extent, resist the trend of the global IP upward ratchet. In addition to this major argument, findings in active promotion provisions and TRIPS- plus provisions show the 'novelty' of Chinese FTAS. China actively promoted disclosure obligation, mutual recognition of geographical indications, intellectual property and public health, and the limit of Internet Service Providers' liability in its FTAs. These active promotion provisions

show how China supports rival intellectual property standards together with other developing countries. TRIPS-plus standards appear in seven issues, but they essentially reiterate the TRIPS-plus standards that already existed in the Chinese national IP laws. Nonetheless, the six-year data exclusivity for biologics in the China-Switzerland FTA and more restrictive border measures in the China South Korea FTA impose additional obligations to China.

Christoph Grimpe / K. Hussinger / W. Sofka

Localized knowledge spillovers and resource complementarity: The role of firm acquisitions

Gaining access to technological knowledge through firm acquisitions is a frequently observed phenomenon. Yet, the literature on the localization of knowledge would lead us to believe that acquiring firms may not only be interested in a target's technological assets but also in gaining access to a particular location and the flows of knowledge within that location. Based on a sample of European firm acquisitions, we investigate whether acquiring firms pay a higher price for a target firm if it is located in a technology-intensive region. Moreover, we investigate the role of relatedness between acquirer, target and regional technology. Our results indicate that - controlling for the target's technology - acquiring firms value localized technology. Moreover, our results suggest that the target firm acts as a conduit for knowledge spillovers.

Cher Li / S. Nasirov / R. Harris

Exploring the CEO-appropriability link: The role of resource expertise and domain knowledge

Building on upper echelons theory, this research examines the extent to which the cognitive bases and values of the chief executive can explain the company's decision to appropriate the returns from its innovative activities. In particular, we theoretically and empirically assess the effects of CEOs' resource expertise, diversity of domain knowledge and a proactive approach on the formal protection of inventions using patents and identity of new products using trademarks. Using a sample of 848 CEOs in 261 U.S. publicly-traded companies over the period 1992-2013, our findings confirm the importance of CEO characteristics for appropriability based on patents despite a much-weakened impact on appropriability based on trademarks. As such, this study highlights the complexities emanating from the differential effect of CEO characteristics on appropriability mechanisms at distinct stages of the new product development process, while underscoring the need for aligning CEO characteristics with organisational strategies.

Felix Pöge / S. Baruffaldi

A Firm Scientific Community

The transmission of scientific knowledge to technology is instrumental to technological change and productivity growth. In this paper, we investigate the extent to which firms participate in scientific communities' activities and whether this facilitates the exchange and transfer of scientific knowledge to firms' technological activities. We focus on two modes of interactions of firms with scientific communities: the participation to and the sponsorship of international scientific conferences. We exploit a newly constructed database comprising the set of all conference proceedings in Computer Science from 1996 until 2010 from a specialized Computer Science database (DBLP) matched to Web of Science and Scopus. We track knowledge transfers by patent citations to these proceedings. First, we document that both conference participation and sponsorship by firms is frequent and concentrated in the events of the highest quality. We also find that the contributions of firms at conferences are of higher average quality. Second, we go on to find that firms are significantly more likely to cite in their patents scientific articles presented at a conference which they attended relative articles presented at other conferences.

3. Standard-essential patents: Empirical studies II

Justus Baron / L. Ciaramella

The Markets for Standard-Essential Patents

We use data on patent reassignments at the USPTO to study the market for Standard-Essential Patents (SEPs). We document a strong increase of SEP reassignments over the recent years. We distinguish between SEPs reassigned before and after being declared essential to a technology standard. The majority of the SEPs are transferred in the post-declaration market. These transactions are more likely to occur between parties using the standardized technology subject to SEPs in their products. Sellers of already declared SEPs are much more likely to be members and active participants in standard development organizations (SDOs) than the buyers of these patents. This is not the case for patents being reassigned prior to declaration, which are more likely to be purchased by standard developers. On average, sellers and buyers hold similar numbers of declared SEPs, suggesting that there is no clear tendency towards either aggregation or fragmentation.

Knut Blind / J. Raffo / M. Simeth

The Influence of Standardization, Patenting and Publishing on Firm Performance

In this paper, we analyze the influence of the standardization, patenting and publication activities of companies on their innovation and commercial performance. We conduct an econometric analysis with firm-level data from the fourth edition of the French innovation survey (CIS) and matched scientific publications, patent applications and standardization activities for a sample of 2,539 R&D performing firms from all manufacturing sectors. Interestingly, only companies applying patents are more innovative compared to those without patent applications. However, those engaged scientific publications and standardization and those using all three options realize higher sales and productivity.

Tien-hsin Wang

Innovation Concerns of Information and Communications Technology Standardisation: An Empirical Approach

The success of standardisation is the fruit of the consensus-forming process and discussions in the working groups, committees, and regular meetings in the Standard Setting Organizations. However, the Court of Justice of the European Union put more emphasis on interpreting the rights protected by the Convention and other European legal frameworks. In order to balance the interest among participants in the information and communication technologies industry, a better understanding of the technical background and context is indispensable. This article seeks to provide various innovation concerns by investigating results from empirical studies.

4. Economic models of IPRs

Olena Ivus / E. Lai / T. Sichelman

An Economic Model of Patent Exhaustion

The doctrine of 'patent exhaustion' implies that the authorized sale of patented goods exhausts the patent rights in the goods sold. This paper offers the first economic model of domestic patent exhaustion with transaction costs in consumer licensing and examines how a shift from absolute to presumptive exhaustion, in which the patent owner can opt-out of exhaustion via contract, affects welfare. With low transaction costs, presumptive exhaustion is socially optimal, because it allows welfare-enhancing price discrimination via downstream licensing. With high transaction costs, presumptive exhaustion leads to a greater loss of static efficiency, because transaction cost frictions offset price-discrimination benefits.

Albina Khairullina / A. Kirilenko / A. Neklyudov / C. Tucci

Ideas-Driven Endogenous Growth and Standard-Essential Patents

In this paper, we study how the regulator expands production possibilities of the economy by assigning standard-essential status to patents. Firstly, we show that in order for standards to affect endogenous economic growth, they have to be productivity-enhancing. The zero-sum redistribution of market share is not enough to reshape incentives to innovate on an aggregate level. Secondly, standards strengthen incentives to innovate when the discovery of new technologies is faster than discounting of monopoly profits in equilibrium. As new technologies are discovered, they dampen the incentive to engage into the final good production relative to the production of patents' and relatively more human capital moves to the innovative sector of the economy, which enhances endogenous economic growth. Our results have important policy implications. Regulators impose FRAND pricing on standard-essential technologies to compensate for the larger market-share the innovators get. As we show, the innovators' risk of losing the standard-setting game ex ante attenuates the anticipation of a larger market share, thus FRAND regulation of mark-ups on top of that can easily have growth-destroying consequences.

Hodaya Lampert / D. Wettstein

Patents and Pools in Pyramidal Innovation Structures

We study sequential innovation in two pyramidal structures. In both, patent pools are socially desirable. In a regular pyramid, patent pools are stable. In an inverse pyramid, patent pools are not stable when following a standard formation process. We offer a more elaborate formation protocol that allows for the creation and stability of the largest pool possible. We also examine welfare implications of patent protection in both structures. In the regular pyramid, as it expands, patent protection increases the likelihood of innovation. In the inverse pyramid patent protection always decreases the likelihood of innovation.

Michael Verba / J. Heikkilä

Does anybody cite utility models? Exploring the role of disclosure in propagation of technological knowledge

Patent citations have been widely utilized as a proxy for technological knowledge flows and as an instrument to track cumulative innovation. However, prior studies have not distinguished between patents and utility models and other types of second tier patents in patent citation analyses. We use comprehensive patent registry data to empirically analyze the role of UMs in cumulative innovation. Preliminary evidence suggests that utility model documents do serve as a vector of propagation of technological knowledge, although a weaker one than patent documents.

5. Patent strategies

Gaétan de Rassenfosse

Notice failure revisited: Evidence on the use of virtual marking

One source of uncertainty in the patent system relates to the difficulty in identifying products that are protected with a patent. This paper studies the adoption by U.S. patentees of "virtual patent marking," namely the online provision of constructive notice to the public that an article is patented. It proposes a simple model of the decision to adopt patent marking and empirically examines factors that affect adoption. Data suggest that about 12 percent of patent holders overall provide virtual marking information (and perhaps about 25 percent of commercially active assignees). Econometric analysis suggests that the most discriminant factor of the adoption of virtual marking is the size of the patent portfolio. The likelihood of adoption increases with portfolio size, consistent with evidence that firms with a larger patent portfolio are more likely to be infringed.

Christian Helmers / B. Ganglmair / B. Love /S. Miller

The Effect of Patent Litigation Insurance: Evidence from NPEs

We analyze the extent to which private defensive litigation insurance deters patent assertion by non-practicing entities (NPEs). We do so by studying the effect that a patent-specific insurance product, offered by a leading litigation insurer, had on the litigation behavior of insured patents' owners, all of which are NPEs. We first model the impact of defensive litigation insurance on the behavior of patent enforcers and accused infringers. Next, we empirically evaluate the insurance policy's effect on the owners of insured patents by comparing their subsequent assertion of insured patents with their subsequent assertion of other patents they own that were not included in the policy. We additionally compare the assertion of insured patents with patents held by other NPEs with portfolios that were entirely excluded from the insurance product. Our findings suggest that the introduction of this insurance policy had a large, negative effect on the likelihood that a patent included in the policy was subsequently asserted, and our results are robust across all control groups that we constructed. Our results have importance for ongoing debates on the need to reform the U.S. and European patent systems, and suggest that market-based mechanisms can deter so-called "patent trolling.''

Elvira Sojli / P. Koh / D. Reeb / W. Tham

Measuring Innovation Around the World

Research on corporate innovation often focuses on firms with positive US patent activity and reported R&D, thereby excluding over 90% of the firms in Compustat. By exploiting data from 30 global patent offices, we investigate the nature of missing innovation data in the US and around the world. Our central research question is how studies of innovation, or those that rely on measures of innovation as a control variable, should assess firms without reported R&D or patent activity. Our preliminary analyses indicate systematic and predictable patterns across firms and countries for missing patents and R&D. We then compare the empirical efficacy of excluding firms without US patents or without reported R&D to simple replacement methods, and to various econometric solutions for missing innovation data. We show how excluding or deleting firms without US patents or reported R&D, even in studies of just US firms, provides biased coefficient estimates and standard errors. We also demonstrate how the biases from simply excluding the missing observations lead to specific distortions in tests related to corporate growth and country level innovation capacity. We then discuss best practices and provide specific guidelines in handling missing R&D and patent data.

Georg von Graevenitz / A. Garanasvili / D. Harhoff

Patenting Strategies in the European Patent System

The European patent system consists of national offices and the European Patent Office (EPO), which cooperate on legal questions, while competing on fees and service quality. This competition could result in differentiation of the service offered by offices and in market segmentation, which might benefit patent applicants. To date there is little evidence on whether firms regularly choose between EPO and national offices, nor which parameters influence this choice. Such evidence is needed, if the functioning of the EPS as a whole is to be assessed. We provide the first analysis of competition between patent offices within the EPS. The paper provides a recursive model of the two principal choices made by patent applicants in the EPS: the selection of examining offices and of jurisdictions in which patent protection is obtained. We then derive and estimate instrumental variables models to establish the relative importance of fees, grant rates, examination duration and firm and patent characteristics in these choices. We identify sectors and types of firms that predominantly rely on the national offices or the EPO, but we also identify significant levels of switching, driven by variation in grant rates across offices and by fee changes as well as variation in the duration of examination. We discuss implications of our work for theoretical and empirical analyses of patent systems, and we discuss how the likely introduction of a Unitary Patent and Unified Patent Court will affect the system and its governance mechanisms.

FRIDAY, SEPTEMBER 7

11:30 – 12:50 Parallel Sessions IV

1. PANEL: The legal politics of news: An ancillary right for press publishers – Is evidence-based policy possible?

The market for news is undergoing dramatic change. There are sharp falls in print subscriptions, and a shift in advertising revenues from the press to online platforms. In response, a new copyright (Leistungsschutzrecht or ancillary right) for press publishers has been introduced in Germany (in force since 1 August 2013), and in Spain in a related form (1 January 2015). At EU level a full neighbouring right is included as Art. 11 in the Proposed Directive on Copyright in the Digital Single Market (COM(2016) 593 final, 14 September 2016). The proposal grants exclusive rights to "reproduction" and "making available to the public" for the digital use of press publications for a period of 20 years from publication. The proposed directive is currently progressing through the complex process of EU law making. This is a fast moving, heavily lobbied policy site.

The topic is of considerable interest. The "fake news" discourse has been linked to the need for a new exclusive right for press publishers. The coalition contract for a CDU/CSU/SPD German government advocates strengthening the position of publishers at the European level (7 February 2018, at 6233-6235). The Proposed Directive on Copyright in the Digital Single Market was rejected in a surprise plenary vote in the European Parliament on 5 July 2018, and will be open to amendments in further votes scheduled for w/b 10 September 2018, directly following EPIP.

In the policy debate, the academic analysis has been unanimously against the proposed right. In return, there have been targeted attempts by lobbyists to discredit scientific evidence. The themed session will explore if evidence based policy making is possible in relation to IP rights for news (which goes to the heart of our conception of a democratic

1. Invited paper: History and rationales of news specific rights ***Lionel Bently***

2. Invited paper: Evidence from Germany and Spain ***Martin Kretschmer / Raquel Xalabarder***

3. Discussion with policy participants: Is evidence based policy possible? ***Thomas Jorzombek / Jürgen Kuri / Tabea Rößner***

2. Current challenges in IP policy

Peter Neuhäusler / R. Frietsch / O. Rothengatter / A. Feidenheimer

Research Labs and the Internationalization of Multinational Enterprises

The current study aims to further understand the role of research laboratories within the internationalization strategies of large multinational enterprises (MNEs). By employing inventor information from patents, we aim to identify research labs across the globe. First results based on patent filings from two large multinationals show that our method is well able to identify those labs. Based on this information, we develop a method to differentiate between home-base exploiting (market access) and home-base augmenting (resource access) motives of the firm by analyzing the fit of the technology profile of the lab, the company and the region where the lab is located.

Doris Schartinger / M. Barber

Industrial Design Patterns: Evidence from Austrian and EUIPO Registrations

Design is increasingly seen as an important ingredient to the competitiveness of firms. For open innovation processes appropriability of knowledge is still key to maintaining a competitive advantage. We ask what characterizes firms that choose national designs to protect their innovation processes, EU wide designs for protection, or both. We use data on industrial designs registered at the Austrian patent office and at EUIPO from 2004-2014 and match them with Aurelia firm data. The proposed research aims to integrate major data sources in order to increase our understanding of industrial designs as a means of appropriability and firm strategy.

Florian Seliger / S. Dorn / C. Kiedaisch

Inequality and Demand-Driven Innovation: Evidence from International Patent Applications

This paper studies how the distribution of income across consumers affects innovation by affecting the demand for new goods. Within a model with non-homothetic preferences, we show that inequality is more likely to be harmful for innovation when innovations become more incremental, but that it is more likely to be beneficial when the size of the population is increased. The model is extended to a multi-country setting in which it is shown that inequality affects the number of patent flows (applications of patents that are already granted elsewhere) towards a country in the same way as it affects innovation. In an empirical analysis based on a large panel data set from PATSTAT, we find that inequality is more likely to increase and less likely to decrease international patent flows towards a country the larger the size of the population and the lower GDP of the country is. These results are in line with the model predictions and robust to the inclusion of many control variables.

Salvatore Torrisi / M. Leone / V. Suvanam / R. Cheruku

Fostering Patent Use: An Investigation into the Licensing of Right Policy

Despite increasing patent filing trends, a large number of patents are never used, which signifies a missing opportunity for companies, as well as an untapped potential for the overall society. The Licenses of Right (LOR) is an ad hoc policy instrument aiming to foster patent exploitation by encouraging assignees to bring to public notice their willing-to-license patents in exchange of a reduced maintenance fee. Our study, using UK and German LOR data, tries to understand the characteristic traits of LOR patents, as compared to non-LOR patents, that can inform policy makers on the effectiveness of this intervention.

3. Comparative studies of online piracy

Stürz, Roland A. / Suyer, Alexander / Harhoff, Dietmar / Hilty, Reto M.

Questions of how copyright-protected content is used on the Internet and particularly which conclusions policy-makers, industry and other major players in society should draw from users' behaviour have been the subject of intense debate for years. To answer these and related questions we conducted a large-scale, representative, quantitative survey of German consumers. Our questionnaire is based on the British Online Copyright Infringement Tracker, which since 2012 has been used regularly in the United Kingdom. This allows for a comprehensive direct cross-country comparison. Data collected partly online and partly in personal interviews from 5,532 German consumers of 12 years and up reveal the habits of German consumers with regard to their use of creative online content in the categories music, films, television programmes and series, computer software, e-books and video games. Our results show that complementary products seem to allow firms to indirectly appropriate some of the rents generated through end-user online consumption.

Therefore they should be considered in the debate about detrimental effects of copyright-infringing behaviour. Moreover, our results contradict the common assumption that illegal use can only be explained by the rationale of reducing costs. Cheaper, more flexible and convenient offers could reduce copyright-infringing habits on the Internet. Also, legislature seems to be capable of preventing some copyright infringements by adapting the copyright law to the digital age and by creating unambiguous, easily understood rules regarding legal use of Internet content.

Joost Poort / J. Quintais / M. van der Ende / A. Yagafarova / M. Hageraats

Global Online Piracy Study

We conducted consumer surveys among nearly 35,000 respondents, including over 7,000 minors, in 13 countries in Europe (France, Germany, the Netherlands, Poland, Spain, Sweden), the Americas (Brazil, Canada) and Asia (Hong Kong, Indonesia, Japan, Thailand). The survey deals with the acquisition and consumption of music, films, series, books and games through the various legal and illegal channels that exist nowadays. We find that the percentage of Internet users in Europe that occasionally downloads or streams illegally has decreased between 2014 and 2017 in all European countries except Germany. The decrease is strongest for music, films and series. Meanwhile and despite a decline in physical sales, expenditure on legal content has increased since 2014. It might be tempting to argue that an increase in the use of certain enforcement measures against obviously illegal platforms has contributed to the decreasing number of pirates in Europe. However, a lack of evidence concerning the effectiveness of most enforcement measures and the strong link between piracy and the availability and affordability of content suggests otherwise. At a country level, online piracy correlates remarkably strongly with a lack of purchasing power. Higher per capita income coincides with a lower number of pirates per legal users. Moreover, pirates and legal users are largely the same people: for each content type and country, 95% or more of pirates also consume content legally and their median legal consumption is typically twice that of non-pirating legal users. The study finds statistical evidence that illegal consumption of music, books and games displaces legal consumption but the displacement coefficients are surrounded with substantial uncertainty and separating the results between minors and adults suggests that displacement occurs for adults and not for minors. Using time-structured data for blockbuster films, an average displacement rate was found of –0.46. This translates to a relative sales loss of about 4.1% of all legal blockbuster views.

Joao Pedro Quintais / C. Angelopoulos

Fixing Copyright Reform: How to Address Online Infringement and Bridge the Value Gap'

This paper considers Article 13 of the Commission’s proposal for a Directive on Copyright in the Digital Single Market. It suggests that this misconceives the real problem afflicting modern copyright, i.e. the proliferation of infringement online in general, not just through Web 2.0 hosts. The paper recommends a better way forward for EU copyright reform in a two-pronged approach to online infringement consisting of: a) the introduction of a harmonised EU framework for accessory liability for third party copyright infringement; and b) the adoption of an alternative compensation system for right-holders covering non-commercial direct copyright use by end-users of certain online platforms.

4. IP and entrepreneurship

Michal Kazimierczak / R. Belderbos / M. Goedhuys

Innovation, appropriation and new firm formation in related industries in European regions

The paper examines to what extent innovation activities foster new firm formation across regions and industries in Europe. Combining data on firm formation, patenting and trademarks, it analyses new firm entries (2001-2009) in over 290 NACE industries in more than 1000 regions (NUTS 3 level). We

construct a technology similarity index between industries to examine the different role of knowledge spillovers from the own industry versus technologically related industries and analyse the moderating role played by appropriation strategies through trademark registrations. We find a positive effect of incumbents patent stocks on new firm formation in related industries, whereas the impact of incumbent patenting in the same industry of the entrant is less obvious. More intensive trademark policies by incumbents negatively moderate the effects of local knowledge stocks.

David Levine / T. Sichelman

Why Do Startups Use Trade Secrets?

Empirical studies of the use of trade secrecy are scant, and those focusing on startups, non-existent. In this paper, we present the first set of data-drawn from the Berkeley Patent Survey- on the use of trade secrets by U.S. startup companies. Our results identify three major findings. First, trade secrecy serves other important aims aside from first-mover advantage. Second, trade secrets may act both as economic complements and substitutes to patenting. Third, trade secrets may serve as important strategic assets, functioning much in the same manner as patents in terms of licensing and setting the boundaries of the firm.

Roger Svensson / P. Norbäck / L. Persson

Verifying High Quality: Entry for Sale

When and how do entrepreneurs sell their inventions? To address this issue, we develop an endogenous entry-sale asymmetric information oligopoly model. We show that lowquality inventions are sold directly or used for own entry. Inventors who sell post entry use entry to credibly reveal information on quality. Incumbents are then willing to pay high prices for high-quality inventions to pre-empt rivals from obtaining them. Using Swedish data on patents granted to small firms and individuals, we find evidence that high-quality inventions are sold under pre-emptive bidding competition, post entry.

Andrew Toole / V. Behrens / D. Czarnitzki

Fasten Your Seatbelts! Can the Patent Prosecution Highway Take Your Application Down the Fast Lane?

Patent applications generally take several years to be processed at the patent office, leaving inventors caught in a long phase of uncertainty about their intellectual property rights. Long pendency impedes licensing agreements and can prevent firm collaboration, hindering innovation and knowledge diffusion. This study is the first to assess the effectiveness of the Patent Prosecution Highway (PPH), a program aimed at accelerating the patent application process through work sharing. Results of this paper suggest that the PPH reduces the processing time of patent applications by around 25% overall.

5. Weizenbaum IV: Competition on data and information markets

Thomas Margoni / M. Kretschmer

Property rights over ideas in an information society. Or on the necessity (and absurdity) of a TDM exception

The recent Proposal for a Directive on Copyright in the Digital Single Market1 (the Proposal) contains a number of provisions intended to modernise EU copyright law and to make it fit for the digital age. Art. 3 goal is to introduce a mandatory exception in EU copyright law which will exempt acts of reproduction made by research organisations in order to carry out text and data mining for the purposes of scientific research. This paper discusses Art. 3 and explains why its formulation although underpinned by the right innovation policy goal is conceptually and normatively wrong.

Maria Lilliá Montagnani / A. Bertoni / M. Maggiolino

Open (Private) Data

There is increasing interest about the potential economic and social benefits of using both Open Public and Private Data in the digital economy. The benefits of Open Data are diverse and range from improved efficiency of public administrations and wider citizen participation and collaboration to economic growth in the private sector. Moving from the role that Private Sector Regulation played in the field of Open Data, we explore the influence of regulation on the development of an Open Data Ecosystem enriched by Open Private Data and investigate the many reasons for the private sector to open some of its datasets to governments, customers and other companies.

Lena Mischau

Specificities of digital markets in relation to market power assessment - what contributions can the 9th Amendment of the German Act against Restraints of Competition, in particular through § 18(3a), make to address the competition law challenges brought by the digital age?

The talk focuses on the specificities of digital markets, and analyses to what extent these have an impact on market power and by what means such market power can be assessed. In this context, the essay also examines the 9th Amendment of the German Act against Restraints of Competition and in particular the newly introduced § 18(3a) which provides for additional criteria which are related to digital markets and which have to be taken into account when assessing market power.

FRIDAY, SEPTEMBER 7

13:50 – 15:20 Parallel Sessions V

1. Copyrights

Dan Burk

Algorithmic Fair Use

Copyright enforcement is increasingly mediated by algorithms intended to purge unauthorized content from on-line platforms But many unauthorized digital postings may claim legitimacy under exceptions such as fair use. Such exceptions ameliorate the negative effects of copyright on public discourse and creativity. Consequently, it may seem desirable to incorporate copyright exceptions into policing algorithms. This paper examines the prospects for algorithmic mediation of copyright exceptions, warning that the design values embedded in algorithms will inevitably be transferred to public behavior. Thus, algorithmic fair use threatens to habituate consumers to its own biases, progressively altering the standard it attempts to embody.

Paul Heald

Copyright reversion to authors (and the Rosetta effect): An empirical study of reappearing books

Copyright keeps out-of-print books unavailable to the public, and commentators speculate that statutes transferring rights back to authors would provide incentives for the republication of books from unexploited back catalogs. This study compares the availability of books whose copyrights are eligible for statutory reversion under US law with books whose copyrights are still exercised by the original publisher. It finds that 17 USC § 203, which permits reversion to authors in year 35 after publication, and 17 USC § 304, which permits reversion 56 years after publication, significantly increase in-print status for important classes of books. Several reasons are offered as to why the § 203 effect seems stronger. The 2002 decision in Random House v. Rosetta Books, which worked a one-time de facto reversion of ebook rights to authors, has an even greater effect on in-print status than the statutory schemes. The estimated positive effect of reversion on the availability (in-print status) of titles in the full sample of 1909 books is 20-23%.

Bernd Justin Jütte

Forcing Flexibility with Fundamental Rights - Questioning the dominance of exclusive rights

The European Copyright rules systematically favor a dominance of exclusive rights over permitted uses. Many of such uses are rooted in fundamental rights, but the limited nature of exceptions and limitations prevents the exercise of fundamental rights in certain circumstances. The German Federal Supreme Court has questioned this imbalance with three preliminary references, which potential impacts are discussed in this paper. Either, the Court could propose a more flexible interpretation of the copyright rules, or it could create mechanisms that would permit setting aside copyright rules in cases that are justified by fundamental rights.

Ariel Katz / E. Sarid

Who Killed the Radio Star? How Music Blanket Licences Distort the Production of Creative Content in Radio

The paper examines the impact of copyright licensing practices and completion policy on content production in radio broadcast. It traces historical changes as well as current patterns in commercial and public radio broadcast and maintains that the common practice of blanket licenses to broadcast music, encourages the broadcasting of pre-recorded music and discourages the broadcasting and production of other type of content (e.g., talk radio, and public domain or creative commons licensed

music). We then suggest that blanket licenses might have similar bearing in other IP industries (e.g., news aggregation, and data mining), and warn against possible distorting effects therein.

Ruth Towse

Copyright reversion in the creative industries: Economics and fair remuneration

The European Commission proposal to harmonize fair remuneration included the proposal to harmonise a right to contract reversion. Fair remuneration is an ambiguous concept for economists: some EC documents imply the policy is required for efficiency purposes, in others purely for equity reasons. Copyright to an extent attempts to deal with both and also at times confuses the two. This article discusses work in economics dealing with copyright contracts and reversion and considers the contribution studies on labour markets in the creative industries could make to the policy proposals on fair remuneration for creators and performers.

---

2. IP litigation

Clara Ducimetière

Intellectual property under the scrutiny of investor-state tribunals - Legitimacy and new challenges

This paper first addresses the conditions that have to be fulfilled in order to bring intellectual property claims in investment arbitration, by touching upon the question of the definition of an investment in theory and in practice. It also tries to shed light on some of the implications of recent arbitral awards touching upon this interaction between intellectual property and investment protection, from a legal and regulatory perspective. On the other hand, the specific situation of the European Union is scrutinized, and the project put forward by the European Commission to adapt the dispute settlement system for the protection of investments.

Lynda Oswald / D. Cahoy

A Serendipitous Experiment in Percolation of Intellectual Property Doctrine

Does having more judicial voices speaking on an issue result in better legal doctrine? We address that question by analyzing a natural experiment on the role of percolation in developing legal doctrine by examining identical fee-shifting language in the patent and trademark acts. This language provides a ready-made laboratory for exploring the effects of percolation on the development of legal doctrine, both over time and in different judicial settings, and in turn, reveals much about the role of generalist versus specialized courts in developing optimal legal doctrine.

Valeria Sterzi / F. Lissoni / S. Fusco / C. Martinez

Dissemination of Academic Knowledge and Monetization of University Patents

In recent years, the activity of Non-Practicing Entities (NPEs) has been intensively studied by scholars in various disciplines. Nevertheless, numerous important aspects of the NPE operations within the U.S. patent system remain unclear. As a result, there is a strong interest in learning more about these companies, their strategies, and their possible impacts on innovation in different fields. While universities have been recognized as a category of NPE (Lemley, 2008), broad empirical studies have been lacking, or have left unaddressed important questions about how university patent enforcement may impact the university mission, and society more generally. Because academic institutions play a significant role in both producing and disseminating knowledge, additional empirically-grounded study can add to the ongoing debate on patent monetization. Relevant questions include: How do universities resemble, and differ, from other NPEs as regards patent enforcement and monetization? Do certain university stances and tactics hinder the mission that is traditionally performed by academic institutions? And, how do the behaviors of universities affect

innovation, for good or ill? In this paper, we shed some light on these important issues by examining the transfer of university patents to other NPEs (or PAEs) in addition to direct patent infringement actions by universities. We employ the USPTO Patent Assignment Dataset described in Graham et al. (2018) to examine the transfer of university patents and technology dissemination, building a new publicly-available dataset reflecting exclusively university patent transfers. By studying the post-transfer level of citations of these patents, we determine the impact that such assignments have on academic innovation. Additionally, we examine university patent transfers, comparing those assigned to other types of NPEs (or PAEs) with the assignments universities make to all other assignees, assessing how these transfers differ across attributes. Our analysis also employs patent litigation data,allowing us to determine whether universities modified their litigation tactics in response to recent critical events, or to trends in the patent troll policy environment. Thus, in this paper we describe changes in the intensity of infringement cases initiated directly by universities and, perhaps more importantly, the characteristics of the patents involved in these lawsuits. Over the last two decades, NPEs in the U.S. have perfected patent monetization strategies that allow Universities to collect substantial revenues. Investigating the response of universities, and the aftermath of patent assignments and litigation by them will enable scholars to more fully understand the effects NPE activities have on the production and dissemination of innovation.

Data about litigation is derived from DARTS-IP (https://www.darts-ip.com/) which provides information on patent litigation cases worldwide. Precisely, DARTS-IP DARTS-IP collects data on the litigation date, the parties involved, the patent(s) constituting the contention and the lawsuit result.Events may be positive or negative, e.g., Carnegie Mellon Univeristy v. Marvel Technology Group (CAFC, 2015) may have had a positive effect. See, e.g., Executive Office of the President, Patent Assertion and U.S. Innovation (June, 2013). We use the publication number of litigated patents to retrieve patent information from the USPTO Patent Assignment Dataset and Patent

Asako Wechs Hatanaka

Industry 4.0 and IP disputes: Opportunity or challenge for mediation?

Industry 4.0 may result in a paradigm change in the choice of dispute resolution related to IP. The likelihood that disputes on a global scale will increase appears to be an opportunity for mediation. However, unlike the New York Convention applicable to international arbitration, no substantive multilateral agreement for international mediation exists, other than the Mediation Directive. The UNCITRAL proposal regarding the enforcement of mediated agreements is thus a good starting point to review the challenges facing international mediation. In this light, this working paper comparatively analyses contractual and procedural limitations in IP mediation and provides some observations.

---

3. Trademarks

Arianna Martinelli / C. Castaldi / E. Giuliani

Emerging market Multinational Enterprises taking over United States trademarks: predating or leveraging?

The extent to which emerging market multinational enterprises (EMNEs) benefit from their acquisitions and their after-deal strategies remains a conundrum for scholarship and practice. These acquisitions often aim to gather strategic assets that EMNEs lack because of the weakness of their home country institutional and technological context. This paper focuses on the acquisition of specific strategic assets that are USPTO (United States Patent and Trademark Office) trademarks and investigates the effect of such acquisitions on EMNEs' branding strategies. The relevance of these assets rests on EMNEs low legitimacy and reputation in advanced markets that generates prejudices in customers in advanced countries. In particular, we focus on weather EMNEs enrich their trademark

portfolio after the trademark acquisitions or they exploit the new asset. We address our research questions using a novel database of USPTO trademark assignments involving Global Fortune 2000 firms from emerging countries or their subsidiaries between 1981 and 2014. Our preliminary results suggest that some characteristics such as EMNEs experience, acquired trademark quality, and acquisition mode (i.e. “appropriation by take-over” vs. “direct appropriation”) have a different effect on EMNEs' strategy. This paper offers a new contribution to the international business literature by offering a quantitative study of the phenomenon of brand acquisitions by EMNEs, complementing the case- based evidence so far.

Sandro Mendonca / U. Schmoch / P. Neuhäusler

Integrated industrial configurations and product-service innovation: Analysing sectoral dynamics using patent and trademark evidence

Integrated manufacturing-service systems have received attention recently. The phenomenon of services-to-artefacts companies, namely those specialising in intermediate goods and complex equipment, is increasingly instrumental for long-run competitiveness in fast-changing, high-quality global markets. The debate has so far remained largely qualitative and the effective role and relevance of services is rather fuzzy. Against this background, the chapter brings in empirical evidence concerning of the evolving business models of a variety of leading innovative manufacturing companies. For this purpose, over 50 manufacturing companies listed in the EU R&D investment scoreboard are analysed in terms of patents and trademarks. In particular, trademark strategies are studied in greater depth as they sub-divided into goods and services marks and into high and low sophistication. Service marks are used as a supplement to patents, as the service component of industrial offerings is not covered by classic indicators of technical change. The economic data from the EU Score-board (R&D, sales, growth, employees, profits, or investment) is linked to the patent and trademark data in order to see which balance of good and service capabilities leads to favourable economic results.

Amanda Myers / C. DeGrazia / A. Toole

Signal or Noise: Are trademarks a leading indicator?

Trademarks are likely the most widely used form of formal intellectual property rights. The relatively widespread use of trademarks has prompted some to speculate on the relevance of trademarks for capturing economic activity. Still, trademark indicators are rarely exploited, particularly when compared patents. In this paper, we exam the value of trademark measures in signaling recessions and recoveries in the U.S. economy. We adopt three methods to evaluate trademark indicators against established economic and financial measures. Results of each method provide support for adopting trademark measures as leading economic indicators.

Shukhrat Nasirov

The value of trademarks: A study of trademark registration, maintenance, and renewal in the U.S. pharmaceutical industry

In this study, we make an attempt to evaluate the value of trademarks by examining factors that affect a company's decision to first apply for and then maintain and renew a trademark registration. Our approach is based on the idea that more valuable marks should have a positive association with the continuity of trademark protection, compared to less valuable marks. We focus on trademark characteristics that are related to the underlying brand as well as on legally stipulated features. To verify our theoretical predictions, we use the U.S. pharmaceutical industry as an empirical setting, largely owing to its heavy reliance on trademark activities. Our statistical analysis shows that trademark characteristics are an important predictor of whether the mark will progress further along its lifecycle or not. However, assigning the value interpretation to each characteristic should account for the lifecycle's stage.

Russel Thomson / B. Herz

Foreign Direct Investment in Retail

Many high performing multinational enterprises (MNEs) to emerge in recent decades, such as Apple Inc, and Inditex have invested heavily in direct ownership of retailing activities. To date, FDI in retailing by product based firms has largely escaped the attention of trade economists who focus instead on upstream activities such as manufacturing. In this paper we document the growth of retailing as significant and understudied trend foreign direct investment, using project level FDI data. Second, we outline a theoretical framework to explain the distribution of retail FDI which focuses on the role of retail in maintaining reputation and brand value. Finally, we confront the predictions of our framework to empirical scrutiny, using firm level data on retail FDI activity for the years 2003-2014.

---

4. IP in a digital world

Christophe Geiger

The TTIP and its Investment Protection: the End of the EU's Authority to Regulate Intellectual Property in a Data Driven Economy?

The Transatlantic Trade and Investment Partnership (TTIP) is a bilateral trade agreement that is currently being negotiated between the European Union and the United States. Its principal characteristic consists in the inclusion of intellectual property rights in the list of investment protected by the agreement, the implementation of which would be the responsibility of arbitration tribunals or a special jurisdiction for investment protection still to be created. This could limit significantly the possibility of the EU to regulate in the future, as a modification of the scope of the IP rights could always potentially affect the investment of private companies.

Emma Perot

The interaction of social norms on the commercialisation of persona - a comparative study of the UK, New York and California

Caterina Sganga

A plea for digital exhaustion in EU copyright law

In Tom Kabinet the CJEU will soon have its final say on the admissibility of digital exhaustion under Art.4(2) InfoSoc.Years of obiter dicta rejected it upon a strict literal interpretation of EU and international sources. Yet, empirical evidence show that the digital market evolution rendered existing legislation outdated, and the lack of exhaustion tilted the balance between copyright and the protection of competition, secondary innovation, and other conflicting rights and freedoms. Awaiting legislative intervention, this paper proposes two routes to recognition: one uses a contextual/teleological interpretation to maintain the effectiveness of Art.4(2) InfoSoc; the other aims at invalidating the provision for disproportionate violation of Articles 7,16 and 17 CFREU.