

Die Seite des Instituts | La page de l'Institut



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Artificial intelligence & intellectual property Workshop (AI&IP Workshop)

Report on the AI&IP conference in Zurich on 9 June to 11 June 2022

Der Einsatz von KI-Systemen ist zunehmend verbreitet und weitreichend; daher ist es an der Zeit, dass sich das IP-System weiterentwickelt und auf die Herausforderungen durch KI reagiert.

Das Zentrum für Immaterialgüter- und Wettbewerbsrecht (CIPCO) der Universität Zürich und das Eidgenössische Institut für Geistiges Eigentum (IGE) arbeiten in einem langfristigen Projekt zum Thema künstliche Intelligenz und geistiges Eigentum zusammen. Nach mehreren Online-Workshops mit Experten zu verschiedenen Bereichen von KI und geistigem Eigentum wurde im Juni 2022 eine interdisziplinäre Konferenz an der Universität Zürich durchgeführt. Juristen, Vertreter verschiedener Ämter für Geistiges Eigentum, Akademiker und Industrievertreter diskutierten eine grosse Bandbreite von Aspekten im Schnittpunkt von KI und Immaterialgüterrecht.

Le recours à des systèmes d'intelligence artificielle (IA) est de plus en plus répandu et étendu; il est donc temps que le système de propriété intellectuelle (PI) évolue et qu'il réagisse aux défis posés par l'IA.

Le Center for Intellectual Property and Competition Law (CIPCO) de l'Université de Zurich et l'Institut Fédéral de la Propriété Intellectuelle (IPI) collaborent dans le cadre d'un projet à long terme dédié au thème de l'IA et de la PI. Après plusieurs ateliers en ligne organisés avec des experts et consacrés à divers aspects de l'IA et de la PI, une conférence interdisciplinaire s'est tenue à l'Université de Zurich en juin 2022. Elle a réuni des juristes, des représentants de plusieurs offices de PI, des universitaires et des représentants de l'industrie; ils ont abordé un large éventail de questions qui se posent au carrefour de l'IA et du droit des biens immatériels.

I. Introduction

FELIX ADDOR¹ underlined that the IPI is aware that AI, whose potential will soon be greatly increased by next generation chips and quantum computing, could transform the way humans create and invent. This has the potential to challenge not only many basic concepts of intellectual property (IP) law, but also the role and importance of IP in new commercialization schemes and business models. On the national level, the IPI wants to ensure that Swiss IP law remains beneficial to creators, innovators and society as a whole. Therefore, the IPI is not only active in keeping the national IP law up to date but it also tries to look ahead.

RENA SCHMID, MSc Economics, Economic Intern in the Swiss Federal Institute of Intellectual Property.

The english translation of the lead is included on Swisslex and legalis only.

On the international level, the IPI engages as a discussion initiator and bridge builder. The aim of this engagement are comprehensive and harmonised solutions for the relevant IP and AI issues, achieved in a timely manner. Such solutions must be pragmatic and supportive of research, creation, innovation and society.

Prof. PETER G. PICHT² gave an overview of the current discourse in AI and IP. He explained that AI has – limited as the capacities of today's systems may still be – developed from a more theoretical concept that engages academic discussion into an operational technology which drives business models and requires appropriate reactions from lawmakers, legal counsel and the courts. While the discussion on whether AI systems qualify as inventors or creators is par-

- 1 Deputy Director General and Director of Legal and International Affairs at the Swiss Federal Institute of Intellectual Property.
- 2 Professor for Economic Law, University of Zurich, Director Center for Intellectual Property and Competition Law (CIPCO).

ticularly conspicuous at present, other issues deserve attention as well. To whom should, for instance, IP rights be assigned – especially with a view to the economics underlying the IP system – that result from output independently generated by AI? How can IP law, data (protection) law, and contract law be integrated into a coherent legal framework that fosters AI-related innovation without neglecting other, legitimate concerns? And which role can the legal framework for AI and IP play in securing the competitiveness of European economies? In the view of Mr PICHT, these challenges can best be addressed through a collaboration between key, proactive stakeholders, such as in the framework of this conference.

II. The role of IP for business in an AI context

BEAT WEIBEL³ presented industry perspectives on artificial intelligence (AI) and intellectual property (IP), highlighting the impact of AI systems on the evolving digital ecosystem and their transformative effect on business models. He explained that companies cannot master all aspects of this technology, hence both collaboration and division of labour can be observed among industry players in this field. IP-related problems in the industry arise mainly in relation to AI-generated inventions and less frequently regarding AI as a tool for innovation. Mr WEIBEL proposed extending the term ‘inventor’ to include legal persons.

Mr WEIBEL believes that IP protection is essential in the field of AI. He does not consider trade secrets as an equivalent alternative to IP rights because trade secrets are an obstacle to knowledge transfer and may slow down innovation. Furthermore, advancing AI systems could increasingly be used to unveil trade secrets (e.g. through software decompilation), thereby devaluation trade secret protection.

Generative foundation models, i.e. AI systems that generate new, specialised AI models, are a particular challenge for IP protection strategies as they engender an overlap of the protection rules for data, AI systems as such, and their output. Other participants, such as ALESSANDRO CURIONI⁴ from IBM and PETER R. THOMSEN⁵ from Novartis, supported this view.

Business strategies for AI and IP are also influenced by «non-IP» regulations, such as data protection and access provisions. There are great differences between jurisdictions in these fields. For example, some countries allow for ‘utility patents’ to protect AI systems while others do not have this type of IP rights. Likewise, access to data, as a key prerequisite for generating value from AI systems, varies between industrial sectors and jurisdictions. However, KATE GAUDRY⁶ and TRINA HA⁷ pointed out that there is – across sectors and jurisdictions – a substantial gap between small businesses, which struggle with data access, and large companies, which generate valuable data through their business operations. In consequence, industry representatives called for an international harmonisation of data access that, however, respects appropriate IP protection.

III. Patent law

1. DABUS case

RYAN ABBOTT⁸ described that patents have been issued for AI-generated inventions since at least the 1980s and that, in his view, AI is (or will very soon be) more inventive than humans. However, the current patent system requires the designation of at least one human inventor in any patent application. He proposes to change this formal requirement by allowing the applicant to name an AI system as inventor in a patent application. He argues that this approach would be a strong incentive for innovation, while protecting the moral rights of traditional human inventors and the integrity of the patent system, as no one would be able to take credit for inventive work he/she has not actually done. More broadly, ABBOTT proposes to revise the entire legal system (liability regime, criminal law, etc.) so as not to discriminate against AI systems and their users.

ABBOTT is a member of the DABUS project team (‘The Artificial Inventor Project’) which is challenging the human inventor designation requirement in patent applications worldwide. He presented the genesis and the latest developments of this project.⁹ The team filed two international patent applications for ‘AI-generated inventions’¹⁰ in August 2019. These applications list the AI as the inventor and the owner of the AI as the patent applicant and potential owner of any granted patent. Consequently, an increasing number of patent offices and courts are examining these patent applications and adopt a position on this thorny issue.

The discussion showed that potential solutions lie along a spectrum. At one extreme, an AI system could be permitted to be the sole designated inventor of a patent (application) and, at the other extreme, regulators could categorically refuse to patent inventions generated autonomously by an AI system without an identifiable human inventor. Other options fall between these two extremes. The participants stressed the need for more exchange and research in the field.

2. Human inventorship requirement from an economics perspective

Professor GAÉTAN DE RASSENFOSSE from the Swiss Federal Institute of Technology in Lausanne (EPFL) gave a keynote prompting the audience to think outside the box. He started

3 Chief IP Counsel of Siemens.
 4 Director of IBM Research Zurich.
 5 Manager IP Litigation & Policy: Corporate Intellectual Property at Novartis.
 6 Partner at Kilpatrick Townsend & Stockton LLP.
 7 Chief Legal Counsel IPO Singapore.
 8 Professor of Law and Health Science at the University of Surrey, author of *The Reasonable Robot*.
 9 More information available at: <<https://artificialinventor.com/author/admin/>>.
 10 That is, inventions generated autonomously by an AI system in circumstances in which they indicate that no natural person can be said to be the inventor.

from the issue of the protection of autonomous inventions by AI systems and the potential risk of overcompensation if the inventive AI system and all its outputs are protected.

RASSENFOSSÉ's line of argument centres around the core traditional justification for granting patents, namely the incentivization of (investments in) innovation. In the context of AI, it has to be considered that these systems will reduce the costs and time of inventing. This raises the question of whether IP protection is needed in the first place for AI-invented output. However, patents for AI inventions may lead to more transparency about the inclusion of AI systems in the innovation process, which would allow for better adjustment of public policies in the field. Furthermore, investments in the building of AI systems and in the commercialization of their output may still require incentives.

RASSENFOSSÉ also presented the thought-provoking idea of a certification system for inventive AI systems. Once such a system is certified, all its output would be granted protection through the patent system or a *sui generis* right.

Prof. YANN MENIÈRE from the European Patent Office (EPO)¹¹ and other participants also pointed out that IP protection can be justified due to rationales such as the promotion of follow-on investments in commercialisation and trade. From that perspective, a legal distinction between human and autonomous AI inventions could lead to unjustified discrimination and impact industry's technological strategies.

The discussion then turned to the possibility of a more flexible legal framework which could mitigate overprotection and foster, at the same time, innovation and its commercialization. For example, a two-tiered system might offer differing levels of patent protection for AI-generated inventions and human inventions. However, such a system may have unwanted effects such as increased patent examination difficulties or businesses hiding the true role of AI systems in their innovative processes. As a result, the creation of a two-tiered protection regime did not, under the current circumstances, find much support among the participants.

AI system performance could render patent or trade secret protection more difficult to acquire and maintain, such as through extensive prior art generation or an increased capacity for reverse engineering. In the discussion on whether this generates systemic concerns, participants expressed their confidence that patent and trade secret law, as self-regulating systems, will find a new balance that incorporates such developments.

Finally, DARYL LIM, Director of the Center for IP, Information and Privacy Law at the University of Illinois, broadened the perspective by discussing liability for the use of AI systems and the possibilities for protecting – e.g. through collective rights management – one's IP rights against their infringing conduct.

IV. Copyright law

FLORENT THOUVENIN, Professor of Information and Communication Law at the University of Zurich, gave an overview of

pertinent European copyright law. Copyright systems on the European continent protect a work only, if it was created by a human being. In his opinion, there are no convincing reasons to grant protection for AI-generated content because AI systems do not need to be incentivised to produce such content. Once an AI system has been developed, its output can be produced at almost zero cost. Granting copyright protection would cause several problems regarding the right holder, protection requirements, entitlement to exercise personality rights and the calculation of the term of protection. For these reasons, extensive changes to the system would be necessary to grant copyright protection for content generated by AI systems.

THOUVENIN pointed out that there are other instruments (e.g. unfair competition law or technical access restrictions, such as digital watermarks in photographs) that could be deployed to prevent third parties from using AI-generated content without permission. However, the effects of these instruments should be researched more extensively, for instance with a view to whether their use in the AI context creates unwanted barriers to content sharing.

However, discussants pointed out that there are also arguments in favour of copyright protection for AI-generated output. For instance, such protection would avoid discrimination between similar «creative» works produced by AI and by human beings. A lack of protection could lead to the easier accessibility of AI output and, consequently, a market distortion to the detriment of human-created works that are protected by copyright. Finally, if no copyright protection is granted to AI output, this may disincentivise the production of such content.

In any case, it should be noted that there are no significant issues with copyright protection for AI output as long as sufficient human contribution turns the output into a human-created work and the AI is only used as a tool. Evidently, with regard to such settings the necessary extent of a human contribution will increasingly be subject to debate.

Apart from the question of copyright protection for AI output, the question of protection for the AI itself also needs to be considered. There can be copyright protection available for the software that constitutes and implements the AI. More generally, software protection is enshrined in various Swiss laws (Copyright Act, Unfair Competition Act, Patents Act). However, there is debate about whether this current framework is sufficient and industry participants in particular emphasised the relevance of clearer and better-tailored software protection rules especially for the field of AI.

On the input side, copyrights may protect content needed to train AI systems. Exceptions and limitations for text and data mining (TDM) exist in Switzerland (as of late) and other countries but it is not clear if they are generally applicable to AI training settings. For instance, it is unclear whether the training of AI constitutes text and data

11 Chief Economist at the EPO.

mining in the sense of these limitations. Furthermore, details of the TDM exceptions differ between the jurisdictions. For example, the Swiss exception is broader than the exception under EU law.

V. AI tools for IP offices

FELIX ADDOR outlined various areas for the potential use of AI in intellectual property offices (IPOs) and highlighted how AI tools can save time and resources, while maintaining or even improving the quality of IPOs' services. He emphasised the challenges involved in developing such tools for small IPOs. He also pointed out that IPOs need to be transparent about which AI tools are used in daily business, if any, to keep matters comprehensible for stakeholders of the IP system. In particular when it comes to decision-making, it must be clear which tasks are performed in an automated way by AI systems.

Data scientists from different IPOs (EPO, EUIPO, UKIPO, INPI, CIPO and IPI) engaged in the subsequent discussion. In particular, ALEXANDER KLENNER-BAJAJA¹² presented the strategic plan of the EPO, which includes the integration of AI in the EPO's workflow. Prof. JULIEN CABAY presented his current research project in the field of assessing similarities in images, which are relevant for their IP protection, through algorithmic decision-making systems.¹³ This interdisciplinary project involves an analysis by legal practitioners and engineers of the methodological, technical, legal and ethical challenges involved in developing such similarity assessment tools.

The discussion showed that all IPOs are well aware of the potential of AI tools for their work. Many are involved in research projects or in-house developments. The question was raised whether an internal solution is always the best way or whether there are other approaches that may be more efficient, such as prize systems or open-source collaborations. Some IPOs presented arguments in favour of an internal solution, such as the additional expertise of IP examiners, the additional (unpublished or even confidential) data involved and the Offices' special needs. At the same time, the IPO representatives welcomed collaboration among their Offices to exchange views and practices, especially for topics that are of interest to several parties, even though there is a kind of 'friendly' competition between at least certain IP Offices.

Finally, the discussion asked whether patent and trade mark examiners' may be supplanted by AI. The data scientists were unanimous that this was out of the question for the time being and that the systems under development tended to be more interactive, with the knowledge of the examiner and AI complementing each other.

VI. The data dimension

FLORENT THOUVENIN initiated the discussion on the data dimension of AI and IP with a detailed review of the Swiss and European legal framework for data. A focus must be on the coordination or, more often, the lack of coordination between data protection law, copyright law and *sui generis* database law, as well as sector-specific regulation, which all regulate access and use of data in the private sector. It can be observed that stakeholders, especially those active at international level, aim to comply with the most demanding standards, in this case EU requirements. Ill-adapted as some such requirements are to the particularities of AI, they may cause at least European players to miss business and innovation opportunities. It is all the more important to analyse and comment upon the amendments to the legal framework for data proposed by the EU Commission, such as the Open Data Directive, the Data Governance Act, the Digital Markets Act, and the Data Act.

Companies collaborate on a contractual basis to give further access to their data. However, negotiation power can be unequally distributed among these players, for instance in transactions between SMEs and (US or Chinese) big tech and big data companies. The SME support measures proposed by the IPI can, as the discussion showed, play a helpful role in such settings.

VII. Next steps

Following the conference and workshops, CIPCO and the IPI will continue their research project. They will now be supported in this task by the Zurich AI&IP Group, which was established after the workshop in June 2022. In the coming months, the Group will be working towards a set of policy recommendations for legislatures and the international dialogue.

In the international arena, IPI will act as a discussion initiator and bridge builder in particular in the WIPO Conversation on IP and Frontier technologies, as well as the WIPO Standing Committee on Patent Law.

The IPI will examine whether there is a need to carry out further studies on specific issues related to the broad topic of AI.

It will also engage in sharing experiences between small IP offices in relation to the use of AI in the conduct of its daily business (including the examination of designs, trademarks and patents).

The IPI will, furthermore, update the data collected in the Federal Council's industrial data study and make it available to the public on its website.

¹² Head of Data Science at the European Patent Office.

¹³ ARC: IPSAM research project, <<https://www.ulb.be/fr/arc/arc-research-project-ipsam>>.