MASARYK UNIVERSITY JOURNAL OF LAW AND TECHNOLOGY

VOLUME **15** | NUMBER **1** | SUMMER **2021** | ISSN **1802-5943**

PEER REVIEWED

CONTENTS:

www.mujlt.law.muni.cz

Masaryk University Journal of Law and Technology
issued by Institute of Law and Technology
Faculty of Law, Masaryk University
www.mujlt.law.muni.cz

Official Partner (Czech Republic)
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MASARYK UNIVERSITY JOURNAL OF
LAW AND TECHNOLOGY

VOLUME **15** | NUMBER **1** | SUMMER **2021**

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DOI 10.5817/MUJLT2021-1-1

EVERYTHING IS NOT AWESOME. A LEGO BRICK AS A 3D TRADEMARK

by

RAFAŁ SKIBICKI*

This paper discusses the reasoning of the trade mark protection of the flagship Lego products, the rectangular brick and the Lego minifigure, from the perspective of European Union trade mark system and the Polish legal system. This paper tries to answer two questions, on the basis of the discussed Lego cases and CJEU case law. Firstly, as I ask in the introduction, is trade mark protection an option for the products that were protected before with a patent? And, secondly, if the answer on the first question is positive, are there some legal obstacles other than these specified expressis verbis in trade mark law for obtaining such a protection? This paper is divided into eight parts. After the introduction, there is a brief history of the Lego company, its brick and its minifigure. It is mostly the story of their legal protection – from patents, through copyrights till trade marks. Third and fourth parts deal with the most important absolute grounds for refusal related to 3D marks – the lack distinctiveness and the necessity to obtain technical character. Fifth chapter traces back to the Lego story, but this time with focus on their more actual legal problems with trade mark law. in sixth and seventh chapters moving on to the second question posed above, the attention is put to the hidden monopoly effect of the trade mark and the public domain dylemma. Finally, in the eight chapter I drew the final conclusions. All these considerations are presented mostly with the use of doctrinal method with the addition of comparative approach of the Polish and CJEU case law.

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KEY WORDS

3D, Trade mark, Copyright, LEGO, Brick, Patent, Functionality, Non--conventional trade marks

1. INTRODUCTION

In 2014 LEGO became the largest toy company in the world.[1] Naturally this date is not a coincidence, it is the year when Lego company released their long awaited the Lego Movie, which hit the box office with astonishing $468 million revenue.[2] However, the most of Lego company revenues still come from typical Lego sets[3], from which Lego company (and, as was shown in the recent research, Lego investors on the second-hand market)[4] receives a significant portion of their income. But what is the most remarkable about Lego, is that they have been selling the same product since 1958, which would be impossible for Hasbro or Mattel, Lego's main competitors in the toy industry.[5] It is really phenomenal that one's sons or daughters can play with the same bricks and the same minifigures that their grandparents played with.

What is more, the Lego brick is also a unique object that carries within the evolution of worldwide intellectual property. Due to time limits of patent protection Lego has sought to keep their privileged position on the toy market by using all available aspects of the intellectual property system copyright, design law and finally trade marks)[6]. However, every action has its equal opposite reaction, therefore Lego company unleashed a series of legal proceedings across the globe. In other words, such a worldwide success would not be possible without the whole intellectual property protection system that the Lego company was and is using.

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1 Davidson, J. (2014) *Lego Is Now the Largest Toy Company in the World*. [online], Money. Available from: http://money.com/money/3268065/lego-largest-toy-company-mattel/ [Accessed 15 April 2019].

2 IMDB. (2019) *IMDb: the Lego Movie*. [online], IMDB. Available from: https://www.imdb.com/title/tt1490017/ [Accessed 15 April 2019].

3 LEGO, (2018) *Annual Report*, Billund: LEGO A/S. p.29, Available from: https://www.lego.com/en-us/aboutus/lego-group/annual-report [Accessed 15 April 2019].

4 Dobrynskaya, V. and Kishilova, J. (2018) *LEGO - the Toy of Smart Investors*. April, Available from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3291456 [Accessed 13 April 2019].

5 The Nacelle Company. (2018) the *Toys That Made Us, Season 2, Episode -1 LEGO*. [film] Available from: https://www.netflix.com/pl/title/80161497 [Accessed 26 March 2019].

6 Hunter, D. and Thomas, J. (2016) Lego and the system of intellectual property, 1955-2015, *Intellectual Property Quarterly*, 4, p. 1, Available from: https://ssrn.com/abstract=2743140 [Accessed 1 April 2019].

Nowadays the world is changing very fast and, in my opinion, the same happens to the Intellectual Property system. The boundaries between the various IP protection systems (patents, trade marks, copyrights, etc.) are increasingly blurred. It is due to a time limits of specific protection system. It should not be a surprise that every entrepreneur tries to maximise his profits. Therefore, when one protection system will expire (e.g. patents) its owners will try find another (e.g. copyright or trade mark). Examples of such products, just to mention those examined by CJEU, are many: Rubik's cube (it discovers intersections of trade marks and patents)[7], Brompton bicycle (patent and copyright)[8] or Trip-Trap chair (copyright and trade mark)[9]. In my paper I would like to address this issue, but, knowing that it is definitely a vast topic, to look on it mainly from the perspective of the most important absolute ground for refusal in trade mark law the distinctive character and the shape of goods necessary to obtain a technical result. Furthermore, when dealing with the intersections of patent and the trade mark laws, I will refer this issue to the public domain doctrine.

What is more, taking into consideration that example is better than percept, I would like to address this issue is in connection with the flagship Lego products – the rectangular brick and the Lego minifigure. Though the same issues were raised before the CJEU and the Polish Supreme Court in the cases of Lego brick trade mark, I will compare both verdicts with their legal surroundings – the EU trade mark regulations and the Polish law on trade marks. the Polish verdict could be especially interesting, because it was rendered on the eve of Polish accession to the EU, almost decade before CJEU Lego brick case. What is more, the Polish law thread was not yet widely discussed outside Poland.[10]

I would like to begin this paper with posing two questions that I would like to answer. Firstly, regarding the issue if trade mark protection isoption for at least some of the products that were protected before with a patent.

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[7] Judgment of 10 November 2016, Simba Toys GmbH & Co. KG v. EUIPO, C-30/15 P, ECLI:EU:C:2016:849.

[8] Judgment of 11 June 2020, SI, Brompton Bicycle Ltd v Chedech/Get2Get, C-833/18, ECLI:EU:C:2020:461.

[9] Judgment of 18 September 2014, Hauck GmbH & Co. KG v Stokke A/S and Others, C-205/13, ECLI:EU:C:2014:2233.

[10] See e.g. the only predeceasing approach to this topic: Brancusi L., (2016), the functionality of three-dimensional trade marks in the Polish practice, *Zeszyty Naukowe Uniwersytetu Jagiellońskiego , Prace z prawa własności intelektualnej*, (2(132)), pp. 20-31.

Secondly, if the answer for first question is positive, whether there be some legal obstacles other than written directly in trade mark law?

2. THE STORY OF LEGO AND ITS PROTECTION

It all begun on the 28th of January, 1958, when a tiny family company from Billund applied for a patent over a plastic brick with eight studs.[11] The name of this company – Lego – is abbreviation of the two Danish words "*leg godt*", which means "*play well*".[12] Some authors say that in Latin it means "*I put together*"[13], but it is not very likely that Ole Kirk Kristiansen, the founder of Lego company, was inspired by that.

Though the first Lego bricks were not different from the outside from their present form, they lacked one very important feature – they were hollow on the inside. It had a huge impact on their usability, because they stacked, but did not stick.[14] Every building created with them could easily fall apart. And that was a moment to innovate. so the game-changer for the Lego company were the tubes underneath the brick.[15] It allowed the Lego company to grant their toys better stability with more, how it was called later, "*clutch power*".[16]

Lego applied for patent protection for the standard brick with 8 studs in numerous countries including Denmark[17], the United Kingdom[18] and the United States, for which they received the US Patent no. 3,005,282 on the 24th of October, 1961[19].

It is hard to imagine that Lego registered their minifigures almost 20 years after applying for their first brick patent. They filed for their first minifigure patent in 1977, and did not launch the first set until 1978.[20]

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[11] Hunter, D. and Thomas, J. (2016) Lego and the system of intellectual property, 1955-2015, Intellectual Property Quarterly, 4, p. 1, Available from: https://ssrn.com/abstract=2743140 [Accessed 1 April 2019].

[12] Mortensen, T. F. (2017) the *LEGO Group History*, LEGO. [Online] Available from: https://www.lego.com/en-us/aboutus/lego-group/the_lego_history [Accessed 17 March 2019].

[13] National Geographic. (2011) *LEGO FACTS* [online] National Geographic. Available from: https://www.nationalgeographic.com.au/history/lego-facts.aspx [Accessed 18 March 2019].

[14] the Nacelle Company. (2018) the *Toys That Made Us, Season 2, Episode -1 LEGO*. [film] Available from: https://www.netflix.com/pl/title/80161497 [Accessed 26 March 2019].

[15] *Ibid.*

[16] *Ibid.*

[17] Christiansen, G. K. (1962) Denmark, Patent No. 92683.

[18] Christiansen, G. K. (1964) the United Kingdom, Patent No. 866577.

[19] Christiansen, G. K. (1961) US, Patent No. 3,005,282.

at the same time it was successfully registered in various countries like Denmark[21], the United Kingdom[22] and the United States[23].

But nothing lasts forever, especially patent protection, which has always been limited in time. Due to the expiration of patent for the standard brick in the late 1970s and early 1980s, Lego had to face their first crisis of intellectual property.[24] First of all, they tried using their copyright against their competitors and accusing them of unfair competition, but it proved rather ineffective.[25] Undoubtedly, it was one of the reasons that brought Lego to the trade mark protection. Another one was the trade mark's relative time limit, which allows the right holder to extend protection for subsequent ten years periods, theoretically indefinitely. Nevertheless, Lego chose a risky way to protect their products. Filing for the registration of a 3D trade mark consisting of the popular Lego brick caused many legal controversies, among which two took the main part. Distinctiveness of such a trade mark was the first, and technical functionality of the mark was the second.

3. COULD A BRICK BE DISTINCTIVE? THE DISTINCTIVE CHARACTER OF 3D TRADE MARKS

The most important feature of each trade mark is its distinctiveness. A mark consisting exclusively of a shape of goods will be protected only if such a shape is perceived not only as particular goods but also as a product source identifier[26]. It must identify the product and/or services in respect of which registration is applied for as originating from a particular undertaking, and thus to distinguish that product from those of other undertakings[27]. If a mark is devoid of distinctive character, the other

[20] Tran, A. (2018) *LEGO Minifigure Patents for Various Countries.* [online] TheBrickFan. Available from: https://www.thebrickfan.com/lego-minifigure-patents-for-various-countries/ [Accessed 1 April 2019].

[21] Christiansen and Al. (1980) Denmark, Patent No. 140394.

[22] Christiansen and Al. (1982) the United Kingdome, Patent No. 2006028

[23] Christiansen and Al. (1980) USA, Patent No. 4,205,482.

[24] Hunter, D. and Thomas, J. (2016) Lego and the system of intellectual property, 1955-2015, *Intellectual Property Quarterly*, 4, p. 6, Available from: https://ssrn.com/abstract=2743140 [Accessed 1 April 2019].

[25] *Ibid.*

[26] Kur A., Sentfleben M. (2017) *European Trade Mark Law. a Commentary*, Oxford: Oxford University Press, p. 149.

[27] EUIPO, Trade mark guidelines, Part B. Examination, Sec. 4. Absolute grounds for refusal, Chapter 3.Non-distinctive trade marks (Article 7(1)(b) EUTMR), 1. General Remarks.

absolute grounds for refusal will not be examined.[28] Neither the Polish Industrial Property Law[29] nor the previous Directive 2008/95/EC[30] precisely specify what the distinctive character is and to what extent a trade mark should have it. Art. 129[1](1)(2) of PIPL only indicates that the trade mark must be capable of distinguishing the goods for which it has been applied. This absolute ground for refusal is expressed a little bit differently that the one set out in the art. 7(1) (b) Regulation 2017/1001[31] and in the art. 4 (1) (b) of the current Directive 2015/2435[32]. They both state the same: trade marks which are devoid of any distinctive character shall not be registered. Consequently, it would seem that such a trade mark shall have at least a minimal amount of distinctive character.[33] It should also apply equally both to the Directive 2015/2435 (and before Directive 2008/95/EC) and Regulation 2017/1001,[34] and consequently, due to the need to interpret countries' acts in compliance with directives, the requirement of having at least a minimal distinctive character should also apply to Polish trade marks.[35]

In addition, the distinctive character must be "*assessed, first, by reference to the goods or services in respect of which registration has been sought and,*

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[28] Skubisz, R. and Mazurek, M. Względne podstawy odmowy udzielenia prawa ochronnego na znak towarowy (2017) In: Ryszard Skubisz (ed.) *System Prawa Prywatnego Tom 14B Prawo Własności Przemysłowej*. 2nd ed. Warszawa: C. H. Beck, p. 726.

[29] The act of 30 June 2000 - Industrial Property Law (Dz.U. z 2017 r. poz. 776, as amended), Poland. Warszawa. in Polish, hereinafter: PIPL.

[30] Directive 2008/95/EC of the European Parliament and of the Council of 22 October 2008 to approximate the laws of the Member States relating to trade marks, *Official Journal of the European Union* (OJ L 299/15) 8 November. Available from: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32008L0095 [Accessed 31 March 2019], hereinafter as Directive 2008/95/EC.

[31] Regulation (EU) 2017/1001 of the European Parliament and of the Council of 14 June 2017 on the European Union Trademark, *Official Journal of the European Union* (OJ L 154/1), 16 June. Available from: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32017R1001 [Accessed 31 March 2019], hereinafter as Regulation 2017/1001.

[32] Directive (EU) 2015/2436 of the European Parliament and of the Council of 16 December 2015 to approximate the laws of the Member States relating to trade marks, *Official Journal of the European Union* (OJ L 336/1), 23 December. Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32015L2436 [Accessed 31 March 2019], hereinafter as Directive 2015/2435.

[33] Judgment of 29 April 2004, Henkel KGaa v. OHIM, C-456/01 P, EU:C:2004:258, paragraph 42.

[34] Judgment of 19 September 2002, DKV Deutsche Krankenversicherung AG v. OHIM, C-104/00 P, EU: C:2002:506, paragraphs 13-25.

[35] Skubisz, R., (2015) the acquired distinctive character of a trade mark as a consequence of its use (grounds, dates and proof of use). *Białostockie Studia Prawnicze*, 19, p. 205, See also: Szczepanowska-Kozłowska, K., (2017) *Bezwzględne przeszkody rejestracji znaku towarowego,* In: Ryszard Skubisz (ed.) *System Prawa Prywatnego Tom 14B Prawo Własności Przemysłowej*. Warszawa: C. H. Beck, p. 669.

second, by reference to the perception of them by the relevant public"[36]. Furthermore, such a relevant public consists of consumers of the goods or services in question, who are reasonably well informed and reasonably observant and circumspect.[37] Even before joining the EU, Polish courts settled a similar case law. Among them the crucial role was played by the Polish Supreme Court, which pointed out in 2003 that a spatial trade mark would have the distinctive character when the average consumer in the ordinary course of business transactions would be able to individualize the product on the market in relation to a specific producer.[38]

That thought was the starting point in the reasoning of the CJEU, which assumed that "*only a mark which departs significantly from the norm or customs of the sector and thereby fulfils its essential function of indicating origin is not devoid of any distinctive character*"[39]. Otherwise, it will not be possible to grant a legal protection to the three-dimensional mark.[40]

However, it does not mean that stricter criteria than those used for other categories of marks should be applied when assessing whether a three--dimensional mark is distinctive[41]. in any event, it must be determined whether such a mark enables the average consumer to distinguish without particular consideration being given to the distinction between the goods concerned and those from other companies.[42]

As the above considerations show, the formulation of one general principle which makes it possible to clearly decide on the possession of the distinctive character by a 3D mark is almost impossible. It must be

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[36] Judgment of 24 May 2012, Chocoladefabriken Lindt & Sprüngli AG v OHIM, C-98/11 P, EU: C: 2012:307, paragraph 41.

[37] Judgment of 12 January 2006, Deutsche SiSi-Werke GmbH & Co. Betriebs KG v OHIM, C-173/04 P, EU:C:2006:20, paragraph 25.

[38] *"Kirkbi" A/S Billund v. Urząd Patentowy RP* (2003). III RN 240/01, Supreme Court.

[39] Judgment of 12 January 2006, Deutsche SiSi-Werke GmbH & Co. Betriebs KG v OHIM, C-173/04 P, EU:C:2006:20, paragraph 31. See also: Judgment of 7 October 2004, Mag Instrument Inc. v OHIM, C-136/02 P, EU:C:2004:592, paragraph 31; Judgment of 24 May 2012, Chocoladefabriken Lindt & Sprüngli AG v OHIM, C-98/11 P, EU: C: 2012:307, paragraph 36; and Judgment of 7 May 2015, Voss of Norway ASa v OHIM, C-445/13 P, EU:C:2015:303 , paragraph 91.

[40] Wojcieszko-Głuszko, E., (2010) Zdolność rejestrowa wspólnotowych przestrzennych znaków towarowych (przegląd orzecznictwa). *Zeszyty Naukowe Uniwersytetu Jagiellońskiego. Prace Z Prawa Własności Intelektualnej*, (4 (110)), pp. 131-155.

[41] Kur A., Sentfleben M., (2017) *European Trade Mark Law. a Commentary*, Oxford: Oxford University Press., p. 150.

[42] Judgment of 7 October 2004, Mag Instrument Inc. v OHIM, C-136/02 P, EU:C:2004:592, paragraph 32; See also: Judgment of 7 May 2015, Voss of Norway ASa v OHIM, C-445/13 P, EU:C:2015:303, paragraph 92.

assessed each time specifically, judging by the trade mark itself and by marked goods or services. What is more, under no circumstances is it possible to make a presumption of lack of distinctive character of a 3D mark. as CJEU stated already in Linde, Winward, Rado judgment, marks comprising shapes of goods should not be treated differently from other marks[43]. On the other hand, it must be noted that according to the CJEU case-law only a mark that "*departs significantly from the norms or customs of the sector and thereby fulfils its essential function of indicating origin, is not devoid of any distinctive character*"[44]. Thus, it may be said that the bar of distinctiveness is somehow set higher for 3D marks.

However, Lego brick as well as Lego minifigure meet the abovementioned criteria for distinctiveness set out by European law and practice. Both of them are easily recognised by reasonable consumers. It is even visible in the Polish or English language in which the particular type of bricks with studs on their surface are called Lego bricks, or simply Lego. The same goes for the Lego minifigure. Finally, it was also settled by CJEU verdicts[45] and OHIM decisions[46], that they have both become distinctive as a consequence of their usage, and therefore they could serve as the indication of the source of origin of the goods.[47]

Surprisingly, the Polish Supreme Court did not agree with the CJEU verdict on the distinctive character of a Lego brick. What is more, the Polish court was very categorical and stated that "*the spatial form that is a reflection of the commodity and conditioned solely by functional properties has no primary distinctiveness and cannot acquire the distinctiveness required for the registration of the trade mark*".[48] Thus, the Polish Supreme Court somehow mixed both lack of distinctiveness and functionality of Lego brick mark, as it excluded the possibility of acquiring distinctiveness through use of such a mark. It must be stated that the abovementioned judgement of Polish court based on the Act on Trade Marks of 31 January 1985 (hereinafter referred to as the TMA) which was in force until 21 August 2001 and which did not

[43] Judgment of 8 April 2003, joined cases Linde AG, Winward Industries Inc., Rado Uhren AG, C-53/01 to C-55/01, EU:C:2003:206.

[44] Judgment of 12 February 2004, Henkel v. OHIM, C-218/01 P, EU:C:2004:88, paragraph 52.

[45] Judgment of 14 September 2010, Lego Juris A/S v OHIM, C-48/09 P, EU:C:2010:516; Judgment of 16 June 2015, Best-Lock (Europe) Ltd v OHIM, T-395/14, EU:T:2015:380.

[46] Decision of 4 April 2014, Best-Lock (Europe) Ltd. v. LEGO Juris A/S, R 1896/2013-4; Decision of 10 July 2006, Best-Lock (Europe) Ltd. v. OHIM, R 856/2004-G.

[47] Judgment of 14 September 2010, Lego Juris A/S v OHIM, C-48/09 P, EU:C:2010:516, paragraph 40.

[48] "*Kirkbi" A/S Billund v. Urząd Patentowy RP* (2003). III RN 240/01, Supreme Court.

comprise any provisions for 3D signs with functional exemptions. at the same time, it did not contain provision letting marks acquire distinctiveness through use, but both legal doctrine and practice accepted such possibility[49]. Despite the fact that there were no special provisions dedicated to refusal of registration of 3D marks based on their functionality, it was considered that trade mark protection should always be refused due to the public interest if registration of such a mark impedes competition and, thus, descriptive signs, generic signs or signs carrying general information about goods, which were mostly to word signs, were such a signs which should be excluded from protection[50]. Since functional 3D marks were thought to aim to inform about functional features of a product, they could also be considered as devoid of distinctive character[51]. Thus, art. 7(2) of the TMA, which enumerated, inopen catalogue, cases of signs deprived of distinctive features, was commonly used to deny trade mark protection to 3D marks[52] and that is it also happened to Lego brick, despite the fact that, as European courts judged later, it did have distinctiveness. With all probability today the judgement of the Polish Supreme Court would be based on the exclusion of the protection of 3D marks consisting exclusively of a shape having essentially technical function such as Lego brick and not on its lack of distinctiveness.

4. A FUNCTIONAL PROBLEM OF THE "CLUTCH POWER"

Due to the patent past of the Lego brick and minifigure, the greatest threat for registering them as a trade mark was absolute ground for refusal called the sign which consists exclusively of goods necessary to obtain a technical result. It now exists almost in every jurisdiction, definitely including the Polish and EU trade mark systems. Till the 16th of March, 2019, the aforementioned absolute ground for refusal in PIPL was implementing Directive 2008/95/EC and thus was somewhat different than in the current Directive 2015/2435, as it was referring only to the shape of the sign, without even a single reference to another characteristic appearing in both the Directive 2015/2435 and the Regulation 2017/1001. Now, the difference

[49] Skubisz R., (1990) Prawo znaków towarowych. Komentarz, Warszawa: Wydawnictwo Prawnicze, p.33.

[50] Brancusi L., (2016), the functionality of three-dimensional trade marks in the Polish practice, *Prace z prawa własności intelektualnej*, (2(132)), pp. 20-31.

[51] *Ibid.*

[52] *Ibid.*

has been settled, and PIPL at last complies with the EU regulations. However, as mentioned above, it was not included in Polish law before the entry into force of PIPL but it did not prevent the Polish Supreme Court from the refusal of protection of the Lego brick.

To begin with, it is of utmost importance to settle ratio legis of this absolute grounds for refusal. It was indicated by the ECJ for the first time in case C-299/99, where it was emphasized that this ground for refusal is set to: "*prevent trade mark protection from granting its proprietor a monopoly on technical solutions or functional characteristics of a product which a user is likely to seek in the products of competitor*"[53]. Moreover, it is no coincidence that among all rights in the field of broadly understood industrial property law only trade mark protection can be extended for subsequent periods. It seems to be quite justified that by expressing such opinion, the ECJ wanted to draw attention to the different character of functions performed by trade marks in relation to functions of patents or industrial designs. However, it must be borne in mind that when a consumers actually perceive a shape of goods as a source identifier (and I do not have doubts that this is the case with the Lego brick) and they rely on this shape as a badge of origin when purchasing goods, they may be misled by identical or similar products stemming from another undertaking[54]. But, as will be mentioned later, Lego and others in similar situation may use other legal means to fight with such unfair competition.

Despite the fact that the CJEU interpreted the concept of a sign consisting exclusively of the shape of the goods necessary to obtain a technical result, it still arouses many controversies. According to the *Société de Produits Nestlé Sa v. Cadbury UK Ltd case "it must be interpreted as referring only to the manner in which the goods at issue function and it does not apply to the manner in which the goods are manufactured."*[55]. in other words, the production methods will not be relevant for the assessment of the product's properties either. However, there are two crucial words in art. 7(1)(e)(ii) EUTMR and "*technical*" is none of them. The words that are the most vague and the most powerful in the same time

[53] Judgment of 18 June 2002, Koninklijke Philips Electronics NV v Remington Consumer Products Ltd., C-299/99, EU:C:2002:377, paragraph 78.

[54] Kur A., Sentfleben M., (2017) European Trade Mark Law. a Commentary, Oxford: Oxford University Press. p. 158.

[55] Judgment of 16 September 2015, Société de Produits Nestlé Sa v. Cadbury UK Ltd., C-215/14, EU:C:2015:604, paragraph 46.

are "*exclusively*" and "*necessary*" and it has not changed since the Lego brick judgement.

When it comes to the word "*exclusively*", the CJEU confirmed in its Lego judgement that minor non-functional arbitrary elements in functional shape were irrelevant and they did not change the fact that the whole shape was exclusively functional[56]. at the same time, it was added that such a sign cannot be refused registration as a trade mark under that provision if the shape of the goods at issue incorporates a major non-functional element, such as a decorative or imaginative element which plays important role in the shape[57]. It must be stated that such approach of CJEU is considered as missing the fact that different degrees of functionality require different modes of trade mark protection[58]. Taking into account that nowadays design of products is so sophisticated that the border between functional and decorative elements of goods is more and more vague, the approach of CJEU should be more nuanced and deeper.

The word "*necessary*" also still needs clarification, despite the fact that CJEU approached this issue i.a. firstly in Philips and later in Lego judgements. as Lego tried to prove, the shape of their brick cannot be perceived as necessary, as there are alternative shapes using the same technical solution.[59] Thus, it is not the only shape possible to use. However, CJEU, in my opinion, incorrectly, stated firmly that the existence of alternative shapes with the same functionality alone cannot be sufficient to exclude the application of this grounds for refusal[60]. the CJEU argument was that the trade mark holder could prevent competition from using not only the same mark, i.e. the same shape of product, but also similar marks creating likelihood of confusion, i.e. many alternative shapes. However, there are other solutions to such a risk. Why not restrict the protection of such a 3D marks to only identical marks and not to similar ones as G. Dinwoodie suggests[61]?

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[56] Judgment of 14 September 2010, Lego Juris A/S v OHIM, C-48/09 P, EU:C:2010:516, paragraph 52.

[57] *Ibid*.

[58] Schober N., (2013), the Function of a Shape as an Absolute Ground for Refusal, IIC (44), pp. 35-62.

[59] Judgment of 14 September 2010, Lego Juris A/S v OHIM, C-48/09 P, EU:C:2010:516, paragraph 32.

[60] Judgment of 14 September 2010, Lego Juris A/S v OHIM, C-48/09 P, EU:C:2010:516, paragraph 54.

Establishing clear borders of the scope of the abovementioned grounds for refusal is even more important taking into consideration the fact that it is such a strong exclusion from protection that such functional marks cannot acquire distinctiveness through use under EU law, as may be derived from art. 3 (3) of Directive 2008/95/EC (in the new directive 2015/2436 it is Article 4 (4)) and in art. 7 (3) of Regulation 2017/1001. This rule was also confirmed by the CJEU in the rich case law[62].

All in all, this absolute ground for refusal is a reason why Lego brick trade mark was deemed invalid in many jurisdictions.[63] a similar justification (based in part on the ruling in abovementioned *Koninklijke Philips Electronics NV v. Remington Consumer Products Ltd case*) was also indicated by the Polish Supreme Court and the CJEU in the LEGO brick cases. the Polish Supreme Court stated that the interest of business entities requires the exemption from registration of such signs. Their registration would lead to monopolisation, which, in effect, would seriously and without a justification limit the activities of other entrepreneurs[64]. Such opinion was also shared by CJEU, because it is undoubtedly certain that entrepreneurs should not be allowed to use trade mark law for unlimited prolongation of exclusive rights regarding technical solutions.[65] It did not matter that Lego had tried hard to prove that the registration of 3D brick mark would not place competitors in a disadvantageous position[66].

Lego was not the only one to face this kind of a problem. Very often companies tried to protect their position in the market after the expiration of their patents, de facto registering their product as a three-dimensional

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[61] Dinwoodie G.B., (2020), Overlap and Redundancy in the Intellectual Property System: Trademark Always Loses, In: Austin G., Christie A., Kenyon A., Richardson M. (ed)., Across Intellectual Property: Essays in Honour of Sam Ricketson, Cambridge : Cambridge University Press, pp. 26-37.

[62] Judgment of 18 June 2002, Koninklijke Philips Electronics NV v Remington Consumer Products Ltd., C-299/99, EU:C:2002:377, paragraph 57. See also: Judgment of 14 September 2010, Lego Juris A/S v OHIM, C-48/09 P, EU:C:2010:516, paragraph 47; Judgment of 20 September 2007, Benetton Group Spa v G-Star International BV., C-371/06, EU:C:2007:542, paragraph 26.

[63] Nicotra, A., (2010) *Chapter 9. Hitting the bricks*. In: Christopher Heath, Anselm Kamperman Sanders *Landmark Intellectual Property Cases and Their Legacy.* Alphen aan den Rijn: Wolters Kluwer, pp. 135-180.

[64] *"Kirkbi" A/S Billund v. Urząd Patentowy RP* (2003). III RN 240/01, Supreme Court.

[65] Judgment of 24 May 2012, Chocoladefabriken Lindt & Sprüngli AG v OHIM, C-98/11 P, EU: C: 2012:307, paragraph 56.

[66] Judgment of 14 September 2010, Lego Juris A/S v OHIM, C-48/09 P, EU:C:2010:516, paragraph 30.

trade mark. Every time, even in Rubik's case[67] after the approval in first instance, CJEU expressly refused to use this institution for such a monopolistic purpose. The position of such enterprises on the market cannot be protected from competition by introducing faithful copies of the shape of the product to the market, which results from the application of the exact same solution. The registration of such a three-dimensional trade mark would grant such undertakings a monopoly on a given good or service. The case law emphasizes, however, that such violations may, if circumstances so require, be treated as acts of unfair competition.[68] Therefore, entrepreneurs are not left without legal protection. on the contrary – in such situations they often use competition law.

5. LEGO LEGAL BATTLES IN THE EU: MINIFIGURE AND THE LEGO BRICK

Both the Lego minifigure and the Lego brick have a very long trade mark history, but there is one serious difference between the two of then – CJEU upheld the Lego minifigure protection, while deprived the Lego brick of the trade mark protection.

Nevertheless, both of them had a serious patent history. While in the case of the Lego brick CJEU stated that "*protection of that shape as a trade mark once the patent has expired would considerably and permanently reduce the opportunity for other undertakings to use that technical solution*"[69], it was not a thing for Lego minifigure.

Furthermore, the General Court (hereinafter referred to as GC) and OHIM did not find any evidence for the technical functions, allowing the figure to be joined to the other building blocks.[70] Moreover, the functionality was not found in the graphical representation of the hand of Lego minifigure. All in all, as GC assumed, "*those elements cannot be held, either in view of the overall impression conveyed by the contested trade mark or as a result of the analysis of its constituent elements, to be the most important*

[67] Judgment of 10 November 2016, Simba Toys GmbH & Co. KG v EUIPO, C-30/15 P, EU:C:2016:849.

[68] Judgment of 14 September 2010, Lego Juris A/S v OHIM, C-48/09 P, EU:C:2010:516, paragraph 61.

[69] Judgment of 14 September 2010, Lego Juris A/S v OHIM, C-48/09 P, EU:C:2010:516, paragraph 46.

[70] Judgment of 16 June 2015, Best-Lock (Europe) Ltd v OHIM, T-395/14, EU:T:2015:380, paragraph 32.

elements of that mark".[71] These considerations were quite opposite to those regarding the Lego brick case. the CJEU found "*that the most important element of the sign composed of the Lego brick consists in the two rows of studs on the upper surface of that brick*" which led to the conclusion "*that with the sole exception of its colour, all the other elements of the sign constituted by that brick are also functional*".[72] as it can be seen, both courts had a different point of view on perceiving the graphic representation of those trade marks. GC pointed out that we should not seek the functionality which is not visible on the representation of a trade mark, but CJEU gone further. It did not limit the functionality to the trade mark representation, because if doing so, it would be a completely useless brick (with studs on the top, but without tubes underneath it could not stick together). What is more, it even assessed the technical functionality by comparing the Lego brick trade mark to the previous patents descriptions[73].

What is definitely worth mentioning is the relation of the Lego brick and the Lego minifigure, which in the eyes of the GC judges and OHIM experts "*had nothing in common with the mark at issue in those proceedings except for the fact that it was a toy produced by the same company*"[74]. at best, in my opinion, it is a slight misunderstanding, because they have a lot in common, they stick together on the basis of the same, once patented, mechanism. However, the Lego minifigure could be used or played with even without that mechanism. Its most important quality is its shape, yellow head, hands, legs and torso. It is possible to imagine a Lego minifigure without the "*clutch power*" and that would be impossible for the Lego brick, which without that feature would lose its utility. in other words, in Lego brick case we had a sign consisting "*exclusively*" of the shape of goods which was necessary to obtain a technical result, while in the case of the Lego minifigure it was not so clear.

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[71] *Op. cit.* paragraph 33.

[72] Judgment of 14 September 2010, Lego Juris A/S v OHIM, C-48/09 P, EU:C:2010:516, paragraph 73.

[73] *Op. cit.,* paragraph 85.

[74] Judgment of 16 June 2015, Best-Lock (Europe) Ltd v OHIM, T-395/14, EU:T:2015:380, paragraph 37.

6. THE HIDDEN MONOPOLY EFFECT OF THE LEGO BRICK TRADE MARK

Many similarities and two differences can be found between the two cases. First of them was mentioned above, the second one had a greater impact on verdicts of many courts across the globe – it is the monopoly effect of granting trade mark protection to Lego brick. Mostly, it was connected with the problem of the sign functionality, but sometimes it was also accompanied by the lack of distinctive character[75].

It was definitely the main obstacle for the Lego brick trade mark registration. What is more, it is not a rule explicitly expressed in the law. It had to be interpreted from the functionality absolute ground for refusal. as the Polish Supreme Court stated: "*the interest of participants in business transactions requires the exemption from registration of such signs, because their registration would lead to the monopolization of the use of these signs by individual entrepreneurs, which would result in a very serious and unjustified restriction of the activities of other entrepreneurs*"[76]. Then the CJEU stated: "*the interest underlying Article 7(1)(e)(ii) of Regulation No 40/94 is to prevent trade mark law granting undertaking a monopoly on technical solutions or functional characteristics of a product*"[77]. The same reasoning could be found in many other countries, for example in Canada, where the local Supreme Court stated: "*the law of trade marks may not be used to perpetuate monopoly rights enjoyed under now-expired patents. the market for these products is now open, free and competitive*"[78]. The worldwide trade mark law rule seems simple – trade mark should not protect goods once protected by expired patents.

It should not be forgotten that the Lego brick case happened in almost every country of the EU.[79] Lego lost everywhere, except for Hungary. as a consequence, this company became a monopolist in this segment of the toy market in the whole country.[80]

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[75] "*Kirkbi" A/S Billund v. Urząd Patentowy RP* (2003). III RN 240/01 Supreme Court.

[76] *Ibid.*

[77] Judgment of 14 September 2010, Lego Juris A/S v OHIM, C-48/09 P, EU:C:2010:516, paragraph 43.

[78] Kirkibi AG v. Ritvik Holdings Inc." (2005). 2005 SCC 65, [2005] 3 SCR 302.

[79] Nicotra, A., (2010) *Chapter 9. Hitting the bricks*. In: Christopher Heath, Anselm Kamperman Sanders *Landmark Intellectual Property Cases and Their Legacy.* Alphen aan den Rijn: Wolters Kluwer, pp. 170-175.

[80] *Op. cit.* p. 166.

7. IS THE DOCTRINE OF PUBLIC DOMAINOBSTACLE FOR REGISTERING 3D TRADE MARKS?

It must be noted that Lego cases touched upon the issue of the relation between intellectual property rights and public domain. in my opinion, the actions of Lego aiming at obtaining trade mark protection for their products were quite similar to those regarding the Gustav Vigeland sculptures belonging to the public domain which Oslo Municipality tried to register as trade marks. The Norwegian Intellectual Property Office rejected such applications on the basis of public policy (art. 3(1)(f) of Directive 2008/95/EC), which was upheld by EFTA Court, that stated the registration of such a sign could be refused "*if the sign consists exclusively of a work pertaining to the public domain and if registration of this sign would constitute a genuine and sufficiently serious threat to a fundamental interest of society*"[81].

Could the same reasoning be applied in the Lego brick case? One can argue that both Lego brick and the Vigeland's sculptures were once protected by intellectual property right that has expired, so now both of them should find their place in the public domain. What is more, this argument could also be strengthened withad maiori ad minus argumentation, due to a fact that copyright protections (ad maiori part) is longer than the patent protection (ad minus part). Therefore as it may seem, it is justified by a fact that patents, more than copyright, should provide incentive for a new production[82]. Furthermore, the patent protection gives enough time to protect goods from competition but it should not eliminate the competition for eternity. After patent expiration, the invention should become the part of the public domain in the name of technical and human development.

On the other hand, there is a difference in public policy between absolute ground for refusal regarding the cultural goods such as sculptures or paintings and absolute grounds for refusal in relation with products. The risk of monopoly in toy business is a serious thing, but not every time it would be "*genuine and sufficiently serious threat to a fundamental interest of society*".

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[81] Judgment of 6 April 2017, Municipality of Oslo, E-5/16, paragraph 102.

[82] Bently, L., Sherman B., Gangjee D., Johnson P., (2018). *Intellectual Property Law, 5th edition.* Oxford: Oxford University Press. p. 398.

Therefore, in my opinion, Patent and Trade Mark Offices and courts should take into account the possible impact of the pending trade mark registration on the public domain. If the trade mark registration will have the same impact as the previous, expired patent, that belongs to a public domain, the registration should be declined on the basis of public policies and in the name of protecting the public domain.

Nonetheless, I am aware that this task is not so easy. to begin with, due to a territorial scope of the IP rights, there is not one public domain, but there are separate public domains in each country. It means that. especially when discussing the EU trade marks, there are 27 (excluding United Kingdom) public domains that should be taken into account. so while examining the trade mark applications, all of this state patents should be examined.

To sum up, the IP rights overlaps should be resolved with the deep analysis of the subject matter, with particular emphasis on the scope and the purpose of the applicable rights and freedoms[83]. All in all, the courts and the patent offices should act in the registration process as a guardians of the public domain in the benefit of the society[84].

8. SUMMARY

The title of this chapter was extracted on purpose from "*Everything is awesome*", title song from "*The Lego Movie*" mentioned in the introduction. It could surely be the anthem of Lego's legal actions to protect its intellectual property. Unfortunately for the Lego company, the line "*Everything is better when we stick together. Side by side, you and I gonna win forever, let's party forever*"[85] was stopped in the middle by the verdicts of courts which prevented Lego from winning forever. Nevertheless, the legal story of Lego brick and Lego minifigure is quite unique, because, as Hunter and Thomas noted: "*it has evolved with the global intellectual property system, it has learnt how to make all the laws snap together, to build a fabulously successful and valuable creation*"[86].

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[83] Peukert A., Doctrine of the Public Domain (2016). Forthcoming in: Josef Drexl (ed), the Innovation Society and Intellectual Property, EIPIN Series, Edward Elgar Publishing, Available at SSRN: https://ssrn.com/abstract=2713757 or http://dx.doi.org/10.2139/ssrn.2713757, marg. 35.

[84] *Op. cit.* marg. 38.

[85] Sara, Q., Tegan, Q. and the Lonely Island, (2017). EVERYTHING IS AWESOME!!!. [sound recording].

What is more, looking at the Lego brick cases (judged both by Polish Supreme Court and the CJEU), the evolution of case law on the distinctiveness and the technical function could also be observed. First of all, the spatial form, formerly based on expired patent, could be distinctive both originally and by acquiring dinstinctiveness[87]. Though, it is more difficult for the spatial form to be considered distinctive than other, more "*standard*" (i.e. graphic or word marks) trade marks, because it must "*depart significantly from the norms or customs of the sectors*"[88]. Secondly, there is also the issue of the necessity of using the shape applied for trade mark protection to obtain a technical result, preventing the rightsholder from obtaining a proprietor monopoly on a technical solutions[89]. When the registration will lead to such a monopoly connected with the unlimited prolongation of exclusive rights (e.g. patents) it should be denied.

All things considered, answering briefly on the first question posed in the introduction, it must be stated that the trade mark protection for such products, formerly protected by patents, could be given, though under two conditions fulfilled together: first, distinctiveness of such a shape which could be achieved by its significant departure from the norms or customs of the sector and the fact that registration will not give the applicant a technical monopoly, similar to the one he had so far thanks to the expired patent.

However, not only those two requirements should stand in a way of registering the 3D trade mark that was protected in past by patent. Not only the thread of creating monopoly should be taken into consideration while examining the application for such a trade mark, but also its impact on the public domain. Those arguments are, in my opinion, connected as in their core they have the same goal – they should not stop the technical development. Both courts and patent and trademark offices should bear in mind this idea while deciding about registration or cancelation.

Those arguments are especially visible when comparing the Lego brick and the Lego minifigure cases. Why was the first trade mark rejected, while the second one was upheld? The reason for it are the competitors

[86] Hunter D., Thomas J., *31 Lego Brick* (2019) In: Claudy Op Den Kamp and Dan Hunter (ed.) a *History of Intellectual Property in 50 objects*. Cambridge: Cambridge University Press, p. 263.

[87] Judgment of 14 September 2010, Lego Juris A/S v OHIM, C-48/09 P, EU:C:2010:516, paragraph 40.

[88] Judgment of 12 February 2004, Henkel v. OHIM, C-218/01 P, EU:C:2004:88, paragraph 52.

[89] Judgment of 18 June 2002, Koninklijke Philips Electronics NV v Remington Consumer Products Ltd., C-299/99, EU:C:2002:377, paragraph 78.

of the Lego company as it was possible for them to create their own minifigures (as e.g. Cobi, Megablocks or Bestlock did), but it would be impossible to continue their business activity without the possibility to use the same basic brick that Lego created.

To sum up, it seems that there are many safeguards that should not be removed while discussing the protection of 3D trade marks such as Lego brick or minifigure. If the current law is applied strictly and in line with well-established case law, the danger of the extension of expired patent protection in disguise of as a trade mark will be minimal. Thanks to that, the trade mark protection can be awesome once more.

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DOI 10.5817/MUJLT2021-1-2

SEEKING COMPATIBILITY IN PREVENTING CRIME WITH ARTIFICIAL INTELLIGENCE AND ENSURING A FAIR TRIAL*

by

KELLY BLOUNT**

The justice system is increasingly reliant on new technologies such as artificial intelligence (AI). In the field of criminal law this also extends to the methods utilized by police for preventing crime. Though policing is not explicitly covered by Article 6 of the European Convention of Human Rights, this article will demonstrate that there can be adverse effects of policing on fair trial rights and make the analogy to criminal investigations as a recognized pre-trial process. Specifically, it will argue that policing that relies on AI to predict crime has direct effects on fair trial processes such as the equality of arms, the presumption of innocence, and the right to confront the evidence produced against a defendant. It will conclude by challenging the notion that AI is always an appropriate tool for legal processes.

KEY WORDS

Artificial Intelligence, Fair Trial, European Convention on Human Rights, Predictive Policing

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1. INTRODUCTION

A reliance on artificial intelligence (AI) to support judicial procedures has expanded into wider applications of criminal law and extends increasingly into crime prevention. Just as AI is advocated as streamlining trial processes, its proponents claim that its use for policing may promote more effective crime control and efficient management of police resources. This article argues that though much of policing occurs outside the official scope of pre-judicial processes, the fair administration of an adversarial criminal trial is directly affected by policing practices supported by the use of AI.

The article will progress this argument in two parts. the first part will describe the integration of AI into crime prevention, namely through the practice of predictive policing. This section will identify and describe some of the attributes of predictive policing that due to the integration of AI, may cause a fairness deficiency for criminal defendants in later trial processes. It will be demonstrated that some characteristics of predictive policing may alter generally accepted practices, such as by increasing bias and weakening the standard of reasonable suspicion. The second part of the article will address how the previously described effects may have the consequence of obscuring the clarity of trial procedures, specifically hindering the equality of arms and the presumption of innocence. This section will conclude by determining that using AI for the prevention of crime is not necessarily incompatible with the notion of a fair trial, but that the current practice of prioritizing technological efficiency over procedural rights presents clear dangers to the application of criminal justice.

Finally, this article will offer the observation that judicial processes are normatively affected by technology at both the policing stage as well as in subsequent criminal proceedings. the interplay of numerous police processes determines the circumstances in which an arrest is appropriate, whereas it is the role of the court to determine when the elements of an offense are met. Further, it will posit that the use of AI for preventing crime upends these processes and proves incongruous with the causality centered nature of criminal law.[1] The article concludes with the suggestion that by hastily inserting AI into police and trial practices which are not

[1] Quattrocolo, S. (2019) An Introduction to AI and Criminal Justice in Europe. *Revista Brasileira de Direito Processual Penal*, 5 (3), pp. 1519–54 p. 1526.

designed to accommodate the increasing role of technology, we inadvertently redefine the law and our relationship with the judiciary.

2. PREVENTING CRIME WITH AI: PREDICTIVE POLICING

The use of AI for legal and procedural processes is not at all novel to the field of criminal law. Many criminal justice systems have incorporated the automation of these processes to assist decision making, namely in the form of risk assessments. Examples of their use span from the Ministry of Justice in Estonia,[2] to determining recidivism in Canada.[3] Similarly, the United States has become quite advanced in its use of automated decision making for processes such as setting bail and determining criminal sentences.[4] Subsequently, the shift toward predictive policing is a logical next step in better streamlining legal processes that affect criminal justice from the early policing stage.

Predictive policing is the *use of historical and real time data to forecast*[5] the *risk that a location or individual is likely to be the center of a crime event, to which police agencies may choose how to purposefully divert their resources, in lieu of some other unknown threat*.[6] The term has become notorious for its use in the United States, where large jurisdictions such as New York City and Los Angeles are subject to policing by algorithm via companies like PredPol and Palantir.[7] Its use is also increasing in the United Kingdom, France, the Netherlands, and Germany with ongoing testing and implementation of predictive policing programs.[8] The methods used

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2 Niiler, E. (2019) Can AI Be a Fair Judge in Court? Estonia Thinks So. *Wired*, 25 March.

3 Christian, G. (2020) Artificial Intelligence, Algorithmic Racism and the Canadian Criminal Justice System. *Slaw*, 26 October.

4 Kehl, D. et al. (2017) Algorithms in the Criminal Justice System: Assessing the Use of Risk Assessments in Sentencing. Harvard Law School: Berkman Klein Center for Internet & Society, pp. 13-15.

5 Forecasting is a scientific term (indicating reproducible and objective). Prediction is a more colloquial term also utilized by law enforcement. No distinction is intended between the terms in this article. *See* Perry W. et al. (2013) *Predictive Policing: the Role of Crime Forecasting in Law Enforcement Operations*. Santa Monica: RAND Corporation, p. 1.

6 Hardyns, W. and Rummens, A. (2018) Predictive Policing as a New Tool for Law Enforcement? Recent Developments and Challenges. *European Journal on Criminal Policy and Research*, 24, pp. 201–18, p. 200-215; *see also* Jansen, F. (2018) Data Driven Policing in the Context of Europe, Working Paper. Cardiff University: DATAJUSTICE, 7 May, pp. 7-8; *also*, Ferguson, A.G. (2017) Policing Predictive Policing. *Washington University Law Review*, 94 (5), pp. 1109-1189 p. 1125.

7 Haskins, C. (2019) Dozens of Cities Have Secretly Experimented With Predictive Policing Software. *Vice*, 6 February.

8 Jansen, F. Data Driven Policing in the Context of Europe, pp. 7-8.

in Europe differ from their American counterparts, in large part due to stricter laws on data protection and a generally less intrusive approach to crime prevention. Regardless, the underlying theory of crime prediction and automated procedures remain the same.

The theories underlying predictive policing mirror those of seismology and epistemology, wherein analyzing the distribution of an event's attributes may make the occurrence of similar events more predictable. Numerous other criminological theories on the modes and drivers of criminal behavior also inform predictive policing and fall under an umbrella concept termed the 'environmental approach' in which environmental factors are analyzed for a correlation with crime. Often these theories are applied at the micro-level, identifying specific areas of a neighborhood that make a particular crime more likely to occur. Previous, heuristic approaches included the analysis of a map for factors considered obviously conducive to crime, such as main thoroughfares or twenty-four hour establishments. These characteristics may be logically connected to crimes of opportunity, allowing police to increase patrols with the aim of thwarting crime. as this approach is well established, this article argues that it is instead the addition of AI to predictive policing that has made its use much more efficient and arguably less compatible with existing legal procedures. [9] With AI it is possible to correlate a multitude of otherwise unrelated factors that are not easily comparable or reconcilable. Such an algorithm is notable in its ability to perform quick calculations in real-time, but also to quantify and compare seemingly unrelated data points.[10] Therefore, the more data used, the more accurate predictions of crime may be.

If this seems like a straightforward and objective method for preventing crime, in theory it is. However there are two caveats, among many, which must herein be acknowledged.[11] One being that the relationship between each of the analyzed factors, or data points, is completely correlative. Therefore there is no way to attribute causation between any one factor and the occurrence of crime. For example, by noting that the presence

[9] *See* Park, R. et al. (1925) *The City*. University of Chicago Press.

[10] For an explanation of algorithmic processing, *see* Lehr, D. and Ohm, P. (2017) Playing with the Data: What Legal Scholars Should Learn About Machine Learning. *U.C. Davis Law Review* 51 (2), pp. 653–718, p. 669; *also* Witten, I. and Frank, E. (2005) *Data Mining, Practical Machine Learning Tools and Techniques*, 2nd Ed. Elsevier, p. 83.

[11] *See* Aleš Završnik (2019) Algorithmic Justice: Algorithms and Big Data in Criminal Justice Settings. *European Journal of Criminology*.

of a streetlight is relevant to individual instances of vandalism, it cannot be inferred with any certainty the effect that the light alone has on crime. Instead, the factors are all correlated in some way that together make a particular outcome more likely.[12] As a result, even if it was possible to determine causation, it would be impossible to pinpoint what role exactly each factor plays relative to the others in making crime more likely.

A second caveat to predictive policing regards the actual predictive output of these programs. Predictive software function via algorithms trained to produce a numeric value that represents the probability a particular crime will occur in a particular time and place, based on known information. the term 'prediction' should not be mistaken for a definitive or near-definitive forecast of a crime's occurrence, but rather a probability.[13] As the software is continually processing a never-ending feed of real-time data, only the outputs which indicate the most probable instances of crime are notable or actionable. Predictive policing therefore operates according to relative probabilities. The reasons for one area being designated at a higher risk of crime are not known to the officer, only the probability of crime occurring relative to elsewhere. This lack of context or explainability may cause a prediction to appear arbitrary and can require the blind trust of a patrolling officer. Regardless, police may use the tool to sort for the areas which they rank most at risk for crime and allocate resources accordingly.[14]

2.1 REGULATION AND ARTIFICIAL INTELLIGENCE

Currently there are not comprehensive bodies of regulation applicable to the varying uses of AI and certain sectors dominate the move toward regulation. Increasingly, recommendations are established to provide the best strategy for developing a certification process for the use of AI. Of these, a number of specific recommendations are ubiquitous, such as transparency and explainability, however the path to enforcement is unclear. The EU High Level Expert Group on Artificial Intelligence has also drafted guidelines for trustworthy AI, which include beneficence, non-

[12] Pasquinelli, M. (2019) How a Machine Learns and Fails - a Grammar of Error for Artificial Intelligence. *Journal for Digital Cultures*, Spectres of AI (5), pp. 8-9.

[13] For an explanation of how AI functions, *see* Osoba, O. and Welser, W. (2017) *An Intelligence in Our Image: the Risks of Bias and Errors in Artificial Intelligence*. Santa Monica: RAND Corporation, pp. 4-7.

[14] Lau, T. (2020) *Predictive Policing Explained*. New York: Brennan Center for Justice, 1 April.

-maleficence, autonomy, justice, and explicability.[15] Such recommendations, though important for policymaking, are often crafted in the context of private or commercial industry which prioritize AI's effectiveness in producing a statistically accurate outcome. Though such guidelines also theoretically apply to criminal law, they are not devised to meet the particular demands of servicing justice. In the case of criminal law it is not only the technical accuracy of the technology which must be assessed, but also the appropriateness of its use in the criminal justice process.

Predictive policing is a statistical methodology, calculated through the advanced scientific discipline of AI. However despite the objective nature of these calculations, there are numerous ways in which the actual outcomes used for policing are both subjective and scientifically incomplete.[16] The following sub-sections will illustrate two ways in which a reliance on AI may negatively impact the results of predictive policing; entrenching bias and the weakening of the reasonable suspicion standard.

2.2 ENTRENCHING BIAS

One of the most cited reasons for adopting predictive policing software is the perceived objectivity of using statistical analysis to guide police patrols.[17] Jurisdictions subject to accusations of biased and discriminatory policing have claimed that the use of analytical tools allow unbiased policing practices to overcome traditional weaknesses.[18] This logic, though appealing and maybe possible in a world of perfect information, has been largely discounted on account of the inherent human role in policing and the reliance of predictive policing on crime data. This sub-section will discuss the importance of data to predictive policing before explaining how its role in preventing crime entrenches bias.

For predictive policing to be comprehensive and accurate, large up to date datasets are required. Data on such a scale are subject to numerous collection methods, value judgments, and vulnerabilities to error, such as duplicity and lack of currency.[19] As the tool that extracts predictions from

[15] European Commission High Level Expert Group on Artificial Intelligence (2019) *Draft Ethics Guidelines for Trustworthy AI*, p. 5.

[16] Haggerty, K. and Ericson, R. (1997) *Policing the Risk Society*. University of Toronto Press.

[17] Perry W. et al. *Predictive Policing: the Role of Crime Forecasting in Law Enforcement Operations*, pp. 57-80.

[18] Osoba and Welser, *An Intelligence in Our Image*, p. 17.

[19] Meijer, A. and Wessels, M. (2019) Predictive Policing: Review of Benefits and Drawbacks. *International Journal of Public Administration*, 42 (12), pp. 1031–39, pp. 1035-1037.

various data, the quality of an algorithmic assessment may only be as accurate as the quality of the data. In using huge amounts of data from myriad sources, it is easy to imagine how a single error may cause incorrect correlations that are then replicated, shared, and again manipulated, treating the initial error as genuine data. Because the nature of an algorithm is self-sufficiency, even a small error has the potential to affect all future predictive outputs.[20] These processes bury errors deep within a dataset, making them extremely difficult to trace and correct. In addition, because most algorithmic processing constantly adapts via machine learning, the route by which input data become output data is nearly impossible to clearly trace.[21] Therefore even if the error is identified it may be impossible to dissect it from the calculation. The resulting algorithmic processes are no longer transparent to human users, forming what is known as the "*black box of AI*." This opaque format of calculations easily exacerbates, and is exacerbated by, any potential data errors.[22] An error as seemingly innocuous as inverting a house number could cause ripple effects for predictive policing.[23]

Of the numerous types of data used for predictive policing, historic crime data are without a doubt the most important. Crime data are not only subject to collection error, but their content may also be inherently flawed. Within crime statistics, a crime's location and time are intrinsic to determining the factors relevant to future crime. This is problematic for two reasons. The first reason is the general lack of accuracy in historic crime data, due to human error, inconsistency, and incomplete information.[24] These shortcomings may be grouped as selection bias. Even were we able to assume that crime statistics are compiled without error, it still remains the case that crime is recorded as interpreted by individual police officers in different jurisdictions. This means that discretion over what constitutes a crime, how it may be acted upon or pursued, or even categorized, are

[20] Gstrein, O.J. et al. (2019) Ethical, Legal and Social Challenges of Predictive Policing. *Catolica Law Review*, 3 (3), pp. 77–98.

[21] *See* Witten and Frank, *Data Mining, Practical Machine Learning Tools and Techniques*.

[22] Perry W. et al. *Predictive Policing: the Role of Crime Forecasting in Law Enforcement Operations*, p. 36.

[23] Richardson, R. et al. (2019) Dirty Data, Bad Predictions: How Civil Rights Violations Impact Police Data, Predictive Policing Systems, and Justice. *New York University Law Review*, 94, pp. 192–233, pp. 40-43.

[24] *Ibid.; see also* Lum, C. and Koper, C. (2017) *Evidence-Based Policing; Translating Research into Practice.* Oxford University Press.

recorded with variation.[25] Studies of policing consistently show that individual police biases are overwhelmingly present in policing data as a result of professional discretion.[26] This emphasizes the point that crime data reflect individual policing decisions on how and where to pursue crime, rather than actual criminal acts.[27] Data are further selective in that not all crimes are reported to police, further limiting the accuracy of such statistics.

The second problematic aspect of using historic crime data is bias as relates to discrimination. Even if an algorithm functions perfectly and the collection process is flawless, data reflecting consciously or unconsciously biased police practices will cause a biased prediction.[28] Data similarly reflect racially motivated arrests or ethnic profiling. In addition, even where may data may be accurate, the types of correlations which may be applicable in one location or circumstance will not apply equally in others nor will these relationships remain steady over time. Similarly, because the future likelihood of a crime is regarded as reflective of past crime, the behaviors and traits of former arrestees will be reflected in the data as a group. As an algorithm infers correlations between data, the use of biased arrests as genuine indicators of crime will cause the production of biased inferences even in the absence of overtly biased data. This type of bad data is immune to corrective measures such as anonymization and minimization, due to the sophistication of AI.[29]

For these two reasons, it is nearly impossible that a statistical calculation can be fully objective, despite the empirical accuracy of the software and the due care of its developers. It is clear that the algorithmic necessity of comprehensive data may conversely also act to lessen accuracy and even cause overtly discriminatory policing. Though the theories which underlie predictive policing may hold valuable insights into preventing crime and provide a great practical benefit to policing agencies, algorithmic processing does not escape the human error its use is intended to circumvent.

[25] Brantingham, J. et al. (2018) Does Predictive Policing Lead to Biased Arrests? Results From a Randomized Controlled Trial. *Statistics and Public Policy,* 5 (1), pp. 1–6.

[26] Law Society Commission on the Use of Algorithms in the Justice System and the Law Society of England and Wales (2019) *Algorithms in the Criminal Justice System*. United Kingdom: the Law Society, pp. 17-21.

[27] Lum, K. and Isaac, W. (2016) to Predict and Serve? *Significance*, 7 October, p. 3.

[28] Richardson, R. et al. Dirty Data, Bad Predictions: How Civil Rights Violations Impact Police Data, Predictive Policing Systems, and Justice.

[29] Barocas, S. and Selbst, A. (2016) Big Data's Disparate Impact. *California Law Review*, 104 (3), pp. 671–732, pp. 714-723.

the inverse process will be discussed below; the use of predictive outputs by police when applying the reasonable suspicion standard.

2.3. WEAKENING THE REASONABLE SUSPICION STANDARD

The standard of reasonable suspicion requires police officers who are engaged in the stop of an individual to rely on the existence of "*facts or information which would satisfy an objective observer that the person concerned may have committed [the] offence*," based on the known facts of a given situation.[30] Through this standard individuals should theoretically be able to interact with police on equal footing with others similarly situated. For example, in the course of a traditional patrol an officer may observe irregular behavior which due to context may lead most objective individuals to believe a stop is warranted. in applying the reasonable suspicion standard to a policing action that utilizes predictive analysis, there are several points at which the interaction is altered from the traditional application of the standard. Most notably, the integration of AI alters the circumstances such that the officer is no longer merely an objective observer.[31] Several of the most impactful aspects of AI on the standard are discussed herein, such as the use of advanced information, the determination of high crime areas, and forming individualized suspicion.

At its core, the reasonable suspicion standard relates back to the individual discretion of an officer, based on his/her professional evaluation of a situation. the intended equity afforded by this formulation should in theory dictate that any two individuals behaving in a similar manner in the same area, at the same time of day, should be viewed in a similar light by an observing officer. Therefore, it may be expected that in a general sense there is a parity of information between the observer and observed.[32] However it is with the inclusion of advanced information that the context changes for the officer and he/she may come to treat individuals differently.[33] With the infusion of large data sets into policing and the enhanced sorting capabilities of AI, reasonable suspicion technically

[30] *Ilgar Mammadov v. Azerbaijan* (2014) No. 15172/13, ECHR. pp. 21 at ¶88; *See also* Barrett, L. (2017) Reasonably Suspicious Algorithms: Predictive Policing at the United States Border. *N.Y.U. Review of Law & Social Change*, 41 (3), p. 331.

[31] Ferguson, A.G. (2012) Predictive Policing and Reasonable Suspicion. *Emory Law Journal*, 62 (259), pp. 261–325, pp. 303-305.

[32] Brennan-Marquez, K. (2017) 'Plausible Cause': Explanatory Standards in the Age of Powerful Machines. *Vanderbilt Law Review,* 70 (4), pp. 1249–1301, pp. 1258-1265.

[33] Ferguson, A.G. (2015) Big Data and Predictive Reasonable Suspicion. *University of Pennsylvania Law Review,* 163 (2), pp. 327–410, p. 326.

may be generated based on unobservable characteristics of an individual or location. in other words, the circumstances of an observation are no longer an equal exchange between the officer and the observed individual, but rather the officer may base his observation of the situation in the context of privileged information obtained by advanced technological methods.[34] As a result, the officer may have information that allows him to infer that noncriminal behavior of a particular individual has suspicious motive, based on supra-contextual data.[35]

Another way in which the reasonable suspicion standard is altered by predictive policing is the designation of 'high crime' areas. As predictive policing is based on a sorting of relative risks, applying analyses to patrols may result in a "*denominator problem*".[36] That is, though a particular neighborhood may have an elevated probability of crime, it is only prioritized for patrol according to its risk relative to other areas. the identification of such areas on a chronic, ongoing basis may cause a conferring of the label of 'high crime.' These designated locations are considered to be at a consistently elevated risk for crime in general, but often also particular types of crime.[37] Though it has been considered academically, the weight of a high crime designation has not been legally determined for the purposes of forming reasonable suspicion. in addition to the fact that police may infer innocent behavior to be suspicious as a result of location, they are subsequently more likely to spend extra time in these areas and statistically more likely to issue arrests. This is referred to as a feedback loop, in which increased policing of an area increases arrests, in turn fueling the future algorithmic assessment of a high crime area.[38] This has the effect of not only causing a mis-application of the reasonable suspicion standard, but also the targeting of individuals fitting a particular profile, affecting both individual and group rights.

[34] Joh, E. (2014) Policing by Numbers: Big Data and the Fourth Amendment. *Washington Law Review,* 89, pp. 35–68, p. 55.

[35] Ferguson, A.G. (2015) Big Data and Predictive Reasonable Suspicion. *University of Pennsylvania Law Review,* 163 (2), pp. 327–410, pp. 398-404.

[36] Ferguson, A.G. (2012) Predictive Policing and Reasonable Suspicion. *Emory Law Journal*, 62 (259), pp. 261–325, p. 300.

[37] Ferguson, A.G. (2011) Crime Mapping and the Fourth Amendment: Redrawing 'High-Crime Areas.' *Hastings Law Journal*, 63 (1), pp. 179–232, p. 203.

[38] Barrett, L. (2017) Reasonably Suspicious Algorithms: Predictive Policing at the United States Border, p. 337.

Dependence on predictive outputs can be misleading and cause over--policing in one place while allowing only a dearth of resources for others.[39]

Finally, forming individualized suspicion is the very essence of the reasonable suspicion standard. However it is easy to see how an officer may infer additional information from a predictive analysis. Though a geographic profile or high crime determination is insufficient basis for a police stop, it may inform the officer's perception of the context.[40] As predictive analyses are based on the comparative correlations between representative or proxy data,[41] an overreliance on predictive analyses overemphasizes the importance of a general profile according to the relationship represented by data, rather than actual information itself.[42] The composition of a risk profile is therefore not predicated on the individual and his/her actions, but rather attributes undue weight to an algorithmic assessment of the context. This not only excludes an individual assessment, but may even lessen an officer's ability to view an individual objectively.

The application of predictive analyses to police patrols reveals an overestimation of the ability of AI to align with existing standards of criminal justice. Though forming reasonable suspicion still requires an officer to act as an objective observer, it is nearly impossible for him to also separate outside knowledge of a situation in such a way that does not risk projecting a general profile onto individuals. As predictive analyses center on general profiles, this indicates little of an individual. Like all other policing actions, those taken in reliance on AI will be subject to scrutiny in later trial processes, the topic of the second section of this paper.

3. FAIR TRIAL PROCEDURES

This article argues that using AI to prevent crime has the potential to drastically decrease the likelihood that a criminal defendant will receive a fair trial. Specifically, because the ability of an individual to present a successful defense in many aspects relates directly back to the origins

[39] Završnik, A. (2020) Criminal Justice, Artificial Intelligence Systems, and Human Rights. *ERA Forum*, 20, pp. 567–83, p. 575.

[40] Ferguson, A.G. (2012) Predictive Policing and Reasonable Suspicion, p. 306.

[41] Harcourt, B. (2015) Risk as a Proxy for Race: the Dangers of Risk Assessment. *Federal Sentencing Reporter,* 27 (4), pp. 237–43, pp. 237-239. *See also*, Gless, S. (2018) Predictive Policing - in Defense of 'True Positives. In Bayamlioglu, E., et al. (eds.) *Being Profiled: Cogitas Ergo Sum; 10 Years of Profiling the European Citizen*. pp. 76–83, p. 80.

[42] Joh, E. Policing by Numbers: Big Data and the Fourth Amendment, pp. 40-42.

of an arrest or charge, policing decisions must also comply with standards of fairness. As the preceding section illustrates, the means of forming predictive policing analyses, as well as the subsequent use of that information, alter the balance of power between the individual and police. This imbalance is carried through to the trial stage and may manifest as advantageous to the prosecution.

The principle of a fair trial is formally articulated in Article 6 of the European Convention on Human Rights (ECHR).[43] Though the fair trial components as codified in Article 6 generally apply to processes subsequent to a charge, their application is clearly affected much earlier. Because the consequences of predictive policing arguably hold equivalent practical value to the fairness and outcome of trial procedures, it should be required to meet the standards of formalized pre-trial processes, namely criminal investigation.[44] By way of example, if a search and seizure subsequent to arrest was challenged for legitimate grounds, an officer will be required to account for his actions and the decisions made leading up to the arrest. In the same scenario, if the results of a predictive analysis were produced as supporting evidence for the arrest, it would be necessary to make accessible the predictive analysis' composition, input, output, and the grounds for its subsequent use as a source of intelligence in order to satisfy a comparable level of accountability. For reasons already discussed, this level of information may not be available in the case of a predictive analysis. This section will therefore analyze several components of a fair trial to determine whether altered predictive policing methods as described above are compatible with Article 6 requisites.

The following sub-section will begin by discussing the concept of the equality of arms, which provides the standards for ensuring a procedural balance between the parties to a trial. It will then analyze the effects of predictive policing on applying the equality of arms, specifically as regards maintaining the presumption of innocence and the ability to confront contradictory evidence. Ultimately, the section will conclude that the proper implementation of these fair trial processes is hindered by the inherent complexity of AI and its effect on policing.

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[43] *The European Convention on Human Rights*, 1952.

[44] *See* Wasek-Wiaderek, M. (2000) the *Principle of "Equality of Arms" in Criminal Procedure under Article 6 of the European Convention on Human Rights and Its Functions in Criminal Justice of Selected European Countries.* Leuven University Press, pp. 19-22.

3.1 EQUALITY OF ARMS

The principle of the equality of arms refers to upholding various aspects of procedural fairness between parties in judicial processes.[45] Though a criminal charge *prima facie* implies that the charging authority has reason to suspect an individual is guilty, trial procedures must apply to parties equally and impartially.[46] Criminal trials are conducted according to the adversarial, or contradictory principle, which allows each party a reasonable opportunity to make its case, through the presentation of supportive evidence and witnesses, as well as the ability to challenge opposing evidence and witnesses.[47]

The notion of equality is not absolute, but rather refers to a legal fiction establishing the relative placement of the parties before the court to ensure certain procedures are guaranteed and that there is no substantial, procedural disadvantage to either party.[48] Though these protections are explicitly applied to trial processes, the ECtHR has also extended these rights to pre-trial procedures.[49] This paper argues that because a lack of transparency in police practices subsequent to criminal proceedings make it virtually impossible to ensure that the fair trial tenets can be fairly respected, police practices may be incongruous with the equality of arms and therefore should be considered to fall within the scope of Article 6 pre-trial procedures. The following sub-sections will address two precepts of the equality of arms: the presumption of innocence and the right to confront evidence. as will be established, these too are affected by the use of AI in predictive policing and greatly alter the balance of a fair trial.

3.2. PRESUMPTION OF INNOCENCE

Enshrined in Article 6.2 ECHR, the presumption of innocence dictates that "*everyone is entitled to a fair and public hearing within a reasonable time*

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[45] Vitkauskas, D. and Dikov, G. (2017) *Protecting the Right to a Fair Trial Under the European Convention on Human Rights; A Handbook for Legal Practitioners*. 2nd ed. Council of Europe, pp. 60-65 c*iting, Ruiz-Mateos v. Spain*. *See also*, Silveira, J.T. (2015) Equality of Arms as a Standard of Fair Trials. Vilnius, 15 May.

[46] Campbell, L. (2013) Criminal Labels, the European Convention on Human Rights And the Presumption of Innocence. *The Modern Law Review*, 76 (4), pp. 681-707, p. 16. *See also* de Jong, F. and van Lent, L. (2016) the Presumption of Innocence as a Counterfactual Principle. *Utrecht Law Review,* 12 (1), pp. 32–49, p. 34.

[47] Silveira, "Equality of Arms as a Standard of Fair Trials."

[48] *Regner v. the Czech Republic* (2017) No. 35289/11, ECHR.

[49] Campbell, "Criminal Labels, the European Convention on Human Rights And the Presumption of Innocence."

by an independent and impartial tribunal established by law".[50] The presumption is initiated following the issuance of a criminal charge and applies until such time a guilty verdict is rendered.[51] It further attaches the burden of proof to the prosecution and generally requires that no state official or authority may publicly imply the guilt of the accused while the investigation or trial pends.[52] An important component of the equality of arms principle, the presumption further ensures fairness[53] between parties by recognizing that the ability of the state as moving party is often stronger than that of an individual.[54] The presumption therefore acts as a very important counter-weight to the dominant powers of the state in building a criminal case and aims to foster impartial processes.[55] When the presumption is weakened, the balance of power may shift toward the state at the expense of individual autonomy. Though the Convention explicitly ties the presumption's application to trial processes, legal scholars as well as the ECtHR have also approached it with an expanded view. As a result, this section discusses the two main interpretations of the presumption; the subjective, or normative approach, and the stricter doctrinal approach. [56]

According to the subjective approach, the presumption is based around a moral core intended to protect the integrity of the trial process.[57] This notion holds that any deprivation of liberty to the innocent is a miscarriage of justice and should be as limited as possible.[58] The limitation though not absolute, applies to pre-trial procedures such as pre-trial detention and

[50] *The European Convention on Human Rights.* (1952) Article 6.2.

[51] Vitkauskas and Dikov, *Protecting the Right to a Fair Trial Under the European Convention on Human Rights; A Handbook for Legal Practitioners*, pp. 113-116.

[52] "The presumption of innocence does not have any cognitive pretensions but prescribes the hypothetical starting point of due process." *See* Van Sliedregt, E. (2009) A Contemporary Reflection on the Presumption of Innocence. *Revue internationale de droit penal*, 80 (1), pp. 247-267, p. 264; *See also*, Galetta, A. (2013) the Changing Nature of the Presumption of Innocence in Today's Surveillance Societies: Rewrite Human Rights or Regulate the Use of Surveillance Technologies? *European Journal of Law and Technology*, 4 (2).

[53] *See Pataki & Dunshirn v. Austria* (1963) No. 596/59 and 789/60, ECHR.

[54] Ashworth, A. (2006) Four Threats to the Presumption of Innocence. the *International Journal of Evidence & Proof*, 10, pp. 241–79, pp. 249-250.

[55] de Jong, F. and van Lent, L. the Presumption of Innocence as a Counterfactual Principle, p. 35.

[56] *See* Ellis, A. and Allenbaugh, M. (2020) INSIGHT: Does Presumption of Innocence Preclude Use of Acquitted Conduct at Sentencing? *Bloomberg Law*, 31 January.

[57] de Jong, F. and van Lent, L. the Presumption of Innocence as a Counterfactual Principle, p. 35.

[58] Mendola, M. (2016) One Step Further in the 'Surveillance Society': the Case of Predictive Policing. Adv. LL.M. *Leiden University Tech and Law Center*, pp. 11-12.

criminal investigations. Analogous to an investigation, an individual deemed by predictive analysis to be in a class of persons likely to commit a crime *de facto* becomes subject to investigative measures, even in the absence of a formal charge.[59] The use of pre-emptive crime control then expands the category of suspect, a label which like defendant, brings a degree of deprivation of liberty as well as other unavoidable forms of treatment to which an innocent person is not subjected. to apply the presumption to the suspect of a formal investigation but preclude an individual who may be similarly treated by police for a lesser cause is inconsistent in effect. Extending the protections conferred by Article 6.2 from formal investigations to predictive policing would thereby better fulfill the normative rationale of the presumption.

According to the doctrinal approach which ties the presumption to procedural specifications, the ECtHR has held that the presumption of innocence "*does not only apply in the context of pending criminal proceedings. It also protects individuals who have been acquitted of a criminal charge, or in respect of whom criminal proceedings have been discontinued*"[60]. This formulation not only maintains the strength of the presumption as a functional protection beyond the trial, but also acts to guard an individual's reputation.[61] This has at times been achieved by invoking alternate legal frameworks such as the Article 8 right to private life, further demonstrating the Court's inclination to maintain the presumption in these extended instances.[62] As confirmed in *Cleve v. Germany, the* Court held that "*the protection afforded by the presumption of innocence ceases only once an accused has properly been proved guilty of the offence charged with, which is never the case if he is acquitted*".[63]

Following an acquittal, the Court identifies violations of the presumption by distinguishing between passive utterances of suspicion and formal acts which indicate a refusal to accept one's

[59] Pamela Ferguson, P. (2016) the Presumption of Innocence and Its Role in the Criminal Process. *Criminal Law Forum*, 27, pp. 131–58, p. 141.

[60] *Cleve. v. Germany* (2015) No. 48144/09, ECHR.

[61] Council of Europe (2020) Guide on Article 6 of the European Convention on Human Rights; Right to a Fair Trial (Criminal Limb), p. 62, *citing Allen v. the United Kingdom*, 94.

[62] Galetta, A. (2013) the Changing Nature of the Presumption of Innocence in Today's Surveillance Societies: Rewrite Human Rights or Regulate the Use of Surveillance Technologies? *European Journal of Law and Technology*, 4 (2) *citing Sekanina v. Austria* (1993) No. 13126/87, ECHR.

[63] *Cleve. v. Germany,* pp. 9, *41.*

innocence.[64] In the case of *S. and Marper v. the United Kingdom*, in which the question regarded retaining biometric information of acquitted parties for future database queries, the Court held that allowing the inclusion of acquitted individuals in a (criminal) DNA database "*enlarges the category of 'suspect*,'[65] and that this could not be considered necessary in light of the undue consequences on individuals' reputations.[66] The use of a static DNA sample for solving a crime requires proactively searching a database for a match in the aftermath of a crime. Applying the Court's judgment to predictive policing, in which historic crime data are actively and autonomously assessed for suspicion of unknown, un-committed crimes, the category of suspect is even further widened. Were the Court to address such an expanded use of acquitted individuals' data to form pre-emptive suspicion, it may reach an even more expanded reading of the presumption.[67]

The Court's strong approach to applying the presumption to post-acquittal treatment is notable for the case of predictive policing. Predictive analyses rely heavily on crime data that include and prioritize arrest records and non-custodial stops. Because crime data are static, an arrest once made will always be reflected as such in police records, regardless of the charge's formal disposition. Therefore if an individual is arrested and charged for a crime but is later acquitted, for the purposes of a predictive software using historical arrest data, the acquittal is irrelevant. as a result, the predictive use of historic crime statistics allows the inference that an acquitted individual will be algorithmically equated with one found guilty, all other factors constant. Indeed, data on prior offenders inform both geographic and individual predictive profiles, based on a calculated "*propensity to commit harmful behavior*".[68] It may be further inferred that previously acquitted individuals are more likely than the average person to be stopped

[64] *See* Campbell, L. (2012) A Rights-Based Analysis of DNA Retention. *Criminal Law Review*, 12, pp. 889-905, p. 7.

[65] The ECHR refers to this as the 'pérennisation de la catégorie de "suspect",' *see* Galetta, the Changing Nature of the Presumption of Innocence in Today's Surveillance Societies: Rewrite Human Rights or Regulate the Use of Surveillance Technologies?

[66] *S. and Marper v. United Kingdom* (2008) No. 30562/04 and 30566/04, ECHR. *See also* Galetta, *ibid*.

[67] *See* Campbell, L. Criminal Labels, the European Convention on Human Rights And the Presumption of Innocence, pp. 5-6, 21-23.

[68] *Ibid*. p. 25. *See also*, Mendola, M. One Step Further in the 'Surveillance Society': the Case of Predictive Policing, p. 15.

in the course of a predictive patrol.[69] The *Marper* Court held that to be treated as guilty after having been cleared of an offence may risk stigmatization.[70] This type of "*evidence-based*" stigmatization[71] further extends well beyond the criminal justice system into applications for jobs, housing, and credit.[72]

3.3. NORMATIVE EFFECTS

Finally, in considering the presumption the methodology behind predictive policing raises deeper questions as to the value of punishment. Punishment of criminal offenses varies in rationale, among the most widely accepted justifications for its use are deterrence, retribution, and providing an offender the opportunity for rehabilitation.[73] Each of these sanctions operate to serve a purpose and close the matter on the commission of an offence. In the case of rehabilitation, good faith investment in reform by both the state and an offender may be futile if the individual cannot overcome the stigma of a criminal record and truly reenter society.[74] Similarly, the principle of legal certainty provides that laws are clearly and publicly available, so as to ensure that no individual may be held accountable for violating a regulation which was not reasonably known to him.[75] If criminal sanctions do little to rebuild the name of the offender and an acquittal cannot protect him/her against undue future, pre-emptive suspicion, the value of punishment and legal certainty are arguably diminished.

As demonstrated, the presumption of innocence acts as a necessary 'shield' against undue state inference during and beyond the trial process. According to both the subjective and doctrinal approaches, predictive policing may constitute a violation of Article 6.2 due its reliance on historic crime data. Therefore in order to ensure the fairness of individual criminal trials, as well as maintain the core components of fairness in criminal justice,

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[69] Joh, E. Policing by Numbers: Big Data and the Fourth Amendment, p. 55.

[70] Mendola, M. One Step Further in the 'Surveillance Society': the Case of Predictive Policing, p. 15.

[71] Gstrein et al. Ethical, Legal and Social Challenges of Predictive Policing, p. 10.

[72] Amnesty International (2018) *Trapped in the Matrix: Secrecy, Stigma, and Bias in the Met's Gangs Database.* United Kingdom: Amnesty International, p. 20.

[73] Kehl, D. et al. (2017) *Algorithms in the Criminal Justice System: Assessing the Use of Risk Assessments in Sentencing*, pp. 13-15.

[74] *See* Ross Coomber et al., *Key Concepts in Crime and Society*, Key Concepts (Sage, 2014) pp. 160-164.

[75] Brennan-Marquez, K. (2017) 'Plausible Cause': Explanatory Standards in the Age of Powerful Machines, pp. 1288-1294.

the efficiencies of AI must be weighed against its inconsistencies, as illustrated by applying the presumption of innocence.

3.4. CONFRONTING EVIDENCE

According to Article 6 ECHR, in order to maintain procedural fairness it is additionally necessary that parties may confront the evidence and claims against them, as well as present evidence and witnesses in their defense.[76] The ECtHR has held that a lack of opportunity "*to have knowledge of and comment on the observations filed or evidence adduced by the other party*" may wrongly influence the outcome of a hearing, in nonconformity of the notion of an adversarial trial.[77] This right includes documentary evidence, such as digital files or data.[78] The ECtHR has further addressed not just the availability of evidence, but its *accessibility*, for instance when one party relies on advanced technology to sort evidence. in *Sigurdur Einarsson a. o. v. Iceland*, the Court held that a party must have adequate access to evidence and should not be forced to rely on a selection of information as determined by the prosecution. in this case the defendant alleged that he did not have full access to a file in which the prosecution had gathered extensive data acquired in an investigation pursuant to a search warrant. The prosecution searched and tagged the data for potential evidence and the information deemed relevant was submitted to the Court. the defendant however, was not granted access to the full body of data but was bound to the prosecution's determination of potentially exculpatory evidence. The Court held that the defense must have the opportunity to assess potential evidence in its entirety and that due to the complexity of the digital system utilized by the prosecution, the defense did not have adequate resources to prepare.[79] Therefore availability alone does not fulfill the Article 6 requirement to confrontation, but accessibility must also be ensured.

In the case of predictive policing, the very nature of AI obscures both the availability as well as the accessibility of evidence. Many of the algorithms used for predictive policing function via machine

[76] de Jong, F. and van Lent, L. the Presumption of Innocence as a Counterfactual Principle, pp. 34-35.

[77] *McMichael v. United Kingdom*, (1995) No. 16424/90, ECHR, 80.

[78] Završnik, A. Criminal Justice, Artificial Intelligence Systems, and Human Rights, p. 577 *citing Georgios Papageorgiou v. Greece* (2003) No. 59506/00, ECHR, 37.

[79] *Sigurdur Einarsson a. o. v. Iceland* (2019) No. 397517/15, ECHR.

learning, which acts autonomously of human decision making processes.[80] Though algorithmic code itself may initially be known to its programmers and theoretically interpretable by others, once in operation the continuous self-processing of machine learning permanently alters the original source code, resulting in the black box phenomenon.[81] This may present procedural complications to availability for an individual who is challenging police action predicated on the use of a predictive analysis. Unbeknownst to him, the individual may meet a profile particular specific to an area designated as "*high risk*", whereas the police may claim that their stop and arrest was predicated on an appropriately individualized reasonable suspicion. Should the individual wish to challenge the high risk designation forming the context in which his behavior appeared suspicious, as well as the details of a profile which he allegedly fit, it may be impossible for the police to satisfactorily provide the output and composition of the analysis.[82] Further, even were it provable that a risk assessment is accurate beyond reproach, there is no way to prove that the input data were accurate and unbiased.[83] In addition, it is likely that neither the judge nor the prosecutor understands the utilized technology.[84] This not only presents an obstacle to the defendant challenging evidence, but also casts a veil of obscurity over the entire trial process. Therefore several layers of opacity stand in the way of a comprehensive criminal defense when evidence is produced or manipulated by AI.

Further contributing to the unavailability of predictive policing data, many software programs are held closely by proprietors as trade secrets.[85] In jurisdictions such as the United States where the issue has frequently arose in court, judges will honor and protect a company's legal right to conceal critical elements of predictive policing software deemed as intellectual property. Therefore, original code and subsequent algorithmic processing are non-discoverable due to their legally protected

[80] Roth, A. (2017) Machine Testimony. the *Yale Law Journal*, 126, pp. 1972–2053, pp. 1978-1979.

[81] *See* Pasquinelli, How a Machine Learns and Fails - a Grammar of Error for Artificial Intelligence.

[82] Brennan-Marquez, K. 'Plausible Cause': Explanatory Standards in the Age of Powerful Machines, p. 1267; *see also* Ferguson, Crime Mapping and the Fourth Amendment: Redrawing 'High-Crime Areas.'

[83] Kehl et al. Algorithms in the Criminal Justice System: Assessing the Use of Risk Assessments in Sentencing, pp. 28-32.

[84] Gstrein et al. Ethical, Legal and Social Challenges of Predictive Policing, p. 6.

[85] Re, R. and Solow-Niederman, A. (2019) Developing Artificially Intelligent Justice. *Stanford Technical Law Review* 22 (2), pp. 242–89, pp. 275-278.

secrecy. This may all but preclude a line of inquiry from the defendant's ability to present a case challenging the conclusions of a risk assessment.[86]

As regards accessibility, even if a defendant successfully opens the black box or circumvents a trade secret, the prosecution still retains an advantage in both its access to advanced computing power and a monopoly on data. One reason for this is the extensive amount of information collected by policing agencies and the advanced resources they maintain to assess these data. This may be particularly true in jurisdictions where there is open sharing of data between police and government agencies. Even when the prosecution is willing to relinquish the information, the data are buried in a repository of massive quantity, often held by a third party and not easily dissected for relevance without the aid of sophisticated technology.[87] Therefore a defendant must rely on the prosecution for cooperation in identifying and sharing exculpatory information. Though a defendant may wish to hire an expert witness to unpack the data and testify as an expert, this is often practically prohibitive due to availability and expense, leaving evidence virtually inaccessible.

Finally, a point on the probative value assigned to scientific processes such as algorithmic profiling. in many systems where the issue has been addressed, the use of predictive policing outputs are currently ill-aligned with the rules in place for presenting evidence and expert testimony in criminal trials.[88] Many types of machine produced evidence have long been accepted by courts as true and admissible, such as DNA matching, photographic evidence, and breathalyzer results.[89] However whereas these more traditional forensic methods are designed to reflect the exact result intended, the adaptive nature of machine learning algorithms makes it near impossible to explain and verify the end results.[90] Due to a lack of transparency, predictive policing software are very difficult to substantiate as scientifically valid. Further, should appropriate rules be

[86] Wasek-Wiaderek, the *Principle of "Equality of Arms" in Criminal Procedure under Article 6 of the European Convention on Human Rights and Its Functions in Criminal Justice of Selected European Countries*, pp. 17-32.

[87] Zavrsnik, A. Criminal Justice, Artificial Intelligence Systems, and Human Rights, pp. 576-578.

[88] Roth, A. Machine Testimony, p. 2022.

[89] Henley, J. (2019) Denmark Frees 32 Inmates over Flaws in Phone Geolocation Evidence. *The Guardian*, 12 September.

[90] Nutter, P. (2019) Machine Learning Evidence: Admissibility and Weight. *Journal of Constitutional Law,* 21 (3), pp. 919–58, pp. 925-928.

established as to the standards of admissibility for this type of evidence, it is not clear what probative weight the results should be given.[91]

As this section has demonstrated, fair trial processes are severely affected by influences from outside the courtroom. in the case of using AI for predictive policing, numerous points of incompatibility exist with the components of a fair trial. Regarding the presumption of innocence, the process of predictive policing is itself at odds with upholding the presumption, due to the use of static, historic crime data. in addition, the nature of predictive policing software render evidence virtually unavailable and inaccessible for the average defendant to utilize in a criminal defense. Though these issues may be resolved through adaptations at both the technological as well as procedural levels, as they currently exist, preventing crime with AI may severely limit the implementation of a fair trial.

4. CONCLUSION

As demonstrated, the effects of AI's use are not strictly limited to its immediate application. This is particularly true in the case of predictive policing, in which the large scale of data collection and inner complexities of machine learning algorithms make it near impossible to explain the manner in which decisions are reached. In this regard, the predictive technology used by police cannot adequately meet the ECHR standards of a fair trial. In reaching this determination the paper assessed several Article 6 components. As regards the presumption of innocence, it is clear that predictive policing may skirt the core notions of the presumption as well as the procedural protection it affords. Similarly in weighing the ability of a defendant to assess and confront evidence presented against him, it was demonstrated that the relative unavailability and complexity of risk assessments preclude the full exercise of the right as afforded in the adversarial trial. Together, it is clear that the current use of AI for predictive policing is not compatible with ECHR Article 6.

The ongoing evolution of criminal law practices not only affects individual trial outcomes but also contributes to the transformation of legal values and processes. Many scholars cite this "*production of technical knowledge*" as causing a shift in judicial functions by moving the emphasis

[91] Završnik, "Algorithmic Justice: Algorithms and Big Data in Criminal Justice Settings" p. 10.

from the human to the machine.[92] In justifying the use of machine generated content to inform legal outcomes, we must remember predictive analyses are not calibrated to consider the human aspects of criminal justice.[93] The role of a judge requires human insight as well as knowledge of the law, which is then translated into language that aligns to societal custom. the chasm between the reality of a situation and the state of the law may not be easily recognizable to a machine, or in other words, justice may not be reducible to an algorithm.[94] This article concludes that there is not only a mismatch between legal applications and predictive software, but also in expectations for applying machine learning to social processes. It should not be assumed that the use of algorithmic decision making, which is evaluated for its efficiency and computational accuracy, is the appropriate measure by which judicial processes should largely function.[95]

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[94] Nutter, Machine Learning Evidence: Admissibility and Weight, pp. 951-952.

[95] Quattrocolo, An Introduction to AI and Criminal Justice in Europe, pp. 1530-1531.

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DOI 10.5817/MUJLT2021-1-3

DIGITAL CONTENT PORTABILITY AND ITS RELATION TO CONFORMITY WITH THE CONTRACT[*]

by

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In this paper, the author analyses the possible convergences and divergences of two pieces of EU legislation: The Portability Regulation and the Digital Content Directive. Both EU laws address the issue of access to digital content from different perspectives and complement each other. However, they use different legal terminology and, in some respects, have a different scope of application (mainly about the requirement of monetary counter-performance). The Portability Regulation focuses on the cross-border portability of digital content [Art. 3 (1) Portability Regulation), while the Digital Content Directive specifies the consumer rights related to the distribution of digital content and subsumes the accessibility of digital content under the concept of "conformity of the digital content with the contract" [Art. 6 (1), (2) Digital Content Directive]. The author explains that the consumer who is not allowed to use the digital content in the EU Member States besides the Member State of his or her residence should be entitled to assert legal claims arising from the non-conformity of the digital content with the contract.

KEY WORDS

Digital Content, Portability, Accessibility, Conformity with the Contract, Consumer Remedies, CESL, Serious Breach of the Contract

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[*] The author would like to express his gratitude to prof. Marketa Trimble from the William S. Boyd School of Law, UNLV (USA) for the substantive comments on the working versions of this paper. Some minor parts of this paper were presented at the ALAI 2019 Congress and published in Koukal, P (2018), p. 814-820. The original paper discusses the relationship of the Portability Regulation to the draft of the Digital Content Directive, not to the text of the directive itself, as it was not yet issued at the time of the first paper publication.

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1. INTRODUCTION

Cross-border issues related to the use of the digital content by consumers have been covered by several pieces of EU legislation in recent years (see Fn 5-11). The availability of digital goods or services in the on-line environment is of a complex nature and can be viewed from different perspectives, each of which concerns various stages of making digital assets available to the consumer audience[1].

Existing differences in the laws of the EU Member States regarding national consumer protection and contract law are seen as the principal barrier which prevents consumers from enjoying the full benefits of cross--border e-commerce with digital assets. Also, business operators who must adapt their services to different legal conditions set by the national legislations[2] in the field of contracts, consumer or copyright protection[3] see the current state as a significant barrier to their activities.

When legal regulation of the digital assets dissemination is concerned, we can see several phases where EU law interferes with the process of making digital content available to users (consumers). At the beginning of the digital assets regulatory chain, we find various legal regulations whose subject is intellectual property[4] and personal data protection[5]. In the middle of the distribution chain, we find the legal regulation of the (i) intermediaries liability;[6] (ii) collecting societies management;[7] (iii) rights to access the digital content of libraries, universities, and research

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1 Trimble, M (2012), p. 624 ff.; Hoffman, J (2016), p. 148 ff.; Helberger, N et al. (2013), p. 42-45; Staudenmayer, D (2016), p. 2721, 2722; Spindler, G (2016) Digitale Wirtschaft - analoges Recht: Braucht das BGB ein Update?, p. 805 ff.; Spindler, G (2016) Verträge über digitale Inhalte – Anwendungsbereich und Ansätze Vorschlag der EU-Kommission zu einer Richtlinie über Verträge zur Bereitstellung digitaler Inhalte, p. 147 ff., 219 ff.; Loos, M B M (2011), p. 45-48; Bach, I (2019), p. 1705 ff.; Carvalho, J M (2019), p. 194 ff.; Spindler, G, Sein, K (2019), p. 415 ff.; Synodinou, T E (2020), Geoblocking in EU Copyright Law: Challenges and Perspectives, p. 136 ff.; Oprysk, L, Sein, K (2020), p. 594 ff.

2 European Commission (2015) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A Digital Single Market Strategy for Europe from 6.5.2016, COM (2015) 192 final, p. 5; Arnerstål, S (2015), p. 882; Helberger, N et al. (2013), p. 42.

3 Loos, M B M et al. (2011), p. 14, 39, 102; Lehman, M In De Franceschi, A (2016), p. 115; Schulze, R In De Franceschi, A (2016), p. 131; Oprysk, L, Sein, K (2020), p. 597.

4 European Commission (2011) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A Single Market for Intellectual Property Rights/Boosting creativity and innovation to provide economic growth, high quality jobs and first class products and services in Europe from 24.5.2011, COM(2011) 287 final, p. 8, 11; COM (2015) 192 final, p. 5-7, 20; European Commission (2016) Commission Staff Working Document: Evaluation of the Council Directive 93/83/EEC on the coordination of certain rules concerning copyright and rights related to copyright applicable to satellite broadcasting and cable retransmission from 14.9.2016, SWD (2016) 308 final.

institutions;[8] or (iv) legislation on audio-visual media suppliers.[9] Last but not least, it is necessary to set forth rules for (v) consumer protection in the digital market,[10] and in this regard to focus on the (vi) aspects of the cross-border availability of the digital content.[11]

The aim of this paper is to analyse possible convergences and divergences of two legislative acts: the Portability Regulation [Regulation (EU) No. 2017/1128] and the Digital Content Directive [Directive (EU) No. 2019/770]. The Digital Content Directive expressly states: "*It should also be without prejudice to Union and national law on copyright and related rights, including the portability of online content services*" (Recital 36 Digital Content Directive). This provision means that the Directive does not change any provisions in the Portability Regulation. However, we must ask what the relationship is between these two pieces of legislation when they regulate similar subject matter.

We will focus specifically on the rights of consumers who use digital content in other EU Member States than their Member State of residence[12].

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5 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation); Directive (EU) 2016/680 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data, and repealing Council Framework Decision 2008/977/JHA.

6 Art. 17 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.

7 Directive 2014/26/EU of the European Parliament and of the Council of 26 February 2014 on collective management of copyright and related rights and multi-territorial licencing of rights in musical works for online use in the internal market.

8 Art. 3 – 7 Directive 2019/790/EU.

9 Directive (EU) 2019/789 of the European Parliament and of the Council of 17 April 2019 laying down rules on the exercise of copyright and related rights applicable to certain online transmissions of broadcasting organisations and retransmissions of television and radio programmes, and amending Council Directive 93/83/EEC; Directive (EU) 2018/1808 of the European Parliament and of the Council of 14 November 2018 amending Directive 2010/13/EU on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the provision of audiovisual media services (Audiovisual Media Services Directive) in view of changing market realities.

10 Directive (EU) 2019/770 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the supply of digital content and digital services.

11 Regulation (EU) 2017/1128 of the European Parliament and of the Council of 14 June 2017 on cross-border portability of online content services in the internal market. See also Hoffman, J (2016), p. 145; Mazziotti, G (2016), p. 365 ff.; Trimble, M (2016), p. 45 ff; Engles, S; Spindler, G (2016) Die Modernisierung des europäischen Urheberrechts Der Vorschlag zur Portabilitäts-VO und die Planungen der EU-Kommission, p. 73 ff.; Nordemann, J B (2018), p. 179 ff.

12 Recital 3, Art. 1 (1), Art. 2 (4) Portability Regulation.

Nevertheless, we will also address the cross-border portability in the framework of possible EU unitary copyrights. In this context, we will explain that the use of geo-blocking practices is not primarily a question of the existence of unitary rights as has been argued by some scholars,[13] but a question of the contractual limits imposed on the practices of digital content providers.

Digital Content Directive regulates certain aspects of contracts on the supply of digital content and digital content services between content providers and consumers. With the Digital Content Directive, the EU is responding to the needs of the digital economy in the area of private law. The EU legislator justifies the adoption of the new legislation, in particular by facilitating access to digital content and digital services, developing the European Union's digital economy and stimulating overall growth. One of the factors affecting cross-border trade in the European Union is differences in national contract law and the uncertainty as to the legal regime applicable to transactions related to digital content and services.

The directive pursues a viable and a technology-oriented approach. Its provisions regulate all categories of digital content or services and highlights the necessity of consumer protection also in situations where the consumer's performance is not based on monetary payments but on providing personal data[14]. Moreover, the directive intends to regulate consumer rights in case the digital content or service is not in conformity with the contract and stipulates consumer rights and remedies.

For consumers, a current state means uncertainty about fundamental contractual rights, which negatively affects their confidence in cross-border trade. For enterprises, the uncertainty means especially additional costs for legal services. Harmonization of fundamental contractual rights should motivate consumers to purchase more cross-border digital content, and businesses, especially SMEs, to expand across borders. The Digital Content Directive is strongly inspired[15] by the provisions of the Commission's proposal for a Regulation on a Common European Sales Law (hereinafter

[13] Hoffmann, J (2016), p. 168 ff.

[14] According to Art. 3 (1) Digital Content Directive this directive shall also apply where the trader supplies or undertakes to supply digital content or a digital service to the consumer, and the consumer provides or undertakes to provide personal data to the trader. Thus, the directive also comprises a new business model called "performance against data." However, the data must be classified as a consideration, which means that the trader is not processing data to fulfil his/her contractual or legal obligations. See also Carvalho, J M (2019), p. 197; Bach, I (2019), p. 1706; Spindler, G, Sein, K. (2019), p. 418; Lehmann, M In De Franceschi, A (2016), p. 117.

"CESL")[16] which was intended to constitute an optional instrument that would actually create a parallel contract-law regime to coexist alongside national contract-law provisions.[17]

Together with the Geoblocking Regulation,[18] the Portability Regulation represents an essential tool for ensuring the cross-border portability and prohibits the implementation of geo-blocking measures [19] within the EU Digital Single Market. This should enable the digital content consumers who subscribed to content services in the Member State of their permanent residence to receive a service or a download of pre-paid content, in a country, which they are temporarily visiting. In addition, the Portability Regulation aims to prevent consumers from infringing copyright on digital content,[20] which is frequently caused by the unavailability of the protected subject-matter due to the application of geo-blocking practices by some content providers.

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[15] COM (2015) 634 final, p. 2; Lehmann, M In De Franceschi, A (2016), p. 113; Spindler, G, Sein, K. (2019), p. 415.

[16] In October 2011, the European Commission issued a proposal for the Common European Sales Law (CESL) which was intended to give traders the choice to sell their products to customers in another Member State on the basis of a single set of contract law rules that would stand as an alternative to the national contract law of each Member State. The CESL project [also called the "Blue-Button Project"; Schulte-Nölke, H (2011), p. 89] was intended to be an autonomous set of private-law rules parallel to the national laws of EU Member States. Thus it should not represent the European private law in the sense of choice-of-law rules such as the Rome I or Rome II Regulation, but an optional instrument suitable for both B2C and B2B relationships that could be chosen by contracting parties as a set of directly applicable legal rules regulating the specific contractual relationships. CESL should be applied as a "twenty-eighth legal order" which complement the laws of the EU Member States, but only if the contracting parties explicitly made a choice of this legal instrument (opt-in principle). During the discussions in the Council and the European Parliament, the European Commission finally decided to withdraw the CESL proposal on the grounds that a new proposal would cover only the e-commerce aspects in the Digital Single Market. The reasons for the withdrawal of the CESL proposal were substantial. In particular, the United Kingdom expressed strong reservations regarding the inconsistency of the proposal with the common-law. See also Scottish Law Commission (2011) An Optional Common European Sales Law: Advantages and Problems Advice to the UK Government, The Law Commission and The Scottish Law Commission [online]; Lehmann, M In De Franceschi, A (2016), p. 113; Schulze, R In De Franceschi, A (2016), p. 128.

[17] Beale, H (2013), p. 22 ff; Twigg-Flesner, Ch (2013), p. 45 ff.; Schulze, R (2012), p. 85 ff.; Pongelli, G (2013), p. 11 ff., 17.

[18] In this paper, we do not deal with the impact of the Geoblocking Regulation [Regulation (EU) 2018/302 of the European Parliament and of the Council of 28 February 2018 on addressing unjustified geo-blocking and other forms of discrimination based on customers' nationality, place of residence or place of establishment within the internal market and amending Regulations (EC) No 2006/2004 and (EU) 2017/2394 and Directive 2009/22/EC] on the Digital Content Directive. Given the material scope of the Geoblocking Regulation [Art. 3 Regulation (EU) 2018/302], it seems that the relationship between these two pieces of EU legislation is similar to that of the Portability Regulation discussed in this paper. However, a more detailed analysis would require drafting a separate research paper.

[19] SWD (2015) 270 final, p. 3, 6, 55; Hoffman, J (2016), p. 164.

[20] COM (2015) 626 final, p. 4, 11.

Both pieces of legislation address similar issues related to consumers' expectations of being able to use digital content effectively without technological, functional or cross-border limitations. The question of cross--border portability is a principal subject matter of Art. 3 (1) Portability Regulation, and can also be considered as an issue of "accessibility" within the scope of the "conformity of the digital content with the contract" [Art. 8 (1) (b) Digital Content Directive].

It is evident that the Digital Content Directive regulates a more comprehensive range of legal relationships. The reason for this is that it applies to all contracts with digital content and services and is targeted not only at cross-border relationships, but also in situations where the content provider supplies the digital content to consumers within the territory of a particular Member State. Although the directive itself does not intend to regulate any intellectual property issues [Art. 3 (9) Digital Content Directive], the directive will have a direct impact on copyright licences or other types of the end-users contracts.[21]

Compared to the broad spectrum of consumer issues regulated by the Digital Content Directive, the Portability Regulation constitutes new consumer (subscriber) rights for when a consumer uses digital services in a Member State of their "temporarily presence" [Art. 2 (4), Art. 4 Portability Regulation].[22] While the Digital Content Directive applies to both domestic and cross-border transactions, the Portability Regulation only applies to cross-border delivery of on-line digital goods or services. On the other hand, the Portability Regulation prescribes rules which are immediately applicable not only to the service providers, but simultaneously to copyright holders. The EU legislator is aware that blocking practices are broadly asserted by the major copyright

[21] Many service providers of digital content use contractual terms in which the user receives a limited licence to use the digital content. If you subscribe to Spotify, Netflix, iTunes or Google-Play, you enter into a licence or service agreement, not a purchase agreement. For example, in its Terms and Conditions, Netflix grants to end-users "a limited, non-exclusive, revocable, non-sublicensable and non-transferable license to display the Netflix Assets" (Netflix Media Center Terms and Conditions). The content providers keep the intellectual property rights and provide the consumer a limited, non-exclusive, revocable licence to make personal, non-commercial use of the digital content. See Arnerstål, S (2015), p. 752; Loos, M B M et al. (2011), p. 14; Oprysk, L, Sein, K (2020), p. 595 ff. The impact of the Digital Content Directive on licence or service contracts will consist in definition of digital content, its integration into the consumer's digital environment, but especially in the regulation of the rights the consumer has if the digital content is not in conformity with the licence or service contract.

[22] Engles, S; Nordemann, J B (2018), p. 193.

or by the related rights holders, and therefore he limits their contractual freedom about the supply of the digital content to end-users.[23]

The key question that this paper aims to answer is whether a consumer will be entitled to pursue claims arising from the non-conformity of digital content with the contract, as provided by Art. 8 and 14 of the Digital Content Directive, in the event that he or she is not allowed to access digital services in states other than the Member State of his or her residence due to the application of geo-blocking measures by digital content providers. If the answer to this question is yes, we will then focus on the hierarchy of remedies provided to the consumer in the event the digital content does not conform to the contract (Art. 14 Digital Content Directive), as well as on issues related to the quality of content transmitted to the subscriber under Art. 3 of the Portability Regulation. When analysing the Portability Regulation, we will also discuss whether the European Commission should propose uniform copyright protection under Art. 118 TFEU rather than ensuring cross-border portability. However, we will defend the thesis that ensuring cross-border portability by Art. 3 (1) of the Portability Regulation and also by the prohibition of geo-blocking via provisions of the Regulation 2018/302/EU[24] is the appropriate legislative tool to enable the subscriber to enjoy the cross-border use of the digital content.[25]

[23] COM (2015) 627 final, p. 2, 4; Recitals 10 and 29 Portability Regulation.

[24] Regulation (EU) 2018/302 of the European Parliament and of the Council of 28 February 2018 on addressing unjustified geo-blocking and other forms of discrimination based on customers' nationality, place of residence or place of establishment within the internal market and amending Regulations (EC) No 2006/2004 and (EU) 2017/2394 and Directive 2009/22/EC.

[25] Differently see Hoffmann, J (2016), p. 169 ff.

2. THE MATERIAL SCOPE OF THE DIGITAL CONTENT DIRECTIVE

After the CESL proposal was withdrawn,[26] the Commission decided to abandon the comprehensive "optional instrument approach".[27] The proposal for the Digital Content Directive was presented by the Commission in December 2015 and was submitted according to Art. 114 TFEU. The Commission's aim was to adopt a fully harmonizing directive (Recital 6, Art. 4 Digital Content Directive) instead of the comprehensive regulation. Thus, the Digital Content Directive represents targeted[28] legislation which harmonizes mandatory consumer contract-law rules.

Although the Consumer Rights Directive[29] has fully harmonized certain rules for the online supply of digital content (especially pre-contractual information and the rules related to the right of withdrawal),[30] there were almost no specific EU rules to protect consumers if the digital content does not fulfil the requirements of functionality, interoperability, or accessibility.[31]

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[26] The CESL proposal has never received approval by the Council (see Fn. No. 16). On 16. 12. 2014, the Commission officially placed the CESL on the list of proposals intended to be modified or withdrawn. Later, on 9. 12. 2015, the Commission presented a modified text that would harmonize contract rules for the supply of digital content and the online sales of goods. See European Commission (2014) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Commission Work Programme 2015. A New Start, from 16. 12. 2014, COM (2014) 910 final; European Commission (2015) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee. Digital contracts for Europe - Unleashing the potential of e-commerce from 9. 12. 2015, COM/2015/0633 final; See also Clive, E (2015).

[27] European Commission (2015) Impact Assessment: Proposals for Directives of the European Parliament and of the Council (1) on certain aspects concerning contracts for the supply of digital content and (2) on certain aspects concerning contracts for the online and other distance sales of goods from 17.12.2015. SWD (2015) 274 final/2, p. 52.

[28] Beale, H (2016). p. 8; Lehmann, M In De Franceschi, A (2016), p. 115; Schulze, R In De Franceschi, A (2016), p. 135; Spindler, G, Sein, K. (2019), p. 415.

[29] Art. 5, Art. 9 and Art. 14 Directive 2011/83/EU of the European Parliament and of the Council of 25 October 2011 on consumer rights, amending Council Directive 93/13/EEC and Directive 1999/44/EC of the European Parliament and of the Council and repealing Council Directive 85/577/EEC and Directive 97/7/EC of the European Parliament and of the Council.

[30] Art. 6 and 9 Consumer Rights Directive; See also Beale, H (2016), p. 6; Carvalho, J M (2019), p. 194.

[31] For digital content, there were just minimum requirements regulated by the Unfair Contract Terms Directive [Art. 3, 4 (2) Council Directive 93/13/EEC of 5 April 1993 on unfair terms in consumer contracts]. Another standard was set by the Consumer Sales and Guarantees Directive (Art. 2 and 3 Directive 1999/44/EC of the European Parliament and of the Council of 25 May 1999 on certain aspects of the sale of consumer goods and associated guarantees), but just with regard to "tangible movable items" [Art. 1 (2) b) Directive 1999/44/EC] such as CDs or DVDs.

The Digital Content Directive has an extensive scope, which is to be applied on various categories of contracts regarding digital supply.[32] Such a broad scope of application is one of the important differences[33] from the Contracts for the Sale Directive,[34] which employs merely the contract of sales [Art. 1, Art. 2 (a) Contracts for the Sale Directive]. The Digital Content Directive also does not distinguish between the categories of digital content or digital services (Recital 19 Digital Content Directive), because such differentiation in the field of rapidly evolving technologies would probably lead to discrimination between suppliers. Therefore, all kinds of data, copyrighted works (films, music, photos, computer games), as well as all possible forms of digital content provided by consumers (blogs, discussion forums, text-based collaboration formats etc.) are covered by the material scope of the directive,[35] no matter if they are available on--line or if the digital content is contained on CDs or DVDs.[36]

In a similarly broad manner, the EU regulates types of contracts with regard to counter performance. The directive treats contracts in which a consumer provides personal data as contracts for consideration [Recital 24, Art. 3 (1) Digital Content Directive]. Although the consumer receives digital content from the supplier "for free", if he or she gives access to his

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[32] Spindler, G, Sein, K (2019), p. 415.

[33] Zoll, F (2016), p. 251; Spindler, G (2016) Verträge über digitale Inhalte, p. 147.

[34] Directive (EU) 2019/771 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the sale of goods, amending Regulation (EU) 2017/2394 and Directive 2009/22/EC, and repealing Directive 1999/44/EC. Directive 2019/771/EU and Directive 2019/770/EU should complement each other. While Directive 2019/770/EU (Digital Content Directive) lays down rules on certain requirements concerning contracts for the supply of digital content or digital services, the Directive 2019/771/EU (Contracts for the Sale Directive) lays down rules on certain requirements concerning contracts for the sale of goods. Accordingly, Directive 2019/770/EU applies to the supply of digital content or digital services, including digital content supplied on a tangible medium, such as DVDs, CDs, USB sticks and memory cards, as well as to the tangible medium itself, provided that the tangible medium serves exclusively as a carrier of the digital content. In contrast, the Directive 2019/771/EU should apply to contracts for the sale of goods, including goods with digital elements which require digital content or a digital service in order to perform their functions [Recital 13, Art. 3 (3) Contracts for the Sale Directive].

[35] However, the Directive does not apply to digital content, which is embedded in goods in such a way that it operates as an integral part of the goods and its functions are subordinated to the main objective of the goods (Recital 21 Digital Content Directive). Thus, toys which contain music or even audio-visual clips will fall outside the scope of the Digital Content Directive, even though they contain digital content. Goods with incorporated digital content fall under Article 3 (3) Contracts for the Sale Directive.

[36] According to Recital 20 and Art. 3 (3) of the Digital Content Directive it is irrelevant whether the supply of digital content is carried on data carriers such as CDs or DVDs or through the downloading or streaming accessible via Internet. This is an important clarification, as the data carriers will not fall under the Contracts for the Sale Directive, including provisions on conformity with contract, rules on the burden of proof etc.

or her personal or other data, the contracts will fall under the material scope of the directive.[37]

Finally, the directive is not intended to have any effect on copyright issues [Recital 36, Art. 3 (9) Digital Content Directive], especially on the distribution right applicable to digital goods under the copyright law (Recital 20 Digital Content Directive). Thus, all questions concerning digital rights management systems, as well as the effects of the principle of exhaustion, are omitted. The consumer therefore cannot argue that the limitations on further use of the digital content (such as the re-sale or lending of e-books) are not in conformity with the contract since the consumer, upon receiving the digital content, is not entitled to further distribution of the copyrighted content due to the copyright limitations, which are still applicable.[38]

The Digital Content Directive also has no direct application on relations between consumers and copyright holders.[39] It only regulates the legal responsibilities of digital content providers who, as legal entities, are usually different from subjects that are the original or derivative holders of the copyright. With regard to the on-line dissemination of copyrighted works uploaded to the Internet by third parties, the Digital Content Directive stipulates that "*where a restriction resulting from a violation of any right of a third party, in particular intellectual property rights, prevents or limits the use of the digital content or digital service in accordance with Articles 7 and 8, Member States shall ensure that the consumer is entitled to the remedies for lack*

[37] On the other hand, the directive does not apply if the data collected from the consumer are necessary for the "performance of the contract" or "for meeting legal requirements" [Art. 3 (1), Recital 25 Digital Content Directive]. The Directive is applicable only to that extent where the personal data are actively required by the provider and does not cover situations where the digital content is provided for free and data collected from the consumer are used only for security or registration purposes. Moreover, automatically generated personal data such as IP addresses or data collected and transmitted by means of cookies, without the consumer actively supplying it, also do not fall under the material scope of the directive. However, Member States may, on an optional basis, provide that the Directive also applies to such cases (Recital 25 Digital Content Directive). Similarly, situations in which the consumer is exposed to advertisements in order to gain access to digital content do not fall under the material scope of the directive. For criticism on the exclusion of cookie-based services like Google Analytics see Spindler, G (2016). Verträge über digitale Inhalte, p. 149; Beale, H (2016) Scope of application and general approach of the new rules for contracts in the digital environment, p. 13.

[38] Critical remarks on this approach are by expressed by *Beale*. Beale, H (2016), Scope of application and general approach of the new rules for contracts in the digital environment, p. 27. *Oprysk* and *Sein* conclude that specific contractual arrangements that prohibit, for example, backups or file sharing outside the user's family, may be contrary to reasonable consumer expectations within the meaning of Art. 8 (1) (b) Digital Content Directive. Oprysk, L, Sein, K (2020), p. 620.

[39] Spindler, G (2016), Verträge über digitale Inhalte, p. 149.

of conformity provided for in Article 14, unless national law provides for the nullity or rescission of the contract for the supply of the digital content or digital service in such cases". After the implementation of the Digital Content Directive into the national legislation of the EU Member States, the intermediaries, who request payments for the use of digital content or who require personal data from the consumer, will have to provide a legal guarantee to the consumer that the digital content is in conformity with the contract, especially that it does not conflict with the intellectual property rights of third parties ("third party rights" or "legal non-conformity").[40]

The Digital Content Directive uses positive [Art. 3 (1 - 3), (6)] and negative definitions [Art. 3 (4), (5), (10)] for the determination of its material scope. In this regard, Art. 3 (7) of the Digital Content Directive stipulates: "*If any provision of this Directive conflicts with a provision of another Union act governing a specific sector or subject matter, the provision of that other Union act shall take precedence over this Directive*". In relation to portability, the Directive then specifically provides that: "*It should also be without prejudice to Union and national law on copyright and related rights, including the portability of online content services*" (Recital 36 Digital Content Directive).

If we focus on the relation between the "conformity with the contract" and the "portability matters", it seems necessary to analyse whether Art. 3 (7) of the Digital Content Directive sets the rule on the negative scope of the directive, and therefore all the issues regulated by the special legislation are excluded from the scope of the Digital Content Directive, or whether this provision contains only a specialty rule. The specialty rule would mean that the Portability Regulation would be applied only to the extent to which it regulates the "specific sector or subject matter", such as the availability of digital content in the Member State of the temporary presence of the consumer, but other issues, such as remedies concerned with the non-availability of digital content, would fall under the scope of the national laws transposing the provisions of the Digital Content Directive.

[40] Oprysk, L, Sein, K (2020), p. 598. See also Recital 54 Digital Content Directive.

3. PORTABILITY OF DIGITAL CONTENT AS A CONSUMER-LAW ISSUE

From the perspective of consumer protection, which is more stressed by the Digital Content Directive[41] than by the Portability Regulation,[42] we should return to the question of what the relation between these two pieces of EU legislation is.

Portability and geo-blocking are two different sides of the same coin.[43] While portability is positively characterized as the ability "to play, listen, and watch digital content on different kinds of devices, to lock-in or lock--out situations that are the result of product bundling or interoperability issues, social exclusion, and geographical impediment because of region coding and restrictive licencing practices",[44] the notion of geo-blocking is primarily negative,[45] as it is used by copyright holders or digital content providers to block foreign IP addresses[46] in order to prevent consumers from having cross-border access to digital content services.[47]

Portability reflects consumers' natural expectations that the digital content, which covers many kinds of "intangible assets", will be available across borders and ubiquitous. If consumers complain[48] about territorial restrictions on the broadcasting of copyrighted works or sporting events applied by the suppliers, we can remark that consumers are merely applying their "common sense". They see no relevant reason for the lack

[41] Consumer law and copyright law deal with digital content from opposing positions. While consumer law focuses on the ownership of the purchased items or the right to use them under reasonable expectations of the consumer, copyright law considers digital content from the owners' perspective and especially highlights that ownership of a physical copy of a work does not grant any ownership in the copyright itself. Helberger N et al. (2013), p. 46; Loos, M B M (2011), p. 30, 31; Oprysk, L, Sein, K (2020), p. 597.

[42] Engles, S; Nordemann, J B (2018), p. 179.

[43] SWD (2015) 270 final, see Fn. 7 at p. 3.

[44] Helberger, N et al. (2013), p. 40. Similarly Synodinou, T E (2020), Geoblocking in EU Copyright Law: Challenges and Perspectives, p. 144; Engles, S; Nordemann, J B (2018), p. 182.

[45] However, geo-blocking may also have a positive role in the digital environment. While *Hoffmann* points to the negative aspects of geo-blocking, such as language discrimination, consumer frustration or the obstacles to create a Digital Single Market [Hoffmann, J (2016), p. 145], *Trimble* on the other hand argues that geo-blocking also plays important roles in the Internet legal landscape. Geo-blocking serves as a tool for delimiting jurisdiction and enforcing decisions within territorial boundaries; it serves the purposes of enhancing security and partitioning markets, and also enables compliance with territorially-defined laws (such as privacy and personal data protection). See Trimble, M (2016), p. 47-50.

[46] Other methods of controlling the Internet users' geographical location may also be used, such as global positioning system (GPS). Trimble, M (2012), p. 605. For simplicity, in this paper we will only use geo-location based on the IP address.

[47] SWD (2015) 270 final, p. 39, 58; Trimble, M (2016), p. 46; Hoffmann, J (2016), p. 145.

[48] SWD (2015) 270 final, p. 54 ff.

of availability of digital content in the Digital Single Market[49] (or even in the global market), even though they know nothing about the theoretical aspects of intangible assets. The consumers argue that if the EU developed a Single Market in the sphere of physical goods or services, similarly they should have on-line access to the digital content throughout the EU. The digital content should be lawfully accessible not only in the Member State of the consumer's permanent residence, but also when travelling to another EU Member State.[50] Moreover, the natural characteristics of intangible assets (as well as the expectations of consumers) are highlighted by the fact that the Internet has been developed as a medium available and accessible without physical boundaries.[51]

In the past, with the exception of films and sporting events,[52] providers in EU countries did not generally impose territorial restrictions on digital content. Even though there could have been cultural and economic (i.e. protecting the investments of film producers) reasons for the territorial division of markets,[53] most digital assets (i.e. musical works, computer programs or e-books) were provided without border restrictions. From the consumers perspective it was hardly justifiable[54] that audio-visual producers or broadcasting organizations so strongly insisted on a territorial--based dissemination of digital assets. We can compare how copyrighted works have quite recently been provided around the EU with a federal state such as Germany. It was doubtful that a broadcaster provided a territorially limited licence to a German citizen solely for Free State Bavaria. The end--users in Germany were allowed to watch a Bayern Munich football match

[49] SWD (2015) 270 final, p. 3, 6. However, for opposite views concerning the defence of geo-blocking activities based on the protection of investment of film producers and cultural differences among EU Member States see Mazzotti, G (2016), p. 369 ff.

[50] SWD (2015) 270 final, p. 6; Engles, S, Nordemann, J B (2018), p. 184.

[51] Trimble, M (2012), p. 570; Trimble, M (2016), p. 147.

[52] SWD (2015) 270 final, p. 8-10, 39.

[53] Mazzotti, G (2016), p. 373-375. Another reason for the application of the geo-location techniques are provided by Trimble. She explains that geolocation reflects the territorial based legal regulations not just in the area of IP, but also with respect to the personal data protection. Moreover, it enables the supplier to provide the tailored content, included differential pricing, localizing advertising, and Internet searching. Trimble, M (2012), p. 586, 589.

[54] Cross-border portability has been considered to be a modern distribution tool not only by consumers, but also by the audio-visual industry. In 2013, several members of the audio-visual industry have adopted the joint statement at the Licences for Europe forum where they confirmed that they were prepared to work on cross-border portability in the EU. See Licences for Europe - Structured Stakeholder Dialogue 2013, WG 1 Audio-visual Subgroup, Joint Statement on Cross-border Portability of lawfully-acquired Audio-visual Content [online].

in Dresden because the geo-blocking restrictions have not been applied. Thus, the arguments based on the economic models[55] or film distribution among EU Member States were not convincing, since the dissemination model could hardly prevail over the basic principles of the EU single market such as free movement of goods and services [Art. 26 (2), Art. 56 TFEU] and over consumer protection [Art. 12, Art. 114 (3), Art. 169 TFEU]. Even though the problem of the territorial scope of copyright protection could probably be efficiently solved by the adoption of the EU-wide Copyright Regulation (adopted under Art. 118 TFEU, which would create unitary EU copyright protection),[56] the real effects of the Portability Regulation showed that the accessibility has not been question of the unitary rights but about the removal of territorial barriers in the sphere of contract law.[57] The problem is that under the regime of unitary rights, we may still find examples in which licences are granted not across the entire territory of the EU, but in several states only. For example, Council Regulation No. 2017/1001 of 14 June 2017 on the European Union trade mark expressly enables the trademark owner to grant a licence for the "whole or part of the EU".[58] Although it is hard to presume that the example on the territorial limits of broadcasting in Germany would actually happen, it may still be possible under the EU Copyright Regulation to provide licences on a territorial basis, unless such a possibility is expressly forbidden by the legislation.

The Portability Regulation is usually analysed in terms of copyright protection,[59] underlying the principle of territoriality. However, portability is not primarily a question of the territoriality of the copyright but a question of the licencing policy of copyright holders.[60] Consistent with the holdings of the CJEU in the Football Association Premier League

[55] Mazzotti, G (2016), p. 371. See also SWD (2015) 270 final, Annex 4.

[56] Hoffmann, J (2016), p. 166 ff.; Mazzotti, G (2016), p. 375.

[57] Peifer, K, N In De Franceschi, A (2016), p. 166.

[58] The same rule applies also to the Community Designs [Art. 32 (1) Council Regulation (EC) No 6/2002 of 12 December 2001 on Community designs] and on the future European Patent with the unitary effect [Art. 3 (2) Regulation (EU) No 1257/2012 of the European Parliament and of the Council of 17 December 2012 implementing enhanced cooperation in the area of the creation of unitary patent protection].

[59] Hoffmann, J (2016), p. 145, 149 ff.; Mazotti, G (2016), p. 367,368; Engles, S; Nordemann, J B (2018), p. 180 ff.

[60] Arnerstål, S (2015), p. 752; Synodinou, T E (2020), EU Internet Law: Regulation and Enforcement, p. 38.

decision,[61] the Portability Regulation does not tackle the territoriality of copyright protection[62] but the discriminatory geo-blocking practices applied by copyright holders or digital service providers. The obligation stipulated by Art. 3 (1) of the Portability Regulation that enables a subscriber who is temporarily present in a Member State to access and use the online content services makes the contract law in EU Member States "cross-border and consumer friendly".[63] Portability as a limit on the contractual freedom of copyright holders might be seen as a more efficient way to fulfil consumer expectations, since even under the regime of EU unitary copyright, digital content may still be distributed on a territorial basis.[64] It is for this reason that digital content providers may grant licence for a part of the territory and use the consumer's IP address as an identifier to control for the territorial scope of the licence. Although it has been indicated by some authors that geo-blocking practices reflect the territorial character of copyright protection,[65] when we consider consumer protection and the related contractual issues, they seem to be caused more by the licencing policy of the digital content providers than they are by the traditional principles of copyright.

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[61] Judgment of the Court (Grand Chamber) of 4 October 2011 Football Association Premier League Ltd and Others v QC Leisure and Others (C-403/08) and Karen Murphy v Media Protection Services Ltd (C-429/08).

[62] As has been described above, copyrighted works such as musical works, software and e-books have been distributed on an EU-wide basis and the end user licence agreements granted to consumers the right to use the copyrighted content in all EU Member States even though 27 different copyright regulations still existed.

[63] SWD (2015) 274 final/2, p. 18.

[64] Digital content provider activities would probably be analysed also from EU competition law perspectives. *Mazzoti* points out the competition law issues when focusing on the CJEU in the Premiere League case. In this regard he remarks that restrictions to competition in the field of providing services might be justified by objective criteria. Therefore the creation of barriers to cross-border accessibility of services can be justified for example by supporting cultural creations targeted at national audiences [Mazotti, G (2016), p. 373]. Even though the EU competition law applies different criteria for assessing service provider activities than the consumer law does, the author of this paper is of the opinion that both fields of EU law converge in the regulation of portability issues. If the EU declares that geo-blocking activities are unfair, that they conflict with consumer expectations and that they create serious obstacles to creating a Digital Single Market (Recital 4 Portability Regulation; SWD (2015) 270 final, p. 3), then the limitations on the licencing policy might be set by the competition law as well. For example, the Commission Regulation (EU) No 316/2014 of 21 March 2014 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements sets limits on the licencing policy of the owners of essential patents, while they are forced to apply the FRAND licences (fair, reasonable and non-discriminatory) on a non-exclusive basis. The main rationale of the Portability Regulation is the same, since it imposes limits on the licencing policy of copyright holders and the providers of digital content.

[65] Hoffmann, J (2016), p. 151.

4. PORTABILITY AS A SUBCATEGORY OF CONFORMITY WITH THE CONTRACT

The central role of EU consumer law is to function as corrective justice[66] and to protect the weaker party.[67] Contractual dealings between consumers and suppliers must respect the legitimate interests of both parties and must reflect a fair balance between their legitimate interests. When assessing the fairness of consumer transactions, it is important to compare them with the principle of "reasonable expectation". If a product or service does not meet the reasonable expectations of the consumer, such as the availability of a product in the required time and place, then the contract can no longer be assumed to reflect the consumer's free will to commit to the transaction.[68] In the event that a consumer cannot utilize a product in a way that corresponds to his or her reasonable expectations, we can find grounds under which the consumer can contest the conformity with the contract.[69]

There are two basic approaches to defining the concept of conformity: a subjective approach based on contractual agreements and an objective approach based on legally established conformity criteria.[70] A third possibility would be a mixed approach which uses both criteria as applied, for example, in the Consumer Sales and Guarantees Directive, as well as in the Contracts for the Sale Directive.[71] Art. 7 of the Digital Content Directive gives priority to the subjective approach but it also introduces the objective criteria in Art. 8.

As a general rule, the criteria used to assess conformity are the contractual stipulations which are "clearly and comprehensively" contained in the contract [Art. 12 (4) and (5) Digital Content Directive], or the conditions which are deemed to represent an integral part of the contract, such as pre-contractual information [Art. 7 (b) Digital Content Directive].

In the absence of explicit contractual provisions, or if the clauses are ambiguous Art. 8 (1) of the Digital Content Directive stipulates that the digital content or digital service shall be fit "*for the purposes for which*

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66 Micklitz, H W (1999), p. 167 ff.
67 Cherednychenko, O (2007).
68 Helberger, N, Hugenholtz, P B (2007), p. 1082.
69 Helberger, N et al. (2013), p. 45.
70 Staudenmayer, D (2016), p. 2722; Spindler, G (2016), Verträge über digitale Inhalte, p. 152.
71 COM (2015) 634 final, p. 12; SWD (2015) 274 final/2, p. 46.

digital content or digital services of the same type would normally be used, taking into account, where applicable, any existing Union and national law, technical standards or, in the absence of such technical standards, applicable sector-specific industry codes of conduct". The objective test of conformity with the contract is then linked to other criteria such as "technical standards" or "applicable sector-specific industry codes of conduct" [Art. 8 (1) (a) Digital Content Directive].

Although the Digital Content Directive may be criticized for its lack of such norms and codes[72] or for its emphasis on a supplier's ability to craft overly comprehensive contractual provisions to exclude the application of the objective test, in terms of portability requirements the Directive seems to be satisfactory. We may consider the Portability Regulation as a sui generis form of such regulatory treatment.

In practice we can identify three main conformity problems: (1) accessibility, functionality and compatibility issues, (2) insufficient quality, and (3) deficiencies, errors or other safety and security issues.[73] These challenges can be caused by matters such as lack of connectivity, the application of DRM mechanisms which create obstacles for the transfer of digital content from one device to another, incompatibility of formats and standards,[74] or even the abuse of the copyright protection when prohibiting the consumer from making private copies of lawfully acquired software or film.[75]

Portability[76] matters are primarily concerned with "accessibility requirements" [Art. 8 (1) (b) of the Digital Content Directive]. Geo-blocking practices are usually connected to the use of an Internet Protocol address to identify a consumer's location. When this happens, the consumer is hindered from accessing digital content/service or is re-routed to a local website with different products or pricing.[77] Although such practices could

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[72] Spindler, G (2016), Verträge über digitale Inhalte, p. 153; Mak, C (2016), p. 16; Beale, H (2016), Scope of application and general approach of the new rules for contracts in the digital environment, p. 21. Art. 8 (1) was strongly influenced by Art. IV. A. – 2:302 DCFR and Articles 99 and 100 CESL.

[73] Loos, M B M et al. (2011), p. 108.

[74] Ibid, p. 109-113.

[75] Helberger, N, Hugenholtz, P B (2007), p. 1093, 1095. Similarly see Oprysk, L, Sein, K (2020), p. 601 ff.

[76] "'*Portable' means a feature of an online content service whereby subscribers can effectively access and use the online content service in their Member State of residence without being limited to a specific location*" [Art. 2 (6) Portability Regulation].

[77] Hoffmann, J (2016), p. 145.

be in conformity with the licence conditions of the major digital content providers, they generate frustration for a great deal of consumers[78] who cannot use their subscription services or the content they have previously purchased in other countries.

From the perspective of accessibility, both the Portability Regulation and Digital Content Directive aim at facilitating access to digital content and they seem to be complementary. Although the Digital Content Directive does not explicitly mention the cross-border portability of digital content, it is obvious that the reasonable expectations of consumers on the accessibility of digital content in other EU Member states are supported by the Portability Regulation and the Digital Content Directive as well.

For these reasons, a consumer's inability to access the digital content which was provided in their home Member State while he or she is temporarily located in another Member State is to be considered a breach of "conformity with the contract" according to the objective criteria test regulated by Art. 8 (1) of the Digital of the Content Directive.

We may conclude that the Portability Regulation should be considered as a special piece of legislation in terms of Art. 3 (7) of the Digital Content Directive. Thus, it only regulates specific issues related to the accessibility of digital content, however, areas such as burden of proof, consumer claims, rights of third parties, and remedy for the failure to supply are covered by the Digital Content Directive. Respectively, these consumer law issues will be regulated by provisions which will be adopted after the implementation of the directive into the national legal orders of the EU Member States.

In the following part of this paper we will focus on selected details of this special kind of non-conformity with the contracts. We will analyse whether the unenforceability provision adopted by the Portability Regulation is consistent with traditional terms which are used by legislators in the EU Member States for to express the invalidity of contracts. Next, we will concentrate on the hierarchy of remedies which the consumer may pursue if the performance is not in conformity with the contract. Finally, we will make a few remarks on the quality requirements of digital content provided by a service provider in a Member State that a consumer visits temporarily.

[78] SWD (2015) 270 final, p. 16.

5. SPECIFIC ISSUES RELATED TO THE BREACH OF CROSS-BORDER PORTABILITY

When analysing specific relations between the Portability Regulation and the Digital Content Directive, we should first consider the differences in the terminology and the scope of both legislative acts. While the Digital Content Directive uses the terms "consumer"[79] and "trader",[80] the Portability Regulation deals with the consumer as a "subscriber"[81] and it indirectly defines the "provider of the online content service"[82] as the person providing audio-visual media services or other online services with protected subject matter, such as copyrighted works or broadcasting. The material and personal scope of the Digital Content Directive is broader because it also relates to the supply of offline digital assets such as the distribution of CDs or DVDs. The Portability Regulation is applicable only to online content services [Art. 1 (1) Portability Regulation].

Unlike the Digital Content Directive, the Portability Regulation concerns also those instances where digital content is provided for free and the provider requests personal data from the consumer only for the purposes of processing *"for the purpose of supplying the digital content or digital service in accordance with this Directive or for allowing the trader to comply with legal requirements to which the trader is subject"* [Art. 3 (1) Digital Content Directive].

Another difference between the legislative acts can be found in the presence of the cross-border element. While the Portability Regulation is applicable only in situations when the consumer uses the digital content in another Member State [Art. 2 (4), Art. 3 (1) Portability

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[79] *"'Consumer' means any natural person who, in relation to contracts covered by this Directive, is acting for purposes which are outside that person's trade, business, craft, or profession"* [Art. 2 (6) Digital Content Directive].

[80] *"'Trader' means any natural or legal person, irrespective of whether privately or publicly owned, that is acting, including through any other person acting in that natural or legal person's name or on that person's behalf, for purposes relating to that person's trade, business, craft, or profession, in relation to contracts covered by this Directive"* [Art. 2 (5) Digital Content Directive].

[81] *"'Subscriber' means any consumer who, on the basis of a contract for the provision of an online content service with a provider whether against payment of money or without such payment, is entitled to access and use such service in the Member State of residence"* [Art. 2 (1) Portability Regulation].

[82] *"'Online content service' means a service as defined in Articles 56 and 57 TFEU that a provider lawfully provides to subscribers in their Member State of residence on agreed terms and online, which is portable and which is: (i) an audiovisual media service as defined in point (a) of Article 1 of Directive 2010/13/EU, or (ii) a service the main feature of which is the provision of access to, and the use of, works, other protected subject-matter or transmissions of broadcasting organisations, whether in a linear or an on-demand manner"* [Art. 2 (5) Portability Regulation].

Regulation], the Digital Content Directive regulates both the cross-border and the domestic relations which exist between the supplier of the digital content and the consumer.[83]

Further on in this paper we will explore situations in which digital content is provided (i) online, (ii) in exchange for money and (iii) in a Member State of the EU which is different from the state of the consumer's permanent residence. In these instances, both legislative acts would be applicable.[84]

5.1 PORTABILITY AND UNENFORCEABILITY

As has been explained above, both pieces of EU legislation overlap on the issue of accessibility to digital content or services. The Digital Content Directive subsumes accessibility under conformity with the contract [Art. 8 (1) (b) Digital Content Directive] and the Portability Regulation uses accessibility to define portability [Art. 2 (6) Portability Regulation]. We have also come to the conclusion that if an online content service, which is normally available to a subscriber in the Member State of his or her permanent residence, but can not be accessed in other EU Member States, it not only contravenes with Art. 3 (1) of the Portability Regulation, which entitles the consumer to have online access to digital content in other Member States, but also breaches the conformity with the contract.

Since the Portability Regulation requires providers to enable the cross-border portability of online content services [Art. 3 (1) Portability Regulation] and any contractual provision which does not comply with this requirement is unenforceable [Art. 7 (1) Portability Regulation], such legislative construction strongly affects the contractual law of EU Member

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[83] COM (2015) 634 final, p. 10.

[84] According to Art. 4 (3) TEU, and Art. 288 (3) TFEU, as well as the settled case-law of the CJEU, the courts of the Member States, are required to interpret national provisions in such a way as to achieve the objectives set by directives [so-called indirect effect of directives; see judgments of the CJEU in *Von Colson and Kamann v Land Nordrhein-Westfalen* (C-14/83), *Marleasing v. Comercial Internacional de Alimentación* (C-106/89), *Kolpinghuis Nijmegen* (C-80/86)]. The national courts are, in principle, required to adopt such an interpretation in cases falling within the period after the transposition period of the directive has expired. However, such an interpretation is possible also before the expiry of the transposition period, but it is not the public authority's responsibility, and its admissibility depends on national law. Before the expiry of the transposition period the Member States courts are only required to refrain as far as possible from interpreting national law, which could seriously endanger the achievement of the objective pursued by the directive [CJEU in *Konstantinos Adeneler and Others v Ellinikos Organismos Galaktos* (ELOG), C-212/04, para. 123].

States and brings new problems related to the fact that the EU Regulation declares certain categories of contractual provisions unenforceable.

If we examine other EU regulations we can see that the European legislator usually uses the term "null and void"[85] contract. This is based on the fact that almost all legal systems subsume provisions which breach mandatory legal rules under traditional categories of nullity (invalidity).[86] Such provisions are automatically deemed invalid, as if they never existed. If material loss or immaterial damage arises in relation to the invalidity of a contract, the entitled person may claim damages for loss[87] or request the return of the performance supplied under the contract.[88]

On the other hand, the term unenforceability has a different meaning in the majority of EU legal systems. Such unenforceable contractual provisions are not automatically invalid from the beginning, but they may not be enforced if the impaired party raises an objection of avoidance or relative nullity.[89] Only if such notice is addressed to the other contractual party, then the agreement is null from the beginning.

"Unenforceability" also refers to situations in which the contractual provision itself is valid, but it cannot be enforced.[90] Provisions which are valid but may not be enforced by the creditor are called "natural obligations"[91] in civil law jurisdictions. In fact, they represent merely a moral claim.[92]

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[85] See for example Art. 7 (4) Regulation (EU) No. 492/2011 of the European Parliament and of the Council of 5 April 2011 on freedom of movement for workers within the Union; Art. 18 Regulation (EC) No. 392/2009 of the European Parliament and of the Council of 23 April 2009 on the liability of carriers of passengers by sea in the event of accidents. Similarly, Art. 101 (1) TFEU prohibits agreements between undertakings which have as their object or effect the prevention, restriction or distortion of competition within the common market and declares such prohibited agreements to be "automatically void" [Art. 101 (2) TFEU].

[86] DCFR II.-7:302; Bar, von Ch, Clive, E, Schulte-Nölke, H (2009), p. 544 ff.

[87] DCFR II.-7:304.

[88] DCFR II.-7:303.

[89] DCFR II. – 7:209; DCFR II. – 7:212. Most European legal systems stipulate that contracts violating mandatory legal rules are void. On the other hand, legal orders differ in the kinds of nullity and its effect. Belgian, Slovenian, Austrian, Czech and Slovak law distinguish between "absolute" and "relative nullity". Absolutely null and void contracts violate mandatory rules that aim at the protection of public interests. The nullity exists ipso jure which means that it is not necessary to invoke the invalidity before the court and the court should declare the voidance of the contract ex officio. In another EU Member States the situation is similar. Thus for example in France even "absolute nullity" must be claimed before the court and the judge may choose to raise the nullity. Bar, von Ch, Clive, E, Schulte-Nölke, H (2009), p. 570.

[90] Bar, von Ch, Clive, E, Schulte-Nölke, H (2009), p. 3699. Similarly Engles, S; Nordemann, J B (2018), p. 195.

[91] Bar, von Ch, Clive, E, Schulte-Nölke, H (2009), p. 3990-3994; Snyder, D V (1996), p. 424 ff.

[92] Bar, von Ch, Clive, E, Schulte-Nölke, H (2009), p. 3699.

The term unenforceability contained in Art. 7 (1) of the Portability Regulation, even though it presumably means an absolute nullity of respective contractual provisions,[93] would probably cause problems of interpretation by national courts either due to the inconsistency with traditional concepts of invalidity known in the majority of the civil law jurisdictions, or due to inconsistency with the legal terms used in primary and secondary EU legislation for defining effects resulting from the breach of mandatory legal provisions.

It would be more consistent[94] with the traditional concept of voidance and also with the terminology used in other EU regulations if Art. 7 (1) of the Portability Regulation contained the term "void" or "null and void". Such a solution would be more explicit and presumably lead to a more consistent application of the Portability Regulation by the courts in the EU Member States.

5.2 PORTABILITY AS A SERIOUS BREACH OF THE CONTRACT

If we address portability from the perspective of conformity with the contract, we see that the primary function here consists not in the nullity or the unenforceability of the contractual provision, but in the remedies (Art. 13 and 14 Digital Content Directive) that a consumer may request if the performance does not comply with the subjective or objective standards laid down by Art. 7 and 8 of the Digital Content Directive. The Digital Content Directive explicitly stipulates that the supplier shall be liable to the consumer for lack of conformity [Art. 14 Digital Content Directive].

The remedies referred to in Art. 14 of the Digital Content Directive correspond to the content and structure of consumer claims with rights

[93] This may be deduced from the rationale of Recital 25 and Art. 7 (1) of the Portability Regulation. In the impact assessment [SWD (2015) 270 final, p. 45] it is declared that the restriction of the freedom to conduct a business (Art. 16 and 17 European Charter of Fundamental Rights) would be justified in light of the cross-border portability of online content services for European consumers. From this perspective, we can assume the obligation to enable cross-border portability [Art. 3 (1) Portability Regulation] and the parallel declaration that any contractual provisions which breach this obligation is unenforceable [Art. 7 (1) Portability Regulation], represent a breach of the mandatory legal rules. For this reason the violation of Art. 3 (1) of the Portability Regulation would constitute the absolute nullity (voidance) of any contractual provision which would not comply with these legal requirements. However, *Engles* and *Nordemann* conclude that the term unenforceability does not affect the validity of the provisions which contravene with Art. 3 (1) Portability Regulation and only makes them legally unenforceable. Engles, S; Nordemann, J B (2018), p. 195.

[94] Inconsistency with the standard contract law terminology could have been precluded if the European Commission had used theoretical contributions which were formulated by European private-law projects. The differences between different concepts of nullity and unenforceability are clearly explained by the Draft Common Frame of Reference formulated by the Study Group on a European Civil Code and Acquis Group. See Fn. No. 91.

conferred by Art. 3 (2) of the Consumer Sales and Guarantees Directive, but they are specially modified to the digital content. Thus, a hierarchy of remedies[95] is guaranteed at two levels. The basic remedy is that the consumer is entitled to have the digital content brought into conformity with the contract free of charge [Art. 12 (1) (3) Digital Content Directive]. At the second level, the consumer is entitled to terminate the contract, request a price reduction,[96] or claim damages.

Criticisms of the hierarchy of remedies emerge when we compare the Digital Content Directive with the Consumer Sales and Guarantees Directive; it becomes evident that terminating a contract for the supply of digital content is effectively less harmful than terminating a contract for physical goods.[97] In this respect it is argued that a consumer's option to immediately terminate a contract upon the breach of the conformity would enhance his or her negotiating position.[98]

Such criticism makes sense especially when we pay attention to portability issues. On the one hand, we can argue that if a supplier uses geo-blocking practices and the digital content is not available in another EU Member State, it is logical to remedy the situation by ensuring cross-border portability, since Art. 3 (1) of the Portability Regulation requires that the provider of an online content service will enable a consumer to access the online content service. On the other hand, we may ask why the consumer should be required to notify the provider in order to restore their access. However, it is possible that a provider might not be able to remove the geo-blocking mechanisms within a reasonable time frame [Art. 14 (3) Digital Content Directive]. Moreover, the supplier of the digital content might not be willing to bring the digital content into conformity with the contract because it is clear from the circumstances [Art. 12 (3) (e) Digital Content Directive] that geo-blocking is a commonly used practice.

We believe that in the sphere of the portability of the digital content a consumer should not first be forced to request that the provider enable cross-border portability, and only as a secondary claim be entitled to choose

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[95] Zoll, F (2016), p. 253.

[96] The Digital Content Directive refers only to the reduction of a monetary price since the reduction of personal data would hardly be possible [Art. 14 (4) Digital Content Directive]. Spindler, G (2016). Verträge über digitale Inhalte – Haftung, Gewährleistung und Portabilität Vorschlag der EU-Kommission zu einer Richtlinie über Verträge zur Bereitstellung digitaler Inhalte, p. 221.

[97] Zoll, F (2016), p. 253.

[98] Mak, C (2016), p. 24.

between terminating the contract and reducing the price. The Digital Content Directive contains a rule that in specific cases in which non--conformity with the contract is of a serious nature [Art. 14 (4) (d) Digital Content Directive] the consumer should be entitled to pursue a price reduction or termination of the contract as a first course remedy.

A similar remedy was anticipated by the CESL when Art. 87 CESL regulated that the non-performance of an obligation by one party is fundamental if "*(a) it substantially deprives the other party of what that party was entitled to expect under the contract, unless at the time of conclusion of the contract the nonperforming party did not foresee and could not be expected to have foreseen that result; or (b) it is of such a nature as to make it clear that the non-performing party's future performance cannot be relied on*". In such a case, Art. 114 (1) of the CESL enabled the buyer to terminate the contract if the seller's non-performance under the contract was fundamental under the terms of Article 87 of the CESL. Furthermore, Art. 114 (2) of the CESL provided that in a "*contract for the supply of digital content between a trader and a consumer, where there is a non-performance because the goods do not conform to the contract, the consumer may terminate the contract unless the lack of conformity is insignificant*".

We can conclude that the portability requirements represent an important legal duty imposed on the provider of the digital content and the consumer should be automatically entitled to terminate the contract if the provider does not allow him or her access to digital content in the country of his or her temporary residence.

5.3 PORTABILITY AND QUALITY

Although the Portability Regulation allows a consumer access to online content services in a Member State of his temporarily presence [Art. 3 (1)], which should lead to the restoration of cross-border accessibility of digital content, the Portability Regulation reduces the quality requirements applied to such services available abroad [Recital 22, Art. 3 (3) Portability Regulation]. Although the provider is required to inform the consumer of the quality of the services accessible in other Member States [Art. 3 (4) Portability Regulation], the EU has chosen not to set legal requirements with regard to the quality of the service delivered in the other EU Member States [Art. 3 (3) Portability Regulation]. Thus, service providers would not be obliged to adapt the technical infrastructure necessary to ensure the same

quality of their online services available in foreign countries.[99] The Portability Regulation Impact Assessment explains that "*if service providers see a need to adapt the technical infrastructure, it might lead to more substantial costs, e.g. the cost of upgrading the Internet connection of the origin server [...] Such costs would be substantial if providers of AV content services decide to invest in CDN in order to ensure quality of their service also when accessed in other MS*".[100]

From a consumer law perspective, such an approach is very surprising since the Digital Content Directive, when defining the objective requirements of conformity with the contract, relies on the "*standards, open technical specifications, good practices and codes of conduct*" [Recital 50; Art. 8 (1) (a) Digital Content Directive].

If the quality of cross-border online content services is not covered by the Portability Regulation and especially if such quality is reflected only if the provider expressly acknowledges[101] in the licence or service contract that he or she will enable the same quality of accessibility of the digital content in another Member State [Art. 3 (3) Portability Regulation], then the contractual position of the consumer is obviously very weak. Actually, such a permissible reduction of quality may lead to circumventing the prohibition of geo-blocking practices. From the perspective of conformity with the contract, we see that even though there might be existing "technical standards" which are applied internationally (or in certain fields of online content services),[102] it would not be possible to apply them since the Portability Regulation, as a particular piece of EU legislation [Recital 36; Art. 3 (7) Digital Content Directive], excludes provider liability for the quality of the online content services in cross--border situations.

These risks have probably been precluded by Art. 3 (1) Portability Regulation which aimed to enhance the quality of online services provided abroad. The provider of an online content service provided against payment of money shall enable the accessibility to digital content in the same manner as in the Member State of residence "*including by providing access to the same content, on the same range and number of devices, for the same number of users*

[99] SWD (2015) 270 final, p. 32, 59; Engles, S; Nordemann, J B (2018), p. 187.
[100] SWD (2015) 270 final, p. 42.
[101] COM (2015) 627 final, p. 8.
[102] Loos, M B M et al. (2011), p. 47, 48.

and with the same range of functionalities". Furthermore, the provider shall neither "*take any action to reduce the quality of delivery of the online content service*" [Art. 3 (3) Portability Regulation] nor "*impose any additional charges on the subscriber for the access to and the use of the online content service*" [Art. 3 (2) Portability Regulation].

6. CONCLUSIONS

When we analyse the relation between the Digital Content Directive and the Portability Regulation we see that both legislative acts address the issue of access to digital content from different perspectives. The Portability Regulation focuses on the cross-border portability of digital content in other EU Member States [Art. 3 (1) Portability Regulation), while the Digital Content Directive specifies the consumer rights related to the distribution of digital content and subsumes the accessibility of the digital content under the notion of the "conformity of the digital content with the contract" [Art. 8 (1) Digital Content Directive).

We have argued that even though both pieces of EU legislation use different legal terminology and, in some aspects, have different scopes of application, they can be complementary in the question of cross-border portability of digital content provided to consumers for monetary counter performance. This means that the Portability Regulation will be applied in respect to the cross-border accessibility of digital content, but other issues, such as remedies concerned with the non-availability of the digital content, will fall under the scope of the Digital Content Directive, respectively under national regulations, which will be issued to transpose the directive into national law.

Furthermore, we have deduced that the Portability Regulation contains the mandatory legal provisions which limit the contractual freedom of the copyright holders and service providers. The dissemination model of digital assets must respect the basic principles of the EU single market such as free movement of goods and services [Art. 26 (2), Art. 56 TFEU] and the protection of the consumer [Art. 12, Art. 114 (3), Art. 169 TFEU]. Such legal requirements could not be solved by the adoption of the EU Copyright Regulation (adopted under Art. 118 TFEU, which would create a unitary EU copyright protection). Therefore, the EU legislator have correctly focused on removing territorial barriers in the sphere of contract law. Under the regime of unitary rights, we may still find examples in which licences

are granted not for the entire territorial scope of protection, but for several states only. The cross-border accessibility of digital content is thus not primarily a question of the territoriality of the copyright but a question of copyright holders' and service providers' licencing policies.

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DOI 10.5817/MUJLT2021-1-

LEX EX MACHINA: REASONS FOR ALGORITHMIC REGULATION*

by

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A major unanswered question in regulation concerns the application of cognitive diversity and various data as inputs for the creation of general legal rules. The paper claims this diversity can be assured with the help of algorithmic planning. Classical regulation is hence put under question due to its inability to quickly adapt to changing conditions, where relations per se change also intentions, tools and goals. The paper proposes two paths towards a computational simulation of legal situations: with the help of algorithms that can ensure the needed adaptability and relevancy of hidden data correlations, and with collective intelligence based on human inputs where data for algorithms is not available. The aim of this work is to extend the pre-regulatory practice of extracting information from data with the help of algorithms to determine patterns and predict future results and trends (written now as general legal rules). Nowadays, algorithms could be used at least as advice, especially in a prepreparation, draft phase of legal acts.

KEY WORDS

Planning, Anticipation, Adaptive Legislation, Autopilot, Stochastic Indicators, Algorithm

* The author gratefully acknowledges the financial support of the Slovenian Research Agency, Grant No. J5-7557 (Transformation of governance and public service delivery mechanisms in the digital age).

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1. INTRODUCTION

> *"A plan of action is the chief manifestation of planning and is, at one and the same time, the result envisaged, the line of action to be followed, the stages to go through, and methods to use."*[1]

One amongst must-read books for legal practitioners is Bingham's *The Rule of Law*;[2] its first principle is: '*the law must be accessible and so far as possible intelligible, clear and predictable*' (emphasis added). Indeed, for Fayol, as the founder of scientific management, planning is the first element of management (then follows organising, command, coordination and control): to foresee, means to assess the future and make provision for it.[3] Also in Gulick's well-known POSDCORB acronym planning stands as the first task for the chief executive (Planning, Organizing, Staffing, Directing, Coordinating, Reporting and Budgeting).[4] People plan many things: inflation, GDP, unemployment, expenses, profitability, one's retirement, vacations, the time required to complete projects, etc. When the meaning of planning as 'the establishment of goals, policies, and procedures for a social or economic unit'[5] is applied to a general legal act (a statute), the term's inadequacy is exposed: predictability in planning is achieved with more specific arrangements (adjustments of fit among things), while legislation does this with general words (with demands for justice, a la French *liberté, égalité, fraternité*). The first is the logic of action, the second of justification. Prediction or foreseeability is in law enabled mainly by the fundamental legal principles (to know how to act/decide), and it is important also for (tort) liability (to know how not to [even un-] intentionally harm).

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1 Fayol, H. (1954) *General and Industrial Management*. London: Sir Isaac Pitman & Sons, Ltd., p. 43.

2 Bingham, T. (2011) *The Rule of Law*. London: Penguin UK.

3 Fayol, H. (1954) *General and Industrial Management*. London: Sir Isaac Pitman & Sons, Ltd., p. 48.

4 Gulick, L. (2003) Notes on the Theory of Organisation. In: Kenneth Thompson, Luther Gulick, Lyndall Urwick (eds.) New York and London: Routledge. With planning, the well-known terms of vision (a company's main purposes by focusing on the future), mission (a vision expressed in practical terms) and strategy (ways to use the mission statement in order to achieve the vision statement through the short- and long-term goals, timelines, indicators of success, action plans) are connected. In legal terms, vision resembles a constitution, mission to statutes and bylaws to strategies, but these legal terms are not close to planning (even when national programmes (strategies) are included), although the law with its anticipative, *ex ante* element should exhibit it.

5 Merriam-Webster (2020) Definition of Planning by Merriam-Webster. Available from: https://www.dictionary.com/browse/planning [Accessed 24 October 2020].

So, the question is how is planning as the first element of scientific management present in the law, how is it reflected in action, in real legal effect, that should 'realise the public interest by doing good', as the impetus and legitimation for planning?[6] Up to the present time, morality and ethics provided this anticipative, general (although not specific enough, but nevertheless satisficing) element of goodness in legislation,[7] mainly in the form of general legal principles as linguistic points extracted from past examples that cannot exactly show conditions, under which results can be later reached: they give only a frame (in which possible results are allowed) and weight,[8] by which things are balanced. Principles are applied on specific contexts, which are per se detached from the future's pain, pleasure, virtue or values, and thus leave a room to (a human's subjective) interpretation of officials in the Executive and Judicial branch of power, who still decide mainly on intuition[9] and 'rational' common sense.[10] Practice rarely uses the actuarial tables, precise calculations or explicit analysis of best results from similar occasions. It uses language, but also here

6 Lennon, M. (2020) Planning as Justification. *Planning Theory & Practice*, 1-5.

7 A lawmaker's judgment is not on a particular case but about what lies in the future and in general: 'this is why it is necessary to have the introduction or the narration and each of the other parts; for [in treating these matters] they concern themselves only with how they may put the judge in a certain frame of mind, while they explain nothing about artistic [logical] proofs' (Aristotle, (2007) *On Rhetoric: A Theory of Civic Discourse*. New York: OUP, pp. 32-33. Aristotelian recommendation is directly reflected in Article 296 of TFEU: "legal acts shall state the reasons on which they are based and shall refer to any proposals, initiatives, recommendations, requests or opinions". For Cicero law is the right reason enjoying what is good and forbidding what is evil, where the true basis of justice is to love mankind, and not utility. Cicero, M.T. (1853) The *Treatises of M.T. Cicero: On the Nature of the Gods; On Divination; On Fate; On the Republic; On the Laws; and On Standing for the Consulship*. London: H. G. Bohn. On the other hand, Bentham's utility principle of the greatest happiness of the greatest number replaces right reason with individuals' pleasures. Bentham, J. (1843) *The Works of Jeremy Bentham, Principles of Morals and Legislation, Fragment on Government, Civil Code, Penal Law.* Edinburgh: William Tait. Such stance is unsolvable when priorities and justice and/or needs and interests are in conflict. Fukuyama, F. (2002) *Our Posthuman Future - Consequences of the Biotechnology Revolution*. New York: Farrar, Strauss and Giroux. The majority of the stupid is invincible and guaranteed for all time. The terror of their tyranny, however, is alleviated by their lack of consistency. Einstein, A. (1960) *Ideas and Opinions*. New York: Crown Publishers. Adam Smith's never finished intention was to establish 'a theory of the general principles which ought to run through and be the foundation of the laws of all nations'. Smith, A. (1984) *The Theory of Moral Sentiments*. Indianapolis: Liberty Fund, p. 341.

8 When principles intersect...one who must resolve the conflict has to take into account the relative weight of each. Dworkin, R. (1978) *Taking Rights Seriously*. Cambridge: Harvard University Press, pp. 24, 27.

9 Intuition cannot be trusted in the absence of stable irregularities in the environment. Kahneman, D. (2013) *Thinking, Fast and Slow*. New York: Farrar, Straus and Giroux, p. 241.

10 Under these [situations that exhibit complexity, different from everyday situations] circumstances, common sense turns out to suffer from a number of errors that systematically mislead us. Yet because of the way we learn from experience…the failings of common-sense reasoning are rarely apparent to us. Watts, D.J. (2011) *Everything Is Obvious: *Once You Know the Answer*. New York: Crown Publishing Group, p. viii.

the Watson's IBM computing system in 2011 won against the world's best Jeopardy! champions[11] and thus took over the monopoly not only over logic but also over natural language – in which legal provisions are written.

Nowadays, the calculations of large and various data sets (that hide/show patterns and correlations) are made by computing power and different software applications to make informed decisions based on algorithms. The latter is used in evidence-based management as 'the systematic, evidence-informed practice of management, incorporating scientific knowledge in the content and process of making decisions'[12] and/or decision support systems[13] that '*simulate cognitive decision-making functions of humans based on artificial intelligence methodologies (including expert systems, data mining, machine learning, connectionism, logistical reasoning) to perform decision support functions*'.[14] The virtual assistants and financial algorithms, autonomous vehicles, robotics, blockchain smart contracts, automated online dispute resolution and other artificial intelligence (AI) technologies are already the part of our daily lives. Given the current presence of algorithms in industry, data processing, intellectual property, financial instruments,[15] market, mail sorting, etc., further expansion is expected also in more decision-making software applications.[16] On the other hand, predictive analytics has not set foot into legislation/regulation,[17] although the latter effects a larger number of people. As said, the prediction has been in legislation so far stated

[11] Ferrucci, D. et al. (2013) Watson: Beyond Jeopardy! *Artificial Intelligence*, 199-200.

[12] Rousseau, D. M. (2013) The *Oxford Handbook of Evidence-Based Management*. Oxford: Oxford University Press, p. 3

[13] Burstein, F., Brézillon, P. & Zaslavsky, A. (2010) *Supporting Real Time Decision-Making*. New York, Dordrecht, Heidelberg, London: Springer Science & Business Media.

[14] Jao, C. (2012) *Decision Support Systems*. Olajnica: IntechOpen, p. 5.

[15] Algorithmic trading is set out in Article 17 of Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments.

[16] It is about the so-called "legal engineering" or applying the knowledge of IT professionals in the legal field, where science, statistics and software is used for legal services; it is a bridge between law, technology and the development of new (legal) products or services (e.g. smart data chain contracts) that understands data (facts and legal provisions) as programming and technical requirements in the direction of the more efficient, faster, more optimal achievement of legal objectives. A "legal engineer" is a person who, with the help of IT, co-creates legal processes.

[17] Legislation and regulation are here used interchangeably. The automated individual decision-making, including profiling, is allowed under the conditions stated in Article 22 of GDPR (Regulation (EU) 2016/679 of the European Parliament and the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC).

in general forms (in words) that bring people together and ensure predictable behaviour. [18]

This paper claims that the pre-legislative practice of extracting information from data to determine patterns and predict future results and trends (written as general legal rules) could be more algorithm-based. At the start at least in a pre-preparation, draft or advising phase of legal acts. For adjudication many open questions are not addressed here, as the protection of human rights or due process deserves special attention. It is not only about data mining and profiling,[19] but the whole range of AI as the field that 'studies the synthesis and analysis of computational agents that act intelligently',[20] which could be used in the preparatory phase of legislation. Within the notoriously known increasingly complex and global world the inefficiency of planning[21] in classic regulatory approaches is evident: law cannot predict future consequences, nor can they automatically accommodate to new circumstances without a legislator's 'by foot or manual' iterative amendment procedures.[22] The old-fashioned way of drafting laws officially 'construct (formal) reality', but the latter is de facto also different not only due to the difference between the enactment and implementation time, but also due to a smaller amount of data as needed.

Additionally, legislation can establish only how to act/decide when predetermined criteria are present (if-then), while planning contrary, means also thinking on things, their connections and exponential results. Planning thus proposes different, appropriate measures when things change (criteria and/or their weights change when things change). In the law, this could be at least partially achieved with legal scenarios: the legal conditional form of 'if-then' can be changed with 'what-if-then' approach where 'if' is based and determined on gathered data. This meaning of planning is absent

[18] Boltanski, L. & Thévenot, L. (2006) *On Justification*. Princeton and Oxford: Princeton University Press.

[19] Profiling on a collective level could be focused on any form of automated processing of anonymised, grouped data evaluating collective aspects relating to persons, e.g. to analyse or predict aspects concerning the data collective's performance at some work, economic situation, health, collective preferences or interests, reliability or behaviour, location or movements.

[20] Poole, D.L. & Mackworth, A.K. (2010) *Artificial Intelligence*. Cambridge: Cambridge University Press, p. 3.

[21] What legal act can tell us how e.g. the EU will react in the presence of new Covid-19 or another crisis?

[22] The Covid-19 crisis is the clear example of this – this stands regardless of articles published in the most prestigious journals, e.g. Chang et al. (2021) Mobility network models of COVID-19 explain inequities and inform reopening. *Nature*, 589.

in legislation; there is no room for proposed scenarios in changed conditions. At first, intent (and tools) are fixed in advance (e.g. this Act aims to minimise traffic accidents due to alcohol consumption), while at the second, endeavours are focused to achieve goals not only when conditions change, but also to accommodate new/different intentions/aims to new conditions (e.g. from the mentioned alcohol-based accidents to urgent road repairs); at legislation, a problem is known and a final result is left more or less to random future occurrences, while at planning the intention, tools and results are more ex ante and ex-post actively searched and selected.[23] From the planning perspective, a static view on the rule of law can be in dynamic frames the very oppression of it (rules stay the same even when conditions change and are thus inefficient, or are made in the form of secondary legislation and transferred on the Executive branch, as was/is seen in the Covid-19 crisis).[24] Could legal science hence develop its legislative Machina Speculatrix (Grey Walter's electromechanical tortoise that represents the beginnings of robotics), or what should be done to do so, to 'run an application, wait and see what will happen' (at least what will be proposed as a solution as it can be in medicine)? Already in 1977, Anthony D'Amato asked, 'Can/should computers replace judges?'[25] To calm down concerns, the legislator should still retain and maintain control, and it is also possible to suspend the execution of 'auto-rules' (a kill switch for the disengagement of the autopilot).

[23] Planning tolls are more flexible: during planning, activities that may have a detrimental effect on a field of interest are reviewed in full, an extent of this impact is assessed, what measures and regimes are already in place are reviewed and a likelihood that targets will be achieved in a fixed time-cycle is assessed. On the basis of performed assessments, it is determined whether it is necessary to involve additional measures or stricter regimes for protection, while also financial consequences of measures for an individual fixed-year management period are determined. The mentioned shortcoming of inadaptability can be seen also in public reason and the rule of law that are both determined equally as legislation and mostly solely by state institutions.

[24] Some estimate that 2 billion people have parliaments shut or limited by COVID-19. Provost, C., Archer, N., & Namubiru, L. (2021) *Alarm as 2 billion people have parliaments shut or limited by COVID-19*. OpenDemocracy. Available from https://www.opendemocracy.net/en/5050/alarm-two-billion-people-have-parliaments-suspended-or-limited-covid-19 [Accessed 28 May 2021]. Based on more than 200 experts' responses it was determined that 'Covid-19 poses a special challenge for legislatures: the pandemic makes it difficult, daunting and even dangerous for parliaments to operate; all while creating a sense of emergency that empowers the executive branch and emboldens it to assert greater authority at the expenses of the legislature'. Bar-Siman-Tov, I. (2020) Covid-19 meets politics: the novel coronavirus as a novel challenge for legislatures. *The Theory and Practice of Legislation*, 8 (1-2), p. 33.

[25] D'Amato, A. (1977) Can/Should Computers Replace Judges? *Georgia Law Review*, 11.

If 'prediction is involved in every act of human behaviour that involves deliberate choice'[26] – how much of it is present in the legislation? This paper focuses on ways by which future possibilities can be built into the law, and how they can grow and be changed in different environments. The aim of this work is to extend our knowledge of prediction in legislation, especially to propose a way by which prediction can be better used in legislation.

This paper's idea is that this 'auto' moment of rules can be achieved by algorithms. Everything that is done online is now being watched and measured, which leads to better and better predictions. Based on data, different models are built that predict our actions. On another side of the screen, there is almost a person's avatar that can predict what he will do, and this applies also to the community as a whole. This condition can be improved with transparency (right to forget) and models of public interest, which could predict what is best for society as a whole. This is the work of advanced algorithms under the name of algorithmic regulation. While there are algorithms in the legal field that can help to individually fight crime, make judicial decisions on bail, sentencing and parole,[27] prevent terrorism, score customers, decide on welfare benefits[28] or flag for investigation hedge funds, there are none present in legislation/regulation. Although the notion of 'algorithmic regulation' was coined in 2013 by O'Reilly,[29] his focus was on the implementing phase of the regulation (whom to do), not on the constituting (drafting) one (what and how to do). A 2019 poll showed that 25% of citizens from selected European countries are somewhat or totally in favour of letting AI make important decisions about the running of their country.[30] The area of algorithms could attract increasing attention because of their ability to be used in general

[26] Carnap, R. (1966) *Philosophical Foundation of Physics: An Introduction to the Philosophy of Science*. New York: Basic Books, p. 18.

[27] The Marshall Project, (2020) *Algorithms.* Available from: https://www.themarshallproject.org/records/3363-algorithms [Accessed 20 March 2021].Virginia's Sexually Violent Predator Act is the first law ever to specify the use of an actuarial prediction instrument. Under this Act the Virginia Department of Corrections is directed to review for possible commitment all prisoners who are about to be released and receive a score of four (such score translates into a prediction that the inmate, if released, would in the next ten years have a 55 percent chance of committing another sex offence) or more on the Rapid Risk Assessment for Sexual Offender Recidivism (a point system based on a regression analysis of male offenders in Canada).

[28] Citron, D.K. (2008) Technological Due Process. *Washington University Law Review*, 85.

[29] O'Reilly, T. (2013) Open Data and Algorithmic Regulation. In: Brett Goldstein (ed.) *Beyond transparency: open data and the future of civic innovation*. Sebastopol, CA: "O'Reilly Media, Inc.

[30] Rubio, D. & Lastra, C. (2019) *European Tech Insights 2019*. Available from: https://docs.ie.edu/cgc/European-Tech-Insights-2019.pdf [Accessed 13 March 2021].

legislation/regulation; public authorities possess large data and computer power needed for analysis can discover new patterns. Although algorithms can be used in individual procedures and collective ones, this paper is focused with the latter, on their nature of general predictions that apply to all.[31] The key premise of this paper is that we need as complex and adaptive legislation as economic and other situations are; it should contain a corresponding variety, one able to give a response to diverse situations. There is a need for better planning in law that could exhibit sufficient variety in time of an Act's enactment and its implementation. This paper thus starts with the inefficiency of classic legal rules to address the uncertain future. The next section considers computational simulation of legal situations to be able address in the fourth section the collectivity of interests and unity of public interest, after which the conclusion follows in the fifth section.

2. THE INEFFICIENCY OF CLASSIC LEGAL RULES IN THE UNCERTAIN, DYNAMIC FUTURE

Jurisprudence as the calculation is known already from Leibniz and his geometrical analysis of rules: he 'insisted on applying the combinatorial method to calculate all possible legal cases and rules out of a set of simple elements. Leibniz recommends his method as a means for removing the uncertainty of legislation, and with it judicial discretion'.[32] His call on 'Calculemus' (Let's calculate!) wanted to replace disputes by mechanical computing, because 'necessary truths, such as we find in pure mathematics and particularly in arithmetic and geometry, must have principles whose proof doesn't depend on the testimony of the senses'.[33] Leibniz refined ancient Egyptian knowledge on binary code that is still the current language of computers, but along his saying that nature never makes leaps (or nothing takes place suddenly)[34] aka the Law of Continuity also applies to algorithms – they can jump, but we have to be prepared for such jumps.

[31] In the case of transferring words into the programming language (program code), management of an individual administrative procedure e.g. for granting social assistance may – due to transmission errors – become in fact a general rule that will apply to all further cases (when the program "does not allow" a different decision). All algorithms applied in individual cases are predetermined in general legislation so it matters more how algorithms here are defined and allowed.

[32] Artosi, A., Pieri, B. & Sartor, G. (2013) *Leibniz: Logico-Philosophical Puzzles in the Law: Philosophical Questions and Perplexing Cases in the Law*. Dordrecht: Springer Science & Business Media, p. xxv.

[33] Leibniz, G.W.F.V. (1996) *Leibniz: New Essays on Human Understanding*. Cambridge: Cambridge University Press, p. 3.

Planning in the law has so far meant production of various concepts (intuitively) raised in mental frames, which were then in time (dis)confirmed by practice (trial and error), not by calculation. When concepts show a relevant level of unity, lawyers are accustomed to see rationality (substantial grounds) in the law, regardless of bad results. Legal science still mainly uses the dichotomous (if-then), Boolean yes-or-no truth values rather than more-or-less type of legal rules (as it is present in the principle of proportionality). The first are based on traditional dual logic, where a statement is true or false and nothing in between, while e.g. in fuzzy set theory[35] (and even more in quantum theory), an element is based on potentiality and can either belong to a set or not. This can be hard to imagine in legal frames; on the other hand, fuzziness and/or uncertainty, imprecision and vagueness are also present in human language, as well as in the human judgment, evaluation and (legal) decisions (a person takes a more certain decision, i.e. more probable). Legal science still formally uses general legal rules based on determinism rather than on potentiality, predictability or anticipation, although the last three are de facto present in the indeterminate legal notions (e.g. public interest, security, health). Similarly, this indeterminism is present also in adjectives: e.g. a nice person or a tall building. This applies also for the standards of evidence (e.g. preponderance of evidence, sufficient evidence) with their degrees of truth rather than true or false statements (although the result is usually taken as such: something is allowed/prohibited, acquittal/conviction). Even the elements of the well-known legal principle of proportionality (the legitimate aim, suitability, necessity and proportionality sensu stricto) are determined by degrees and linguistic rules, and not by (numeric) variables (although this could be done e.g. with Bayes theorem).

It is hence a smaller problem not to know something counterintuitive than to know but still do nothing. Reality is rarely deterministic, precise

[34] Leibniz, G.W.F.V. (1996) *Leibniz: New Essays on Human Understanding*. Cambridge: Cambridge University Press.

[35] Zadeh, the founder of the theory of fuzzy (uncertain) logic (that resembles human reasoning that "computes" words not numbers), described the principle of incompatibility between precision and complexity: 'as the complexity of a system increases, our ability to make precise and yet significant statements about its behavior diminishes until a threshold is reached beyond which precision and significance (or relevance) become almost mutually exclusive characteristics'. Zadeh, L.A. (1973) Outline of a new approach to the analysis of complex systems and decision processes. *IEEE Transactions on systems, Man, and Cybernetics*, 3 (1). The perspective of fuzzy logic can help to describe what is (not) going on also in legal science (that also does not operate with numbers, but with words), although the principle of legal certainty indicates an assumption that rules' parameters are known and there are no doubts about their values or their occurrence.

in character, or certain. It is mainly complex, assembled from numerous parts and their relations. It is hardly ever directly consequential and more often than not exponential due to the nonlinearity of complex systems (society, people, language, etc.): they often operate not accordingly with our intuition, insight, or comprehension, but are based on relations. As the law is also a complex system it should be also addressed with such tools; this holds all the more when the future is considered in the form of general legal rules. That properties of some system cannot be reconstructed from the knowledge of corresponding parts can be counterintuitive, but a system cannot be fully comprehended even when its relevant legal, financial, economic, political, psychological, ecological and other relevant subsystems are known.[36] Along with knowable parts, there are relations and flows among and through them vis-à-vis stocks, outer boundaries, thresholds, sensors, measuring instruments, patterns, feedback and other elements present, known from systems theory. They all 'mess up' the legislator's clear, deterministic and reductionistic painting. Systems can be known from a point of our interest because a system is not a thing, but a list of (chosen) variables[37] – when a deterministic variable is changed to the dynamic one, there is a different system present. Remember that trends are nothing but symptoms of the underlying system structure,[38] and when this structure is static, also results are such (and hence more or less left to chance). For some, also the human mind non-stop calculates; as regards numerical processing, Dennet explains that 'human consciousness… [is] in terms of the operations of a virtual machine, a sort of evolved (and evolving) computer program that shapes the activities of the brain',[39] while to Pinker '[t]he mind is a system of organs of computation, designed by natural selection… The mind is what the brain does; specifically, the brain processes information and thinking is a kind of computation'.[40] Discovered regularities through (mental) computation are later transferred into decisions or 'patterns of a higher order'.[41] One of the main lessons of AI is that 'successful agents [something that acts in an environment] exploit

[36] Klir, G.J. & Elias, D. (2003) *Architecture of Systems Problem Solving*. New York: Springer Science & Business Media.

[37] Ashby, W.R. (1957) An *Introduction to Cybernetics*. London: Chapman and Hall.

[38] Meadows, D.H. (2008) *Thinking in Systems: A Primer.* London: Chelsea Green Publishing.

[39] Dennet, D.C. (2012) *Pojasnjena zavest*. Ljubljana: Krtina, p. 509.

[40] Pinker, S. (1997) *How the Mind Works*. London: Penguin Books, p. 21.

[41] Beer, S. (1966) *Decision and Control: The Meaning of Operational Research and Management Cybernetics*. Chichester: John Wiley & Sons, p. 7.

the structure of the world'[42] mainly through probability distributions over various effects that determine which characteristic best predicts the value of another one (reasoning under uncertainty).

The calculation can be seen also in the law, although not on the open floor. At the enactment of the law, limits are set for an allowed behaviour which a person can exhibit in any predetermined situation; in the next step the same person can behave differently, and his move is not completely determined although it can be (roughly or more mathematically) predicted (probability of all moves can be known through the base rate). Such behaviour introduces randomness in the law, which is enhanced in the random (non-deterministic) environment, where an observed pattern of probabilities can be seen over a while through past examples. Legislation many times resembles more to bootstrapping (based on a self-starting process supposes to advance without external input) than to real tools of human development: decision-makers enact a system in the form of general legal rules (of constitutional, legislative nature) that address (or try to manage) an unknowable future from the point of (more or less) knowable present time (they '*blindfolded throw spears/hypotheses in an intended direction*') and '*pretend*' they effectively and efficiently addressed the future's vagueness; the latter always co-determines a final rule's content given circumstances.

A democratic (especially majoritarian) way per se is hence not enough to obtain the most relevant solution (as only number or the majority is not synonymous with the best option). It hence matters how one betters oneself by one's efforts, what approaches legislators could use in general legislation – when knowing the future is uncertain and thus unknowable. Incompatibility between the legislation and its (static, ex ante) legal principle of certainty rises with the growing complexity; parliaments in such conditions transfer regulatory powers on the Executive (to be able to quickly respond to change conditions with secondary legislation) on the account of democratic legitimacy. This will hold until some other ways are not discovered by which at least a result's procedural certainty (how a result is formed although without knowing when and where) will remain at the legislative branch of power. The inefficiency of classic (static, unadaptable, inflexible) legal rules to address the uncertain future is not

[42] Poole, D.L. & Mackworth, A.K. (2010) *Artificial Intelligence*. Cambridge: Cambridge University Press, p. 492.

some abstract idea, but the inevitable fact regardless of how much the principle of legal certainty is appreciated (although even ancient Greeks used sortition, i.e. lottery, selection by lot or allotment for the selection of political officials). In the dynamic change-prone environment, the mentioned principle is not so certain anymore. Decisions under uncertainty, i.e. in the complex environment, are always false up to a point, so they should be on the other hand easier to control, they should be highly corrigible and flexible with the built-in future alternatives, sensitive to errors or deviations. Preparedness to change when conditions change[43] is the basic difference between the static and flexible rules, and legislation should be no exception here.

3. TOWARDS COMPUTATIONAL SIMULATION OF LEGAL SITUATIONS

In this section, some predispositions (stated in italicised text) are given based on which future legal situations will be probably more calculated than legislated/decided. Supercomputers are already used for weather forecasting, spacecraft aerodynamics and other areas, where they can produce meaningful conclusions out of apparently random data. They could be used also in the law that effects the lives of all inhabitants in all countries.

Of course, software is not a magic formula. In the 21st century, IT can make an even larger distance between decision-makers and citizens as classic legislation. On the other hand, concerns over software systems may be many times 'proxies for concerns about power and inequality in general, not software specifically':[44] the fear of the unknown (e.g. a deep state or an unknown influencer with control) may be the larger problem than software (there are almost 5 billion internet users). In practice, the final results are many times different from predicted ones, and the distance, technology and intricate webs of connections between institutions, their employees, and citizens always cause a lack of accountability. The reason for such deficiency is that one contributes only tiny bits to a final result that is additionally self-made from the connections themselves (remember

[43] The saying attributed to the economist John Maynard Keynes is: "*When the facts change, I change my mind. What do you do, Sir*"?

[44] Desai, D.D. & Kroll, J.A. (2017) *Harvard Journal of Law & Technology*, 31, p. 5.

Arendt's rule by nobody[45]). In complex matters there is always a high probability that future occasions or frames will change or deviate from the outlined formal paths in due time; this exhibits classic regulations applied in the dynamic environment, and at algorithms it is the same: also here the other, with accountability tightly connected classical legal principle of transparency cannot be helpful because seeing a system's internal parts (a revealed source code) cannot provide full understanding of their (later) interconnections and consequences (this can confirm updates of new software releases, where bugs or bad inputs are not seen directly from the source code, but from erroneous functions).[46] In this manner, the old Turing test can still be helpful.[47] It seems people 'rather see' bad things to happen when they are caused by human factor than by a 'machine' (a presumption is the first may be more controllable). Connections (in the form of unwanted side-effects), not some premeditated intentionally evil human designer, are in the majority of cases, a cause of discrimination and other rights' violations. The first step towards a larger use of software in law is understanding, knowing of modus operandi of systems, of everything connected, of understandable, although not fully predictable.

[45] The rule by Nobody is perhaps the most formidable form of a dominion of man over man: 'bureaucracy or the rule of an intricate system of bureaus in which no men, neither one nor the best, neither the few nor the many, can be held responsible, could be properly called the rule by Nobody. If in accord with traditional political thought, we identify tyranny as a government that is not held to give an account of itself, rule by Nobody is the most tyrannical of all, since there is no one left who could even be asked to answer for what is being done. It is this state of affairs, making it impossible to localise responsibility and to identify the enemy, that is among the most potent causes of the current world-wide rebellious unrest, its chaotic nature, and its dangerous tendency to get out of control and to run amok. Bureaucracy is the form of government in which everybody is deprived of political freedom, of the power to act; for the rule by Nobody is not no-rule, and where all are equally powerless, we have a tyranny without a tyrant'. Arendt, H. (1972) *Crises of the Republic: Lying in Politics, Civil Disobedience on Violence, Thoughts on Politics, and Revolution*. New York: Harcourt Brace Jovanovich, p. 138.

[46] Accountability in systems that span multiple administrative domains is envisaged as 'an accountable system that maintains a tamper evident record that provides non-repudiable evidence of all nodes' actions. Haeberlen, A., Juznetsov, P. & Druschel, P. (2007) PeerReview: Practical Accountability for Distributed Systems. *ACM SIGOPS Operating Systems Review*, 41 (6). Desai and Kroll speak about computer science accountability: 'such evidence would provide records of what actions were taken and why, with a focus on how that evidence will be used to hold the system's creators or operators accountable for those actions'. Desai, D.D. & Kroll, J.A. (2017) Trust But Verify: A Guide to Algorithms and the Law. *Harvard Journal of Law & Technology*, 31. Algorithms should be hence technically accountable and analysable.

[47] Designed by Alan Turing as an imitation game in which an evaluator must decide whether he is speaking with a machine or with a human, while both are hidden behind a curtain. In this sense, one could conclude that a decision-making algorithm is as good as a human decision-maker when an assessor would not be able to determine from a given decision and its argumentation who made it. Turing, A.M. (1950) Computing Machinery and Intelligence. *Mind*, 59 (236).

Laws already at their enactment exhibit the probability for which formulas are better than intuition or common sense. Legal goals are stated, while their methods of reaching them are put down in general and hence quite unpredictable in detail. Due to equality demand, such technique is appropriate, but for the more static conditions; for the more dynamic ones some methods can better achieve probability (a lot as one example of chance in elections, algorithms, trial and error or other effective procedures to calculate/show a result) with the help because of probability, of the possibility of better/quicker adaptation. To be adapted one should control its essential variables vis-à-vis the environment, so the latter then act on the former appropriately, and in the environment with more and more data, human computing power is not enough. Here is the place for algorithms that could run a procedure to resolve common biases of discrete prediction: for Nobel laureate they are the neglect of base rates and insensitivity to the quality of information, so 'to maximise predictive accuracy, final decisions should be left to formulas, especially in low validity [complex] environments'.[48] Algorithms are no magic stick (they 'can be compared on the time taken, the space used and the quality or accuracy of the results'[49]) but they have calculative power: people do not think by the lengthy logical equations; they use the classic laws of logic, accustomed to their daily lives. Traditionally, acceptable modes of behaviour have so far provided sufficient solutions for life, although we are many times not aware of cognitive shortcomings and/or intuitive fallacies. People have a natural inclination to deliberation, cooperation, the recollection of knowledge (ideas, experiences, heuristics, logical reasoning), and pragmatic reasoning, but for inferential purposes '[t]he human brain is relatively inefficient for noticing, selecting, categorizing, recording, retaining, retrieving, and manipulating information'.[50] There are two modes of data combination for a predictive purpose: the clinical (expert) method relies on human judgment, based on informal contemplation and sometimes discussion with others, and the mechanical method that involves a formal, algorithmic,[51] objective procedure (e.g. equation) to reach the decision. Meehl found that empirical comparisons

[48] Kahneman, D. (2013) *Thinking, Fast and Slow*. Farrar, Straus and Giroux, New York, p. 225.

[49] Poole, D.L. & Mackworth, A.K. (2010) *Artificial Intelligence.* Cambridge: Cambridge University Press, p. 83.

[50] Grove, W.M. & Meehl, P.E. (1996) Comparative Efficiency of Informal (Subjective, Impressionistic) and Formal (Mechanical, Algorithmic) Prediction Procedures: The Clinical--Statistical Controversy. P*sychology, Public Policy, and Law*, 2, p. 316.

of the accuracy of the two methods (136 studies over a wide range of predictands) show that the mechanical method[52] is almost invariably equal to or superior to the clinical method. Meehl already in 1955 found overwhelming evidence for a disturbing conclusion: upon the reviewed results of 20 analysed studies, he concluded that predictions based on simple statistical scoring were generally more accurate than predictions based on expert judgment.[53] The statistical algorithm was more accurate than experts. Meehl's book shocked clinical psychologists, but 'the score in the contest [of roughly two hundred studies] between algorithms and humans has not changed. About 60% of the studies have shown significantly better accuracy for the algorithms'.[54]

Behaviour is latent in the interaction of parts[55] influenced by the structure.[56] Actions and results are hence not caused primarily by the external environment, but by interrelationships[57] that cause new things. This is known as emergence and/or 'the appearance of a level of complexity more advanced than the existing components of a system'.[58] The Nobel Prize-winning chemist Ilya Prigogine established all sufficiently

[51] Algorithms are a simple set/series of rules for solving problems in a finite number of steps. They are 'methods for solving problems that are suited for computer implementation'. Sedgewick, R., & Wayne, K. (2011). *Algorithms*. Upper Saddle River, NJ: Addison-Wesley Professional, p. 3. Algorithms are e.g. simple recursive, backtracking, divide and conquer, dynamic programming, greedy, branch and bound, brute force, and randomised algorithms. They perform calculation, data processing, or automated reasoning tasks. Christian, B. & Griffiths, T. (2016) *Algorithms to Live By: The Computer Science of Human Decisions*. New York: Henry Holt and Co. On the other hand, there are warnings against the "logic of secrecy" obtained from a vast amount of data. Pasquale, F. (2015) *The Black Box Society: The Secret Algorithms That Control Money and Information*. Cambridge: Harvard University Press. But still, such results can be confirmed by an appropriate institution before they are applied in real cases.

[52] Mechanical prediction includes the output of optimized prediction formulas, such as multiple regression or discriminant analysis; unoptimized statistical formulas, such as unit-weighted sums of predictors; actuarial tables; and computer programs and other mechanical schemes that yield precisely reproducible (but not necessarily statistically or actuarially optimal) predictions. Grove, W.M. & Meehl, P.E. (1996) Comparative Efficiency of Informal (Subjective, Impressionistic) and Formal (Mechanical, Algorithmic) Prediction Procedures: The Clinical-Statistical Controversy. *Psychology, Public Policy, and Law*, 2, p. 296.

[53] Meehl, P.E. (2013) *Clinical Versus Statistical Prediction: A Theoretical Analysis and a Review of the Evidence.* Northvale, N.J.: Echo Point Books & Media.

[54] Kahneman, D. (2013) *Thinking, Fast and Slow.* New York: Farrar, Straus and Giroux, p. 223.

[55] Bertalanffy, L.V. (1968) *General system theory: foundations, development, applications.* New York: George Braziller.

[56] Senge, P.M. (2010) *The Fifth Discipline: The Art & Practice of The Learning Organization*. New York: Crown Publishing Group.

[57] Ackoff, R.L. (1978) *The Art of Problem Solving: Accompanied by Ackoff's Fables.* New York: John Wiley & Sons.

[58] Feltz, B., Crommelinck, M. & Goujon, P. (2006) *Self-organization and Emergence in Life Sciences*. London: Springer Science & Business Media, p. 341.

complex systems can develop unpredictable emergent behaviour ('the interaction of a system with the outside world, its embedding in non-equilibrium conditions, may become in this way the starting point for the formation of new dynamic states of matter - dissipative structures'[59]) far from equilibrium (very small perturbations or fluctuations can become amplified into gigantic, structure-breaking waves). In such conditions, dissipative structures and/or a system may reorganise itself (self-reorganisation) in new order through fluctuations.[60] The traditional regulatory thinking neglects this basic system's predisposition of interconnections – it looks only towards final goals (regardless of how they are assembled) and assumes a single (of few) cause(s) rather than the multiple interrelated causations[61] or at least correlations that have to be checked. 'When the organism has to adapt (to get its essential variables within physiological limits) by working through an environment that is of the nature of a Black Box, then the process of trial and error is necessary, for only such a process can elicit the required information'.[62] Having this in mind, Ashby built an adapter and/or the Homeostat, a device built to know its exact nature and to observe what will happen in various conditions. In all equality-at-the-start cases stability is then upset by the environmental randomness, so to cope with it, a variety should be put in by the installed 'pointers' (step-functions) as intermediate targets that show a path towards main goals. Ashby named this ultrastability when second-order feedbacks[63] veto all states of the equilibrium except those that leave each essential variable within its proper limits.

Interactions change the Act's intentions, tools and goals. Interactions among parts when the system runs (when a legal Act is a valid vis-à-vis to other valid acts and the environment) can change daily; a factual state

[59] Prigogine, I. & Stengers, I. (1984) *Order Out of Chaos*. New York: Bantam Books.

[60] Nicolis, G. & Prigogine, I. (1977) *Self-organization in nonequilibrium systems: from dissipative structures to order through fluctuations.* London: Wiley.

[61] The traps of non-systems thinking lie in two simple dimensions; firstly, avoiding the inevitable interconnectivity between variables – the trap of reductionism, and secondly, working on the basis of a single unquestioning perspective – the trap of dogmatism. Reynolds, M. & Holwell, S. (2010) *Systems Approaches to Managing Change: A Practical Guide: A Practical Guide*. London: Springer Science & Business Media.

[62] Ashby, W.R. (1960) *Design for a Brain: The Origin of Adaptive Behavior.* London: Chapman and Hall, p. 83.

[63] The organism that can adapt has a motor output to the environment and two feedback loops. The first gives the organism non-affective information about the world around it, and the second carries information about whether the essential variables are (not) driven outside normal limits and it acts on (external) parameters. The first feedback plays its part within each reaction; the second determines which reaction shall occur. Ashby, W.R. (1960) *Design for a Brain: The Origin of Adaptive Behavior*. London: Chapman and Hall, p. 82.

of affairs hence becomes different from the one envisaged in a preparatory phase. A solution for this can be stochastic indicators and their relevant sensors: such indicators cannot only spot changes but also impartially determine relevant connections (e.g. randomised algorithms compare nearby neighbours and switch to one with the highest efficiency, known as stochastic local search), because 'groups whose members represent disparate points of view or special interest populations may err by focusing on their shared perspectives and thereby negating any advantage that accrues from multiple sources of diverse input'.[64] To Simon[65] in the 'information-rich' world of information oversupply, now attention, not information is the scarce good. Actions are based not on data, but on our attention (here through indicators and sensors) which collects the first. What emerges from legal Acts is conditioned on the regulator's attention, while in the non-linear, complex matters, all the more when algorithms are used, the regulator can only define a system's (i.e. Act's) boundaries. There are many things that can go wrong in complex matters, so also the classic, very exact system of tort and liability cannot be used without adaptations. Interactions cause emergent new things that at the same time interact with similar, but higher and other systems. Liability in complex matters will be difficult to impose on those who would be considered liable under traditional liability, as they will rarely have a reasonable opportunity to control or anticipate potential risks. The theory of adequate causality (among several circumstances related to the occurrence of damage, the cause is considered to be the one that, according to usual life experience, within the regular course of things, leads to the same consequence) that is commonly used in determining liability, fails here because causation (normality) cannot be firmly established, while objective, strict liability (used for the previously known ultra-hazardous activities) is likely to be too harsh for algorithm developers (because the hazard is not foreseeable, and they also do not know whether there is a risk of large-scale damage, even if all actors acted carefully). Two approaches can be proposed to provide compensation for victims of injuries 'caused' by learning[66] algorithms, similar to the sophisticated robotic vehicles: the first is to 'adopt a no-fault insurance scheme… The second… is

[64] Stasser, G. & Titus, W. (1985) Pooling of unshared information in group decision making: Biased information sampling during discussion. *Journal of Personality and Social Psychology*, 48, p. 1477.

[65] Simon, H.A. (1996) *The Sciences of the Artificial*. Cambridge: The MIT Press.

to use a no-fault insurance type scheme that is funded by imposing the costs of injuries on distributors, who would then be immune from tort liability'.[67] Liability in fields where learning algorithms will be used, will probably go from the 'Laplace's demon' (that 'knows' a complete physical state of the present universe) towards non-linear quantum mechanics, where outcomes cannot be predicted, but solely their probability can be calculated (with this they resemble to lot or random voting used in Ancient Greece).

Changes recorded in algorithms can be systematically ex ante (a prior analysis) and ex post[68] (a posterior analysis) analysed with the help of indicators. This could be done based on event data records, founded not only vis-à-vis the input-output relation – and external factors such as the whistle-blower's, public interests and private actions[69] – but also on several stochastic indicators, as the mentioned relation cannot incorporate all relevant factors as inputs. Indicators enable openness and transparency and at the same time prevent the above mentioned the rule of Nobody. Predictive systems are built on correlations and algorithms that change dynamically; for Citron procedural regularity is hence essential to prevent 'arbitrariness by the algorithm'.[70] The time is irreversible, and to manage it there must be real-time sensors by which a controller could gain insight into the current state of affairs (of [anti]discrimination etc.) in the shortest time possible. Indicators of this could be stochastically taken from a larger list to prevent subjectivity in focusing only on some of them. This is what complex algorithms do: they process decisions from stochastic inferences based on determined correlations. On the other hand, the more power of decision-making algorithm has, the more its stochastically operating classifications could risk discrimination; it should be thus 'programmed to the conditions under which it can exploit its advantages

[66] Learning typically means finding the best model that fits the data…There are many issues beyond fitting data, including how to incorporate background knowledge, what data to collect, how to represent the data and the resulting representations, what learning biases are appropriate, and how the learned knowledge can be used to affect how the agent acts. Poole, D.L. & Mackworth, A.K. (2010) *Artificial Intelligence*. Cambridge: Cambridge University Press, p. 26.

[67] Hubbard, F.P. (2016) Allocating the risk of physical injury from "sophisticated robots": Efficiency, fairness, and innovation. In: RyanCalo, Michael A. Froomkin, Ian Kerr (eds), *Robot Law*. Cheltenham, Northampton: Edward Elgar Publishing, p. 45.

[68] As in the known *ex ante* and *ex post* regulatory impact assessment with the difference that automatically processed data can be provided earlier than otherwise.

[69] Desai, D.D. & Kroll, J.A. (2017) *Harvard Journal of Law & Technology*, 31.

[70] Citron, D.K. (2016) *Big Data Should Be Regulated by 'Technological Due Process'*. Available from: https://www.nytimes.com/roomfordebate/2014/08/06/is-big-data-spreading-inequality/big-data-should-be-regulated-by-technological-due-process [Accessed 18 June 2020].

and avoid unethical decisions'.[71] Jones and Baumgartner propose a stochastic, not attention-driven updating of policies:

> *"in politics, a good starting point is to ask how policymakers attend to and prioritize information. The trick is in the combining… Combining messages means both getting the sources right and getting the weights right… If a few indicators [instead of a single one] are simultaneously monitored, the result is a normal distribution of information. The best way [to prioritise information from many sources] would be to weight the information streams by importance and add them to make an index… If decision-makers act on the "news," rather than a basket of indicators, they will produce a distribution of outcomes that is not normal. Attention-driven choice guarantees nonnormal distributions of policy outputs."*[72]

Learning algorithms embedded in adaptive legislation. Algorithms that learn themselves by running trial and error experiments or make other real, mathematical or virtual attempts to find a solution, are learning (autonomous) algorithms.[73] One of them is machine learning (ML) as the method which processes data to extract patterns appropriate for application in new situations. The goal is to adopt a system to a specific input-output transformation task.[74] ML introduces 'code-based rules which are inherently dynamic and adaptive – thus replicating some of the characteristics of traditional legal rules characterized by the flexibility and ambiguity of natural language'.[75] A legal act (statute) is fully stable only when enacted. After this, it can become ultra-stable only when it controls its internal essential variables that have to be within their normal limits (homeostasis) vis-à-vis the external environment (by blocking the flow

[71] Martini, M. (2020) Regulating Algorithms: How to Demystify the Alchemy of Code? In: Martin Ebers, Susana Navas (eds) *Algorithms and Law*. Cambridge: Cambridge University Press, p. 107.

[72] Jones, B.D. & Baumgartner, F.R. (2005) A Model of Choice for Public Policy. *Journal of Public Administration Research and Theory*, 15, pp. 330, 336.

[73] An effective model of a learning process… begins operations with an arbitrary target of preferred states fixed by the limited human intelligence, and uses its uneconomical random mutations to produce slow other patients by Marcovian evolution. Gradually the arbitrariness is replaced by purposive selection, the lack of economy by directed mutation and the slowness of adaptation by rapid learning. Beer, S. (1959) *Cybernetics and Management*. London: The English University Press LTD, p. 149.

[74] Lahmiri, S. (2016) Prediction of International Stock Markets Based on Hybrid Intelligent Systems. In: Mehdi Khosrow-Pour (ed.) *Handbook of Research on Innovations in Information Retrieval, Analysis, and Management*. Hershey: IGI Global, pp. 110–124.

[75] Hassan, S. & De Filipi, P. (2017) The Expansion of Algorithmic Governance: From Code is Law to Law is Code. *Field Actions Science Reports*, 17, p. 90.

of information to essential variables and by amplifying/switching to sources towards a desired goal).[76] An algorithm receives a data set from which it infers information about data properties. That *'information allows the algorithm to make predictions on other data. This is possible because almost all non-random data contains patterns, and these patterns allow the machine to generalize'*.[77] ML algorithms constantly refine their rules based on the received and collected data to better match their context of the application, and hence learn. When the ML algorithm uses multiple layers in the network, it is named deep learning (e.g. deep neural networks, deep belief networks, recurrent and convolutional neural networks) that advances on the extensive knowledge of correlations and patterns (which are invisible or even irrelevant to human decision-makers) that enable better decisions than an individual human could do. This 'might become difficult for people to not only understand but also question the legitimacy of the rules that are affecting their lives'.[78] On the other hand, people have numerously questioned the legitimacy of rules that led to serious consequences. Computer-based simulations have a key role in mathematical models, scientific investigations, and design to analyse problems that would be too expensive, dangerous, or even impossible to study by direct experimentation.[79] The concept of a data warehouse is also helpful here due to the possession of a large amount of external and internal information by organisations; their challenge is how to determine data quality and use it for management and/or decision-making that would not discriminate against people. Such data could be used for real-time information seen on interactive dashboards, reporting, predictive analytics, and as inputs for managerial decision-making. Algorithmic regulation embodies a version of the machine and deep learning as a product of the neural nets, genetic algorithms[80] and/or other arrangements of feedback loops that can accommodate means to new situations; as they also generate actions unpredictable[81] to human decision-makers, an Act's core intent should be given or accommodated by the legislator.

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[76] Ashby, W.R. (1960) *Design for a Brain: The Origin of Adaptive Behavior.* London: Chapman and Hall.

[77] Segaran, T. (2007) *Programming Collective Intelligence: Building Smart Web 2.0 Applications*. Beijing; Sebastapol CA: O'Reilly Media, p. 3.

[78] Hassan, S. & De Filipi, P. (2017) The Expansion of Algorithmic Governance: From Code is Law to Law is Code. *Field Actions Science Reports*, 17, p. 90.

[79] Miranda, F. & Abreu, C. (2016) *Handbook of research on computational simulation and modeling in engineering*. Hershey: Engineering Science Reference.

Adaptive legislation as a form of artificial intelligence. AI can be divided into the 'rule-based' approach and the 'neural networks' approach. In the former (also called 'symbolic systems' or 'expert systems'), attempts are to 'teach' computers to think by encoding a series of logical rules: if-then. This approach is good for simple and well-defined tasks, but falls short when the number of possible choices expands. The latter approach instead of trying to teach the computer rules mimics the human brain itself: rules are not given to make a decision, but lots of examples of a relevant phenomenon are fed into the neural networks, where the networks themselves identify patterns within the data.[82] Numerous machine learning algorithms linked to mathematics and statistics (correlation analysis in regression are the basic model of machine learning). The business world uses decision support systems (DSS) as data systems that support decision-making. DSS is 'a computerized system that provides executives with easy access to internal and external information that is relevant to their critical success factors'.[83] DSSs based on data banks, analytic and statistical functions interactively help to make decisions on the fast-changing, complex and interrelated problems that are present sometimes below 'the human radar'; they provide immediate decision modelling, and thus allow future planning. DSS also use algorithms based on neural networks and genetic algorithm,[84] use data mining algorithms and are used for multi-criteria satisfaction analysis (MUSA) method for measuring job satisfaction,[85] etc.

[80] Genetic algorithms select pairs of individuals and then create new offspring by taking some of the values for the offspring's variables from one of the parents and the rest from the other parent, loosely analogous to how DNA is spliced in sexual reproduction genetic algorithms select pairs of individuals and then create new offspring by taking some of the values for the offspring's variables from one of the parents and the rest from the other parent, loosely analogous to how DNA is spliced in sexual reproduction. Poole, D.L. & Mackworth, A.K. (2010) *Artificial Intelligence*. Cambridge: Cambridge University Press, p. 142.

[81] The algorithm's innate unpredictability comes – along the algorithm's equations and connections – from its inputs as sets of information from the Internet or other special bases (aka data-mining engines, e.g. Google, Amazon). That set of data non-stop changes due to users' actions, who all the time contribute new bits of information. When different algorithms react on such enormous collection of non-stop changing inputs, the unpredictability of outputs became its output (unpredictability by default).

[82] Lee, K.-F. (2018) *AI Superpowers: China, Silicon Valley, and the New World Order.* Boston and New York: Houghton Mifflin Harcourt.

[83] Watson, H.J., Rainer, R.K. & Koh, C.E. (1991) Executive Information Systems: A Framework for Development and a Survey of Current Practices. *MIS Quarterly*, 15 (1), p. 14.

[84] Bukharov, O.E. & Bogolyubov, D.P. (2015) Development of a decision support system based on neural networks and a genetic algorithm. *Expert Systems with Applications*, 42.

[85] Aouadni, I. & Rebai, A. (2017) Decision support system based on genetic algorithm and multi-criteria satisfaction analysis (MUSA) method for measuring job satisfaction. *Annals of Operations Research*, 256.

Algorithms will have a role in the law, sooner or later. The U.S. Food & Drug Administration has so far approved more than 34 smart algorithms in healthcare;[86] if algorithms can save lives, they can also help to regulate them, but before their real application, their modus operandi should be explained to avoid the fears of giving up regulation to something that cannot be understood either controlled. There is no surprise that some people already consider algorithms[87] as artificial persons: 'in Law, companies have the rights and obligations of a person. Algorithms are rapidly emerging as artificial persons. Intelligent algorithms will require formal training, testing, verification, certification, regulation, insurance, and status in law'.[88] About planning horizon (i.e. how far algorithms can 'look into the future'), there is likely to be a wide-ranging debate on the appropriateness of individual algorithms vis-à-vis the rate of change in the environment: from those that are similar to weather forecasts to those that can through forecasting address longer periods, a probability of occurrence and the potential consequences of their or somebody else's actions.

4. COLLECTIVITY OF INTERESTS VS. UNITY OF PUBLIC INTEREST

Sometimes there is no data, and new arrangements can be time-consuming or expensive. When data is not available use collective intelligence. Working in and with the more various, independent groups could also be the other way to obtain data. Computational simulation and modelling/algorithms can group the power of computers with such naturalistic human conditions. In such cases, decision-makers could use public opinion (public could be

[86] TMF (2019) *FDA Approvals for Smart Algorithms in Medicine in One Giant Infographic - The Medical Futurist.* Available from: https://medicalfuturist.com/fda-approvals-for-algorithms-in-medicine [Accessed 21 September 2020].

[87] The key algorithm technologies are Artificial Intelligence (AI; AI and machine learning systems able to perform tasks normally requiring human intelligence), Blockchain Technologies (technology underpinning digital currencies and transactions, that secures, validates and processes transactional data), Internet of Things (IoT; - is the inter-networking of 'smart' physical devices, vehicles, buildings, etc. that enable these objects to collect and exchange data) and Behavioural and Predictive Analytics (the analysis of large and varied data sets to uncover hidden patterns, unknown correlations, customer preferences etc. to help make informed decisions). These four technologies are intimately linked: AI provides the algorithms, blockchain the data storage and processing infrastructure, IoT the data devices, and behavioural/predictive analytics are important for (human) behaviour analysis. Barnett, J., Soares, A.K. & Treleaven, P. (2017) *Algorithms and the Law.* Available from: http://www.jeremybarnett.co.uk/algorithms-and-the-law [Accessed 21 October 2020].

[88] Barnett, J., Soares, A.K. & Treleaven, P. (2017) *Algorithms and the Law.* Available from: http://www.jeremybarnett.co.uk/algorithms-and-the-law [Accessed 21 October 2020].

used also for testing a computer program's and/or algorithm's efficiency) that should not be in the time of information era so hard to get and analysed from the point of collective. Individuality can be spotted only in its initial condition (and also hereby disregarding all previous connections that brought this individuality on a start line). 'We cannot claim that we know the (collective) order of dynamics from particular evidence; "order" is the universal collective property. We have to study a group of motions with various initial conditions and pry the universal properties out of the bundle of orbits'.[89] Collecting data from answers (from a large group of various, independent people) enable statistical conclusions about the group that no individual member cannot know: 'building new conclusions from independent contributors is really what collective intelligence is all about'.[90] Collective goals can be accomplished mainly by community or groups of people; to have efficient legal rules, it is thus becoming important to understand determinants of group performance vis-à-vis an uncertain future. One example by which legislation's adaptability could be addressed (as a precondition for well-functioning democracy) could be present in collective intelligence as a greater general ability to work together across a wide range of task types,[91] in an architecture of serendipity, where people are exposed to materials they would not choose, and where people have various experiences, distant from the echo chambers and mechanistic conception of reality towards the holistic one.[92]

Groups perform better when they are cognitively diverse[93] when members exhibit social sensitivity, the equality in distribution of conversational turn-taking are enabled, and the proportion of females in the group is present.[94] The last two conditions are in some studies presented as independence among group members. These conditions can be put also in algorithms. Collective relations among people are different than the people per se, as mental phenomena are different from the physical

[89] Yoshida, Z. (2010) *Nonlinear Science: The Challenge of Complex Systems*. Berlin: Springer.

[90] Segaran, T. (2007) *Programming Collective Intelligence: Building Smart Web 2.0 Applications*. Beijing; Sebastapol CA: O'Reilly Media, p. 2.

[91] Woolley, A.W. et al. (2010) Evidence for a Collective Intelligence Factor in the Performance of Human Groups. *Science*, 330 (6004).

[92] Sunstein, C.R. (2017) *#Republic: Divided Democracy in the Age of Social Media*. Princeton, N.J.: Princeton University Press.

[93] Aggarwal, I. & Woolley, A.W. (2019) Team creativity, cognition, and cognitive style diversity. *Management Science*, 65 (4); Aggarwal, I. et al. (2019) The impact of cognitive style diversity on implicit learning in teams. *Frontiers in psychology*, 10 (112).

[94] Woolley, A.W. et al. (2010) Evidence for a Collective Intelligence Factor in the Performance of Human Groups. *Science*, 330 (6004).

brain, which is the parallel, highly interconnected and not sequential (if-then) binary and linear system. Results depend on a system's structure; it can give very rudimental, rough conclusions or more complex and sophisticated ones based on a complex nonlinear dynamical system in a higher-dimensional space. Data could be processed in a manner to obtain an independent opinion of all community, but with a twist: public opinion should not follow the majority rule in cases, where a numeric result is not always aligned with objective reality,[95] but by the statistical or algorithmic extraction of information. A network learning algorithm imitates the human learning process (examples are logic regression, linear regression, decision trees or random forests) which follows a path of possible neighbouring options and their weights until it finds equilibrium between the minimum and maximum efficiency. It thus gradually learns/moves in a complex interactive system given its task, and not just by using symbols and specific rules. Results are hence 'found' and not programmed into the network. Last but not least: it is helpful to check whether a patient has a disease revealed by medical algorithms although their processes are not fully known; the same stands for algorithms that could regulate or at least show future options to decision-makers provided they are doing good for the society.

Hidden structural predispositions are the root causes of inequality. Algorithms consider also structural denominators, which are usually hidden to legislators. One of the classical democratic stances is that without the democratically obtained public opinion rules are just bureaucratic forms of governmentality as the institutionalised use of power through various practices and/or techniques on the population[96] through which subjects are governed. One could agree that such public opinion could be based

[95] At one of the EGPA (European Group of Public Administration) conferences in Switzerland, a professor on a stage (sadly I do not remember his name) has told: "the decision could be legal or illegal just like a woman is pregnant or not". At this statement another parable came to my mind: what if, in line with the majority decision-making a child (after a long negotiation, because he would initially say he loves both parents equally), would say he prefers one of the parents by 0.1% (i.e. 50,1% vs. 49,9%). This would mean that a parent in a minority should be totally ignored and focus should be given only on the former. But this is not true – a child loves almost equally both of his parents. This is not so much about which of the parables is better, but rather as a warning that we should not take them for granted. In this line of thought, common-sense ideas of competitive markets tend to assume that small businesses are an important component of them and that the activities of large businesses which drive out small businesses will make the markets less competitive. Graham, C. (2013) *EU and UK Competition Law*. New York, London: Pearson Education, p. 6. But lower competitiveness was never recognised as a problem at democratic voting, where the majoritarian "large business" drives out the small one (a minority of voters).

[96] Foucault, M. (2004) *Naissance de la biopolitique*. Paris: Seuil.

on planning as 'the study of resources, future possibilities, and means to be used for attaining the objective call for contributions from all departmental heads within the framework of their mandate, each one brings to this study the contribution of his experience together with recognition of the responsibility which will fall upon him in executing the plan'.[97] Many such self-evident statements hide their structural predispositions as the basic causes of hidden – and thus unrecognisable – effects.

The persistent structural links among ideological and political arguments are distinct from economic and technological changes, and thus cause the rise of inequality around the world.[98] Every human society justifies its inequalities; such stance Galtung termed cultural violence (a culture that normalises or sees structural violence and their mechanisms as natural or sine qua non for the development of society)[99] or Dr Martin Luther King poverty of the spirit. An inequality regime is 'a set of discourses and institutional arrangements intended to justify and structure the economic, social, and political inequalities of a given society'.[100] It is thus not hard to understand why 'power systems inherently fight interfering change… large changes to the social system could mean disturbance to those who benefit disproportionately, along with those in political control'.[101] Advanced algorithms are focused on the larger order influences, intersecting processes and chain reactions, and can expose underlying structural predispositions. Solutions to modern social problems could thus be 'less about the moral aptitude of society and more about how society is technically organised'.[102] Such algorithms can reveal larger-order relations between the political and the property regime that causes socio-economic inequality. Such 'institutional discrimination' and/or 'systemic racism' caused by the self-interest, competition, free markets, autonomy and dominance, can be revealed by algorithms, even if inequality was not intended and caused by a legislator himself. Algorithms can enforce equality on places, where we think it is already present based on our pre-existent predispositions (of formal equality but not of equity or material equality).

97 Fayol, H. (1954) *General and Industrial Management*. London: Sir Isaac Pitman & Sons, Ltd., p. 48.

98 Piketty, T. (2020) *Capital and Ideology.* London: Belknap Press.

99 Galtung, J. (1969) Violence, Peace, and Peace Research. *Journal of Peace Research*, 6 (3).

100 Piketty, T. (2020) *Capital and Ideology.* London: Belknap Press, p. 2.

101 Joseph, P. (2017) *The New Human Rights Movement*. Dallas: BenBella Books, p. 10.

102 Joseph, P. (2017) *The New Human Rights Movement*. Dallas: BenBella Books, p. xvii.

5. CONCLUSION

Algorithmic governance or administration shows the development of new forms of property that need different democratic controls. Algorithms are typical intangible capital; if they – combine other forms of incomes from the capital – exceed the rate of economic growth of output and income, this will according to Piketty[103] produce fundamental inequality r > g as the typical destabilising force. On the other hand, they can more easily and transparently show the distribution of wealth in the society (by searching for facts and patterns and the underlying structure that might explain them) and hence inform democratic debate and focus on the right questions. The inequality present in the law similarly happens when rules from the past retain higher (conservative) relevancy then new facts, or when rules reproduce themselves faster than facts emerge. Although algorithms and the law will not fully cooperate for some time it is indisputable that 'refusing to deal with numbers rarely serves the interests of the least well-off'.[104] This should be one of the reasons for public debate on this topic. As long as data on various classes of contemporary society remain beyond the reach of scientific inquiry, equality will be on a loser's side. Algorithmic governance, administration and legislation should become the bubbling and living debate in the public sector, because the private one already uses algorithms on a full scale – and not always in the name of equality or other collective notions.

In reality, no system is perfect. This can be seen in one of the best adaptive and advanced systems, in the immune system that (only within a closed time-period) detects a wide variety of agents (pathogens) and can distinguish them from an organism's cells. Algorithms can receive, evaluate, and adapt quickly to changes than human actions. Algorithms as a computerised set of instructions can be used at general legal rules first as techniques for education and standard recommending/setting devices. The future promises long debates on algorithms and AI. It matters how people think which perspectives they use because they are sooner or later transferred also in the law. When not to use algorithms? Probably when there exists a 'reasonably better alternative design' in terms of legality, risk-utility or cost-benefit. Algorithms should prohibit injuries and costs

[103] Piketty, T. (2014) *Capital in the Twenty-First Century*. Cambridge: Harvard University Press.

[104] Piketty, T. (2014) *Capital in the Twenty-First Century*. Cambridge: Harvard University Press, p. 577.

(liability) and enforce legality and innovation without unneeded harm (safety). In the absence of more specific guarantees, the general ones could follow the three 'laws' of robotics developed by Asimov,[105] paraphrased in three laws of algorithms: 1. An algorithm may not injure a human being without clearly predetermined legal conditions, or, through inaction, allow a human being to come to harm, without the mentioned conditions. 2. The algorithm must obey the orders given it by human beings except where such orders would conflict with the First Law. 3. The algorithm can be used as long as such validity does not conflict with the First or Second Law.

Legal acts are still tools for solving a particular problem (although the latter is stated generally, e.g. to reduce alcohol consumption) and they still cannot automatically adapt to their environment without human's/ legislator's intervention. Something could be rotten in legislation; the probability theory and statistics were so far the predominant theories and tools to model uncertainty, while in legal drafts they are usually absent, let alone software modelling of legislation. The anticipative general legal rules are focused on the future. To cope with it, legal norms should be more accommodated to the future's elements than classical binary legislation. This could be done with the known sunset clauses and legal experiments (embedded in legal rules), with adaptive legal norms (different possibilities of action/scenarios used at different thresholds, all pre-enacted by parliament), the emergent strategies, negative scenarios, decision-making algorithms and simulations that could serve as inputs without a legal force for the later general legal rules. The latter could advance the results with computable power that makes (practical) experiments with fewer costs, time and negative consequences.

The ability to collect information and the computational power to interpret it now enables substantial collaboration opportunities and a better understanding of many domains. With the advancement of computational power, IT can be helpful for powerful detailed analysis. Deep learning based on algorithms can give new knowledge on data correlations. The law will become intelligent when it will have the calculative and automatic capacity to select/switch among a set of options to the one that will show a higher probability to achieve (go towards) a final goal (a reaction or phase transition from a distant to a closer – to the final goal). The intelligent law would not consider a single optimum

[105] Asimov, I. (1991) *Robot Visions*. New York: New American Library.

state, but a set of mutually relevant, interdependent states happening in real-life situations. Of course, algorithms are just algorithms: they are not substituting for the human practice, sensitiveness, empathy or compassion; as the helping tools, they cannot listen to problems, to what, how, and what is (not) said; they cannot explain, provide reassurance, and show that one cares, but they can be dynamic, adaptive, flexible and robust. In the beginning, it would be wise to test it as a test simulator (its capacity to cope with rapid changes by switching to intermediate effective rules that would go towards a final goal), simply as a working document, later in a form of a national programme and other documents towards the full legal value of a legal Act. A proposal of 'wait and see' should be thus updated with the Russian proverb of 'trust but verify'. Use of intelligent algorithms should not be dimmed by fear: intelligent software learning is just like any other thing: useful when used appropriately by responsible human officials. It is like fire: it could be used to warm ourselves, or to burn down the city. If a life-threatening human illness is evaluated by algorithms in medicine, where lives are put on stake, then also other human (healthy) conditions could be evaluated similarly. So, the plan of action could be to use algorithms, wait, see, trust and verify. Regarding the second step (i.e. wait), it should be mentioned that on 21 April 2021, the European Commission proposed the first-ever legal framework on AI[106] to ensure and improve (among other objectives) the governance and effective enforcement of existing law in relation to the fundamental rights and security requirements applicable to AI systems. The proposal aims to ensure that AI systems placed on the EU market are safe and respect the existing law on fundamental rights and Union values, but it does not mention the use of AI in legislation/regulation per se. Nevertheless, the step towards the use of AI in law (the protection of human rights) was made.

[106] European Commission (2021) Proposal for a Regulation on Artificial Intelligence – Artificial Intelligence Act) and Amending Certain Union Legislative acts {SEC (2021) 167 final} - {SWD(2021) 84 final}). Available from: https://digital-strategy.ec.europa.eu/en/library/proposal-regulation-european-approach-artificial-intelligence [Accessed 21 April 2020].

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DOI 10.5817/MUJLT2021-1-5

DATA, THEIR RELEVANCE TO COMPETITION AND SEARCH ENGINES

by

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A special feature of digital markets and digital business models is the high importance of (user) data. The control and the ability to analyze large amounts of data (big data) can create competitive advantage. Thus, the importance of data for the economic success of companies should be given more consideration in competition law proceedings. In search services competition, the quality factor plays a decisive role, since the expected quality of the search results determines which search engine will be used by users. Since search engines can influence the retrievability of web pages for users, preference of own search services in the web index may constitute an abusive behavior of a dominant search engine. The purpose of this paper is to provide answers on questions, among other, whether a regulation aimed at preventing abuses is necessary or whether an obligation to publish the search algorithm may be advocated.

KEY WORDS

Competition, Data, Digital Markets, GDPR, Market Shares, Search Engine

1. INTRODUCTION

The control and the ability to analyze large amounts of data, which are often in exclusive possession of individual companies, can create decisive competitive advantage. These data are used e.g. for personalization and for

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further development of services and products. In addition, they are used in the online advertising market to display targeted ads. The increase use of data can in principle lead to welfare gains. Consumers benefit from new products as well as from the personalization of services. For example, companies can optimize their warehousing or target advertising campaigns on internet more precisely. In other cases, the increase in collection of data can also lead to welfare losses. Affected may be, in particular, consumers who are not sufficiently informed about the use of their data. The collection and economic exploitation of data is subject to restrictions arising from data protection law.[1] At present, it is unclear whether and to what extent the individual also has the right to decide on a possible asset of personal data and thus on economic exploitation and utilization beyond their fundamental right of defense and the associated protection claim. First of all, from competition policy perspective, an approximation of national data protection standards would be advocated since the strictness of data protection law can influence the possibilities for collecting and analyzing large databases and thus the success of competing companies. In order to avoid distortions of competition and to achieve a competitive level playing field, the adoption of the European General Data Protection Regulation (GDPR) is to be welcomed.[2] Due to the often asymmetric distribution of information between companies and consumers it seems sensible to strengthen the position of consumers. In order to give users better control over their data, legislation may in certain cases require mandatory consent of users in regards to collection and use of their data (opt-in). However, potential negative effects on individual business models, such as online advertising, should be taken into account. In addition, the introduction of the right to data portability provided by the GDPR make sense from competition perspective in order to mitigate unwanted lock-in effects and to give internet users more control over the use of their data.

Search engines represent a significant area of the digital economy. Since its beginnings in the 1990s, online search has become one of the internet's most profitable business areas. Given the abundance of information on the internet, search engines play a key role for both internet users seeking information and website owners whose content is easier to find

[1] Daňko, M., Žárská, P. (2019) Data protection vs. Intellectual property. *Počítačové právo, UI, ochrana údajov a najväčšie technologické trendy*. Brno: MSD, 2019, p. 127 and follows.

[2] Funta, R. (2019) *Úvod do počítačového práva práva [Introduction into computer law]*. Brno: MSD, 2019, p. 121 and follows.

through search engines. Search engines thus make an important contribution to reducing transaction costs, for example in the form of search costs for users and advertising costs for the content providers (intermediation service).[3] In regards to search services, the quality factor plays a decisive role, since the expected quality of the search results determines which search engine will be used. The more data a search provider has, the better he can tailor search results and search advertising to user interests. However, changing the search provider is relatively easy and possible at no extra cost (disciplining effect on search engine operators). Since search engines can influence the discoverability of web pages for users, preference of own search services may constitute an abusive behavior of a dominant search engine. However, it has to be taken into account that search engines must be allowed discretion when creating the web index. In addition, it can be problematic when third-party content is used regardless of exploitation rights (so-called scraping). From our point of view it does not make sense to regulate the search algorithm to ensure search neutrality for several reasons. State control of search algorithm, if technically feasible at all, would require substantial public funding. The proof of an abusive design of the algorithm would be also difficult. Also an obligation to publish the search algorithm is not to be advocated. If the algorithm would be publicly known, web site operators would be able to optimize their pages to significantly reduce their relevance for displaying search results. Finally, an obligation to disclose or split the web index with competing search engines is not to be endorsed as it would eliminate incentives to create and constantly update the index.

2. DATA AND THEIR RELEVANCE FOR COMPETITION

A typical characteristic of many business models in the digital economy is the collection and exploitation of data. Some data are already regarded as the new currency of the digital age. Unlike many other commodities, data can always be used over and over again (they are fundamentally non-rival in their use). However, they are often in exclusive possession of individual companies that decide about their use. Controlling and analyzing large volumes of data can become a key competitive advantage. The following part will provide a brief overview of the nature and extent

[3] Jones, A., SUFRINSuffrin, B. (2016) *EU Competition Law: Text, Cases, and Materials*. Oxford: Oxford University Press, 2016, p. 23.

of data collection and exploitation and their relevance to digital business models.

2.1. MEANING OF BIG DATA

A topic that is highly discussed is the extensive collection, storage and linking of data ("Big Data")[4] in the course of increasing digitization. When defining "Big Data", the so-called Volume, Variety and Velocity phenomenon is usually referred to. These describe the algorithmic analysis of particularly large amounts of data (volume) from various sources and formats (variety) in the highest possible velocity (velocity). The importance of large amounts of data can explain why some companies save data without previously defined purpose, in order to analyze it at a later date. Overall, it should be noted that the increased analysis of data can lead to an individualization of products and prices, which may be beneficial[5] for individual users but disadvantageous for others. But the collection, processing and analysis of personal data also raise socio-political questions, such as the extent to which the use of personal data or a price differentiation according to individual characteristics of the users should be permitted.

2.2. PURPOSES OF DATA COLLECTION

Companies usually pursue very specific goals when collecting data on the Internet. Depending on the business model,[6] different interests are in the foreground. In principle, there is a difference between providers of online services and advertising companies, with some companies being active in both areas. Online services allow the collection of data and tracking of Internet users inside and outside of their own services. They can use these insights to continuously optimize and personalize their products and services. In addition, they can derive potential from such data and, based on this, develop new products and services with particular relevance to users. The ability to collect and analyze data is thus a key driver of the innovative strength of these companies. The ability to optimize services through data is particularly evident in the form of increasing personalization. Examples of such personalization can be found in some

[4] Funta, R. (2018) „Big Data“ from competition law point of view. *Justičná revue,* č. 8-9, 2018, pp. 902-915.

[5] Furman, J. (2019) *Unlocking digital competition.* Report of the Digital Competition Expert Panel. London: HM Treasury, p. 54.

[6] Peráček, T. (2020) The perspectives of European society and the European cooperative as a form of entrepreneurship in the context of the impact of European economic policy. *Online Journal Modelling the New Europe*, (34), pp. 38-56.

online services, e.g. online shops provide product recommendations based on previously purchased or respected products; search engines generate hit lists based on search history and location of users, and display social content tailored to the interests of their members. For companies, personalization can also result in customer loyalty that is advantageous to them. From a competition policy perspective, such a high level of customer loyalty is only problematic if it leads to lock-in effects, for example because users have only limited possibilities to take data to another online service (lack of data portability).[7] The extensive data use can lead to a disadvantage of individual user groups. In this context, the possibility of price differentiation in online shops can be mentioned by capturing and combining different data, which enable companies to draw conclusions about the willingness to pay of individual consumers or consumer groups through personalized prices. The phenomenon of price differentiation is not new in itself. For example, companies in the transport sector already have different prices depending on the time, occupancy or booking period. Price differentiation is an integral part of the revenue management of many companies. What is new, however, is the possibility of personalized price differentiation on the Internet, which is based on the observed characteristics or habits of consumers. From an economic point of view, such a price differentiation can be welfare enhancing. However, new social and consumer protection issues may arise as consumers, in particular, who are less sensitive to the use of their data, could be disadvantaged.

The collection and analysis of data is of high importance to companies active in the field of online advertising. This include on the one hand companies specialized in online advertising that have no direct contact with the Internet user. On the other hand, vertically integrated and diversified companies such as Google offer services for both Internet users (search engine, social network, etc.) and advertisers (advertising networks, etc.).[8] While in the former case data collection is performed, in particular, by means of cookies and other tracking technologies that enable cross--website tracking of Internet users, in the latter case user data can be collected through the interaction between the user and the online service.

[7] Hudecová, I., Cyprichová, A., Makatura, I. a kol. (2018) *Nariadenie o ochrane fyzických osôb pri spracúvaní osobných údajov – Veľký komentár*. [*Regulation on the protection of individuals with regard to the processing of personal data - Commentary*], Bratislava: Eurokódex, p. 260.

[8] Funta, R. (2018) Google Android from legal perspective. *Justičná revue*, č. 4, pp. 423-437.

Since targeted advertising increases the consumer's likelihood of buying, advertisers are interested in such ads. The placement of less relevant advertising due to the reduced use of data by the advertising companies could also have a negative impact on the provision of such free offers.

2.3. LEGAL FRAMEWORK OF DATA COLLECTION AND EXPLOITATION

The collection and economic exploitation of data is subject to restrictions arising from data protection law. Data protection law provides for fundamental rights protection, in particular the protection of individuals through the right to privacy. This right is an outflow of human dignity and freedom of action. It protects any behavior that has relevance to personality development, especially in terms of self-determination (including the right to informational self-determination), privacy and self-expression. Additional protection for non-personal data results from the fact that the integrity and confidentiality of information technology systems can also be relevant to fundamental rights.[9] Data protection law has its origin in a constitutional right of defense against the state. However, it goes beyond this in that it also provides protection against the use of data in an economic context. From the point of view of competition policy, the definition of data protection by the legislator can be accepted in the given form as long as it does not result in an unjustified impairment of competition.[10] Data protection law contains a number of principles which must be taken into account in the further competitive economic and legal assessment. In particular, data collection, processing or use of personal data is only permitted on the basis of a legal basis or if the data subject has provided consent. The storage, modification or use of personal data is only allowed for specific purposes. The European General Data Protection Regulation (GDPR) further develop and supplement these principles, not least through more effective information requirements for data processing.

2.4. COMPETITION POLICY IMPLICATIONS

The previous statements have shown that the collection of extensive data and their evaluation for many service providers on the Internet are part

[9] Svák, J. (2011) *Ochrana ľudských práv* [*Protection of human rights*]. I. Zväzok, Bratislava: Eurokódex, p. 4.

[10] Svoboda, P., Munková, J., Kindl, J. (2012) *Soutěžní právo* [*Competition law*]. 2. vydání, Praha: C.H.Beck, p. 127.

of everyday life.[11] At the same time, from the increased use of data will benefit a large number of Internet users in some cases through free and personalized services. However, due to the increased use of personal data, there is a need for action from a competition policy perspective.

2.4.1. ALIGNMENT AND IMPROVED ENFORCEMENT OF PRIVACY STANDARDS

The automatic transmission of data (e.g. through the use of cookies) repeatedly encounters concerns of privacy advocates. The fear behind it is that detailed user profiles that include not only buying behavior but also political, religious, or sexual preferences will be created. Against this background, it is first and foremost the task of the data protection law to create clear regulations for the digital world,[12] which concretely show which data are collected and to what extent they can be evaluated. From a competition policy point of view, it should be noted that the relative severity of data protection law can have an impact on the competitive and thus also the innovative capacity of companies. In principle, it can be assumed that companies will use the opportunities they have been granted to collect and process data. However, this does not mean that, from a competition policy perspective, lowering data protection standards would be appropriate.[13] An approximation of data protection rules should be sought in principle, ideally at global level, but at least at European level, in order to create a level playing field in this area and to avoid distortions of competition resulting from different data protection standards.

2.4.2. STRENGTHENING CONSUMER RIGHTS

A fundamental problem of the extensive collection and exploitation of private data on the Internet is the asymmetrical distribution of information between providers and consumers. For many Internet users, it is usually difficult to understand which companies collect which data and evaluate it and whether such data are linked to other data. In addition, many users may not be aware of the commercial value of their data. In principle, however, there are already many possibilities to limit the transmission of certain data to companies. This includes, for example,

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[11] Plavčan, P.; Funta, R. (2020) Some Economic Characteristics of Internet Platforms. *Danube: Law, Economics and Social Issues Review*. No. 2. pp. 156-167.

[12] Crémer, J., de Montjoye, Y-A., Schweitzer, H. (2019) *Competition Policy for the Digital Era*. Brussels: Directorate-General for Competition. p. 39 and follows.

[13] Karas, V., Králik, A. (2012) *Právo Európskej únie* [*European union law*]. 1. vydanie, Bratislava: C.H.Beck, p. 409.

the regular deletion of cookies and other data stored in the web browser. In addition, the creation of certain types of cookies can generally be prohibited in the browser settings. Such settings are basically relatively easy to make, but not known to all Internet users. In addition to these possibilities, some companies also offer the option of having records deletion option. In addition, to allow users to better control their data, legislation might consider increasing use of the opt-in approach. According to this, companies would have to obtain explicit consent from users for the storage and evaluation of (personal) data. From a competition policy point of view, however, it should be noted that compulsory user consent to the collection and analysis of its data could give preference to certain business models. On the other hand, it would be possible for advertising companies that are not in direct contact with the user to collect data by anonymous tracking.

Another approach to strengthen consumer rights is the right to data portability as stated in the European General Data Protection Regulation (GDPR).[14] This right obliges companies to facilitate the transfer of stored customer data to other companies. The competitive effects of such a right largely depend on its concrete form. In case this includes content data which the user has deliberately made available to the company, it could contribute to the generally welcome weakening of possible lock-in effects from a competitive point of view.

2.4.3. GREATER CONSIDERATION OF DATA IN COMPETITION LAW REVIEWS

The question is whether the possibility of access to data by companies should be taken more into account when evaluating competition law issues. This could be justified, in particular, by the fact that, as presented in the context of this chapter, data becomes an increasingly competitive factor for businesses and can be regarded as a kind of "commodity" for digital business models. As shown, data is relevant not only for the purpose of more targeted placement of online advertising, but also for the continuous development and redevelopment of online services. From a competition economics point of view, greater consideration of data,

[14] Mesarčík, M. (2020) *Ochrana osobných údajov [Personal data protection]*. Bratislava: C..H.Beck, p. 1 and follows; Míšek, J. (2020) *Moderní regulatorní metody ochrany osobních údajů.* [*Modern regulatory methods of personal data protection*]. 1. vyd. Brno: Masarykova univerzita, p. 1 and follows.

in particular in the context of merger control,[15] seems necessary, since newly established Internet services with so far only low turnovers, but possibly very valuable data sets, could have been bought by competitors. The need to recognize aspects of data concentration as part of the merger investigation has been recognized by the competition authorities. For example, in the Facebook/WhatsApp case,[16] the European Commission has examined the impact of the merger on the possibility of accessing the data for subsequent use in the advertising market. The European Commission found that there is no problematic concentration of advertising-relevant data on Facebook, as numerous other companies also extensively collect data.

3. SEARCH ENGINES

Search engines play a central role not only for Internet users who are looking for information, or website operators, whose content is easier to find by search engines, but also for online advertisers, who targeted search advertising. Since its beginnings in the 1990s, the online search market has become the Internet's highest-revenue market.

3.1. ABOUT THE FUNCTIONALITY OF SEARCH ENGINES

The basic function of search engine is to make it easier for users to find information on the Internet. Given the amount of information available on internet, search engines play a key role as information intermediaries. Since search services are usually offered free of charge, search services compete mainly in regards to their quality. This is typically measured by the relevance of the search results to the user. Other quality factors include the speed at which search results are delivered and the design of the user interface. Most general search engines rely on a simple interface that allows us to enter search terms in a search field. The search engine Yahoo! in contrast, relies on a portal model where users already provide information prior to a possible search request. Google, Bing or Yahoo! are also referred to as general or horizontal search engines because they provide search results for all types of search queries. Relevant web pages are displayed to the user as so-called organic or natural search hits on the web page. In addition to the display organic search results,

[15] Borchardt, K. D. (2010) *Die Rechtlichen Grundlagen der Europäischen Union*. 4. Auflage, Heidelberg: C. F. Müller, p. 536.

[16] Funta, R. (2018) Facebook from competition law perspective. *Justičná revue*, č. 1, pp. 1-16.

advertising-based search engines display search advertising. In addition to horizontal search engines, search queries such as images, videos or messages can also be viewed by specialized (vertical) search engines, which typically use a corresponding image, video or message index. In addition, there are other websites that allow search function in certain categories. For example, Amazon[17] provides information about products and Facebook provides information about individuals.

3.2. THE ECONOMIC IMPORTANCE OF SEARCH ENGINES

As intermediaries, search engines play a central role in providing information on the Internet. The information search without technical tools would be very expensive and in many cases from the user's point of view hardly feasible, if not impossible.[18] This is supported by the fact that there are simply too many websites on the Internet and the addresses of the websites (URL) are assigned unsystematic, as that a person could visit them without technical tools. Therefore, for a majority of Internet users, a typical online session starts with a search query on a search engine. Search queries can be divided into three categories from the user's perspective:

- Navigation-oriented queries, where a user searches for pages he already knows,
- Information-oriented inquiries where a user often informs himself about a topic through several consecutive searches and
- Transactional requests that are made with the goal of making a transaction.

From an economic point of view the great added value of search services is on the one hand to reduce transaction costs, such as in the form of search costs and advertising costs on the part of the content providers. Assuming that search results are displayed according to their relevance, this also increases general market transparency[19] for users. Through the performance of the search engine, information can be found more efficient and transactions may be faster.

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[17] Funta, R. (2018) Amazon and antitrust enforcement. *Justičná revue*, č. 11, pp. 1215-1229.

[18] Polčák, R. a kol. (2018) *Právo informačních technologií* [*Information technology law*]. Praha: Wolters Kluwer, p. 1 and follows.

[19] For a broader view see also chapter 4.1 new rules for online platforms and search engines in the eu ("p2b regulation") below.

3.3. CONCENTRATION TENDENCIES IN MARKETS FOR SEARCH PLATFORMS

Ad-supported search services operate on a three-way platform market where (1) the search engine users searching for content on the Internet (2) the content providers whose web pages are indexed by the search engine and (3) the advertisers who advertise the search, are merged. Depending on the subject of investigation, it may be legitimate to consider search engines as two-sided platforms.

3.3.1. MARKET DEFINITION AND MARKET SHARES

A competitive view of a market usually requires evaluation in order to determine market shares as an indicator of market concentration.[20] Due to the versatility of search platforms, this can be done by looking at the individual platform sides. Each platform side must be separated according to product and geographical criteria and the shares on the respective platform side must be determined separately. The geographic delimitation of digital markets is often likely to be worldwide due to virtually nonexistent transport costs of digital products.[21] In the case of search platforms, however, it must be assumed that, in many cases, the market definition due to linguistic and cultural differences has to be made along national borders. When assessing a high market share of a search platform, it should be borne in mind that it does not necessarily have to be a market failure that would require government intervention. In the following, it will be discussed which factors on the search engine market can influence a market concentration and to what extent market power is favored or possibly restricted.

3.3.2. FACTORS THAT CONTRIBUTE TO MARKET CONCENTRATION AND MARKET DOMINANCE

In the case of search platforms, there may be a lack of competition which could result in low quality search or high prices for advertisers. In the long term, a monopolist may lack incentives to create new innovative search services. In addition, market power can be used to gain competitive advantage through abusive behavior.[22] In the following, therefore, it will be discussed which factors favor market concentration in the search engine

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[20] Svoboda, P. (2010) *Úvod do Evropského práva* [*Introduction into EU law*]. 3. vydání, Praha: C.H.Beck, pp. 240-241.

[21] Funta, R. (2019) Economic and Legal Features of Digital Markets. *Danube Law and Economic review*, Issue 2, p. 1 and follows.

market and to what extent the possibility for market entry is thereby influenced. As with many other digital goods, in the case of search services, so-called economies of scale are expected to play an important role. Cost-effective economies of scale generally occur when average costs decrease due to high fixed costs with increasing output. In the case of search engines, billions of dollars in fixed costs to be incurred, for example, for the creation of the web index, the development of the search algorithm and the construction of data centers. The extent to which a high volume is also a prerequisite for a successful market entry is a controversial topic. While it is argued on the one hand that data have become central to market success, on the other hand data are available in large quantities on the Internet. At this point, it is not possible to conclusively assess the extent to which data from sources other than the search engine represent suitable substitutes and the market access would be possible without access to historical data. In addition to economies of scale, network effects are also relevant, with a distinction being made between direct and indirect network effects. Direct network effects generally occur when the use of a service increases with the number of users in a group. From the seekers point of view, such network effects are not obvious at first, because unlike social networks, there is no direct interaction between search engines. The users of a search engine do not benefit directly from the use of the search engine by another seeker. For advertisers, it can be assumed that there are no positive direct network effects. Rather, it is to be expected that advertisers compete for advertising space and the attention of users. Likewise, no positive network effects are expected for content providers, as they are competing for user attention comparable to the group of advertisers. Indirect network effects are likely to occur by search engines on the side of advertisers, because the more users are linked to a search engine, the more attractive this is from the advertisers point of view. The quality of a search engine increases with its ability to display advertising as accurately as possible to a relevant consumer group. Negative indirect network effects between advertisers and search engine users may cause users decrease if too much advertising is used. A large number of users and

[22] Funta, R., Nebeský, Š., Juriš, F. (2012) *Európske právo* [*EU law*]. Brno: Tribun EU, p. 385; Krausová, A. (2018) Abuse of market power in ICT sector. *The Lawyer Quarterly*, No. 1, pp. 75-81; Klimek, L. (2013) Effective Enforcement of Sanctions for Market Abuse in the EU: Introduction of Criminal Sanctions. *Czech Yearbook of International Law*, New York: Juris Publishing, p. 105.

a corresponding increase in search advertising clicks are likely to have a positive impact on the search engine's ability to target advertising to customer groups with a corresponding buying interest. Both, the search engine through higher advertising revenue (economies of scale) and advertisers through higher sales will benefit. Another factor that can influence market concentration is the ability of a platform to expand its capacity. In the case of search engines, capacity for answering search queries and indexing web pages should be relatively easy to expand with the corresponding expansion of server capacities. Advertisers are most likely to think that the number of ads that can be displayed is limited by the amount of space available on the website. However, the ability of a search engine to display ads increases with the number of search queries. Specifically, this means that there are no limits to quickly gain high market shares due to capacity constraints. On the one hand, this can help search engine to quickly increase its market share. It can be summarized that the focus on search platforms is favored in particular by economies of scale and network effects. Both factors also ensure that market entry is more difficult and associated with correspondingly high investment costs.

3.4. POTENTIAL COMPETITION PROBLEMS ON THE SEARCH PLATFORMS MARKETS

In the following, possible competition problems on the search platforms markets are discussed, which result from the fact that search platforms on the one hand can influence access to websites and on the other hand develop their services by integrating new functions and search services.[23]

3.4.1. SEARCH PLATFORMS

Because of their role as intermediaries in the search for information, horizontal search engines in general and in particular the search engine Google are often referred to as the "gatekeeper". Thus, gate keeping is understood as a process of filtering and editing information that determines what content reaches or does not affect the reader, thereby influencing public opinion.[24] Search engines also provide a selection service similar

[23] Funta, R. (2017) Competition Law Policy and Online-Platforms. *EU Law Journal*, Vol. 2. No. 1, p. 1 and follows.

[24] Zakharchenko, A., Peracek, T., Fedushko, S., Syerov, Y., Trach, O. (2021) When fact-checking and 'bbc standards' are helpless: 'fake newsworthy event' manipulation and the reaction of the 'high-quality media' on it. *Sustainability*, 13 (2), 573.; Peracek, T., Fedushko, S.,Syerov, Y., Trach, O. (2021). Development of methods for the strategic management of web projects. *Sustainability*, 13 (2), 742.

to that of journalists, in that search results are ranked. In public, the term gatekeeper is often equated with the term "essential facility". The essential facility's concept states that a company that is dominant in the market because it controls an essential facility can not exploit its position by denying access to the essential facility.[25] It is doubtful whether search platforms fulfill the legal requirements of an essential facility. This applies regardless of which platform features are examined as essential facilities (user data, web index, search algorithm). It's not surprising that well-known websites, which make up a large part of Internet traffic, are not dependent on search engines. The example of Wikipedia shows, however, that despite relative awareness, a primarily information-gathering website is mainly driven by search engines. Users seem to start their search for information on a search engine in order to find out more from Wikipedia. In addition to search engines there are other frequently ways to visit websites. Display advertising, e-mails or social networks seem to play a subordinate role when it comes to getting to a website. There can be various reasons, such as the lack of brand awareness of a website or the regularity with which certain websites are used. From the perspective of the advertisers, it seems unclear whether a single search engine with a very high market share is a gatekeeper. Against such an assumption we can suggest that there are variety of other websites that provide advertising space on the Internet. There are good reasons against the assumption that search engines like Google or Bing fulfill the requirements of an essential facility. Search engines can only partially be seen as gatekeepers for access to information and users on the Internet. Compared to many other media, the Internet is characterized by its unrestricted access to information. Unlike journalistic gatekeeping, content that does not appear at the top of the search results is basically still accessible to Internet users through other search engines.

3.4.2. EXPANSION TENDENCIES OF SEARCH PLATFORMS

As stated earlier, horizontal search engines are multi-side platforms[26] whose business models are designed to include all relevant platform sides. Search platforms compete with the quality of their search services provided to users. These are in turn a prerequisite for making the platform attractive

[25] Funta, R. (2011) *Abuse of a dominant position in EU and US Law*. 2. Edition, Brno: Tribun EU, p. 115 and follows.

[26] Šmejkal, V. (2016) Výzvy pro evropský antitrust ve světě vícestranných online platforem [*Challenges for European antitrust in a world of multilateral online platforms*]. In. *Antitrust: Revue soutěžního prá*va, č. 4. pp. 105-114.

to advertisers and generating revenue. The retrievability of web pages influences the attractiveness of the search service for users. At the same time, content providers benefit from being found. The fact that users and advertisers tend to be less loyal than other platform services (e.g. social networks) to a specific search platform means that the attractiveness of search platform is of decisive importance from the user's point of view and explains why search platforms with high market share have an interest in further developing their offer to secure their market position. At the same time, search platforms as profit-oriented companies face the challenge of opening up new revenue opportunities. Against this background, various strategies[27] can be identified: the integration of the search service into other software and device platforms, such as browsers and mobile devices, to expand the user base, the integration of new services such as map and message services to increase platform attractiveness and the preference for on-board profit maximization services.

4. A NEED FOR (NEW) REGULATORY MEASURES?

We are of the opinion that a purely preventive regulation, in particular through regulation of the search algorithm, is currently not to be advocated. Regulatory measures that would allow search platforms to provide similar access to user data outweigh their perceived risks over the potential benefits. In order to counteract the potential fear of favoring one's own services when displaying search results, it is proposed to prevent preference of one's own services in the presentation of search results by the unbundling of general search services. Any regulatory instruments would have to be proportionately designed and applied in relation to the economic objective. In addition, unbundling could undermine rationalization advantages on the part of the search engine, and existing economies of scale and scope could be lost. In our view, unbundling of a dominant search platform due to the severity of the interference in the business model should be considered if the relevant search platform has a huge market power. Regulation of the search algorithm to ensure search neutrality would require changes to the algorithm. Given the frequency with which changes are made, this would require considerable effort. In addition, due to the complexity of search algorithm,

[27] Schweitzer, H., Haucap, J., Kerber, W., Welker, R. (2018) Modernizing the Law on Abuse of Market Power. *Report for the Federal Ministry for Economic Affairs and Energy (Germany).* p. 4.

it would be unclear whether a distortion could be objectively determined. The European Commission has pointed out in its Digital Agenda[28] that technical interoperability and the resulting open architecture of the Internet is a prerequisite for the full use of information and communication technologies.

4.1 NEW RULES FOR ONLINE PLATFORMS AND SEARCH ENGINES IN THE EU ("P2B REGULATION")

On June 20, 2019, the EU adopted Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019 on promoting fairness and transparency for business users of online intermediation services ("P2B Regulation"). The "P2B Regulation" is the first direct regulation of online platforms by the EU. The "P2B Regulation" applies[29] to online intermediation services and search engines anywhere in the world that provide services to business users in the EU. The "online intermediation services" include e-commerce marketplaces (e.g. Amazon Marketplace, eBay), online software application services (e.g. Google Play, Apple App Store, Microsoft Store), online social media services (e.g. Facebook, Instagram) or online search engines (e.g. Google search, Bing). But, it does not distinguish between so called large (or gatekeeper) platforms and other platforms. The reason for such platform rules can be found in its recitals which states, that "*online intermediation services are key enablers of entrepreneurship and new business models, trade and innovation*" (recital 1) that "*can be crucial for the commercial success of undertakings who use such services to reach consumers*" (recital 2). The "P2B Regulation" should generate indirect benefits for consumers. Thus, its objectives is to (a) ensure fair, transparent and predictable treatment of business users by online platforms; (b) provide more effective redress options and ultimately (c) create a predictable and innovation-friendly regulatory environment for online platforms. The aim of the "P2B Regulation" is that platforms commit to more transparency and fairness: e.g. *through disclosure of ranking parameters* (Article 5) which are most important for determining the ranking.

[28] European Commission, A Digital Agenda for Europe, Communication of 19 May 2010 to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM (2010) 245 final, p. 17 and follows.

[29] On the other hand, the P2B Regulation does not apply to online payment services or to online advertising tools or online advertising exchanges, which are not provided with the aim of the facilitating the initiation of direct transactions and which do not involve a contractual relationship with consumers (Article 1(3)). Online payment services (e.g. PayPal) and online advertising tools are thus excluded from the P2B Regulation scope.

This should help commercial users to understand how the offered goods and/or services are highlighted; *through the design of general terms and conditions* (Article 3, 6) which should be clear, understandable and available to commercial users before to conclusion of the contract; or *through access to data* (Article 9) meaning, to disclose the extent to which they have access to the data. The reason why the "P2B Regulation" was adopted comes also from recent EU antitrust cases, such as Google Shopping[30], where Google was found to have abused its dominance in the search engine market by favoring its own comparison shopping service. This was seen by the European Commission as anti-competitive expansion of dominance from the primary markets for general search services to the secondary markets for comparison shopping services.

5. CONCLUSIONS

The Internet enables the development and differentiation of business models. Any barriers to entry resulting in the development of innovative business models over time must be accepted only to the extent that they can be further legally justified. Due to the associated reduction in transaction costs, the economy can meet the demand for goods and services in an increasingly individualized manner. Likewise, consumers themselves can become providers of goods and services on the Internet and via the Internet in other sectors of the economy. The Internet opens up new dimensions of competition (expands markets by enabling consumers to take advantage of every offer available on the internet).[31] In addition, competition between Internet-based and non-Internet-based goods and services is becoming increasingly competing. For competition policy, the particular characteristics of multi-side platforms are a challenge. The fundamental relationships and complexity of multi-side platforms need to be considered by competition authorities and courts. It is important to include all sides of a platform in the analysis and to record their economic significance. Also the importance of data for the economic success of companies should be given more consideration in competition law assessments. An obligation to publish the search algorithm is not to be advocated. Also an obligation to disclose or split the web index with

[30] AT.39740, *Google Search Shopping* (2017), 27 June.

[31] Šramel, B., Horváth, P. (2021) Internet as the communication medium of the 21st century: do we need a special legal regulation of freedom of expression on the internet? *The Lawyer Quarterly*. no. 1, pp. 141–157.

competing search engines is not to be endorsed as it would eliminate incentives to create and constantly update the index. The above mentioned "P2B Regulation" may be seen as a starting point for a platform-specific intervention to target unfair practices which mostly result from the dependence of businesses on platforms. Even the "P2B Regulation" is quite descriptive, there are several aspects which remain unclear, e.g. the "P2B Regulation" does not speak about legal consequences in case of its violation; or the "P2B Regulation" states in Article 1 that it "*shall not affect national civil law, in particular contract law*". In this perscpective it will be interesting to see how this will correlate with existing national law. Although the "P2B Regulation" can be seen as a step in the right direction in ensuring fairness and transparency, the ex ante regulatory framework does not address the potentially unfair trading practices of some online platforms. The design and application of competition rules in regards to Internet markets will be an interesting area for further research. It would be needed to further monitor and investigate this sector of business in order to understand the impact of these developments and to find out to what extent a more far-reaching regulatory measures for differentiated treatment would be needed in the future.

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<<< COMMENTS

BOOK REVIEWS >>>

DOI 10.5817/MUJLT2021-1-6

SEXTING AND REVENGE PORNOGRAPHY. LEGISLATIVE AND SOCIAL DIMENSIONS OF A MODERN DIGITAL PHENOMENON. PHIPPEN, A.; BRENNAN, M.

by

MICHAELA DVOŘÁKOVÁ*

Phippen, A.; Brennan, M. (2020) Sexting and Revenge Pornography. Legislative and Social Dimensions of a Modern Digital Phenomenon. Abingdon, New York: Routledge, 164 p.

In *Sexting and Revenge Pornography*, *Andy Phippen* and *Maggie Brennan* present an empirical and legislative analysis of non-consensual sharing of intimate images[1] among adults and minors and discuss associated aspects, including social dimensions. While drawing almost exclusively from data and legislation in the United Kingdom, their critique and well--argued suggestions appear universal with the potential to become implemented across different legal systems.

Sexting is usually defined as any form of electronic communication between two people (regardless of age), containing sharing of their nude pictures. It does not cause any harm by itself. Revenge pornography, on the other hand, is highly harmful. It consists of such intimate pictures being further shared (without consent), posted online, or used in for extortion.[2] Nevertheless, these terms have a slightly different meaning in *Phippen* and *Brennan's* view. In their perspective, the decisive criterion is

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1 See the abstract (p. *i*) of the book.

2 Powell, A. and Henry, N. (2017) *Sexual Violence in a Digital Age.* [online] Basingstoke: Palgrave Macmillan, pp. 119-120, 132-133, 162-164, 240-241. Available from: https://doi.org/10.1057/978-1-137-58047-4 [Accessed 30 March 2021].

the victim's age. If minors self-generate and share their intimate pictures or further share such images of others, it is "sexting", whilst it is "revenge pornography" if adults (over 18 years old) do it.[3] This is an unusual approach. However, such distinction of the terms derives from UK legislation. As explained below, the non-consensual pornography regulations are very different for minors and for adult victims. Paradoxically, in the case of minors, the regulations may be even less effective.

Either way, sexting and revenge pornography fall under the concept of "image-based abuse", as the authors explain.[4] Although other scholars usually prefer "image-based *sexual* abuse",[5, 6] both terms have the same meaning – *Phippen* and *Brennan* repeatedly point out the need to acknowledge the underlying sexual nature of sexting and revenge porn themselves. However, it would bring more clarity to use the already established terminology (which also includes the term "non-consensual pornography"[7]). In that regard, the authors express their belief (shared by some other scholars[8, 9]) that the term "revenge pornography" is highly problematic.[10] Surprisingly, they decided to use it throughout the book and in its title nonetheless.

The book consists of three equally long parts, further divided into two distinct chapters each. The first part analyzes sexting and revenge porn as social phenomena, the second part describes current legislation and its limitations, and the third part focuses on non-legal ways to tackle non--consensual pornography. Unlike other scholars in the field of image-based abuse, *Phippen* and *Brennan* have expertise in IT/digital rights and psychology, respectively. *Andy Phippen* also conducted or participated in empirical research on minors' attitudes toward sexting in 2012[11] and

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3 See pp. 33-35 of the book.

4 See pp. 2-15 of the book.

5 McGlynn, C. and Rackley, E. (2017) Image-Based Sexual Abuse. *Oxford Journal of Legal Studies*, 37 (3), pp. 535-544. Available from: https://doi.org/10.1093/ojls/gqw033 [Accessed 30 March 2021].

6 Powell, Henry, *Sexual Violence in a Digital Age*, pp. 117-153.

7 Citron, D. K. and Franks, M. A. (2014) Criminalizing Revenge Porn. *Wake Forest Law Review*, 49, p. 346. Available from: http://repository.law.miami.edu/cgi/viewcontent.cgi?article=1059&context=fac_articles [Accessed 4 April 2021].

8 McGlynn, Rackley, *Image-Based Sexual Abuse*, p. 536.

9 Powell, Henry, *Sexual Violence in a Digital Age*, p. 118.

10 See p. 42, 52 of the book.

2017,[12] and key findings from this research are reported in the reviewed book. They serve as the basis for his and *Brennan's* critique on the policy--making process regarding youth sexting. The data obtained from these surveys present a highly needed evaluation of teen sexting. It is evident that children's attitudes toward it have not changed significantly over the years, and neither have the policymakers'.

Apart from these findings, the first part of the book lacks substantial novelty and provides only a few new ideas. Compared with other publications from the field, like that by *Henry et al.*[13] (also published in 2020), *Sexting and Revenge Pornography* appears rather superficial. Therefore, it would have been preferable if the authors had not attempted to cover all aspects of non-consensual pornography that are already well examined by other scholars.[14] For instance, they mention pornographic deepfakes (calling it, inconveniently, "pseudo-sexual imagery") but do not elaborate on it much further.[15] *Phippen* and *Brennan* are indisputable experts on teen sexting, and it is clear from the book that image-based abuse of minors is their main research agenda. Because of that, it might have been suitable if they devoted more space to it and went deeper into their findings at the expense of adult revenge pornography.

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[14] For example, see: McGlynn, Rackley, *Image-Based Sexual Abuse*, pp. 534-561. Powell, Henry, *Sexual Violence in a Digital Age*, 317 p. Citron, D. K. (2019) Sexual Privacy. The Yale Law Journal, 128 (7), pp. 1924-1928. Available from: https://www.yalelawjournal.org/article/sexual-privacy [Accessed 5 April 2021].

[15] The area of pornographic deepfakes deserves more attention, as their use is rapidly growing. For more information, see the following: Hao, K. and Heaven, W. D. (2020) The year deepfakes went mainstream. *MIT Technology Review*, 24 December. Available from: https://www.technologyreview.com/2020/12/24/1015380/best-ai-deepfakes-of-2020/ [Accessed 10 April 2021]. Delfino, R. (2019) The Case for Federal Criminalization of Revenge Porn's Next Tragic Act. *Fordham Law Review*, 88 (3), pp. 887-938. Available from: https://ir.lawnet.fordham.edu/flr/vol88/iss3/2/ [Accessed 8 April 2021].

In contrast, it is enormously meritorious that the authors present a sensitive approach towards victims of image-based sexual abuse. They rightly refuse the common belief that if someone self-generates and shares their intimate pictures, they are at fault for any further misuse and associated harm. *Phippen* and *Brennan* see this so-called "victim blaming"[16] as destructive and irrelevant because only abusers should be held accountable for causing abuse, not victims. Concerning children and teen sexting, their effort to be understanding is even more apparent. That is especially sympathetic because many young participators in the 2012 and 2017 surveys expressed their wish not to be judged by adults for sharing intimate pictures.[17]

The authors also emphasize that minors will participate in sexting, no matter how much effort is there to prevent it. This conclusion may be one of the greatest contributions of the book. For children, sexting has become a big part of their lives and a standard form of communication. Sadly, they also see it as a way of establishing romantic relationships or increasing their self-confidence. Hence, peer pressure to participate in sexting is intense. For that reason, *Phippen* and *Brennan* make a very clear point we should not focus on sexting as the act itself, but on the motives, forces, and reasons behind it.[18] I could not agree more. Coercion and manipulation are very common in the context of image-based abuse and many victims are forced into creating the content in the first place. Unfortunately, children are particularly vulnerable to manipulation and often cannot recognize it. Therefore, they should not be blamed for taking part in sexting (especially if they tend to copy adult behaviour). Rather, it is the fault of adults who have failed to educate them about the potential harm of this phenomenon, as the authors explain.

In the second part of the book, *Phippen* and *Brennan* analyze the legal aspects of sexting and revenge pornography. Although disturbing and surprising, one of the main conclusions is that the law protects adult victims of image-based abuse better than minors.[19] The principal reason behind this very absurd outcome of the law is that if children self-generate and/or share

[16] Starr, T. S. and Lavis, T. (2018) Perceptions of Revenge Pornography and Victim Blame. *International Journal of Cyber Criminology*, 12 (2), pp. 428-429. Available from: https://www.cybercrimejournal.com/Starr&Lewisvol12issue2IJCC2018.pdf [Accessed 11 April 2021].

[17] See p. 17, 138 of the book.

[18] See pp. 123-124 of the book.

their intimate pictures, they may face prosecution for creating and distributing child pornography.[20] Children are also often reminded of such possible consequences of sexting, sometimes even by police officers. According to the authors, this attitude does little to protect children from sharing their intimate images but does a lot to discourage them from reporting consequent abuse to the police. Moreover, it does not differ whether a child shares the intimate images voluntarily or not. Although some other countries[21] also enable prosecution of children who take and share their nude pictures, it seems the situation is by far the worst in the UK. For this reason, the findings on harm caused by such legislative approach presented in *Sexting and Revenge Pornography* can very usefully serve as a "bad practices" example that is not to be followed.

As mentioned above, the third part of the book moves more into what the policymakers and other stakeholders are doing wrong in tackling non--consensual pornography.[22] On this count, the authors present their well--reasoned conclusions based on three different findings. Firstly, they emphasize the lack of effectiveness of any prohibitive approaches.[23] It is important to realize that children share their intimate pictures regardless of illegality of such action, and the law should not punish them if it does not cause any harm. However, at the same time, it should protect them in the event of further abuse based on the initial sharing.[24]

Secondly, there should be proper education available to children on the risks of electronic communication, the concept of consent in romantic and sexual relationships, the many forms of manipulation or coercion, and

[19] The different levels of protection for adults and minors regarding non-consensual pornography are partly caused by the fact that the UK has criminalized revenge porn. In contrast, in countries that have not implemented such law, it would not be the case.

[20] See pp. 18, 68-70 of the book.

[21] For instance, in the US, Canada, France and the Czech Republic. See the following: O'Connor, K. et al. (2017) Sexting Legislation in the United States and Abroad: A Call for Uniformity. *International Journal of Cyber Criminology*, 11 (2), pp. 218–245. Available from: http://cybercrimejournal.com/O%27Connoretalvol11issue2IJCC2017.pdf [Accessed 10 April 2021]. Lee, J. R. and Darcy, K. M. (2021) Sexting: What's Law Got to Do with It? *Archives of Sexual Behavior*, 50, p. 564, 567. Available from: https://doi.org/10.1007/s10508-020-01727-6 [Accessed 10 April 2021]. Robitaille-Froidure, A. (2014) Sexting : les adolescents victimes (consentantes ?) de la révolution numérique. *La Revue des droits de l'homme*, 5 (4), pp. 7-9. Available from: https://doi.org/10.4000/revdh.786 [Accessed 10 April 2021]. Patočková, T. (2021) Porno z pomsty. Zmapovali jsme podsvětí internetu, kde se sdílí nahé snímky obětí. *Aktuálně.cz*, 19 March. Available from: https://zpravy.aktualne.cz/domaci/porno-z-pomsty-zmapovali-jsme-podsveti-internetu-kde-se-sdil/r~b95bc994810f11ebb2f60cc47ab5f122/ [Accessed 10 April 2021].

[22] See p. 140 of the book.

[23] See p. 120-127, 135-136 of the book.

[24] See pp. 138-141 of the book.

the right to say "no".[25] Children should also learn about the harmful impacts of victim blaming. Most importantly, the education on non-consensual pornography should provide them with information on what to do if someone becomes a victim of image-based abuse and what legal remedies are available. It definitely should not lead to terrifying those who have already had their intimate images further shared or who have been threatened with it.[26]

Thirdly, and it is an important note, *Phippen* and *Brennan* believe the right path to tackle non-consensual pornography is not treating this issue as a specific modern phenomenon only enabled by technologies. While the possibility to take and share a picture with a click of a button certainly is partly to be blamed for the spread of image-based sexual abuse, the authors emphasize that the underlying aspects are not new at all – it all comes down to consent and its contextual nature. Because of this origin, non-consensual pornography cannot be solved with more advanced technology solutions only (such as new algorithms or "hashing" once reported images).[27] Despite the inadequacy of "technology-oriented solutions", *Phippen* and *Brennan* underline that the *onus of* tackling image-based abuse currently lies almost entirely upon service providers.[28] Although it may seem the authors downplay the importance of what service providers can do to fight non-consensual pornography, it is not their intention. They believe service providers to be vital stakeholders who can make a huge difference (which we all could see in December 2020 when *Pornhub* deleted most of its videos[29]). Nevertheless, pressuring service providers to "do more" for its own sake does not solve the problem. *Phippen* and *Brennan's* view is that non-consensual pornography must be addressed in a complex way, and any such effort must come from a profound understanding of all issues in question.[30] Prohibition, excessive censorship or pressure on advancing technology are not effective.

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[25] See pp. 117-127, 130-139 of the book.

[26] See pp. 130, 132-135 of the book.

[27] See pp. 30, 61, 102-110, 141 of the book.

[28] See p. 100 of the book.

[29] Valinsky, J. (2020) Pornhub removes a majority of its videos after investigation reveals child abuse. *CNN Business*, December 15. Available from: https://edition.cnn.com/2020/12/15/business/pornhub-videos-removed/index.html [Accessed 12 April 2021].

[30] See pp. 100-102 of the book.

Sexting and Revenge Pornography is worth praise for multiple reasons. In my view, the greatest asset of the book is the urgent and evidence-based call to change the teen sexting-related legislation. The authors contend that children who take nude pictures of themselves and share them with someone else (e.g. boyfriend/girlfriend) should not be prosecuted. On the contrary, adults should try to understand the reasons for such behaviour, explain related risks to children, and offer them help and legal advice if they get subsequently abused. The empirical data presented in the book, altogether with the description of real-life effects of non-consensual pornography on its victims and analysis of the law with its shortcomings, constitute a solid argument to change the current situation. Policymakers and other stakeholders both in the UK and other countries ought to adopt it.

However, I am unsure what is the book's scholarly or practical value in other aspects precisely. Its concept is rather broad and complex, although not deep and thorough in terms of revenge pornography. What could have been the book's greatest strength – its practical use – falls a little short of expectations. Many victims of non-consensual pornography who seek out this book would presumably find it helpful if there were any instructions on what to do in their situation. However, *Phippen* and *Brennan* do not offer these.

In contrast, the authors present many suggestions for the regulation of sexting and revenge porn. These are very well-argued and beneficial, but some of them could be rather difficult to implement into law. For instance, *Phippen* and *Brennan* say the substance of the revenge porn crime should not lie with the offender's intent but should be based on the victim's harm instead.[31] As reasonable as such demand may seem, it is also quite problematic. The decisive criteria must be objective, not dependable on subjective and relative consequences. On the other hand, the authors also emphasize the importance of considering the cultural specifics of intimacy and shame concerning the harm of image-based abuse.[32] That is a good point, indeed.

In conclusion, *Sexting and Revenge Pornography* is neither exactly practical nor exclusively theoretical but lingers somewhere in between. *Phippen* and *Brennan* have undeniably presented an original contribution that is

[31] See pp. 20-22, 42-44 of the book.
[32] See pp. 43-44 of the book.

comprehensible and based on empirical evidence. It offers a wide-ranging perspective on what we are now doing wrong in non-consensual pornography (especially teen sexting) and what are the possible actions. The main conclusion is that the legislation and technology-oriented solutions struggle to provide victims with adequate protection, while education and societal changes may be much more effective. Ultimately, this universal conclusion could inspire stakeholders in the UK and other countries as well.

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