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Intellectual Property and Artificial Intelligence – Selected Issues

The authors discuss selected legal problems related to intellectual property and artificial intelligence, mostly the principle of a territorialism of intellectual property. The need to reformulate the conflict-of-law rules for intellectual property was identified as the most urgent legislative task. They end the article with a critical assessment of the Rome II Regulation concerning the proper law for liability arising from infringement of intellectual property rights.

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1. Introductory remarks

Artificial intelligence is a particularly difficult challenge for intellectual property law[1]. This is important because intangible goods, including inventions created using AI systems, are considered the future of innovation[2]. The increasing use

1 Ryszard Markiewicz, „Sztuczna inteligencja i własność intelektualna", [in:] *100 lat ochrony własności przemysłowej w Polsce: księga jubileuszowa Urzędu Patentowego Rzeczypospolitej Polskiej*, ed. Alicja Adamczak (Warszawa: Wolters Kluwer, 2018), 1435.

2 Ryan Abbott, „I Think, Therefore I Invent: Creative Computers and the Future of Patent law" *Boston College Law*

of these tools requires changes in the international regulations applicable to intellectual property[3]. The global scale and massive character of such goods require the application of new legal solutions[4]. The adaptation of international regulations to the current challenges is necessary when it comes to both substantive and procedural law[5]. At the level of international law, the need arises to analyze the extent to which this process affects the projected twilight of the principle of a territorialism of intellectual property rights[6]. The problems with the application of the current regulations concern not only artificial intelligence, but it is the technologies based on AI that are a significant factor contributing to the need for changes to current international regulations. The current legal solutions are based on conventions dating back to the late 19th century[7]. However, the creative activity related to AI justifies the adop-

Review, vol. 57 (2016): 1079-1126; Michael Schuster, „Artificial Intelligence and Patent Ownership" *Washington & Lee Law Review*, vol. 75 (2018): 1947.

3 See: Nathalie Nevejans, *Traité de droit et d'éthique de la robotique civile* (Bordeaux: Les Etudes Hospitalières edition: 2017), 276, and the literature quoted there.

4 Markiewicz, „Sztuczna inteligencja i własność intelektualna", 1452.

5 K. Biczysko-Pudełko and D. Szostek emphasise that the lack of regulations applicable to AI already today causes many legal problems, in relation to not only intellectual property, but also legal personality, taxes, liability for damages, consumer law, competition law, cyber security, data flow, including personal data, war, human rights, etc. These problems will only get worse and the development of AI can no longer be stopped. Katarzyna Biczysko-Pudełko, Dariusz Szostek, „Koncepcje dotyczące osobowości prawnej robotów – zagadnienia wybrane" *Prawo mediów elektronicznych*, 2 (2019): 14.

6 As aptly stated in Wojciech Machała, „Jeśli nie Rembrandt, to co? Perspektywy rozwoju prawa autorskiego w najbliższych kilkunastu latach" *Monitor Prawniczy*, 2 (2019): 76. The author notes: „An ever-present challenge is an Internet, which, due to its global reach and extraterritorial nature, poses a problem if only about the determination of the proper law and the jurisdiction for the assessment of the phenomena that take place through it".

7 Paris Convention for the Protection of Industrial Property of March 20, 1883, now in force in the Stockholm Act drafted in Stockholm on 14 July 1967 (Journal of Laws of 1975, no. 9, item 51); Berne Convention for the Protection of Literary and Artistic Works of 9 September 1886, now in force in the Paris Act drafted in Paris on 24 July 1971. (Journal of Laws of 1990, no. 82, item 474).

tion of new principles, e.g. universalism instead of territorialism, when it comes to meeting the prerequisites of work and establishing the authorship of an intangible good.

It is rightly stated that *de lege lata* AI systems cannot be considered as subjects of intellectual property rights, because they lack legal personality, and therefore they cannot be granted the status of a creator[8]. There is no doubt that in Poland AI creations are not subject to copyright or patent protection[9]. However, this position ignores foreign laws, which, being proper for issues related to the evaluation of the creations of artificial intelligence, may regulate these issues differently[10]. The wording of the existing intellectual property conventions also supports the argument that artificial intelligence should be denied the status of a creator. However, this does not prevent individual member states from extending copyright protection (outside the convention regime) to content created by AI systems[11]. The need to adapt substantive law to the challenges associated with the rapid development of technologies based on artificial intelligence is not disputed. However, this does not mean that such changes will be implemented by states in a uniform manner[12]. Time will tell what solution will be adopted at the global, EU, and national levels. Work

8 Markiewicz, „Sztuczna inteligencja i własność intelektualna", 1434–1458; Przemysław Piotr Juściński, „Prawo autorskie w obliczu rozwoju sztucznej inteligencji" *Zeszyty Naukowe Uniwersytetu Jagiellońskiego. Prace z Prawa Własności Intelektualnej* 1 (2019): 44ff. Cf: the position of the U.S. Copyright Office and the U.S. Patent and Trademark Office, which refuse to grant intellectual property rights to AI systems.

9 Markiewicz, *Sztuczna inteligencja i własność intelektualna*, 1444; Inga Olesiuk, „Założenia aksjologiczne autorskoprawnej ochrony twórczości w świetle rozwoju sztucznej inteligencji" *Acta Iuris Stetinensis*, 2, vol. 18 (2017).

10 Cf.: Peter Hendrik Blok, „The Inventor's New Tool: Artificial Intelligence – How Does it Fit in the European Patent System?" *European Intellectual Property Review*, 39, 2 (2017).

11 The UK Copyright, Designs and Patents Act 1988) can be cited here; see www.legislation.gov.uk/ukpga/1988/48/contents (accessed on 27 December 2020). The author of a 'computer-generated work is identified by the Act to be the person who takes the actions necessary to create the work' (p. 9).

12 Juściński, „Prawo autorskie w obliczu rozwoju sztucznej inteligencji", 44 ff.

is already underway to develop criteria for protecting intellectual works created using AI systems.[13]

Intellectual property rights are international in scope by design. The use of intangible assets, such as works or inventions, crosses national borders. Conflict-of-law problems often arise when enforcing intellectual property rights. The number of possible cases will grow exponentially with the proliferation of artificial intelligence tools intended to create intellectual property[14]. This is already leading to new ways of managing intellectual property and to the use of the intellectual property system in unusual and creative ways[15]. This phenomenon is closely related to efforts to "deterritorialise" international law. New technologies, not only those based on AI, contribute to the gradual disappearance of the territorial aspect[16]. It becomes imperative, among other things, to seek appropriate conflict-of-law solutions for multi-state infringements committed using AI[17]. It becomes advisable to broaden the scope of the autonomy of the will of the parties so that the parties concerned in each case or dispute themselves decide on the scope of the legal protection granted, which is also a manifestation of a departure from the principle of territorialism[18].

Drafting a comprehensive international substantive-law regulation on intellectual property related to artificial intelligence is necessary. The existing solutions should be assessed as flawed, as they are limited only to

13 Ibidem, 44 ff; Jane C. Ginsburg, „People not Machines: Authorship and What it Means in the Berne Convention", *IIC*, 49 (2018): 131-135; Martin Miernicki, Irene Ng (Huang Yin), „Artificial Intelligence and Moral Rights" *AI & Society*, 36 (2020): 319-329; Sam Ricketson, „People or Machines. The Berne Convention and the Changing Concept of Authorship" *Colum – VLA J L- Arts*, 16 (1991): 21-22.

14 Burkhard Schafer, David Komuves, Jesus Manuel Niebla Zatarain, Laurence Diver, „A Fourth Law of Robotics? Copyright and the Law and Ethics of Machine Co-Production", *Artificial Intelligence Law*, 23 (2015): 220.

15 Ibidem.

16 Maurizio Arcari, „New Technologies in International (and European) Law – Contemporary Challenges and Returning Issues", [in:] *Use and Misuse of New Technologies. Contemporary Challenges in International and European Law*, ed. Elena Carpanelli (Cham: Springer, 2019), 357.

17 Annette Kur, „Choice of Law and Intellectual Property Rights" *Oslo Law Review*, 6 (2019): 57.

18 Pascal de Vareilles-Sommières, „Rationale of the Exclusion of Choice of Law by the Parties in Articles 6(4) and 8(3) of Rome II Regulation" *Oslo Law Review*, 6 (2019): 66.

a narrow sphere, approach the issue of intellectual property in the digital environment in a too biased manner, only from the standpoint of enforcement of rights, and do not provide access to intangible goods[19]. The principles of protection can be modified. The intellectual property system needs to change not only from the AI perspective but from the perspective of technological development that is global rather than national. A possible international agreement would not have to be limited to the issue of the intellectual property rights of AI. However, before the relevant international law can be enacted, it is necessary to fill in the gaps, primarily through the current conflict-of--law regulations[20]. It seems that a reasonable minimum is to include the unique characteristics of AI in the new codifications of private international law.

2. AI systems as creators

The ability to create content automatically has become a commercial reality. Machine-generated cultural goods are not limited to information goods, such as music and visual arts. The advances in virtual reality and 3D printing further enhance the creative possibilities of AI systems. This enables them to enter the material world[21]. It is increasingly difficult to make a clear distinction between intangible goods created by humans, where AI-based technologies are merely tools (rather than the creators), and goods created fully autonomously by AI systems, in the absence of any human involvement in the creation of specific intellectual goods[22]. The traditional criterion for the division is the human contribution to the creation of such intangible goods. In practice, this division is no longer obvious[23]. AI systems capable of creating new and innovative solutions through combinations of machine learning

19 Cf.: Damian Flisak, „Wpływ rozwoju nowoczesnych technologii na proces stanowienia prawa w Polsce i wybranych państwach Unii Europejskiej" *Zeszyty Prawnicze BAS*, 3 (2019): 194-211.

20 Cf.: Anita B. Frohlich, „Copyright Infringement in the Internet Age – Primetime for Harmonized Conflict-of-Laws Rules?" *Berkeley Technology Law* Journal, 24 (2019): 851.

21 Christian Peukert, „The Next Wave of Digital Technological Change and the Cultural Industries" *Journal of Cultural Economics*, 43 (2019): 203-204.

22 James Grimmelmann, „Copyright for Literate Robots" *Iowa Law Review*, 101, nr 657 (2016).

23 Ewa Kurowska-Tober, Łukasz Czynienik, Magdalena Koniarska, „Aspekty prawne sztucznej inteligencji – zarys problematyki", [in:] *Prawo nowych technologii dane osobowe i cyberbezpieczeństwo, Internet i media, handel elektroniczny, prawo IT, technologie*, ed. Xsawery Konarski, addendum of *Monitor Prawniczy*, 21 (2019): 87.

algorithms constitute a key challenge to the established invention paradigm, providing automation at least in a part of the innovation process[24].

As the line between man-made and computer-generated works becomes blurred, disputes concerning the authorship of work become more and more likely[25]. The problem of determination of authorship is also due to collaboration between providers of software for AI systems and other providers of data for training AI systems and enabling them to perform specific creative tasks[26]. There are hybrid works created with the involvement of AI[27]. The current territorial system of intellectual property will therefore lead to a situation where a human being is considered a creator in one country, an AI system is considered a creator in another, and an intangible good will not be protected by law at all in yet another country.

Views on the creative activity of AI are varied. While some believe that the current intellectual property system can meet future challenges without major changes, others see the need for its comprehensive overhaul[28]. The doctrine emphasises that computer data processing can only imitate human creativity, which means that AI systems are not independently creative[29]. It is assumed that current AI systems only enhance human creativity[30]. Despite some degree of autonomy in their operation, they are a tool for humans.

24 Dragos-CristianVasilescu, Michael Filzmoser, „Machine Invention Systems: A (R)evolution of the Invention Process?" *AI & Society*, 36 (2021): 829-837.

25 Annemarie Bridy, „Coding Creativity: Copyright and the Artificially Intelligent Author", *Stanford Technology Law Review*, 5 (2012).

26 Toby Bond, Sarah Blair, „Artificial Intelligence & Copyright: Section 9(3) or Authorship without an Author" *Journal of Intellectual Property Law & Practice*, 14, no. 6 (2019): 423.

27 Markiewicz, „Sztuczna inteligencja i własność intelektualna", 1445.

28 Anne Lauber-Rönsberg, Swen Hetmank, „The Concept of Authorship and Inventorship Under Pressure: Does Artificial Intelligence Shift Paradigms?" *Journal of Intellectual Property Law & Practice*, 14, no. 7 (2019): 570-579; Andrés Guadamuz, „Do Androids Dream of Electric Copyright? Comparative Analysis of Originality in Artificial Intelligence Generated Work" *Intellectual Property Quarterly*, 2 (2017): 169-186; Jani Ihalainen, „Computer Creativity: Artificial Intelligence and Copyright" *Journal of Intellectual Property Law Practice* 13 (2018): 724-728.

29 Mihai Nadin, „Machine Intelligence: A Chimera" *AI & Society*, 34 (2019): 215-242.

30 Peukert, „The Next Wave of Digital Technological Change and the Cultural Industries", 202.

Artificial intelligence is unable to perform the basic functions outlined in copyright or invention law[31]. At this stage of technological development, AI systems have neither their own will nor their interest. Both rely on an original algorithm or software embedded by the creator of the machine. The goods created are the result of a technologically advanced information technology system[32]. The algorithms mimic the natural human creative process. The software analyses the implemented artwork and identifies the common elements that make up the style or language of a particular artist or type of artwork[33]. However, this leads to the following question: Is the claim that AI systems mimic human creativity valid? After all, these systems are unable to put a personal mark on their works[34]. The requirement of "creativity" or "originality" embodied in a work is a fundamental condition for the exercise of copyrights. However, a future revision of the views on the essence of creativity cannot be ruled out[35]. This will result in a breakdown of the principle that creative intellectual activity is inherent only in humans.

Sometimes the position becomes apparent that the issue of regulation of intellectual property created autonomously by AI should not be addressed at all. This is because providing legal protection to intellectual property will lead to a monopoly of corporations that massively create these goods[36]. Extending protection to creations of AI may appear to be a Trojan horse in the field of copyrights[37]. Adoption of such a position leads to the consideration that such works are a part of the public domain[38]. This solution is not only difficult to accept but, most importantly from the standpoint of the subject matter of this monograph, may not be accepted in the specific legal system that applies to a particular dispute concerning the creation of AI.

Of key importance is the determination of whether the AI system is acting fully autonomously (independently) when performing the assigned

31 Juściński, „Prawo autorskie w obliczu rozwoju sztucznej inteligencji", 44 ff.

32 Kurowska-Tober, Czynienik, Koniarska, „Aspekty prawne sztucznej inteligencji – zarys problematyki", 70.

33 Aleksandra Sewerynik, *Utwór muzyczny jako przedmiot prawa autorskiego* (Warsaw: C. H. Beck, 2020), 103.

34 Ibidem, 108.

35 *Prawo autorskie. System prawa prywatnego*, vol. 13, ed. Janusz Barta et al. (Warsaw: C. H. Beck, 2017), 88.

36 Ihalainen, „Computer Creativity: Artificial Intelligence and Copyright", 724-728.

37 Cf.: Markiewicz, *Sztuczna inteligencja i własność intelektualna*, 1454.

38 Kurowska-Tober, Czynienik, Koniarska, „Aspekty prawne sztucznej inteligencji – zarys problematyki", 88.

task. Autonomy is the fundamental feature that distinguishes an AI system from regular software (or, more broadly, computer system). Autonomy should be understood as goal-oriented, proactive behaviour initiated based on one's own intention[39]. The decisive criterion for the determination that the system acts autonomously, is its independence. Independence implies a lack of external control. A system that operates autonomously operates in a way that is independent of humans[40]. As pointed out in the literature, weak AI 'in business interactions operates autonomously in the sense that it has embedded self-learning algorithms that cause its actual position and actions to become autonomous and not subject, or subject to a limited extent, to control (usual follow-up) by individuals. A strong AI is one [...] that manifests self-cognitive abilities'[41]. According to another opinion, '[a] weak artificial intelligence is typically viewed as one that has the self-learning ability, operates autonomously, and is not under the full control of one or more individuals. A strong (general) artificial intelligence additionally has self-cognitive capabilities, that is, it has what is called self-awareness'[42]. It is also stated that '[a] strong AI, on the other hand, relies on networks modeled after the human brain. These systems process information that is not stored in a specific location but flows through the network, giving the system the ability to learn and consequently process unstructured information'.[43]

Who, therefore, should own the creative output of a fully autonomous AI system? No one? The author of the algorithm? The owner of the dataset that was used to train the algorithm? The owner of the hardware on which the AI system runs? The person who pressed the button that initiated the machine's creative process? Or perhaps the AI system itself?[44] Since current copyright law does not recognise artificial intelligence as an author, the

39 Cf.: Andrzej Krasuski, *Status prawny sztucznego agenta. Podstawy prawne zastosowania sztucznej inteligencji* (Warsaw: C. H. Beck, 2020), 56.

40 Ibidem.

41 Aleksander Chłopecki, *Sztuczna inteligencja – szkice prawnicze i futurologiczne* (Warsaw: C. H. Beck, 2018), 5.

42 Marcin Uliasz, „Sztuczna inteligencja jako sztuczna osoba prawna", [in:] *Sztuczna inteligencja, blockchain, cyberbezpieczeństwo oraz dane osobowe. Zagadnienia wybrane*, ed. Kinga Flaga-Gieruszyńska, Jacek Gołaczyński, Dariusz Szostek (Warsaw: C. H. Beck, 2019), 23.

43 Marlena Jankowska, „Podmiotowość prawna sztucznej inteligencji", [in:] *O czym mówią prawnicy, mówiąc o podmiotowości*, ed. Agnieszka Bielska-Brodziak, (Katowice: Wydawnictwo Uniwersytetu Śląskiego, 2015), 176.

44 Peukert, „The Next Wave of Digital Technological Change and the Cultural Industries", 204-205.

creations of AI do not have a creator in the legal sense. Given the foregoing, copyright in the objects so created is not vested in anyone[45].

One proposed way to solve the problem of the authorship of AI creations is the concept of indirect authorship. According to this theory, the copyrights in a computer-generated work should be vested into the author of the software (the programmer) under the assumption that the user has no creative input into the creation of the work[46]. Another entity that could be considered the author is the user of the AI system. This is justified by the direct participation in the process by which the software determines the final shape of the creative object. The action may also involve, for example, providing the hardware with the initial instructions[47]. The fundamental weakness of this solution is that there is no intervention in the creation process that is sufficient to satisfy the creative contribution requirement since AI-generated works are created without human influence and independently of human actions[48]. Concepts of co-authorship of the creations of artificial intelligence are rejected[49].

It is hard to agree with the position of some authors that the protection of AI inventions is less questionable[50]. The above problems can be illustrated with a well-known patent application where an AI system is identified as the inventor[51]. Patent offices, particularly the United States Patent and

45 Agata Konieczna, „Problematyka sztucznej inteligencji w świetle prawa autorskiego" *Zeszyty Naukowe Uniwersytetu Jagiellońskiego. Prace z Prawa Własności Intelektualnej*, 4 (2019): 104-116.

46 Janusz Barta, Ryszard Markiewicz, *Główne problemy prawa komputerowego* (Warsaw: Wydawnictwo Naukowo-Techniczne, 1993).

47 Juściński, „Prawo autorskie w obliczu rozwoju sztucznej inteligencji", 44 ff.

48 Ibidem.

49 Ibidem.

50 Markiewicz, „Sztuczna inteligencja i własność intelektualna", 1455.

51 At the end of 2018, precedent-setting patent applications were filed at the UK Intellectual Property Office (UKIPO, applications no. GB1816909.4 and GB1818161.0) and the European Patent Office (EPO, applications no. EP 18 275 163 and EP 18 275 174). They concerned solutions whose author, according to the applications, is an artificial intelligence system called DABUS (device for the autonomous bootstrapping of unified sentience). The inventor identified by the applicant was DABUS, a type of machine - artificial intelligence, from which the applicant obtained the patent right as its employer. The applicant indicated that the machine detected the premise of novelty of its own idea before any individual did. Consequently, the machine should be considered

Trademark Office, have granted patents for AI-generated inventions in the past. The difference, however, is that those patent applications indicated an individual as the inventor and there was no disclosure of who made the invention[52].

3. AI systems as consumers of content and objects of intellectual property

The issue of the intellectual property of AI is complex. It is not limited to the issue of intellectual goods created by AI systems[53]. Currently, the main practical problem is the use of creative data by AI systems for machine learning. Against the backdrop of the DSM Directive[54], the problem of copyright law in the data feeding AI and created by AI can be pointed at[55]. The exclusion of copyright protection in the case of processing data (e.g. works) by artificial intelligence algorithms is questionable from the standpoint of international law. It is uncertain whether the Directive will effectively facilitate the AI industry to take advantage of the potential of new technologies[56].

The doctrine also raises questions about cases where an artificial intelligence system copies the outcome of human creativity or the actions of another artificial intelligence system. As an entity without legal capacity, can

as the inventor and the applicant, as its owner, as the entity entitled to obtain the patent. Recognising machines as inventors will make it easier to protect the moral rights of human inventors and will also help establish and recognise the work of the creators of the machine. The application was, of course, rejected due to its failure to meet the formal requirements, i.e. to identify the actual inventor. In the Polish doctrine discussed in detail by Iga Białos in the following publication: „Sztuczna inteligencja i jej wynalazki – studium przypadku" *Zeszyty Naukowe Uniwersytetu Jagiellońskiego*, 1 (2020): 96.

52 Ibidem.

53 Markiewicz, „Sztuczna inteligencja i własność intelektualna", 1439.

54 Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC, Official Journal of the European Union, L 130/92, http://data.europa.eu/eli/dir/2019/790/oj.

55 The problem of text and data mining in the Directive is discussed in: Ryszard Markiewicz, *Ilustrowane prawo autorskie* (Warsaw: Wolters Kluwer, 2018), 605.

56 Cf.: Schafer, Komuves, Zatarain, Diver, „A Fourth Law of Robotics? Copyright and the Law and Ethics of Machine Co-Production", 220.

it be held liable, and if not, who will be held liable?[57] How will copyrights be regulated when robots are the "consumers" of content?[58] Ideally, AI systems should be designed to comply with intellectual property law by design[59]. Teaching AI systems intellectual property law is a serious challenge that, according to some scholars, can ultimately be met only by introducing a new law on the intellectual property of AI (e.g. a computational copyright law)[60].

Exclusive rights may be vested also to AI systems themselves as the results of human intellectual activity. The software constituting a part of AI systems is the object of copyrights[61]. AI systems can be the object of patent protection and know-how[62]. In the vast majority of cases, the use of AI systems requires the permission of the entities holding the rights, depending on the extent of the exclusivity granted by applicable law for a particular exclusive right[63].

4. AI in international intellectual property law

The issue of the emergence and protection of intellectual property rights from the perspective of AI is one of the most important conflict-of-law issues. This is due to technological change and the increased "flow" of and accessibility to intangible goods[64]. An increasing number of infringements related to intangible property take place using new technologies. The conflict-of-law regulations cover only a small range of them, and the approach of those regulations is general[65]. The situation is not improved by the existence

57 Machała, „Jeśli nie Rembrandt, to co? Perspektywy rozwoju prawa autorskiego w najbliższych kilkunastu latach", 76.

58 Shlomit Yanisky-Ravid, „Generating Rembrandt: Artificial Intelligence, Accountability and Copyright – The Human-Like Workers Are Already Here – A New Model" *Michigan State Law Review*, 2017.

59 Schafer, Komuves, Zatarain, Diver, "A Fourth Law of Robotics? Copyright and the Law and Ethics of Machine Co-Production", 217.

60 Ibidem, 220.

61 Aleksandra Auleytner, Marcin Stępień, „Dostęp do sztucznej inteligencji – równość i inne aspekty prawne dostępu do systemów sztucznej inteligencji", [in:] *Prawo nowych technologii dane osobowe i cyberbezpieczeństwo, Internet i media, handel elektroniczny, prawo IT, technologie*, ed. Xawery Konarski, addendum of *Monitor Prawniczy*, 21 (2019): 70.

62 Ibidem, 70-71.

63 Ibidem, 71.

64 Katarzyna Grzybczyk, „Rozdział XV. Prawo właściwe dla powstania i ochrony praw własności intelektualnej", [in:] *System prawa prywatnego*, vol. 20C, ed. Maksymilian Pazdan (Warsaw: C. H. Beck, 2015).

65 Ibidem.

of international legal instruments with a global reach of [66]. While the minimum level of protection of rights to intellectual goods is comparable in most countries and the statutory provisions are similar, there are significant differences when it comes to the qualification of AI-related intellectual property.

Artificial intelligence algorithms have a fundamental impact on the change in the way intellectual property rights are enforced[67]. The unlawful exploitation of protected goods can result in an infringement of intellectual property law in various countries. Therefore, the fundamental question is whether and on what grounds persons entitled to pursue claims should be authorised based on a single proper law (or a small number of potentially applicable legal systems).

A fundamental principle of intellectual property law is the so-called territorialism, reflected in most conflict-of-law statutes and international conventions. It is assumed that intellectual property law is a tool to serve the economic policy of the state, which is designed to regulate competition and provide an appropriate and adequate level of protection to all parties involved. With this rationale, it might seem that the conflict-of-law challenges posed by AI do not nullify the principle of territoriality of intellectual property rights and do not negate the social, cultural, political, and economic arguments that justify its use.[68] However, it is important to ask how the principle of territoriality can be viewed today when the infringement of intellectual property rights is committed in multiple countries and has been linked to artificial

66 Notably the 1886 Berne Convention for the Protection of Literary and Artistic Works, the Universal Copyright Convention, the 1883 Paris Convention for the Protection of Industrial Property, and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

67 Guido Noto La Diega, „The European Strategy on Robotics and Artificial Intelligence: Too Much Ethics, Too Little Security" *European Cybersecurity Journal*, 6 (2017): 11-16.

68 See for example: Wojciech Popiołek, „»Terytorializm« praw autorskich w nowej polskiej ustawie o prawie prywatnym międzynarodowym", [in:] *Spory o własność intelektualną: księga jubileuszowa dedykowana profesorom Januszowi Barcie i Ryszardowi Markiewiczowi*, ed. Andrzej Matlak, Sybilla Stanisławska-Kloc (Warsaw: Wolters Kluwer, 2013), 829 ff; Jürgen Basedow, „Foundations of Private International Law in Intellectual Property", [in:] *Intellectual Property in the Global Arena*, eds. Jürgen Basedow, Toshiyuki Kono, Axel Metzger (Tübingen: Mohr Siebeck, 2010).

intelligence[69]. There is a risk that the principle of territoriality of intellectual property rights will be abused[70].

Although the granting of intellectual property rights has been largely harmonised, international intellectual property treaties do not provide a mechanism for comprehensive assistance to owners in the effective protection of their rights at the international level.

The principle of territoriality implies that the protection of intellectual property rights should be governed by the law of the country in the territory in which protection is provided, in terms of both the scope and the means of protection, which results in the independence of such protection in each country. Such matters as the existence of a right, its content, its duration, and its expiration must be subject to the legal system of the country in the territory of which the rightsholder can exercise his or her exclusive rights, which is where the rightsholder can exclude others from exercising his or her right[71].

Territoriality remains the guiding principle for the international intellectual property regime. Territorial connecting factors are of crucial importance in the determination of the proper law and in asserting judicial jurisdiction in cases with foreign elements. While many disputes can be resolved by domestic courts applying national laws, the development of global business models and cross-border activities will pose challenges to the concept of territoriality in the future. Territoriality leads to high dispute resolution costs. In the absence of a unified international regulation, the principle of territoriality cannot be eliminated. Territorial limitations could be overcome, at least to some extent, if more emphasis is placed on strengthening institutional cooperation among the authorities of various countries.

The development of new technologies has led to situations that the creators and supporters of the principle of territorialism could not have foreseen. There is a growing number of cases in which it is difficult to clearly identify where intellectual property has been infringed upon or even created. More and more often, authors create works that are immediately distributed. Most legislation is not prepared for such a situation; moreover, this problem is also avoided by supranational regulations[72].

The alternative to territorialism is universalism. The universalism of rights emphasises a broader application of the law of the country of origin of

69 Graeme B. Dinwoodie, „Developing a Private International Intellectual Property Law: The Demise of Territoriality?" *William Mary Law Review*, 51 (2009): 711.

70 Mireille van Eechoud, *Choice of Law in Copyright and Related Rights: Alternatives to the Lex Protectionis* (The Hague: Wolters Kluwer, 2003).

71 Grzybczyk, „Rozdział XV. Prawo właściwe dla powstania i ochrony praw własności intelektualnej", 6.

72 Ibidem, 7.

the work. A universalistic system is more effective than a territorial system and can bring greater benefits to the development of the intellectual property. In addition, it provides a greater equality in the distribution of goods and contributes to a global standard of fairness. Full universalism, however, is a utopia. Allowing it on a limited basis, i.e. about authorship and the premises for the creation of the work, should be considered[73]. Currently, it should be assumed, under Article 46(1) of the Act on private international law, that the identification of the entity originally holding intellectual property rights is also subject to *legi loci protectionis*[74].

However, it seems that the proper law for these matters should be the law of the country of origin of the work since the author is the person who decides about the creation of the work, its shape, and its first release to the public. Because, due to technical capabilities, a public release often involves worldwide dissemination, there should be one clear and uniform starting point for the use or exercise of a right. According to this approach, the same person should always be considered the author of a particular work, regardless of the legal system involved. Such a guarantee is possible only if it is assumed that the proper law for the determination of the author is the law of the country of origin, thus avoiding a situation where authorship of one work is attributed to different persons in different countries. An identification of the author is equivalent to an identification of the person who holds the author's moral rights. The country-of-origin principle results in the fact that no matter where the work is exploited, the authorship of the work remains unchanged and that authorship does not need to be verified when 'crossing' national borders.

5. The need to revise conflict-of-law rules for intellectual property infringements

When resolving international disputes, the Rome II Regulation is most relevant for the determination of the proper law. Article 8 of the Rome

73 Rafał Sikorski, „Prawo właściwe dla naruszeń praw własnosci intelektualnej w świetle postanowień rozporządzenia Rzym II", [in:] *Europejskie prawo procesowe cywilne i kolizyjne*, ed. Paweł Grzegorczyk, Karol Weitz (Warsaw: Wolters Kluwer, 2012), 1005 ff.

74 See: judgment of the Supreme Court of 15 September 2011, II CSK 572/10, LEX no. 1055020, and the preceding judgment of the Administrative Court in Łódź of 14 May 2010, I ACa 257/10, LEX no. 1129583. In that judgment, the Supreme Court stated that 'the law of the state that provides protection covers not only 'the scope of the protection, as well as the means of asserting it', but also all matters covered by the copyright statute, and thus also those involving an assessment of the emergence, content, and expiration of copyrights'.

II Regulation introduced a special proper law regime for non-contractual obligations arising from infringements of intellectual property rights. The conflict-of-law rules arising from Article 8 provide that the proper law is the law of the country for which protection is sought (*lex loci protectionis*) and that the parties are not free to choose the law.

As indicated in Recital 26 of the Rome II Regulation, the *lex loci protectionis* principle should be preserved and, for the purposes of the Regulation, the term 'intellectual property rights' should be interpreted broadly to include, among other things, copyrights, related rights, *sui generis* database protection rights, and industrial property rights.

Similarly, unlike the 1965 Act, the new Polish Act on international private law of 2011 contains provisions that specify the proper law for intellectual property rights, both copyrights, and industrial property rights[75].

Under Article 46(1) of the Act on international private law of 2011, 'the creation, content, and expiry of an intellectual property right shall be governed by the law of the country where the exercise of the right takes place'. This law also applies to 'the exercise of intellectual property rights and to the determination of the priority of such rights' (Article 46(2)). Furthermore, under Article 46(3) of the Act on international private law of 2011, 'the law of the country under whose law protection is sought shall be the proper law for the protection of intellectual property rights'. This regulation complements the provisions of the Rome II Regulation.

The advantage of the solution adopted in the Rome II Regulation is that it defines the scope of the tort statute. Article 15 defines the scope of application of the proper law. It includes, in particular: 1) the basis and extent of liability, including the designation of the persons who may be held liable for their acts; 2) the prerequisites for exemption from liability, its limitation, and co-responsibility; the existence, nature, and assessment of the damage or the method of its redress sought; 3) the measures that the court may take to prevent the infringement or damage, or to stop the infringement or damage, or to provide for redress, within the limits of the powers granted to the court under the procedural law applicable to it; 4) the issue of the transferability of claims for redress, including the admissibility of its inheritance; 5) the persons entitled to compensation for damages sustained personally; 6) the responsibility for the actions of other persons; and 7) the ways in which an obligation may expire, the statute of limitations, and the final dates, including the commencement, interruption, and suspension of a statute of limitations or final date.

75 Neither the Regulation nor the Polish Act distinguishes between copyright and industrial property issues. The regulation is uniform for both areas.

While it is true that the *lex loci protectionis* rule is generally accepted in conflict-of-law codifications as the best reflection of the principle of territoriality, it is not the only solution in international law. It does not provide the most appropriate solution in all possible cases. From the outset, it has been argued in the doctrine that the solutions adopted in Article 8 of the Rome II Regulation are too rigid[76]. The Rome II Regulation does not allow any flexibility in the determination of the proper law for non-contractual obligations arising from infringements of intellectual property rights. The rule of predictability and certainty of proper law has replaced other values. Maintaining such a rigid conflict-of-rule regime is not justified[77].

Article 8 of the Rome II Regulation adopts the principle that the law of the country under which protection is sought is the proper law (*lex loci protectionis*). Article 8(2) on the unitary EU intellectual property rights further clarifies this principle using the connecting factor of the place of infringement. The possibility for the parties to an obligation to choose the proper law was excluded (Article 8(3)). In addition, Article 13 extends the scope of application of Article 8 to sources of liability for infringement of intellectual property rights other than tort. In the case of infringements of intellectual property law, this specifically involves the return of unjustly obtained benefits.

The adoption of separate conflict-of-law rules in Article 8 of the Rome II Regulation means that the general rules for determination of the proper law for obligations arising from tort that result from Article 4 of that Regulation no longer apply[78]. They provide that the proper law is either the law of the place of direct damage (Article 4(1)) or the common personal law of the parties (Article 4(2)) and also enable courts to apply the escape clause that allows the application of yet another law (Article 4(3)). The general conflict-of--law rules also include Article 14 of the Rome II Regulation, which provides for the freedom of the parties to an obligation to choose the proper law. The application of this provision to intellectual property infringements was excluded, as already mentioned above, by Article 8(3) of the Regulation. None of these general conflict-of-laws principles applies to intellectual property infringements; in particular, the personal connections between the parties to an obligation and the specific legal area are irrelevant. Thus, in the case of intellectual property infringements, the conflict-of-law rules are more rigid, which is justified primarily by the territorial nature of intellectual property rights[79].

76 Kur, „Choice of Law and Intellectual Property Rights", 53.

77 de Vareilles-Sommières, „Rationale of the Exclusion of Choice of Law by the Parties in Articles 6(4) and 8(3) of Rome II Regulation", 66.

78 Haimo Schack, „The Law Applicable to Unregistered IP Rights After Rome II" *Ritsumeikan Law Review*, 26 (2009): 129.

79 James Fawcett, Paul Torremans, *International Property and Private International Law* (Oxford: Oxford University Press, 2011).

In the case of an obligation arising from an infringement of a uniform EU intellectual property law, the proper law for any matter not covered by a relevant EU instrument is the law of the country where the infringement took place (Article 8(2) of the Rome II Regulation). The connecting factor of the place of the infringement coincides with the connecting factor of the place of the tort (*locus delicti*), which is traditionally adopted to tort obligations. The question then arises as to whether the place of the infringement should be understood as the place of the perpetrator's actions or the place of the consequences of his conduct, in particular the place of the damage caused. In the context of artificial intelligence, it seems appropriate that Article 8(2) refers to the law of the country in which the event giving rise to the damage occurred, rather than the law of the place of the perpetrator's actions. It should be assumed that the place of infringement is the place of direct and substantial encroachment on uniform EU intellectual property laws. This concept, therefore, does not include indirect consequences of an infringement that takes place in another country.

Another solution is the introduction of a consolidation rule to reduce the number of possible proper laws. However, this may favour the rightsholder and make it easier for the rightsholder to successfully pursue claims for multi-state infringements[80]. However, failure to introduce such a rule will cause the laws protecting intellectual property rights to remain a dead letter in practice, e.g. when complex multi-state infringements using artificial intelligence algorithms take place. In the context of artificial intelligence, ubiquitous - multi-state (ubiquitous) infringements on intellectual property rights are becoming more important. This issue is quite important to contemporary legal transactions in digital networks[81].

The problem of multi-state infringements in the digital environment should be considered one of the greatest contemporary challenges for international private law. A multi-state or ubiquitous infringement is an infringement of intellectual property rights caused by a single act that has consequences in the territories of multiple countries. In the case of a multi-state infringement, the consequence of the application of the *lex loci protectionis* rule is the distributive (cumulative) jurisdiction of multiple national laws (a mosaic approach). The adverse consequence is fragmentation: the court must apply different laws and there are inevitable negative effects, such as longer proceedings and higher costs to the parties of the proceedings. Thus, the

80 Martin Husovec, „Injunctions Against Innocent Third Parties: Case of Website Blocking" *Journal of Intellectual Property, Information Technology and Electronic Commerce Law*, 4 (2013): 116 ff.

81 Marek Świerczyński, „Electronic Torts/Delicts in the Rome II Regulation", [in:] *Tort Law in Poland, Germany, and Europe,* ed. Bettina Heiderhoff, Grzegorz Żmij (Munich: Sellier, 2009), 176.

question arises whether it is not appropriate to seek to apply the law of only one country for the assessment of the entirety of the claims (concerning the territories of different countries).

What is important in practice is that in the case of multi-state infringements, it is particularly easy for courts to justify the jurisdiction of their domestic law, and the reference to the principle of territoriality, which is the foundation of intellectual property, is only a pretext for the adoption of its jurisdiction. In the case of new technologies, the principle of territorialism results in the application of *legis fori* due to the tendency of courts to locate infringements within their territory. The location (understood and justified in different ways) of AI algorithms within a particular country may lead the adjudicating body in a case to conclude that the exploitation of intellectual property is taking place in that country. This makes it easier to determine that the prohibited action occurred in its domicile country.

Difficulties in the determination of the proper law in multi-state infringements may also occur when the connecting factor of the conflict-of-law rule is the place of the infringement. This is the solution adopted for Community intellectual property laws in Article 8(2) of the Rome II Regulation.

In practice, the issue of multi-state infringements becomes apparent when intellectual property rights are exploited in the digital environment, e.g. when artificial intelligence algorithms process data protected by intellectual property laws on a mass scale (Big Data). The biggest concerns are concerned infringements that are global in nature. Thus, the problem of multi-site infringements should be considered real, at least when it comes to digital environments and artificial intelligence algorithms.

The need for an exception for multi-state infringements, especially when it comes to the digital environment, might seem obvious. The application of traditional conflict-of-law rules resulting in a 'mosaic' of proper laws (*mosaic approach*) is burdensome for rightsholders and entails high litigation costs. However, it should be recalled that the territoriality rule also serves to protect the interests of countries and users who make use of the objects of intellectual property rights. It is a part of a national economic policy. This argument applies to the digital environment as well. The application of a national intellectual property law to infringements committed abroad (which the consolidation rule leads to) means the extraterritorial application of that law.

Due to the difficulty in unifying the enforcement aspect of intellectual property law, a possible solution could be the adoption of uniform rules on international jurisdiction and proper law in AI-related areas.

De lege ferenda, it seems advisable to supplement the conflict-of-law provisions of the Rome II Regulation with an exception allowing the application of a single national law. The proposal is as follows.

The *lex loci protectionis* rule should continue to play a decisive role when it comes to the determination of the proper law for obligations related

to infringements of intellectual property rights. The rule enables compliance with the principle of territoriality on the international level. This assumption is not changed by the global nature of the exploitation of intangible goods, particularly in the digital environment. The conflict-of-law provision resulting from Article 8(1) of the Rome II Regulation must be regarded as correctly formulated.

In the case of national intellectual property rights, the introduction of a departure from the *lex loci protectionis* rule towards the freedom of choice of the law by the parties or the introduction of separate rules for multi-state infringements or the digital environment should be considered controversial. Rather than developing specific conflict-of-law rules of international private law, it is appropriate to adopt the *de minimis* rule known in substantive law about infringements of national intellectual property laws. This rule can be used in the case of multi-state infringements and the appearance of doubt about the location of the infringement in the context of the digital environment.

A more extensive set of conflict-of-law rules is possible when it comes to infringements of uniform Community intellectual property laws. This assumes that, for this type of intellectual property rights, the entire territory of the EU is a *locus protectionis*. Thus, regardless of which member state's law applies, it is always the *legis loci protectionis*. Therefore, the introduction of specific rules does not violate the principle of territoriality.

6. Summary and conclusions

The development of artificial intelligence raises questions about the future of the intellectual property system. Many of these questions refer to the foundation of this system, namely the principle of territoriality of intellectual property. The discussion in the literature focuses on such important issues as the creator's status in the context of works created with or by artificial intelligence. However, there is no in-depth reflection on the principles of determination of the proper law.

There is no doubt that the current global international property protection system, for which the Berne and Paris Conventions remain the cornerstones to this day, is in urgent need of revision. It is worth adding that even the TRIPS, which was adopted more recently, does not meet the challenges of modern times. The key challenge is the development of artificial intelligence technologies. Therefore, two solutions seem reasonable. The first is to engage in an international discussion about revising the TRIPS or enacting a new piece of international law that will define the legal framework for artificial intelligence. A future Council of Europe convention on artificial intelligence could clearly resolve the above issues. The second solution, whose positive effects would be felt primarily in EU member states, is to ensure the flexibility of the conflict-of-law rules under the Rome II Regulation. It also

seems advisable to supplement the conflict-of-law provisions of the Regulation with an exception allowing the application of a single national law for multi-state infringement.

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