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THREE CHALLENGES OF ARTIFICIAL INTELLIGENCE FOR ANTITRUST POLICY AND LAW*

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ABSTRACT

The following text addresses the challenges that the increasing use of artificial intelligence, in particular smart algorithms that collect and process large amounts of data for internet gatekeepers (i.e., the largest online service providers), poses for competition protection. The analysis focuses on three areas: the potential clash between competition protection and consumer (privacy) protection that may be caused by the push for sharing and portability of client data in order to open up online markets; then the issue of super-dominance caused by internet gatekeepers escaping both their competitors and effective control due to the massive deployment of AI; and finally, the issue of the algorithmic price collusion that seemingly turns some existing competition protection paradigms on their head. These three challenges are critically analyzed regarding their reflection in the literature and in the existing decision-making practice of competition authorities.

KEYWORDS: *Artificial intelligence, big data, internet gatekeepers, algorithms, cartels, dominant position, protection of privacy and personal data, protection of competition.*

1. INTRODUCTION

Artificial intelligence (AI) can be understood, in line with the European Commission's 2020 White Paper[1], as a set of technologies that combine data, al-

* This text is loosely based on the author´s contribution to the Proceedings on the 30th anniversary of the Czech Office for the Protection of Competition.

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1 European Commission: White Paper On Artificial Intelligence – A European approach to excellence and trust. Brussels, 19.2.2020 COM(2020) 65 final, p. 2.

gorithms, and computing power. This definition (as well as many others that attempt to characterize AI)[2] implies that, despite a certain mysterious elusiveness of AI, it is not a single concentrated capability (a powerful 'IT brain'). Rather, it is a multitude of different AI systems of varying levels, used for different purposes.[3] The attention of experts and laypeople alike is concentrated on the impact of those AI systems that are (or will be) more autonomous and independent learning. As a result, they would be able to respond to tasks set by humans autonomously and increasingly more perfectly. An autonomously acting AI, which may not be "strong" at all in the sense of all-around surpassing the intellectual capabilities of a human, may surprise by how superhumanly fast, consistently, and sometimes unpredictably it will perform what a human has given it to do... which may not quite correspond to what the human thought and wanted.[4]

The aims of this text are not the implications of AI in general. The intention is to map and assess the main challenges that are most widely written about and discussed in relation to AI and its impact on competition protection. As expected, the focus will be on its effects on competition in the industries affected by the business of global online platforms, *the internet gatekeepers*, as we now call the companies (personified by the 'GAFA quartet' – Google, Amazon, Facebook, Apple) that have built their market success on the collection and processing of previously unprecedented amounts of client data, on extraordinary investments in the development of sophisticated algorithms, and by definition on a mature and robust IT base. It is the GAFA quartet that is receiving the most attention because in many ways they are creating a qualitatively new situation in the markets they dominate, which is, from a certain point of view, a situation that may be intractable with current competition law tools and standards.

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2 See e.g. Copeland, B.J.: Artificial Intelligence, in: *Encyclopaedia Britannica*, 11 August 2020, [https://www.britannica.com]

3 Similarly, see Sartor, G.: *Artificial Intelligence: Challenges for EU Citizens and Consumers. Briefing requested by IMCO Committee of the European Parliament*. Policy Department for Economic, Scientific and Quality of Life Policies. PE631.043, Brussels, January 2019, p. 2. Although there is talk of the possibility of a future strong or general artificial intelligence (i.e. similar in its capabilities to humans or even surpassing them), at present we only encounter so-called weak artificial intelligence, or also narrow artificial intelligence aimed at efficient and stable performance of tasks.

4 This aspect of AI has led some experts to predict up to a 10% probability that AI will wipe out humanity by the end of the 21st century because it will be very efficient at performing our imperfect tasks... see Savier, F. *O myších a lidech (Of Mice and Men). An interview with Ondrej Bajgar* (in Czech). Forbes Next, Spring 2021 p. 26. Conversely, for the fact that the prospects of strong AI remain controversial to say the least see Copeland, B.J.: op. cit. note 3.

The following text will necessarily be partly speculative, because what N. Petit pointed out four years ago in his article 'Antitrust and Artificial Intelligence: A Research Agenda' is still pretty much valid.[5] We have a plethora of sensible hypotheses and logically derived predictions, but far from a satisfactory amount of empirical data, and yet a completely inadequate body of case law. There are repeated references in the literature to a few cases, sometimes even rather anecdotal.[6] When the French Competition Authority issued its decision in the Google (internet advertising) case in June 2021, it proudly declared in a press release that it was the first case in the world to assess the complex algorithmic auctions through which online advertising operates.[7] UK (Competition Authority) CMA's January 2021 summary report still regards the Commission's 2017 Google Shopping decision as to the key example so far of a breach of competition rules by a change in a complicated, and not entirely transparent, algorithm. Even other recorded cases (rather trivial from a legal-theoretical point of view[8]) where a pricing strategy agreed between competitors has been effectively implemented through online algorithms monitoring and adjusting prices are still rare in their occurrence.[9]

However, the challenges to the current anti-trust development posed using sophisticated AI are no less real simply because we cannot yet see all of their impacts or because we cannot be sure about what remedies will effectively address those impacts that will most threaten free and undistorted competition. With all due caution to the only gradually revealed nature and extent of the new threats to antitrust, the following text divides them, perhaps a little

5 Petit, N.: *Antitrust and Artificial Intelligence: A Research Agenda*. International Journal of Competition Law & Practice. 2017, Vol. 8, No. 8, pp. 361-361.

6 One such example that has made its way into most treatises on the impact of AI is the price of *The Making of a Fly*, a publication about genetics, on Amazon's online marketplace, which ascended up to a whopping $24 million because both booksellers relied on a limitless pricing algorithm. See, e.g., Solon, O.: *How A Book About Flies Came To Be Priced $24 Million On Amazon*. Wired, 27 April 2011, [https://www.wired.com].

7 Autorité de la Concurrence. *Décision 21-D-11 du 07 juin 2021 relative à des pratiques mises en œuvre dans le secteur de la publicité sur Internet,* [https://www.autoritedelaconcurrence.fr].

8 For example, the often-cited example of the so-called *Poster Cartel*: D. Topkins and several other poster sellers used an algorithm to fulfill a mutual agreement to price-match posters on Amazon's online marketplace. See Priluck, J.: *When Bots Collude*. The New Yorker, April 25, 2015, [https://www.newyorker.com].

9 Even the classics on the subject, A. Ezrachi and M. E. Stucke, in their 2020 study, mainly cite examples of competition authorities taking the risk of "tacit algorithmic collusion" seriously, but scarcely give actual examples of decisions that would expose such practices. See Ezrachi, A.; Stucke, M. E. *Sustainable and Unchallenged Algorithmic Tacit Collusion*. Northwestern Journal of Technology and Intellectual Property, Vol. 17, Issue 2, 2020, Article 2.

journalistically, into *the most important challenge* (part 2.), *the most present challenge* (part 3.) and *the most commented challenge* (part 4.) categories.

2. THE CLASH BETWEEN ANTITRUST AND CONSUMER INTERESTS OR THE MOST IMPORTANT CHALLENGE

One of the darkest visions of the consequences of the massive deployment of AI systems in the everyday lives of individuals was sketched by Y. N. Harari in his book '21 Lessons for the 21st Century': algorithms will make decisions for us in everyday little things (choosing a movie to watch) as well as in the most important moments of our lives (choosing a partner or a job), they will know us better than our friends know ourselves, and it is possible that they will reduce us to the role of victims of manipulation, discrimination, and oppression.[10] Even less alarming texts, such as the study by G. Sartor for the European Parliament, admit that a balance may not be struck between AI's benefits for competitiveness and its societal impacts on consumer markets.[11] The imbalance in capabilities and opportunities between an online platform working with cutting-edge AI and the individual consumer will be too great. The consumers' decision-making independence, privacy, equal access to the offer of basic goods and services, could fall victim to AI in the hands of giant online platforms that collect data about them every time they switch on an appliance, click on a keyboard, start a car, make a request through a search engine or voice assistant, etc. These data are then further assembled, combined, evaluated by smart algorithms to achieve greater efficiency in harnessing its consumer potential, and, at the same time, to further enhance their own AI capabilities, further improve their own offering of goods and services.

Therein lies the difficult dilemma of competition and competitiveness based on greater allocative, productive, and dynamic efficiency on the one hand and the protection of consumer rights and interests on the other. What is clearly beneficial from the perspective of free competition based on the higher efficiency achieved through AI capabilities, i.e. namely the maximum collection and mining of client data, its open sharing within as well as outside the platform ecosystem, and the individualization of the offer for individual customers based on it, is on the contrary, from the perspective of consumer protection, a loss of privacy, in some cases at least a questionable handling of personal data,

[10] Harari, Y. U.: *21 Lessons for the 21st Century* [https://www.ynharari.com/book/21-lessons-book/], quoted from its Czech edition published by Leda, 2019, pp. 65-85.

[11] Sartor, G.: op. cit. note 4, p. 6.

price discrimination, or even exclusion from consumption of certain groups of consumers.[12]

So, business efficiency and freedom of competition based on the ubiquitous use and constant improvement of AI go directly against how we understand and protect consumer rights and interests today. Control over data brings a strategic advantage leading to a system leader position[13], even to a super-dominance, and competition law must therefore act. However, the sharing of customer data that antitrust requires of internet gatekeepers makes it difficult for the data subject to control its own data, make consumer's right to erasure difficult to exercise, and can lead to an unstoppable proliferation of each network user's customer profile. Moreover, this conflict between two legitimate interests and their protection has an unmistakable international dimension in a globalized economy. A move towards more stringent consumer protection may hamper a country's or region's (EU) business in an area crucial to its future position in global competition, namely the AI and data-driven 'fourth industrial revolution'.[14]

Indicators of this contradiction can already be seen today. When Apple gave its users more privacy protection through its App Tracking Transparency rules, which require user consent for independent app vendors to access data collected by their apps through iOS about the user and their device,[15] it received a warning from the European Commission in July 2021 that its acts may be anti-competitive.[16] Thus, setting their own level and way of consumer privacy protection must not become a competitive parameter of their offerings for large online platforms. Meanwhile, empirical findings show that large companies generally provide greater privacy protection to clients than smaller companies, with whom they should – in the interests of competition – share the

[12] For an overview of the impending negative impacts of AI on consumers, see e.g. Lippi, M.; Contissa, G.; Jablonowska, A. et al.: *The Force Awakens: Artificial Intelligence for Consumer Law*. Journal for Artificial Intelligence Research, No 67, 2020, pp. 171-172, also Sartor, G.: op. cit. note 4, p. 3.

[13] Pošćić, A., Martinović, A.: *Rethinking effects of Innovation in Competition in the era of new digital technologies*. InterEULawEast, Vol. VII, Issue 2, December 2020, p. 255-258.

[14] Cf. e.g. Slaughter, J. M.; McCormick, D. H.: *Data Is Power. Washington Needs to Craft New Rules for the Digital Age*. Foreign Affairs, May/June, Vol. 100, No. 3, 2021, pp. 54-62.

[15] Apple Inc. Developer. Documentation. App Tracking Transparency, [https://developer.apple.com], accessed on 10/09/2021.

[16] REUTERS: *EU's Vestager warns Apple against using privacy, security to limit competition*. 2021, July 2, [https://www.reuters.com], accessed on 10/09/2021. See also: Matthan, R. *Privacy must not be diluted at the altar of competition*. MINT, March 30, 2021 [https://www.livemint.com].

data they collect.[17] The future practice of supervisory authorities must answer the question of whether a dominant undertaking can justify granting access to collected personal data by invoking its obligation under data protection law (GDPR).[18]

The effects of forced data sharing are not clear even from the perspective of competition as such: while there will be more competition within the same market, that market may be less at risk of redefinition or substitution as a result of disruptive innovation and qualitatively new supply. It is rather symptomatic that BEUC, the association of European consumer organizations, in its comments on the draft Digital Markets Act of April 2021[19], calls for consumer choice in social networking and instant messaging services, but these services should be less personalized and should not require the consumer's consent to link and combine their data, all this while maintaining the same quality. However, a higher standard of consumer rights protection, while maintaining a plurality of competition and, in addition, greater efficiency and innovation dynamism, seems like a requirement for squaring the circle in markets that are built on big data and self-learning algorithms. Locking consumers into a single platform ecosystem harms their choice while sharing their data can threaten their privacy, but the trade-off of limiting the combination of personal data from different sources and limited personalization of services reduces efficiency and threatens the pace of innovation...[20]

Another example is the risk of price collusion due to increased transparency of online markets monitored by AI that is described below (see Part III.), which could be effectively mitigated by allowing dynamic differentiation and individualization of each offer, not only based on the current state of the market but also AI-assessed capabilities and inclinations of the individual customer. From a consumer protection perspective, this is hardly permissible discrimination and potential manipulation. However, prohibiting the adaptation of offers based on individual customer profiles, or (alternatively or

[17] Rancati, L.: *The Intersection between Antitrust and Data Protection. Lessons from the Facebook/WhatsApp and the Bundeskartellamt´s decision on Facebook´s terms and conditions*. Faculté des Sciences économiques, sociales, politiques et de communications. Université Catholique de Louvain, 2019, p. 67, [http://hdl.handle.net].

[18] Federle, A., Eckhart Decout, C. *The interplay of data protection and competition law – issue beyond the Facebook case*. Bird&Bird News Centre 03-2019, [https://www.twobirds.com].

[19] BEUC: *Digital Markets Act Proposal. Position Paper.* Ref: BEUC-X-2021-030. Brussels, 1 April 2021, p. 7.

[20] For an interesting assessment of Digital Markets Act proposal see Musil, A.: *Legislativní návrhy aktů o digitálních trzích a sktu o digitálních službách – společná historie, rozdílné dopady (Legislative proposals for Digital Markets and Digital Services Acts – common history, divergent impacts),* Antitrust No 2/2021, p. 39-41.

simultaneously) deploying AI on the consumer side that will disrupt, mask, or encrypt their data, will return online advertising to the level of general TV broadcasting, which will be inefficient for businesses, uninteresting and annoying for consumers. Once again, efficiency, innovation, and, as a result, competitive dynamics will suffer.

From a broader perspective competition law must ask itself the uncomfortable question in the context of AI whether it is mainly there to increase welfare through greater efficiency generated by the free competition of an open set of more and more efficient rivals, or whether it has broader social goals and responsibilities. AI, in the hands of increasingly dynamic businesses, can definitively divide society technologically, economically, and socially. The consequence of the *'AI divide'* discussed in the literature[21], may lead to a loss of trust in the social order that has enabled business at the expense of consumers, who have been turned into commodities through their data. Competition law, which, judging by the new draft regulations (see Part II), is certainly not an 'agent' of the GAFA quartet in the EU or the US, should thus take into account whether, by seeking to unleash competition at the expense of GAFA, by seeking to open up space for alternative offerings by a multitude of new technology players, it is only furthering the commodification, marginalization, and alienation of consumers. Reconciling their protection with existing approaches to protecting competition in the online environment, however, may – as the examples above have shown – be far from easy.[22]

Competition law, therefore, faces a major challenge concerning the online consumer. For years, markets and their actors that it has learned to regulate have assumed limited availability of resources and exclusivity of their possession. The resources have been money and other assets, and surely these include, for example, the time that a consumer spends watching certain media content (which is why periodic advertising blocks can be avoided by subscribing to content without them). What they have in common is that all their holders, including consumers, are aware of their objectively given finiteness and potential scarcity, approach them cautiously and compete for them when necessary.

[21] Williams, A. B.: *The Potential Social Impact of the Artificial Intelligence Divide*. The 2018 AAAI Spring Symposium Series, [https://www.aaai.org]; also Petit, N.: op. cit. note 6.

[22] Competition law is already familiar with a decision combining aspects of abuse of dominance and protection of client data (*Bundeskartellamt v. Facebook*, February 2019), but this concerned the lack of consent to the collection and combination of data and its wording is rather controversial from an antitrust perspective. See: Bundeskartellamt: Facebook, Exploitative business terms pursuant to section 19(1) GWB for inadequate data processing. Case Summary. Ref: B6-22/16, date of decision: 6 February 2019; and also: Lypalo, D.: *Can Competition Protect Privacy? An Analysis Based on the German Facebook Case*. World Competition, Vol. 44, Issue 2, 2021, pp. 169-198.

However, the same is not true for data. The consumer generates data largely unconsciously, through every observable activity. It is not the individual piece of information that has value, but the ability to acquire, process, and combine it in bulk and continuously. This is best done by online platforms equipped with advanced AI that have built their business models on big data, its algorithmic processing and subsequent monetization. Due to the nature of data and the capabilities of AI, the constraints are not placed in their way by objective reality, but only by human-made rules, derived purely from the values that their community places the most value on.

Therefore, it is the most important challenge, as it comes down to whether, in a world of AI-processed client data, competition law chooses to protect consumer choice over privacy and equality rights. Or whether, on the contrary, in the name of consumer privacy, competition law will give in the regulation of GAFA quartet (and a few other large online platforms) ways to other models and means than those it has been traditionally cultivating and applying. Democratic power will then, perhaps, subject the internet gatekeepers to a legal framework similar to, say, bank or utility regulation (see Part II), sacrificing some freedom of competition and, presumably, some of the paces of innovation.

3. SUPER-DOMINANCE OF INTERNET GATEKEEPERS OR THE MOST PRESENT CHALLENGE

"*More users, customers, installs > More data > More AI capabilities > Better product > More users, customers, installs >...*", this is how D. Faggella summarized the self-enhancing cycle in 2019, expressing skepticism whether any other company can catch up and overtake any of the GAFA quartet as a result of this cycle.[23] He thus captured the whole issue of AI and market super-dominance in its already quite visible form. Given the many uses of AI systems, there is no necessary causal link between AI and market super-dominance, let alone its abuse. However, when combined with the three interconnected elements that establish the dominance of the global online players (i.e., the GAFA quartet), which are network effects, big data collection, and the integration of various directly and indirectly related services within a single platform, advanced AI becomes the fourth synergistic component that will make their position unshakable, super-dominant. They will become unattainable for other competitors precisely because the scale of big data collected will enable these largest online platforms to both increasingly accurately profile customers and,

[23] Faggella, D.: *Data Dominance – How Companies and Countries Win with Artificial Intelligence*. EMERJ – The AI Research and Advisory Company, May 27, 2019, [https://emerj.com].

more importantly, to better self-learn their AI systems to ensure even more sophisticated collection and mining of client data.[24]

Even if we consider the super-dominance of some online players based on a self-reinforcing cycle of data collection and processing by AI as just a logical-sounding assumption, it would be risky to wait for its full empirical confirmation. If it were practically confirmed, it might be too late to tame the winners. Super-dominant online platforms could escape scrutiny not only in economic but also in political competition if the electoral success of power-seekers, the results of referendums, and the communications of state authorities come to depend on AI systems held by a few major online players.[25] 'Big Brother' in the hands of entities not subject to effective control could then also influence the extent to which they allow political power to regulate themselves. Therefore, even research reports published in recent years by the EU or OECD warn that the combination of big data and AI produces a tight oligopoly structure of the largest technology firms such as GAFA[26], which are then very difficult to dethrone.[27]

In support of such claims, we can cite what L. Khan emphasized in her study of Amazon[28]: while in classical business, growth (and thus increasing market power) could not outweigh profitability in the long run, the largest online platforms have managed to convince investors of the extraordinary potential of their business to such an extent that they can afford to prioritize growth over profitability in the long run. Thus, the growth of their power does not face the same economic limits as other businesses; they can only be threatened by other faster-growing platforms, of which there are not and cannot be many due to the self-reinforcing combination of big data and advanced AI. With a little exaggeration, the paradoxical progression of the most successful online platforms can be expressed in the sense that, while the traditional monopolies

[24] On the importance of "big data" for market power, see e.g. Funta, R. *Data, their Relevance to Competition and Search Engines*. Masaryk University Journal of Law and Technology, Vol. 15, No 1, 2021, pp. 119-138.

[25] Alarming predictions in this context are made by Y. U. Harari, according to whom "Dependence on artificial intelligence means the end of life's drama, democratic elections and the free market, not to mention religion and art." Harari, Y.U.: op. cit. note 11, p. 74.

[26] OECD: The Impact of Big Data and Artificial Intelligence (AI) in the Insurance Sector. OECD, 2020, p. 17, [https://www.oecd.org].

[27] European Commission: *Competition Policy for the Digital Era. A report by J. Crémer, Y-A. Alexandre de Montjoye, H. Schweitzer.* Luxembourg: Publication Office of the European Union, 2019, p. 36.

[28] Khan, L. M.: *Amazon's Antitrust Paradox*. The Yale Law Journal, Vol. 126, No. 3, 2017, pp. 710, 713.

wanted more and more money from their customers, online platforms want more and more data from their users, as this will allow them to rewrite the rules of business in many industries through new models of our consumption of tangible and intangible goods. The money will then come to them on its own as the rest of the economy becomes dependent on them.

This conclusion has found some empirical confirmation in the European Commission's preliminary report on the sector inquiry into the Internet of Things, released in June 2021.[29] While the collection of personal data through cameras or sensors in public spaces is strictly regulated in a democratic world, individuals are increasingly voluntarily relying on voice assistants (Apple's Siri, Amazon's Alexa, and Google Assistant) to facilitate a range of everyday situations, even letting them guide their private choices. Voice assistants from the aforementioned online business giants are becoming a key element (yet financially, technologically, logistically unattainable for smaller competitors) of continuous collection of client data and influence of consumer behavior. Logically, the influence is for the benefit of those who operate and refine voice assistants, and those who agree to their terms in order to fulfill the AI-formed and filtered wishes of individuals. The European Commission's preliminary report, therefore, warns against closed ecosystems of the largest online companies, which currently control the most data and have the most advanced algorithms and computing power.[30]

The widely shared concern about the super-dominance of the largest online platforms is certainly an issue that goes beyond the relatively narrow scope of the relationship between AI and existing competition law. The question of the implications of AI here is inseparable from the network effects, big data, and vertical integration of services within online platforms as interdependent elements that constitute market power in the digital economy, because only in conjunction with these (not on its own) does AI create the danger of super-dominance.

Dominance or super-dominance is an argument for prohibiting mergers in traditional competition law, but it is not prohibited in itself unless it is abused. It is only when platforms as gatekeepers of the internet prefer themselves to the detriment of other bidders (self-preference), discriminate among their users,

[29] European Commission: Commission Staff Working Document Preliminary Report – Sector Inquiry into Consumer Internet of Things. Brussels, 9.6.2021 SWD(2021) 144 final.

[30] The European Commission's preliminary report, op. cit. note 30, warns of closed ecosystems of the largest online market players, whose position will be difficult to disrupt with technological breakthroughs, as these are very costly and therefore most achievable by those companies that control the most of data, have the most advanced algorithms and the greatest computing capacity.

close their platforms (marketplaces) to selected competitors... which are cases that already have their own gradually developing competition case law, that abuse of dominance is punishable. However, it turns out that classical competition law infringement proceedings (i.e. for abuse of dominance) are both slow in relation to the rapid changes in the online economy[31], and the existing legal instruments may not be sufficient to sanction the competitively negative effects of vertical integration, both by way of new downstream online platform acquisitions and by way of so-called "killer" acquisitions, whereby new ideas and nascent markets from which potential challengers could emerge come under scrutiny.[32]

The attention of experts and legislators focused on the unrivaled market power of the largest online platforms is therefore already generating proposals that go beyond the current form of competition law and its traditional tools and standards. Concerns about the combination of network effects, big data, vertical integration, and AI are simply too strong for the democratically elected authorities to rely solely on the ex-post application of the current competition law framework, and they are therefore committed to parallel ex-ante regulation of specifically defined market participants, which are the internet gatekeepers, again primarily the GAFA quartet. If we look at the proposals for new regulations in the EU (Digital Markets Act)[33] and in the US (Ending Platform Monopolies Act, American Innovation and Choice Online Act, Augmenting Compatibility and Competition by Enabling Service Switching Act)[34], they are uniformly against keeping the acquired client data under the control of the big online platforms and serving their interests in priority. The data collected by the platform from its business users will not be able to be used to improve its own offerings, which the platform competes with (in the US, even under the

[31] For example, the first decision of the European Commission against Google (case AT.39740) was issued on 27 June 2017, but the investigation had been ongoing since 2010 and the action brought against this decision before the General Court was still pending as of September 2021. It is thus certain that the final verdict of the Court of Justice will be delivered twelve, possibly fifteen years after a certain practice affected the competitive environment in the EU. Legally, such a judgment may still be interesting, but factually it will refer to a situation that is already historical in terms of the actual functioning of the markets.

[32] European Commission: Communication from the Commission. Commission Guidance on the application of the referral mechanism set out in Article 22 of the Merger Regulation to certain categories of cases. Brussels, 26.3.2021 C(2021) 1959 final.

[33] European Commission: Proposal for a Regulation of the European Parliament and of the Council on fair markets open to competition in the digital sector (Digital Markets Act). Brussels 15.12.2020 COM(2020) 842 final, 2020/0374(COD).

[34] Canales, K.: *Congress unveils 5 bipartisan bills that mark its biggest step yet in regulating tech giants like Amazon, Google, Facebook, and Apple*. *Business Insider*, June 11, 2021, [https://www.businessinsider.com].

threat of a complete ban from being the marketplace and its rules, as well as its biggest seller).

Conversely, business users will be able to obtain data about their customers from the platforms, clients themselves will be able to obtain and transfer their data between platforms, and they will also be free to combine different applications and platforms whose parallel use will not be mutually exclusive. Thus, both the very sources of digital market power and the known abuses of that power are under attack. The purpose of the proposed measures is to prevent the self-reinforcing cycle described above from becoming a closed mechanism, unthreatened by new competition, working solely for the benefit of the ever-growing market power of the Internet gatekeepers. The fact that this may not always suit the protection of individual privacy and consumer interest has already been highlighted above (see Part 2.).

The proposals for new ex-ante regulation give credence to those authors who argue that the dominance of the largest online platforms is not of the same nature as the dominance of businesses in the pre-digital economy. The position of the largest online platforms is not similar to that of the largest producers of goods or services in the traditional market, but rather to that of the largest banks, the systemic players whose willingness to inject or not inject money (in the case of platforms, information, data, and metadata) into the economy determines the prosperity of all others. It is therefore not out of place for the aforementioned L. Khan to take inspiration from the banking license[35] and think about a similarly directive and restrictive authorization for internet gatekeepers, which would be both a further step in their ex-ante regulation and a further acknowledgment that they represent a qualitatively new challenge to the competition. Whether the competition authorities will then link up with the data protection authorities and jointly issue licenses to internet gatekeepers is another, but logically related, question.

In any case, it seems that regulation, such as represented by the EU Digital Markets Act, may therefore not be the last word in developing tools and standards to manage the breakaway and super-dominance of the largest online platforms, for which advanced AI is a necessary but not sufficient underpinning.

4. ALGORITHMIC CARTELS OR THE MOST COMMENTED CHALLENGE

Each operator must determine autonomously the policy it intends to adopt on the market. Indeed, the aim of Article 101(1) TFEU (or the prohibition of

[35] Khan, L.: op. cit. note 29. p. 794.

cartels in general) is to prohibit any form of coordination which deliberately substitutes practical cooperation between undertakings for the risks of competition. This standard requirement (here set out in the dicta of the CJEU[36]) is based on a presumption that draws a line between uncoordinated, uncertain, and suspicious-based decision-making by an undertaking in the face of its competitors and a desirable, healthy state of competition. In this context, reference is often made to a game-theory model called the 'prisoner's dilemma', in which, given the impossibility of communication between players, a non-cooperative, i.e., competitively aggressive, strategy appears to be the most rational choice[37] (even being aware that effective cooperation would be more profitable for the players involved).

It is likely that online trading, coupled with AI systems instantly and continuously detecting the behavior of other market participants, especially the slightest change in their supply, deprives the assumption of competitive uncertainty of its empirical support in practice. Wherever data on competitors' behavior, and in particular their prices, is available for processing by AI in competitor's service, market transparency and familiarity with how competitors are currently behaving in the market will be the normal state of affairs, rather than (from a competition law perspective) an undesirable anomaly.[38] It is on this transparency of online markets, the availability of data on the behavior of competitors in them, and at the same time the capabilities of algorithms in the service of undertakings, that the richest discussion of the impact of AI on competition has developed so far. The most dangerous in this context is supposed to be the non-negotiated price collusion (algorithmic price parallelism),[39] born of the ability of a firm equipped with smart pricing algorithms to instantly follow every move of its competitors.[40] Such non-contact behavior is not covered

[36] The wording is taken almost verbatim from the CJEU judgment of 20 November 2008. Case C-209/07, *Competition Authority v Beef Industry Development Society Ltd and Barry Brothers (Carrigmore) Meats Ltd,* EU:C:2008:643, paragraph 34.

[37] Peregrin, J.: *Člověk a pravidla. Kde se berou rozum, jazyk a svoboda (Man and rules. Where reason, language and freedom come from).* Dokořán, 2011, pp. 43-46.

[38] See e.g. European Commission: Commission Notice on Guidelines on the applicability of Article 101 TFEU to horizontal cooperation agreements (2011/C 11/01) 14.1.2011, point 78.

[39] For a brief overview of the background to this debate see e.g. Wisking, S.; Herron, M.: *Algorithmic Pricing – The New Competition Law Frontier? Digital Business Lawyer*, September, 2017, [http://awa2018.concurrences.com].

[40] The discussion is of course not exhausted here, as algorithms can also be used to monitor prices agreed between competitors, to deliberately signal a certain course of action, to deliberately use one intermediary and its algorithm, or to control prices set by the supplier to the distributor for subsequent sale, etc. In such cases, however, it is only a new, technologically sophisticated device used to better implement the agreement (concerted practice) made by

by the prohibitions of Section 1 of the Sherman Act and Article 101(1) TFEU, since without contact between the undertakings it is, from their point of view, legitimate market adjustment.

Experiments reported in the literature and existing empirical studies on the competitive consequences of such almost absolute transparency of certain markets for businesses (e.g. the authorities' provided gasoline price comparisons in Germany, Australia or Chile) have consistently confirmed the undesirable (from the perspective of consumers) result of a slight increase and subsequent maintenance of higher price levels, even without direct contacts between businesses.[41] At the same time, the prevailing consensus is that AI makes such a non-negotiated collusion possible between a larger number of firms simultaneously and sustainable over a longer period of time than under 'classical' conditions of competitive uncertainty.[42]

However, the available literature is not unanimous as to whether firms will necessarily change their behavior because of these new possibilities and whether competition law should reconsider its default assumptions. Scholars have long held that consistently non-cooperative behavior by an intelligent agent, based on the game model of the prisoner's dilemma, is rather rare and occurs in theory and practice mainly in situations where the resources at stake are significantly limited and the game will not be repeated. In contrast, in long-running markets, with stable repeated interaction between the same firms, the tendency

the undertakings, i.e. a variant of the classic infringement, not a qualitatively new situation of removing competitive uncertainty without contact between the people representing the undertakings. A typology of the possible use of algorithms to collusive behaviour is provided by Erzachi, A.; Stucke, M.E. op. cit. note 5, as well as the OECD study, *Algorithms and Collusion – Background Note by the Secretariat* DAF/COMP(2017)4, June 9, 2017, and the joint study Bundeskartellamt – Autorité De La Concurrence: Algorithms and Competition. Bonn-Paris, November 2019, [https://www.bundeskartellamt.de/].

[41] All indications are that even if the price or bid collusion is not agreed in advance, there will still be a tendency for price alignment, as competing at a lower price will not be judged effective by any AI. A 'race to the bottom' would harm everyone if competitors quickly matched the price, whereas a slight and gradual increase in the price level following each individual upward price movement is beneficial to all competitors. Depending on the available data on competitors' behaviour, such AI-mediated alignment is also conceivable in terms of facilitating market sharing, limiting supply, or boycotting a new competitor (e.g. by placing its offer on an online sales platform), as all such actions will be evaluated as optimal by AI set to maximise revenue and grow (maintain) market share. See e.g. Ezrachi, A.; Stucke, M.E.: op. cit. note 10.

[42] See OECD: Algorithmic Collusion: Problems and Counter-Measures. Note by Ezrachi, A., Stucke, M.E. DAF/COMP/WD(2017)25, 31 May 2017, p. 6.

in both practice and theory (and in games played using AI) is towards a cooperative strategy.[43]

The question then is whether anything fundamental changes for competition law if, as a result of the massive use of AI and the increasing transparency of markets, we accept the possibility of easy but unnegotiated alignment of competitors' pricing strategies as the new normal and stop considering a state of competitive uncertainty as such. Will the line between adaptation to market developments, which can hardly be rightly prohibited, and illicit concerted action shift if some alignment of action is an algorithmic response to market transparency? In an environment of instantaneous monitoring of price movements, does it still make sense to prohibit the exchange of price information within an oligopoly? How strictly should possible coordinated effects of mergers be judged in such a situation if even non-agreed coordination between firms will be more natural than competitive uncertainty thanks to the use of AI-processed data?

Some of the literature is skeptical of such questions, considering them at least premature, if not entirely speculative. As early as 1996, long before the debate on the effects of AI on competition, L. Pepperkorn did not consider ex-ante information exchange between competitors as a path leading necessarily to collusion and preferred to pay attention to pragmatic and rational incentives to cooperate, which may at some point induce firms to act in a coordinated way because they consider it achievable, sustainable and profitable even after taking into account all risks.[44] What AI has changed about this conclusion is only that price evasion from competitors has become less attractive as a strategy to consider, in no way, however, that markets have become more stable, competitors more reliable, competition authorities more powerless. In S. Rab's view, companies operating in an AI-enabled market have merely found themselves in 'a public exchange environment' where price movements are instantly detectable, but even this does not mean that there is an automatic link between the use of smart algorithms and a preference for collusive behavior.[45]

In the light of such an approach, the best solution is to act on the material conditions of operation of the algorithms and also of the markets they monitor.

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[43] Tvrdý, F. *Turingův test. Filosofické aspekty umělé inteligence (Turing test. Philosophical aspects of artificial intelligence),* TOGGA, 2014, p. 65

[44] Pepperkorn, L.: *Competition Policy Implications from Game Theory: an Evaluation of the Commission´s Policy on Information Exchange*. Paper presented at the CEPR/EUI Workshop on Recent developments in the Design and Implementation of Competition Policy 29. 11. 1996, p. 3, [https://ec.europa.eu/competition].

[45] Rab, S. *Artificial Intelligence, Algorithms and Antitrust*. Competition Law Journal, 2019, Vol. 18, No. 4, pp. 143, 145.

From a competition perspective, AI can serve different purposes and there is a presumption that its various applications, whether in the hands of businesses, their clients, consumer organizations, or public authorities, may shuffle the cards to such an extent that the feared collusive behavior resulting from increased market transparency becomes difficult, risky or downright disadvantageous. The fact that rational incentives to abuse knowledge of competitors' behavior will be diminished, pricing algorithms will then also 'figure out'. Markets that are transparent to businesses should, with adequate use of AI, also be transparent to their supervisors.

Therefore, it would be possible to legislate how many times in 24 hours offer prices can be automatically adjusted and thus make price developments transparent and their AI-assisted checking possible. AI-monitored prices may enable buyers (or consumer organizations) to find new offers not involved in algorithmic collusion or to detect and report the collusion and thus at least make the participants more uneasy. AI in the hands of competition authorities and procurement authorities are already assessing whether differences in bidders' bids show standardized differences in parameters, structural and wording similarities in descriptions that would indicate collusion.[46] Targeted encouragement of innovation and investment in ideas identified as disruptive in terms of existing market conditions can counteract such conditions for the sustainability of the price collusion as homogeneity of supply and barriers that make it difficult for new competition to shake up the position of the aligned oligopoly. After all, perhaps the greatest 'hope' is placed by some authors in the fundamental characteristic of advanced data processing-based trading offers will be unique according to customer preferences and capabilities, and the drive for differentiation (both in price, quality, service, brand, delivery terms, etc.) will far outweigh the tendency to align with competitors. However, the inconvenience that this may constitute unjustified discrimination between consumers has already been discussed above (see Part 2.).

A similarly 'calm outlook', on the other hand, is not shared by A. Ezrachi and M. E. Stucke, probably the best-known authors, who in recent years have consistently warned of the possibility of non-negotiated price collusion mediated by clever algorithms based on their own assessment of the situation.[47] Even the research reports of the European competition authorities consider it a problem

[46] See e.g. Patakyová, M. T. *Initial Thoughts on Influence of Artificial Intelligence on Bid Rigging.* Business Law Working Papers 1/2019, Széchenyi István University, Faculty of Law and Political Sciences, Centre for European Studies, Györ, p. 2-9, also Šmejkal, V.: *Cartels by Robots-Current Antitrust Law in Search of an Answer.* InterEU LawEast, Vol. 4, No. 2, 2017, p. 14.

[47] Ezrachi, A.; Stucke, M.E. *Virtual Competition. The Promise and Perils of the Algorithm-Driven Economy.* Cambridge: Harvard University Press, 2016 also e.g. Ezrachi A.,

that, while AI is becoming opaque (the proverbial 'black-box'), it is itself making the actions of other market players transparent to its users, but for the time being, they prefer the further evaluation of practical experience to changes in legislation.[48] A model for such changes could be the Australian Competition and Consumer Act of 2010, which in section 46 makes undertakings profiting from collusion punishable for harm to competition even without having to provide evidence of their collusive behavior. Thus, an undertaking that benefits from having used a particular algorithm that led to price coordination with competitors is liable without its people having engaged in any exchange of signals, information, offers, and acceptances.[49]

In a similar vein, the literature has generated proposals for the enactment of 'special price-algorithm liability' for those who create or use a price algorithm that harms competition, as well as the rebuttable presumption of knowledge of the consequences of deploying such algorithms,[50] or an outright ban on algorithmic parallelism, to the enactment of a new anti-competitive tort of 'abuse of excessive market transparency'.[51] Thus, undertakings that deploy and use an anti-competitive algorithm would be liable for an algorithm acting independently in the same way as if their employee had acted against rules of competition. However, in the case of a slightly more liberal approach, they should be liable only if they failed to meet the standard of reasonable care and precaution, or even only if they failed to intervene after becoming aware of the negative effect of the algorithm used.[52] Meanwhile, the European Commission is waiting, as its proposal for a new EU regulation, the so-called AI Act of

Stucke, M. E. How Pricing Bots Could Form Cartels and Make Things More Expensive. *Harvard Business Review*, 2016, October 27, https://hbr.org

[48] CMA (Competition and Markets Authority): Algorithms: How they can reduce competition and harm consumers. London: CMA, 2019, January 19, p. 4; also Bundeskartellamt – Autorité De La Concurrence. op. cit. note 41.

[49] Panichi, J.; Seers, P.; Newman, M.: *Australia reckons it´s ready to fight algorithmic collusion as world scramble to review*. MLexInsight, November 21, 2017.

[50] For more details see e.g. Bejček, J.: *„Digitalizace antitrustu" – móda nebo revoluce? ("Digitalization of antitrust" – fashion or revolution?),* Antitrust, No. 3, 2018, p. VI.

[51] Dylan, I.; Ballard, S. N. *Algorithms, Artificial Intelligence, and Joint Conduct*. CPI Antitrust Chronicle, May 2017.

[52] See e.g. Bundeskartellamt – Autorité De La Concurrence. op. cit. note 41, pp. 58-59. In principle, there should apply: "follow the flow of money", which, as e.g. N. Petit points out, indicates who is profiting from pricing algorithms. The algorithms themselves do not suffer losses or celebrate profits, they merely carry out tasks in terms of the objectives set and are therefore agents in the service of those who, on the contrary, do not want to suffer losses and wish to celebrate profits. See Petit, N.: op. cit. note 6, p. 362.

2021,[53] does not touch on the competition law aspects of AI, nor does it include pricing algorithms as a high-risk AI system in Annex III. However, it does place responsibility for AI endangering the health, safety, and fundamental rights of individuals on providers who market or operate AI systems, as well as their professional users. It can therefore be assumed that if there is a future search for those responsible for dangerous AI applications in the competition law area, the EU legislator will follow a similar approach.

5. CONCLUSION

The three challenges of AI for contemporary antitrust described above raise questions worth seeking answers to. AI in the service of internet gatekeepers collecting and mining big data on consumer behavior drives an imaginary wedge into the interplay between competition and consumer protection. This can be illustrated by examples in which it pits these two protections against each other. If the reasoning offered in the first part of the text is correct, it is precisely in this area that competition law is facing its greatest challenge, as a result of the digitalization of the economy and the massive deployment of AI, attacking its existing assumptions. With a slight exaggeration, the Western antitrust will have to choose whether or not to follow the motto *Fiat competition et pereat mundus*.

The super-dominance of the largest online platforms, based on a self-reinforcing cycle of big data collection and AI processing, has already led competition authorities, or legislators on both sides of the Atlantic, to propose new ex-ante regulations for internet gatekeepers. Here, competition law is indeed already moving out of the form in which we have known it so far and is creating new tools to be applied in parallel with traditional ex-post enforced prohibitions.

Pricing algorithms that abuse market transparency, allowing competitors to adjust their prices without contact, are still a debated rather than a real, competition-destroying threat. Based on the analysis carried out, it could be optimistically assumed that even if this threat turns out to be practically significant, competition law will be able to set limits to it, utilizing small changes to its current tools and standards and impute liability for the harm caused to competition.

Most of the assumptions and rare conclusions regarding the impact of AI on antitrust will be confirmed or not by further developments. Their very formu-

[53] 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 certain Union legislative acts. Brussels, 21.4.2021 COM(2021) 206 final 2021/0106(COD).

lation and visibility may contribute to a debate that – if it gains the necessary scope and momentum – could influence law-making and law-applying bodies. Then, perhaps, some of the dark predictions will not even see the light of day, because they will be averted in time by creative actions responding to the challenges and threats to which this text has been dedicated.

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