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ARTIFICIAL INTELLIGENCE AND COMPETITION LAW

“We live in a time of «becoming» and we are all becoming novices.

Novices we will remain forever. This should teach us humility”

(Kevin Kelly, 2016)

Introduction

The critics of Manuel Castells were wrong when they accused him of a kind of obsession with the networking of communication, society, and the economy, and of exaggerating their future role [Elliot 2011, 320]. The network is the reality in which we live. As this Spanish sociologist pointed out, social space is a space of flows in which technological infrastructure plays an important role. New technologies are the material basis of global networks, the medium which organises the wires, computers, airports and transport routes connecting people, places, goods and information in the space of flows. The network, as M. Castells indicates, does not, by definition, have a centre, it operates on the basis of a binary logic of “on – off.” The network is a set of interconnected nodes and it organises itself through them [Castells 2000, 693-97]. A node can be any computer connected to the Internet. The network-based social structure is a highly open, dynamic system susceptible to innovation. This leads to the “network paradigm,” due to which companies and corporations rely heavily on digital information to link supply and demand. Networks are thus suitable instruments for the capitalist economy based on innovation, globalisation and decentralisation, and for social organisations seeking to remove space and annihilate time [Idem 2011, 468]. This is a truism today to that we have become an information society in which information itself has become

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a product and new technologies are networking the economy in an advanced way.

Castells was also not wrong when he stressed that the resource that triggers and stimulates the current mechanisms of digital capitalism is knowledge transferred into more and more new technologies. In this sense, as heralded by the thinker and visionary Kevin Kelly, individuals, society, entrepreneurs are participants in a *protopia* (from “process” and “progress”) – a state of constant becoming, of perpetual updating. A process, “[...] that continuously changes how other things change, and, transforming itself as well, takes on new forms and expands” [Kelly 2017, 26-27]. One can contest this process, disbelieve it, or embrace the future with open arms because “Tomorrow is now” [Goźliński and Makarenko 2020].

The most important computer technology is algorithms [Cormen 2020, 20], which form the architecture of artificial intelligence (AI), while the driving force that gives rhythm to the modern digital revolution is called Moore’s Law. This rule, formulated in 1965 by Gordon Moore – one of the founders of Intel Corporation – indicates that the power of computers increases exponentially, doubling every 18 months [Kaku 2011, 39-40]. Raymond Kurzweil goes further by pointing out that the simple exponential growth of technological progress is itself growing exponentially, which means that in the 21st century we will experience not a hundred years of progress (as would be the case in the linear paradigm), but progress of the order of about two hundred centuries (at today’s growth rate). Therefore, the 21st century will bring almost a thousand times more technological change than its predecessor, the 20th century. We are thus approaching the Singularity – a technological change so rapid and so profound that it will constitute a rupture in the fabric of human history, carrying us ever further into the human-machine civilisation [Kurzweil 2001].

The inevitability of these processes, which are imperceptible to humans but at the same time widespread, means that we take advantage of this growing intelligence in the performance of many everyday duties, accepting them without reflection, and as the novelist Max Frisch pointed out – technology has a talent for arranging the world in such a way that we do not have to experience it.

In the light of the massive development of AI technologies in society and the economy, the article identifies current proposals for the regulation of artificial intelligence at the EU level, which will be directly implemented in the Member States. The rapidly changing market is forcing a new approach of competition authorities to this process and raises the question of the role of competition policy in the digital economy. The main thread of the article is therefore to highlight the existing and expected challenges for the protection of competition related to the increased use of AI algorithms by entrepreneurs for the implementation and maintenance of cartels concluded in the traditional manner, as well as algorithms affecting competition without human intervention. To maintain some objectivity in the discussion, significant pro-competitive benefits of their use are also indicated.

1. The European Union and the law as regards artificial intelligence

The massive use of AI algorithms and the threats they generate have made it necessary for European Union bodies to address this process. Three documents preparing the European Union for artificial intelligence and an increased use of robotics are important in this respect, as they outline the significance of the changes in the axiological and economic spheres, as well as in the sphere of special consumer protection, since the asymmetry of information between entrepreneurs and consumers becomes even more apparent in relation to algorithmisation.

One of the first EU documents was the EC Communication to the European Parliament and the Council and other bodies of 25 April 2018 entitled *Artificial Intelligence for Europe*,¹ which pointed out that an increase in computing power, data availability and advances in algorithms have made artificial intelligence one of the most strategic technologies of the 21st century. The way Europe approaches AI will determine the world we live in. With fierce global competition, the stakes are high and a solid European framework is essential. The Union proposes a balanced approach to new

¹ The Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions of 24 April 2018, *Artificial Intelligence for Europe*, COM(2018)237 final, <https://eur-lex.europa.eu/legal-content/PL/TXT/?uri=CELEX%3A52018DC0237> [accessed: 25.06.2021].

technologies based on EU values, in particular those set out in Article 2 of the Treaty on European Union² – respect for human dignity, freedom, democracy, equality, the rule of law, as well as respect for human rights, including the rights of persons belonging to minorities.

At the same time, it is emphasised that certain applications of AI may raise new ethical and legal issues in terms of responsibility for its operation. The EU must therefore ensure that AI is developed and applied within an appropriate framework which, on the one hand, supports innovation and, on the other, respects the Union's values and fundamental rights, as well as ethical principles such as responsibility and transparency. It is noted that the development of technology related to robotics and AI should be primarily based on complementing rather than replacing human capabilities, and it is therefore the task of the Union to ensure that humans can always exercise control over intelligent machines. Particular attention should be paid to the possibility of an emotional relationship between human beings and robots, especially among vulnerable groups (children, elderly people, persons with disabilities), and to the impact that such an emotional or physical attachment may have on humans.³

Another important EU document laying the foundations for future European regulation of artificial intelligence was the White Paper on Artificial Intelligence – a European Approach to Excellence and Trust of 19 April 2020.⁴

It reiterates that, given the significant impact that artificial intelligence (AI) has and can have on individuals and society, the axiological foundation for its existence and use are European values and fundamental rights, such as human dignity and the protection of privacy, and this in turn is a condition for building trust in it. The Union strongly supports a human-centred approach which will build trust in human-centred artificial intelligence.

² The consolidated version of the Treaty on European Union, Official Journal 2012/C 326/01.

³ European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics, Official Journal UE 2018/C 252/25.

⁴ European Commission, *White Paper on Artificial Intelligence – A European approach to excellence and trust*, https://ec.europa.eu/info/sites/default/files/commission-white-paper-artificial-intelligence-feb2020_pl.pdf [accessed: 28.04.2021].

The synthesised legal framework for future AI regulation in the European Union comprises seven key conditions identified in the expert group's guidelines: (1) human agency and oversight (2) technical robustness and safety, (3) privacy and data governance, (4) transparency, (5) diversity, non-discrimination and fairness, (6) societal and environmental wellbeing, and (7) accountability.

Already today, artificial intelligence developers and operators are subject to European regulations on fundamental rights. Particular attention was drawn to the risks, including the fact that artificial intelligence increases the ability to track and analyse people's daily activities. Business entities use algorithms for consumer profiling (so-called microtargeting) [Namysłowska and Jabłonowska 2020, 97-98], violating the relevant regulations and remain fully responsible for the compliance of artificial intelligence with existing legislation which protects consumers. The lack of transparency of AI makes it difficult to identify and prove possible violations of the law, including laws which protect fundamental rights, attribute liability and define the conditions necessary to seek compensation.

In addition, the *White Paper* proposes the following definition of artificial intelligence, as refined by a group of experts – “Artificial intelligence (AI) systems are software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal. AI systems can either use symbolic rules or learn a numeric model, and they can also adapt their behaviour by analysing how the environment is affected by their previous actions.”⁵

The outcome of such a definition and assumptions for the EU approach to artificial intelligence, was the presentation by the European Commission on 21 April 2021 of a proposal to the European Parliament and the Council for a regulation laying down harmonised rules on artificial intelligence (Artificial Intelligence Act).⁶ The draft regulation, as previously envisaged,

⁵ Ibid., p. 19, footnote 47.

⁶ European Commission, *Proposal for a Regulation of the European Parliament and of the Council Laying down Harmonised Rules on Artificial Intelligence (artificial intelligence act) and amending*

balances between establishing the minimum requirements necessary for the safety of artificial intelligence and proportionality in technological development – not creating barriers to progress and not increasing its costs.

In terms of establishing minimum requirements for AI, a risk-based approach was taken, distinguishing between AI applications that pose: (a) an unacceptable risk, (b) a high risk and (c) a low or minimal risk. The first category of AI applications posing an unacceptable risk includes, as indicated in the Regulation (Article 5 of the Proposal), prohibitions on practices that have a significant potential to manipulate people, based on subliminal techniques acting on their subconscious or exploiting the vulnerabilities of specific groups (children, senior people, people with disabilities) to substantially distort their behaviour in a way that may cause them or another person psychological or physical harm. It is also a prohibited practice for public authorities to use, for general purposes, artificial intelligence-based systems for scoring social behaviour, including assessing or classifying the trustworthiness of individuals, and to use “real-time” remote biometric identification systems in public spaces for law enforcement purposes, unless there are some limited exceptions e.g. detecting, locating, identifying and prosecuting the perpetrator of a crime or a suspected criminal or preventing a terrorist attack (Article 5(1)(d) of the Proposal).

Next in the risk classification are AI systems which pose a high risk. According to the Proposal, these are AI systems that generate a high risk to the health and safety or the fundamental rights of individuals. The classification of an AI system as a high-risk system is based on the purpose of the AI system, according to the applicable product safety legislation.

Therefore, it depends not only on the function performed by an artificial intelligence system, but also on the specific purpose and mode of its use (Article 6 of the Proposal). At the same time, in the light of recital 34 of the Proposal, with regard to the management and operation of critical infrastructure, it is advisable to classify as high risk systems artificial intelligence systems that are part of the processes of traffic management and handling, as well as the supply of water, gas, heat and electricity.

certain union legislative acts. Brussels, 21.04.2021, COM/2021/206 [hereinafter: Proposal], <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1623335154975&uri=CELEX%3A52021PC0206> [accessed: 28.06.2021].

High-risk artificial intelligence systems are allowed on the European market subject to compliance with certain mandatory requirements and *ex ante* conformity assessment by the relevant notified certification bodies. As AI systems use machine learning, the Proposal regulates the requirements for data on the of which AI algorithms learn (Article 10 of the Proposal). It is pointed out that high-risk AI systems, which use techniques involving training of models with data, are developed on the basis of training, validation and test data sets which meet quality criteria, i.e. the criteria of adequacy, representativeness and completeness, and are to be free of gaps and errors.

An important element of high-risk AI systems should be their transparency in order to avoid the special risk of manipulation they pose. Therefore, as stated in Article 13(1) of the Proposal, transparency obligations will apply to systems that: (a) interact with humans, (b) are used to detect emotions or identify links to categories such as social categories based on biometric data or (c) generate content or manipulate it (deepfake technology). As indicated in the Explanatory Memorandum to the Proposal,⁷ when persons interact with an AI system or their emotions or characteristics are recognised through automated means, people must be informed of that circumstance.

The Proposal does not provide for intervention in relation to categories of AI applications with a minimal or negligible risk. The vast majority of artificial intelligence systems fall into this category. This will allow applications such as AI video games, spam filters, language translators or voice assistants to be used freely.

The proposed rules will be enforced through a management system at the level of the Member States, based on the already existing structures and a cooperation mechanism at the EU level, for which the European Artificial Intelligence Board will be established, in accordance with Article 56 of the Proposal, composed of representatives of the Member States and the Commission.

The balance of solutions requires that the restrictions introduced by regulation do not act as a barrier to the development of new digital

⁷ Ibid., p. 19.

technologies, the Internet of Things (IoT) or AI-based robotics. Therefore, the Proposals constitutes the creation of a legal framework which fosters innovation, does not become obsolete and is resistant to disruption (e.g. regulatory sandboxes). It also includes measures to reduce the regulatory burden on SMEs and start-ups.

At the same time, the regulation of AI systems has broader objectives: linking it to the European Green Deal for the whole lifecycle of closed-loop products, sharing data and investing in critical computing capabilities, supporting excellence in AI “from lab to market.”

2. The challenges for the protection of competition connected with artificial intelligence

In light of the aforementioned definition proposed by the European Commission, the main elements that make up artificial intelligence include “data” and “algorithms.” Algorithms can still learn as they operate and thus act autonomously by perceiving their environment and without having to follow a predetermined set of instructions; however, their behaviour is largely programmed and constrained by humans who are responsible for the AI activity [Chłopecki 2021, 23, 29-30].

In the age of Economy 4.0 and the era of developing digital capitalism, there is a complex network of economic links between different entities. Constant innovations generate, situations already described by J.A. Schumpeter, of construction and creative destruction [Mikosik 1993, 168]. This is reflected in different dimensions of the competitive game, which is no longer focused on horizontal competition in product markets, but, without excluding it, is moving into vertical competition – competition for a higher percentage of the added value brought by innovation and competition from complementary technologies (vertical innovation competition) [Lianos 2019, 4-5].

The rapidly changing market is necessitating a new approach by competition authorities to this process and raises the question of the role of competition policy in the digital economy. As Massimiliano Kadar of the EC pointed out [Kadar 2015], “some believe that competition authorities should refrain from intervening in fast-growing technology-driven industries because the cost of intervention in these industries would generally outweigh

the possible benefits. Almost on the opposite side, others argue that strong intervention by competition authorities is needed . . . to limit the market power of large companies operating in the digital space.” The whole body of proceedings and decisions by the EC in the cases of technology giants – Google,⁸ Facebook⁹ and Amazon¹⁰ – seems to confirm the choice of the latter route, albeit in a balanced way.

2.1. Pricing algorithms allowing for the implementation and maintenance of an agreement concluded in the “traditional” manner

The most well-researched phenomenon in the e-commerce industry is the use of pricing algorithms by entrepreneurs and thus adjusting their prices in real time to those of their competitors. Algorithms dynamically process data to monitor and predict the behaviour of competitors and consumers based on the data of the company which uses the algorithm as well as that of its competitors. As long as it is not accompanied by an agreement

⁸ E.g. Decision of 27 June 2017, AT.39740 – *Google Shopping* search engine (abusing dominance by favouring its price comparison engine – fine of €2.42 billion); Decision of 18 July 2018, AT.40099 – *Google Android* (practices concerning Android mobile devices aimed at strengthening the dominant position of Google’s search engine – fine €4.34 billion); Decision of 20 March 2019, AT.40411 – *Google AdSense for Search* platform (abusing dominance in the market for intermediation of advertising services using search engines – fine of €1.49 billion).

⁹ E.g. Bundeskartellamt (German competition authority) proceedings against Facebook (Irish and German branches) – a suspicion that Facebook abused its dominant position in the social networking market by imposing detailed conditions on the use of user data, https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2016/02_03_2016_Facebook.html [accessed: 29.07.2021]; proceedings initiated on 4 June 2021 against Facebook – on a suspicion that through its Marketplace platform it collects and uses advertisers’ data to compete with them, https://ec.europa.eu/commission/presscorner/detail/pl/ip_21_2848 [accessed: 29.07.2021].

¹⁰ E.g. proceeding in case AT.40462 – distortion of competition in online retail markets by exploiting the dual role of Amazon of providing a marketplace where independent sellers can sell products directly to consumers, and selling products as a retailer in the same marketplace in competition with those sellers; proceeding in case AT.40703 – the business practices of Amazon which may artificially favour its own retail offers and those of sellers on shopping platforms using the logistics and delivery services of Amazon (Buy Box and Prime), https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2077 [accessed: 29.07.2021].

between entrepreneurs and each of them applies the algorithms independently and individually – it does not create, in general, threats to competition in the form of price discrimination, but is a currently used mechanism for adapting to the market situation depending on indicators changing over time [Rygus 2021, 12]. However, as Ariel Ezrachi and Maurice E. Stucke already pointed out in their pioneering book “Virtual competition: the promise and perils of the algorithm-driven economy” in 2016, the development of digital commerce, besides its undoubted positive aspects, may also have a darker side. This is because there is a replacement of the “invisible hand of competition,” with the “digital hand” of e-commerce, which may trigger anti-competitive behaviour, as the artificial intelligence embedded in algorithms may promote the maintenance of a price-fixing agreement already concluded by entrepreneurs or the algorithms themselves may collude or coordinate their actions in this direction. This, the authors predict, will be a real challenge for competition authorities, as there is no way, under current antitrust laws, to hold entrepreneurs liable for such “collusion of robots” [Ezrachi and Stucke 2016b, 158].

AI technologies in the form of pricing algorithms have also been appearing for some time in studies by international organisations and in the practice of competition authorities. In June 2017. The OECD issued a report entitled. “Algorithms and Collusion: Competition Policy in the Digital Age”¹¹ dedicated to analysing the benefits and risks that algorithms imply for competition. As it was noted, the widespread use of algorithms may, on the one hand, benefit entrepreneurs and consumers by increasing social welfare but, on the other hand, may make it easier for entrepreneurs to enter into and maintain agreements, especially on prices, without any formal contract or even without human intervention. An attempt was to identify actions and approaches which competition authorities should take towards modern tools used in the digital economy. One of the proposals was to make the notion of “agreement” more flexible on the grounds of the prohibitions of cartels, so as to also include the interaction of algorithms.

¹¹ OECD, Directorate for Financial and Enterprise Affairs Competition Committee, “Algorithms and Collusion: Competition Policy in the Digital Age”, DAF/COMP(2017)4, [https://one.oecd.org/document/DAF/COMP\(2017\)4/en/pdf](https://one.oecd.org/document/DAF/COMP(2017)4/en/pdf) [accessed: 29.07.2021].

It was stressed that the introduction of broad *ex ante* regulation in digital markets means a risk of impeding their development.

Margrethe Vestager, The Commissioner of Competition, spoke in a similar vein, pointing out that the European Commission was keeping a close eye on entrepreneurs using pricing algorithms, as although they encourage the formation and maintenance of cartels, not everyone is seeking to cartelise the e-commerce industry. Without ignoring the problem, it is important to remain calm and exercise some restraint, and the current legal framework appears to be adequate and flexible enough to allow the Commission to intervene and address distortions of competition in digital markets [Vestager 2017].

As early as in August 2016, the Competition and Markets Authority (CMA), the British competition authority, issued a decision regarding online shops operating on the Amazon UK platform. In light of the CMA's findings, Trod Limited and GB eye Limited breached the prohibition on agreements restricting competition, by agreeing not to compete on price – not to undercut their prices for wall posters and frames on that platform. To monitor the implementation of the agreement, the entrepreneurs used publicly available pricing algorithm software automatically setting prices slightly lower than other entrepreneurs (undercutting) and at the same time “ignoring” the price level of GB eye Limited, resulting in higher prices on the market [Mleczo 2018, 66]. The CMA imposed a fine in excess of £163,000 on Trod Limited, while GB eye Limited avoided the fine by using a leniency programme.¹² In the poster industry, there was a similar case in the USA against D. Topkins, the founder of online retailer Poster Revolution. He organised collusion with other online retailers, using intelligent software, to fix, increase, maintain and stabilise the prices of certain posters sold through the Amazon Marketplace in the USA.¹³

It should be noted that in both cases it was possible to attribute direct price collusion to the perpetrators, as it was clearly indicated by the content

¹² The Decision of the British CMA of 12 August 2016, case 50223, <https://assets.publishing.service.gov.uk/media/57ee7c2740f0b606dc000018/case-50223-final-non-confidential-infringement-decision.pdf> [accessed: 29.07.2021].

¹³ <https://www.nortonrosefulbright.com/en-gb/knowledge/publications/7e7bdcca/online-retailers-should-tread-carefully-after-trod> [accessed: 29.07.2021].

of e-mail correspondence found by the authorities. However, it may be difficult in practice to distinguish so-called parallel behaviour of entrepreneurs consciously adjusting to the resulting market situation with regard to price offers of competitors, as a normal market reaction permitted by competition law, from a prohibited price agreement. The Polish Supreme Court expressed its view in this respect,¹⁴ indicating that “[...] the difference between permissible parallel conduct and a prohibited agreement restricting competition lies in the fact that in the first case we deal only with reasonably justified imitation of other competitors’ conduct, and in the second case – with an agreement concluded (in any manner and form) between competitors. If the following of prices of competitors is preceded by any direct or indirect contact between entrepreneurs, the aim or effect of which is to influence the market decisions of some of them or to disclose their intentions, it is covered by the prohibition of price agreements.” The Supreme Court clearly referred here to a broad understanding of the notion of “participation in an agreement” adopted in the body of court rulings, especially in the EU, which also includes so-called passive participation, occurring when the contacting parties do not expressly distance themselves from collusion or do not directly oppose it.¹⁵

The use of algorithms equipped with artificial intelligence promotes the emergence and maintenance of collusive and concerted practices on the market, as it is then difficult to ascertain even the existence of these “contacts” between market participants if they take place through, or by means of, an advanced algorithm effectively masking them.

An example of a situation where many entrepreneurs used software based on artificial intelligence is the case of Eturas UAB – provider and administrator of an IT system for online tour booking for travel agencies in Lithuania.¹⁶ Each of the travel agencies using the system had access to the booking panel and a mailbox for messages from the system administrator – Eturas UAB. Under these conditions, there was a problem

¹⁴ The judgment of the Supreme Court of 6 August 2006, ref. no. III SK 6/06, Lex no. 354144.

¹⁵ E.g. judgments in cases AC-Treuhand II C-194/14 P or T-Mobile Netherlands C-8/08.

¹⁶ The judgment of the Court of Justice of the European Union (Fifth Chamber) of 12 January 2016, *Eturas UAB v Lietuvos Respublikos konkurencijos taryba*, ref. no. C-74/14, ECLI:EU:C:2016:42, Lex no. 1963362.

an antitrust qualification of messages sent by Eturas to travel agencies regarding the limitation of the possibility to grant discounts on tour prices from 4% to 0-3% and thus eliminate price differences for consumers above the ceiling of 3% (as indicated in the email, “this ceiling of the discount rate will help to preserve the amount of the commission and normalise competition”).¹⁷ In the context of this case, the Lithuanian Supreme Court submitted a question to the CJEU for a preliminary ruling. In its assessment of the circumstances, the Court held that the presumption of innocence does not allow the conclusion to be drawn that the travel agents read the message on the basis of the mere fact that the message was sent – it was only when they became aware of the message that they could tacitly accept it. At the same time, however, the Court states that it is possible, on the basis of other objective and consistent evidence, to presume that travel agents knew the content of the message.

The presumption could have been rebutted by the travel agencies, for example, by the “classic” means of distancing oneself: a statement by the travel agencies to all competitors who were the addressees of the disputed message or a notification to the competition authority.¹⁸ In addition, the Court pointed to additional means of distancing itself – a clear and explicit objection addressed to the system administrator of the Eturas UAB system or the presentation of evidence of a systematic application of a discount above a fixed ceiling.

The Court thus accepted the possibility that the travel agencies had tacitly consented to the unilateral suggestion by the operator of an information system which they used, to offset normal competitive risks between themselves. At the same time, which the Court did not go into further because it was not a question for a preliminary ruling, in this case there is a situation of horizontal anti-competitive agreement among the travel agencies, but the role in that agreement of Eturas UAB as an operator of an information system had not been clarified.

The resolution of this issue is essential to answering the broader question of liability for a cartel of IT system providers, including those using

¹⁷ *Ibid.*, para 10.

¹⁸ *Ibid.*, para 28.

artificial intelligence, when they do not operate in the same market or in a related market as the participants in the agreement.

Contrary to the position of K. Kohutek [Kohutek 2017, 96-103], who seems to have qualified the role of Eturas UAB as a participant in the concerted practice of travel agencies,¹⁹ the assessment of Eturas' role, in my view, should be made in the context of the concept of a cartel facilitator.

To date, the body of EU rulings on the antitrust liability of a cartel facilitator may not be extensive, but it is well established.²⁰ According to this conception, a facilitator may also be held liable for participation in an anti-competitive agreement, even if he is not present on the market affected by the infringement or on a related market, as long as by its conduct it intended to contribute to the achievement of common anti-competitive objectives with the other participants to the agreement and, moreover, it knew of or could reasonably foresee the actions planned or undertaken by them and accepted the related risk. Within the framework of this body of rulings, a test of the conditions for the liability of a cartel facilitator, taking into account the concept of a uniform and continuous infringement, which include: (a) intent (or knowledge about the cartel); (b) contribution by its own action; (c) to the achievement of the common anti-competitive aim; (d) knowledge of the actions of the other participants in the agreement; (e) or the possibility of foreseeing their actions; (e) and consent to such a risk.

When analysing the circumstances of this case, especially the entire content of the e-mail from Eturas UAB to travel agencies cited

¹⁹ K. Kohutek states: "This leads to the conclusion that sending an e-mail to business competitors – even if the sender does not operate in the same market as the latter – constitutes, and certainly may constitute, an agreement, including in particular a «concerted practice» within the meaning of Article 101(1) of the Treaty on the Functioning of the European Union."

²⁰ See judgment of the Court of First Instance of 8 July 2008, T-99/04, AC-Treuhand AG v Commission of the European Communities, EU:T:2008:256, so-called AC-Treuhand I; judgment of the CJEU of 22 October 2015, C-194/14, AC-Treuhand AG v European Commission, EU:C:2015:717, so-called AC-Treuhand II; judgment of the Court (Second Chamber, Extended Composition) of 10 November 2017, T-180/15, ICAP plc and Others v European Commission, ECLI:EU:T:2017:795.

in the proceedings before the CJEU,²¹ there can be no doubt that the conditions for Eturas UAB's liability as a cartel facilitator are fully met. Eturas UAB was actively involved in the agreement (coordination of the behaviour of the travel agencies) and played a central role, and its actions were conducive and facilitated its implementation. This made it possible to achieve an effect that travel agencies on their own would not have achieved.

Obviously, there are legitimate objections to the concept of a cartel facilitator, particularly with regard to the tendency of competition authorities to extend the subjective scope of antitrust liability to other than direct perpetration phenomenal forms of these practices (aiding and abetting), which are not expressly specified either in Article 101 TFEU or in the Polish Antitrust Act, which would contradict the fundamental principle of the modern legal order of *nullum crimen sine lege* and legal certainty.²² However, the body of EU rulings clearly emphasises, and in a way, celebrates the principle of effectiveness of competition law, placing it above other principles and indicating that even the non-obvious interpretation of Article 101 TFEU must be seen as justified when the full effectiveness of competition law is at stake. This thesis, which is significant in the analysis conducted here, is further strengthened by the conclusion that it does not follow from the wording of Article 101 TFEU that the prohibition expressed therein applies only to those parties to agreements or concerted practices which are active in the affected markets [Menszing-Wiese 2019,

²¹ Judgment of the CJEU in the Eturas UAB case, para 10 – “Following an appraisal of the statements, proposals and wishes expressed by the travel agencies concerning the application of a discount rate for online travel bookings, we will enable online discounts in the range of 0% to 3%. This «capping» of the discount rate will help to preserve the amount of the commission and to normalise the conditions of competition. For travel agencies which offer discounts in excess of 3%, these will automatically be reduced to 3% as from 2:00 pm. If you have distributed information concerning the discount rates, we suggest that you alter that information accordingly.”

²² See the report of the speeches and discussions at the scientific seminar of the Polish Academy of Sciences entitled “Pomocnictwo jako szczególna forma uczestnictwa w antykonkurencyjnych porozumieniach – w świetle prawa UE i polskiego” [Aiding and abetting as a specific form of participation in anti-competitive agreements – in light of EU and Polish], Warszawa, 3 April 2019, <https://ikar.wz.uw.edu.pl/images/numery/59/145.pdf> [accessed: 29.07.2021].

44]. This means that a facilitator of such participants, its presence on the market affected by an infringement or a related market is not required.

Probably, *inter alia*, such a broad approach to the interpretation of an “anti-competitive agreement” was meant by the already mentioned Commissioner Vestager when she said that “the current legal framework seems to be adequate and sufficiently flexible to allow the Commission to intervene and remedy distortions of competition in digital markets.” Therefore, it is to be expected that in the near future also other actions will be considered as a form of “contributing to” or “amplifying” the negative impact of the practice on competition in the internal market – the digital market.

2.2. Algorithms which influence competition without human intervention

An increasing number of entrepreneurs use advanced software to “spy” on competitors’ prices. According to experts, this is commonly done not only by online shops, but also fuel retailers, franchisers, transport companies, price comparison services or insurance companies.

They often outsource the monitoring and implementation of a responsive algorithm to specialised third-party companies, which allows entrepreneurs to achieve the planned aims, in line with their pricing policy. The service is based on web scraping technologies – combing publicly available websites (shops, price comparison sites, auction portals) for data, machine learning and smart matching – to find and compare products and prices with those offered by the competitors of a given entrepreneur – working in a similar way to Google search robot. Such data is interesting primarily for three groups of market participants: manufacturers, general distributors and online retailers. In addition, information may be used by market research companies.²³

A specific situation, not yet examined in court rulings but possible in the very near future, would arise if, without prior agreement of the entrepreneurs, the pricing algorithm(s) used by them were deliberately designed to enable them to set prices in an anti-competitive way without human

²³ <http://www.gazetaprawna.pl/amp/1072722,algorytmy-zaczynaja-manipulowac-cenami-dla-nadzoru-rynku-to-wyzwanie-xxi-wieku.html> [accessed: 29.07.2021].

intervention. If several entities within a given market start using similar pricing algorithms, the phenomenon of a “meeting of algorithms” may occur. This is a situation where the software of competing entrepreneurs will begin to interact with one another, equalising prices to a certain equilibrium point, or, when an algorithm is set to drive up the price of a competitor, prices for a given product or service may rise within the entire market above the competitive level [Ezrachi and Stucke 2016a, 3]. The use of such algorithms designed in such a would have to be considered as a manifestation of concerted coordination of entrepreneurs’ actions, falling within the broad concept of “agreement in competition law” [Skoczny 2014, 261], due to the intentional setting of input data of the algorithm.

A distinction should be made between concerted coordination and cases of unconcerted coordination, which may arise when the algorithm used by an entrepreneur unilaterally monitors competitors’ prices without any agreement or direct communication with a rival algorithm of a competitor. In this case there is no anti-competitive agreement between the entrepreneurs. So what is a threat to competition here?

The area of unconcerted price coordination resulting from the operation of algorithms is threatened in particular by their ability to detect and respond in real time to price changes in a highly transparent market environment, especially online sales. Market transparency can make it easier for competitors to achieve a stable price equilibrium at above-market levels, as well as to detect deviations from the established price level and react actively to them [Derdak 2018, 77]. Thus, what would seem to be an advantage for the market – price transparency – is in fact, in the context of using intelligent algorithms, its shortcoming.

A different situation will have to be faced in the case of highly advanced artificial intelligence, which – in order to achieve a specific effect, for example price optimisation leading to maximisation of the profit of an entrepreneur – will model its actions in response to stimuli from the external environment, using a process of unsupervised machine learning (self-learning). And despite due care in the design and implementation of artificial intelligence, its operation leads to effects contrary to human intentions, which at the same time constitute a violation of competition law. This category includes reinforcement learning, which is potentially particularly useful

from the perspective of entrepreneurs determining pricing policies. Thus, depending on whether the data on the entrepreneur's significant economic indicators (e.g. margin or total profit) when a given price is applied is positive or negative, artificial intelligence can decide to maintain or change the price, respectively. Although in some cases the result of learning artificial intelligence may be unpredictable to humans, this cannot be a premise excluding the entrepreneur's liability. This is because even in the case of unsupervised machine learning, it is a human who determines the rules under which the machine learns: what information it acquires, how it uses it, and what built-in safeguards to prevent it from taking actions violating competition law [Derdak 2018, 80].

2.3. The use of artificial intelligence algorithms which is beneficial for competition

Algorithms, used by various market entities, have a dual impact on competition. Most often, the literature highlights their above-described negative impact on price competition and also points out that algorithmic markets show or will show in the future new forms of anti-competitive activities in the non-price dimensions such as mining and interception of sensitive data, cooperation between competing (in principle therefore hostile) super-platforms while competing with each other for the surplus of consumers [Ezrachi and Stucke 2016a, 4]. Another risk is that super-platforms may exclude or impede the entry and operation of independent applications, or favour their own application over competing applications.²⁴

However, there are a number of pro-competitive effects of using intelligent algorithms. The ability to change prices faster when demand or costs change eliminates the problem of excess demand or supply, and the use of pricing algorithms (by reducing the human factor) leads to cost reductions [Mleczko 2018, 65]. Consumers also benefit, as has already been seen in the court ruling practice when, in June 2018, the Luxembourg competition authority issued a decision in the case of *Webtaxi*, a booking platform that allows the booking of a taxi by phone, online or via an application. When a customer placed an order, the platform assigned him the nearest

²⁴ The Decision of 27 June 2017, AT.39740 – *Google Shopping* – abusing dominance as search engine by giving illegal advantage to own comparison shopping service.

taxi and determined the price of the service in advance, based on set criteria including price per kilometre, distance, traffic conditions and the initial charge. The price was not negotiable and was binding on the customer and the driver. In the view of the Luxembourg competition authority, this system, although fulfilling the conditions of a price agreement restricting competition, did not violate competition. It highlighted the benefits it brought to customers and entrepreneurs – lower fares, shorter waiting times for the taxi by the customer and for the customer by the driver, fewer empty journeys – and also noted that the system only covered around 26% of the market and that outside of it, drivers continued to compete with each another. The authority concluded that this platform may benefit from an individual exemption from the prohibition of restrictive agreements [Famirska and Kulesza 2018, 56]. The activities of such platforms using advanced artificial intelligence technologies like Uber or Lyft are also assessed in the context of benefits for consumers outlined in such a way.²⁵

3. Challenges for entrepreneurs related to the application of artificial intelligence

It is also necessary to mention threats to entrepreneurs themselves who use intelligent algorithms in their business model. Action scenarios that allow for optimisation of profit margins or outbidding competing offers must also include safeguards that prevent machines from lowering prices below a certain level and exposing the company to losses, or systematically increasing them to sky-high levels. The example of the book “The Making of a Fly” by Peter Lawrence offered for sale on Amazon in 2011 is often cited in this context. The price of the book as a result of “algorithmic processing” reached over 23 million dollars at its peak. The algorithm of one entrepreneur set its price at 1.27059 of the other entrepreneur’s price, while the algorithm of the other entrepreneur set its price at 0.9983 of the first entrepreneur’s price. The algorithms of both sellers reacted to the offers they made, leading to a rapid, rationally unjustified, price increase. The whole process was stopped by one of the sellers, who noticed the error

²⁵ <https://www.theguardian.com/commentisfree/2018/apr/13/uber-lyft-prices-personalized-data> [accessed: 29.07.2021].

generated by the software and set the price himself at \$106.23 [Wierzbicki 2019]. Entrepreneurs can harm themselves by not setting up algorithms properly or by having a company program them based on a wrong pricing policy. In addition, algorithms must not only check competitors' prices and adjust their own, but also check whether there has been an increase in sales as a result of, for example, a price cut. If not, then there is no need to lower the price and give up most of the profit margin, because consumers prefer to buy from in a given shop for other reasons than just price.

Conclusions

Before humanity reaches the level of development of a human-machine civilisation, it has to cope with the challenges of the technological gallop using artificial intelligence, occurring now or in the near future. Also in the sphere of the protection of competition.

As emphasised in the OECD report, the use of AI brings both risks and benefits to competition and consumer welfare. Competition authorities are convinced that not only black scenarios should be envisaged for its development and applications. This is because it goes hand in hand with the development of cyber-security tools capable of countering perturbations in B2B relations and the masking of cartels [Petit 2016, 361], which will greatly facilitate the exercise of the protective function of these authorities on the dynamic digital market.

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Artificial Intelligence and Competition Law

Abstract

In view of the massive development of AI technologies in society and economy, the paper identifies current proposals for the regulation of artificial intelligence at the EU level, which will be directly implemented in the Member States. The rapidly changing market is forcing a new approach of competition authorities to this process and raises the question of the role of competition policy in the digital economy. The main thread of the paper is therefore to highlight the existing and expected challenges for the protection of competition related to the increased use of AI algorithms by entrepreneurs for the implementation and maintenance of cartels concluded in the traditional manner, as well as algorithms affecting competition without human intervention. To maintain some objectivity in the discussion, significant pro-competitive benefits of their use are also indicated.

Keywords: pricing algorithms, artificial intelligence, competition

Sztuczna inteligencja a prawo ochrony konkurencji

Abstrakt

Wobec masowości rozwoju technologii AI w społeczeństwie i gospodarce, w pracy wskazano aktualne propozycje uregulowania sztucznej inteligencji na poziomie unijnym, które będą miały bezpośrednią implementację w państwach

członkowskich. Szybko zmieniający się rynek wymusza nowe podejście organów ochrony konkurencji do tego procesu i rodzi pytanie o rolę polityki konkurencji w gospodarce cyfrowej. Głównym nurtem rozważań zatem jest unaocznienie istniejących i oczekiwanych wyzwań stojących przed ochroną konkurencji związaną ze wzmożonym stosowaniem przez przedsiębiorców algorytmów AI dla wdrożenia i utrzymania karteli zawartych w sposób tradycyjny, a także algorytmów wpływających na konkurencję bez udziału człowieka. Dla zachowania pewnego obiektywizmu wywodu wskazano także istotne pro-konkurencyjne korzyści z ich używania.

Słowa kluczowe: algorytmy cenowe, sztuczna inteligencja, konkurencja

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