DIGITISATION AND EU COMPETITION LAW – TIME TO RETHINK THE BASICS?

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Abstract: *The article reflects on the question to what extent the complex reality of online platforms undermines the foundations of EU competition law, which are the presuppositions of neoclassical economics, and the targeting of competition protection towards greater efficiency and the resulting consumer welfare. It works first with the EU documents that relate to the regulation of large online platforms (internet gatekeepers) in the European Union and then with the teachings of complexity economics, which seems to fit the realities of the online world better than neoclassical economics. The purpose is to ask whether modern competition law could draw inspiration and recommendations for its adaptation to online realities from complexity economics. It concludes that, for the time being, this is more of a research agenda or discussion platform and only the future will show whether the lessons of complexity can be usefully applied to the formulation of legal rules and standards.*

Keywords: *competition, online platforms, internet gatekeepers, complexity economics*

I. INTRODUCTION

The digital economy, especially the ubiquity of large digital platforms and society's increasing dependence on them, is undoubtedly one of the distinctive features of the contemporary world. The question of whether and how these phenomena affect competition protection in the broad sense and competition law in the narrow sense,[1] has been a hotly debated issue for almost a decade and has enjoyed increased support not only from academics but also from policymakers in the position of regulators. There are now hundreds of interesting contributions[2] to the debate at the international level, as well as the local, Central European

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[1] The protection of competition in the broader sense must now include *ex-ante* regulation of the online sector, represented in particular by the EU Regulation 2022/1925, the Digital Markets Act. Although this is also part of the tools handled by the European Commission's Directorate-General for Competition, its legal basis is not the competition articles of the TFEU, but Article 114 (measures to build the single market), and it is to be applied independently of Articles 101 and 102 TFEU and is therefore not EU competition law in the strict or narrow sense.

[2] For all of them one can mention e.g. VAN GORP, N., BATURA, O. *Challenges for Competition Policy in a Digitalised Economy. Policy Department A: Economic and Scientific Policy European Parliament.* Brussels, 2015; OECD, *Maintaining competitive conditions in the era of digitalisation. OECD report to G-20 Finance Ministers and Central Bank Governors.* July 2018; CRÉMER, J., DE MONTJOYE, Y.-A., SCHWEITZER, H. *Competition Policy for the digital era. Final report. Luxembourg: Publications Office of the European Union.* 2019; LIANOS, I. Digitalisation and Competition Law: New Challenges. *Revista de Defesa da Concorrência.* 2019, Vol. 7, No 1, pp. 5–50; DOHERTY, S., VERGHESE, A. S. *Competition Policy in a Globalized, Digitalized Economy. White Paper.* World Economic Forum, Geneva, 2019; DUCCI, F. *Gatekeepers and Platform Regulation – Is the EU Moving in the Right Direction?* Paris: Sciences Po, 2021; CINI, M., CZULNO, P. Digital Single Market and the EU Competition Regime: An Explanation of Policy Change. *Journal Of European Integration.* 2022, Vol. 44, No. 1, pp. 41–57; DEUTSCHER, E. Reshaping Digital Competition: The New Platform Regulations and the Future of Modern Antitrust. *The Antitrust Bulletin.* 2022, Vol. 67. No. 2, pp. 302–340; BEJČEK, J. Sustainability of Traditional Antitrust" Under the Challenge of "Sustainability" and Digitalization. *Acta Universitatis Carolinae – Iuridica.* 2023, Vol. 69, No. 2, pp. 9–31; FUNTA, R., BUTTLER, D. The Digital Economy and Legal Challenges. *Intereulaweast.* Vol. 10, No. 1, 2023, pp. 145–160.

level, and it is therefore not the ambition of the following text to add another all-encompassing reflection on what is changing about competition in the online space. Of all the possible changes that come into play in the case of digitization vs. competition law, the following text wants to focus on those that might shake its very foundations. The author considers these to be, first of all, the primary premises of competition protection growing out of neoclassical microeconomics from which competition protection still derives its basic assumptions about the optimal functioning of markets. From these, then, derive the target values pursued by competition protection, which in the neoliberal years of the early 21st century and in the EU were doctrinally heavily influenced by the legacy of the Chicago school of anti-trust, aimed at greater efficiency benefiting consumer welfare.[3]

Therefore, the following text has in its title the questioning of a reassessment of the fundamentals, which in fact signals its relatively narrow focus on the two mentioned aspects of the basic assumptions and of the targeting of competition protection affected by them. Competition protection by the European Union (EU) will be subjected to a narrowly axiological questioning of whether and how it copes (or should cope), specifically in the online environment, with the question marks surrounding its underlying assumptions and target values. The purpose of the author's endeavour is to prolong the debate on the question to what extent the whole model of competition protection in the EU is changing and whether it should continue to change, as well as to set out a possible direction for the further search for a changed approach to competition protection in the online world.

The first part of the text presents an analytical view of the priority objectives of competition protection in the EU as declared today. Firstly, this part is intended to show where the priorities are placed and what the current or planned EU measures in the field of competition protection in the online sector aim to protect. Secondly, this section seeks to open the door to the main question, namely whether the competition protection targets are correctly chosen, whether they are still influenced by inadequate assumptions that no longer correspond to the realities of online economy. The search for an answer to this question is the subject of the second part of the text. The acknowledged and appreciated inspiration for this part is the proposal by N. Petit and T. Schrepel to apply the ideas of the so-called complexity economics, in particular of one of its intellectual fathers, W. Brian Arthur,[4] to competition protection. Their ground-breaking text *Complexity-minded antitrust*, published in 2023,[5] has served here as a springboard for considering, in the third part, whether and what could change in EU competition protection if it wanted to better respond to the challenges of a digital economy brimming with complexity.

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[3] The Chicago school "rejected populists' advocacy for continuing to base antitrust on a plurality of considerations in favour of making economic efficiency and consumer welfare the sole guide to antitrust law". See in YOO, C. S. The Post-Chicago Antitrust Revolution: A Retrospective. In: *University of Pennsylvania Law School, All Faculty Scholarship* [online]. [2023-10-31]. Available at: <https://scholarship.law.upenn.edu/faculty_scholarship/2237>.

[4] See the background info on W. Brian Arthur, an economist, engineer and mathematician, available on the website of the Santa Fe Institute (New Mexico, USA), where he has long worked in research on the economics of complexity. In: *sites.santafe.edu* [online]. [2023-10-31]. Available at: <https://sites.santafe.edu/~wbarthur/>. For an introduction to his opinions, see: BRIAN ARTHUR, W. Some Background to Complexity Economics. *Network Law Review.* 2023.

[5] PETIT, N., SCHREPEL, T. Complexity-minded antitrust. *Journal of Evolutionary Economics.* 2023, No. 33, pp. 541–570. In: *Springer link* [online]. [2024-01-11]. Available at: <https://doi.org/10.1007/s00191-023-00808-8>.

II. SHIFTS BETWEEN DEONTOLOGICAL AND CONSEQUENTIALIST APPROACHES IN EU COMPETITION LAW

II.1. An imperfect transition to consequentialism

This part is devoted to the question of whether competition protection in the EU, under the pressure of the realities of online platform markets, is not reverting to the objectives it has ceased to pursue when it undertook its so-called modernisation. The modernisation of EU competition law in the first decade of the new millennium was carried out in the spirit of what the then Director General of DG Competition of the European Commission, P. Lowe, summarised in his speech in March 2007: *Consumer Welfare and Efficiency – New Guiding Principles of Competition Policy*.[6] His superior, the EU Competition Commissioner, M. Monti, had already announced in 2001 the convergence of European and US competition protection, essentially on principles close to the neoliberal, de facto Chicago School of anti-trust.[7] The modernisation of EU competition law has certainly been a multi-layered process[8] which cannot be summarised in a few short slogans. Nevertheless, the observation that it promoted the so-called effect-based approach, i.e., a focus on the demonstrable consequences of anti-competitive practices for consumer welfare and microeconomic efficiency, captures its essence in the part of the modernisation process that concerned the axiological anchoring of competition protection. In the spirit of the aforementioned speech by P. Lowe, the aim was to overcome the traditional approach, rooted in the ordo-liberalism of the post-war period, which had directed competition protection towards the protection of the basic parameters of competition (rivalry and openness) and with the freedom to compete as a central value.[9] Thus, the focus of competition protection in the modernisation period was to shift from monitoring the structure of markets and the processes taking place in them to the resulting effects of firms' actions on consumer welfare and efficiency. The deontological approach was to be replaced by a consequentialist one, with all the implications for the prioritisation, analysis and justification of competition decisions, as well as the design of the remedies imposed.[10]

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[6] LOWE, P. Consumer Welfare and Efficiency – New Guiding Principles of Competition Policy? 13th International Conference on Competition and 14th European Competition Day Munich 27th March 2007. In: *European Commission* [online]. [2023-10-31]. Available at: <https://ec.europa.eu/competition/speeches/text/sp2007_02_en.pdf>. In the literature on the same see e.g. STUYCK, J. EC Competition Law after Modernization: More than ever in the Interest of Consumers. *Journal of Consumer Policy*. 2005, Vol. 28, pp. 1–30.

[7] MONTI, M. *Antitrust in the US and Europe: a History of Convergence*. Speech 01/540, Washington, 11. 11. 2001. For a summary description of the "Chicago School" see YOO, C. S., op. cit. ref. 4, and also: POSNER, R. A. The Chicago School of Antitrust Analysis. *University of Pennsylvania Law Review*. 1979, Vol. 127, No. 925, pp. 925–948.

[8] A concise summary of this modernisation from an outside observer: GERBER, D. J. Two Forms of Modernization in European Competition Law. *Fordham International Law Journal*. 2007, Vol. 31, No. 5, pp. 1235–1266.

[9] For a brief discussion of post-war ordo-liberalism, se: MCMAHON, K. A Re-evaluation of the abuse of excessive pricing. In: Pinar Akman – Or Brook – Konstantinos Stylianou (eds.). *Research Handbook on Abuse of Dominance and Monopolization*. Cheltenham: Edward Elgar Publishing, 2023, pp. 122–123.

[10] For a clear comparison between consequentialist and deontological approaches in EU competition law see: WOŹNIAK-CICHUTA, M. Teleological perspective of EU Merger Control and its Interplay with Killer Acquisition on Digital Markets. In: Václav Šmejkal (ed.) *EU Antitrust: Hot Topics & Next Steps*. Prague: Charles University, Faculty of Law, 2022, p. 155.

However, as *ex-post* studies have noted,[11] this value shift has been proclaimed by the EU Commission rather than implemented in practice. Nor has the EU Commission, and even more significantly the CJEU, ever narrowed its decision-making to a focus on consumer surplus and superior efficiency.[12] More economics has entered the EU Commission's competition analysis, the consumer and their interests have been regularly and frequently highlighted, but the reality has remained a plurality of objectives, even if concepts such as fairness or the openness of markets have all but disappeared from the Commission's programme documents and policy declarations, to be replaced by the consumer and their welfare.[13]

II.2. Current inclination towards structure and processes

If we look, however, at the stated objectives today, it can be easily demonstrated that the most recent documents issued or formally adopted in the field of competition protection in the EU (Regulation 2022/1925 Digital Markets Act - DMA[14] – as a representative of hard law, Amendments to the Guidance on the Commission's enforcement priorities in applying former Article 82[15] – as a representative of soft law, and Communication of the Commission *A competition policy fit for new challenges*[16] – as a representative of the EC' programme documents), on the contrary, return competition protection in the EU to its pre-modernisation objectives. The concept of welfare does not appear in them at all, the concept of efficiency is mentioned rather marginally (11 times), on the contrary, openness of markets/their contestability (mentioned 65 times) and, especially thanks to the DMA, fairness (20 times) is back in the limelight. The consumer or end user is still very often mentioned (264 times), but not their welfare, while at the same time the competitor or business user is not far behind (207 times). No one is claiming that this is an indication of a revision or even a rejection of the two-decade-old modernisation of EU competition law. There is neither factual nor formal evidence for such a "principled turn" backwards, and moreover, it would be more of a regression in the protection of competition in sectors of the classical (i.e. brick and mortar) economy. However, it is a clear indication that for competition regulation in a digital environment dominated by large online platforms, maxi-

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[11] STYLIANOU, K., IACOVIDES, M. C. *The Goals of EU Competition Law. A Comprehensive Empirical Investigation.* In: *Konkurrensverket* [online]. 28. 1. 2021 [2023-10-31]. Available at: <https://www.konkurrensverket.se/globalassets/dokument/kunskap-och-forskning/forskningsprojekt/19-0407_the-goals-of-eu-competition-law.pdf>.

[12] The CJEU, in one of its repeatedly cited decisions C-52/09 *Konkurrensverket vs. TeliaSonera Sverige AB*, EU:C:2011:83 from 17. 2. 2011, in paragraph 22 on competition rules, stated: „The function of those rules is precisely to prevent competition from being distorted to the detriment of the public interest, individual undertakings and consumers, thereby ensuring the well-being of the European Union."

[13] See e.g. in ŠMEJKAL, V. Abuse of Dominance and the DMA – Differing Objectives or Prevailing Continuity? *Acta Universitatis Carolinae – Iuridica.* 2023, Vol. 69, No. 2, pp. 33–51.

[14] Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act).

[15] Annex to the Communication from the Commission Amendments to the Communication from the Commission Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings, Brussels, 27.3.2023 C(2023) 1923 final.

[16] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - A competition policy fit for new challenges, Brussels, 18. 11. 2021 COM(2021) 713 final.

mising consumer welfare in its neoliberal sense is not the ideal embodiment of functioning competition.

Regarding the efficiency and consumer welfare criteria, it is immediately clear to everyone that efficiency gains and their translation into consumer welfare are difficult to quantify and hard to monitor when some basic services of online platforms are (in monetary terms) completely free for consumers (internet searches, price comparators, social networks, map searches…) and others for a more or less symbolic subscription fee (streaming platforms), which is probably not the main parameter for consumer choice (the credibility of the service provider, its platform's content and the positive emotions it brings are usually more important). However, the fact that traditional competition protection targets are difficult to identify and measure in the online environment does not mean that online platforms are inefficient and client unfriendly.

Large online platforms like Google, Meta or Amazon are effective, albeit in a paradoxical way, because they have managed to grow rapidly, attracting not only users but especially investors and top IT talent even in times when their main product was not profitable.[17] Stakeholders of these platforms benefit in some way from their direct and indirect network effects. An online network is directly more useful to its users, or at least indirectly more trustworthy and innovative, the more users it has. The cost of further expansion of a service of interest to users is minimal and beneficial for a well-established online platform, and hand in hand with this is the ever-growing opportunity for those who wish to exploit the online service for targeted advertising or other exploitation of client data.[18] In this cycle, in which returns on supply and demand side generally rise with the expansion of supply, rather than necessarily fall (as is assumed in the neoclassical economics), the revenues of the big online players have grown steadily year after year, hand in hand with the numbers of their regular users.[19] Innovation is continuous and the biggest players have been investing massively on a regular basis,[20] their updates and new products are coming at a relentless pace and expansion into other areas beyond shopping, work or entertainment on the PC (housekeeping, education, car operation, healthcare…) seems unstoppable.[21] Dissatisfaction on the part of consumers most often arises because of the misuse (or opacity of use) of their personal data,[22] not because they disagree with the unavailabil-

[17] KHAN, L. M. Amazon's Antitrust Paradox. *The Yale Law Journal.* 2017, Vol. 126, No. 3, pp. 710–805. She opened her famous paper with a telling quote from The New York Times "Even as Amazon became one of the largest retailers in the country, it never seemed interested in charging enough to make a profit. Customers celebrated and the competition languished." (p. 710).

[18] PETIT, N. Understanding Market Power: an economic perspective. In: Pinar Akman – Or Brook - Konstantinos Stylianou (eds.). *Research Handbook on Abuse of Dominance and Monopolization.* Cheltenham: Edward Elgar Publishing, 2023, p. 41.

[19] ZANDT, F. Is Big Tech Growth Losing Steam? In: *Statista* [online]. 10. 11. 2022 [2023-10-31]. Available at: <https://www.statista.com/chart/21584/gafam-revenue-growth/>.

[20] GAWER, A., SRNICEK, N. *Online platforms: Economic and societal effects.* Study for European Parliamentary Research Service Scientific Foresight Unit (STOA) PE 656.336 – March 2021, Brussels: European Union, 2021.

[21] ROVIRA, S. et al. *Digital technologies for a new future.* United Nations publication LC/TS.2021/43, 2021. In: *cepal.org* [online]. [2023-10-31]. Available at: <https://www.cepal.org/sites/default/files/publication/files/46817/S2000960_en.pdf>. JAUMOTTE, F., OIKONOMOU, M., PIZZINELLI, C., TAVARES, C. M. How Pandemic Accelerated Digital Transformation in Advanced Economies. *IMF Blog.* [online]. 21. 3. 2023 [2023-10-31]. Available at: <https://www.imf.org/en/Blogs/Articles/2023/03/21/how-pandemic-accelerated-digital-transformation-in-advanced-economies>.

ity, poor quality or high cost of online searching, communication, work, entertainment or shopping. All in all, it is difficult to blame large online platforms for being inefficient or non-beneficial for their consumers.

Online platforms can also present a number of challenges. Let us not forget the negative effects on the privacy and social behaviour of their users described elsewhere, as well as other identified negatives for a pluralistic civic society.[23] Most importantly for competition, the large online platforms are creators of diversified value chains, for which the label "ecosystems" has been adopted. Within them – each in its own right – they set the rules of operation and act as gatekeepers to it. Not the invisible hand of liberal economists, but the very concrete hand of an online platform thus shapes the conditions, dynamics and outcomes of such a system.[24] The efficiency and consumer attractiveness of these outputs does not then grow out of the free and undistorted competition of multiple directly competing providers of interchangeable offerings in the same relevant market. What is lacking in and around the online platform ecosystem is 'fairness and contestability', i.e. opportunity and a level playing field for potential direct competitors and new independent entrepreneurs in the upstream and downstream markets.[25]

It can thus be argued that in the online environment, free competition, understood as direct rivalry, is at odds with the goals of efficiency and consumer welfare (at least in the short and medium term), since the latter are achieved even when markets are neither fair nor easily contestable. Competition law is responding to this both with its new tools (notably the DMA) and with increasing the number of its market opening and opportunities increasing decisions in the online sector (among the already classic ones e.g. *Google Shopping*[26] or *Amazon E-books*).[27] The client, whether we call therm a consumer or an end-user, is also present in this approach to protection of competition, focused primarily on

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[22] The world's most famous representative of such abuses is the 2019 Facebook-Cambridge Analytica scandal, see e.g. KANAKIA, H., SHENOY, G., SHAH, J. Cambridge Analytica – A Case Study. *Indian Journal of Science and Technology*. 2019, Vol 12, No. 29, pp. 2–5. The same company violated competition law in the way it handled client data in the case Meta Platforms – Facebook Deutschland: Judgment of The Court (Grand Chamber) C-252/21 *Meta Platforms*, from 04.07.2023, EU:C:2023:537.

[23] They are eloquently discussed in the article FONTANEL, J. GAFAM, a progress and a danger for civilization. In: *HAL* [online]. [2023-10-31]. Available at: <https://hal.univ-grenoble-alpes.fr/hal-02102188>.

[24] BEJČEK, J. „Digitalizace antitrustu" – móda, nebo revoluce? (Digitization of antitrust – fashion or revolution?) *Antitrust*. 2018, Vol. 10, No. 3, p. 7.

[25] DELLER, D., DOAN, T., MARIUZZO, F., ENNIS, S., FLETCHER, A., ORMOSI, P. Competition and Innovation in Digital Markets. *BEIS Research Paper Number: 2021/040*, Report by Centre for Competition Policy, University of East Anglia, April 2021. In: *HM Government* [online]. [2023-10-31]. Available at: <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1003985/uae-ccp-report__1_.pdf >.

[26] EU Commission's decision in the case AT.39740 – *Google Search (Shopping)*, 27. 6. 2017, according to which the dominant internet search engine "has made significant market share gains at the expense of rivals", that were not given "equal treatment in its search results for its own comparison-shopping product and rival comparison-shopping products.". See MEMO/17/1785, 27 June 2017.

[27] European commitment decision in case AT.40153 — *E-Book MFNS and related matters*, 4. 5. 2017, was predominantly focused on fairness and market opening for other market players: "The Commission took the preliminary view that the Business Model Parity and the respective Notification Provisions are capable of (i) reducing E-book Suppliers' incentives to support and invest in alternative new and innovative business models; (ii) reducing Amazon's competitors' ability and incentives to develop and differentiate their offerings through such business models; (iii) deterring entry and/or expansion by E-book Retailers, thus weakening competition at the e-book distribution level and strengthening Amazon's dominant position." (para 12, Summary of Commission Decision).

fairness and contestability, but not with their consumer surplus obtained from a better value for money offer. The immediate benefit to the consumer is to be found in the existence and autonomy of choice, in particular the possibility of choosing a provider or switching easily to a new one. However, such a criterion is closer to the maintaining of rivalry within the same market than to the preference given the best value for the buyer. From an economic point of view, it clearly favours competitors, but not always and necessarily users. If a consequentialist approach to protecting competition in the online environment makes way for a deontological approach, the consumer's benefit is only secondarily and sometimes very generally inferred from the fact that more open competition, producing a more varied range of services of the same kind, is ultimately more beneficial to the consumer. E. Deutscher recently summarised such an approach as an open rejection of the long-standing dogma that consumer welfare constitutes the only rational and legitimate goal of competition law and gearing towards promoting fairness, contestability and non-economic values such as privacy.[28]

II.3. Pitfalls of the emphasis on fairness and contestability

At the same time, it can be argued that such a focus on fairness and contestability may prove harmful to efficiency and consumer welfare. It is more than likely that more online platforms of the same kind, which do not generate sufficient revenue for their own research and innovation, may mean both less fast and comfortable user movement in the online space and a slower flow of innovation, not to mention the possible need to charge for the basic offer of core online services. In short, users would probably not be happy if the most easily accessible platform (e.g. Google Workspace, with over 30 applications easily and instantly accessible from one place) they could not, if they wished, handle "everything they need" because, in the name of protecting competition, online platforms aiming at universality would be forced to be broken up, or all online services would be forced to be charged for…, so that the creators and gatekeepers of online markets would lose their historical advantage of holding an unrivalled network of users and a direct competition of multiple rivals would return to the industry. Nor should the problem of data sharing be forgotten: such sharing is required to open up markets to competing (as well as upstream or downstream) services to those services on which the large online platforms are based. While a few large online platforms can be supervised on the issue of data protection, the same effective overview and supervision can hardly be expected if data is widely shared from platforms towards many providers of an expanding range of offers.[29]

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[28] DEUTSCHER, E. Reshaping Digital Competition: The New Platform Regulations and the Future of Modern Antitrust. *The Antitrust Bulletin*. 2022, Vol. 67, No. 2, p. 303.

[29] Warnings that "competition for data may not benefit privacy at all", or that even "privacy could be sacrificed on the altar of competition", are not at all sparse in the literature. See in MATTHAN, R. Privacy must not be diluted at the altar of competition. In: *Mint – Business News* [online]. 30. 3. 2021 [2023-10-31]. Available at: <https://www.livemint.com/opinion/columns/privacy-must-not-be-diluted-at-the-altar-of-competition-11617119152799.html>. GORECKA, A. Competition law and privacy: extensive data acquisition as the 'eye' of the problem. In: *Network Law Review* [online]. 9. 3. 2023 [2023-10-31]. Available at: <https://www.networklaw-review.org/phd-privacy/>; STUCKE, M. Data Competition Won't Protect Your Privacy. In: *Institute for New Economic Thinking Newsletter* [online]. 13. 4. 2022 [2023-10-31]. Available at: <https://www.ineteconomics.org/perspectives/blog/data-competition-wont-protect-your-privacy>.

Bearing in mind what has just been described, let us summarise in this section that the shift in focus from competition outcomes to competition process and structure is now sufficiently evident in EU competition protection in the online sector. This is neither a shift to something completely new and previously unprecedented nor to something that would be at odds with the open and undistorted competition as it has always used to be understood. However, such a situation directly and inevitably invites the question of whether this 'return' is an adequate response to the specificities of the online sector, and whether it will deliver what the beneficiaries of the fruits of functioning competition expect from it: not only fairness and openness for other market players, but also a dynamic growth in the sector, a steady stream of innovation and satisfied users.

III. THE ECONOMICS OF COMPLEXITY AS A NEW PERSPECTIVE ON COMPETITION ISSUES

III. 1. Complexity instead of traditional neoclassical schemes

This section will challenge the shift of the competition protection in the online sector to fairness and contestability as an inadequate solution that is still trapped in a mental model derived from a highly simplistic neoclassical vison of markets optimising themselves through mechanism closed to the ideal of perfect competition.[30] Although neoclassical economics, in its more than hundred years long history, has not stuck to one basic and simplistic notion of the market and incorporated into its schemes both monopoly situations and insights from game theory etc., it is its initial notion of competition in the market as it should ideally be that is crucial for further considerations. The key question could then be succinctly stated as follows: In the case of online gatekeepers, does it make sense to think in terms of excessive market power capable of manipulating prices and supply, and to seek a remedy for it in the existence of fragmented markets shaped by the competitive pressures of direct rivals?[31]

[30] A concise characterization of the neoclassical economics' concept can be summarized as follows: "The model of perfect competition describes a market form consisting of a large number of small —relative to the size of the market— firms selling a homogeneous commodity to a large number of consumers. All market participants have perfect information about the prices and the costs of each good, consumer preferences are given and finally, there are no impediments whatsoever in the mobility of the factors of production. The result of the above conditions is that the producers and consumers — because of their large number and small size— are incapable of influencing the price of the product, which becomes a datum for each and every individual firm or consumer in the market. The behaviour of the firms becomes completely passive with respect to the price of the product ("price taking behaviour") and as for the production, the firm simply chooses the level of output consistent with the maximization of profits which is achieved at the point where the price equals with the marginal cost of the product. The same price also maximizes consumers utility and by extension society's welfare. The conception of perfect competition is therefore required for the neoclassical theory to render static equilibrium determinate." See in TSOULFIDIS, L. Classical vs. Neoclassical Conceptions of Competition. In: *MPRA* [online]. 27. 1. 2013 [2023-10-31]. Available at: <https://mpra.ub.uni-muenchen.de/43999/>.

[31] The legitimacy of such a question stems directly from the effort to emphasise the fairness and openness of online markets in the protection of online competition in the EU. To a large extent, this "fairness and contestability" effort of the EU is an ideological twin of the New-Brandeisian anti-trust movement in the US with its criticism of too big companies ("the curse of bigness") and its efforts to democratise the market. See for instance in KHAN, L. M., The New Brandeis Movement: America's Antimonopoly Debate. *Journal of European Competition Law & Practice*. 2018, Vol. 9, No. 3, pp. 131–132. Both currents want to strip the gatekeepers of the internet of their power over the industry,

In the online environment, classic relevant markets are difficult to define because they are usually multi-sided, multi-level and aggregated into eco-systems through vertical integration. The market power of an online platform cannot even be inferred from its manipulation of price and supply; it is usually evident that it is subject to some counter-pressures, but it is not easy to determine whether and which ones are strong enough. The normal state of online markets is not equilibrium, but rather instability due to investment "bubbles", disruptive technologies and disruptive business models, rapid takeovers of new players and the emergence of whole new service segments, leading to complexity which then spills over into dealing with a potential abuse of dominance. Competition infringement decisions in the online sector are also complicated, lengthy, contentious in their arguments and with remedies that often raise eyebrows. A refreshing and promising step outside this traditional framework of less than satisfactory attempts at solutions is therefore N. Petit and T. Schrepel's proposal[32] to use the insights of complexity economics to shape a complexity anti-trust that would better reflect the characteristics of the online industry and, as a result, would regulate it better. The following lines are an attempt to provide a basic summary of their ideas and also to evaluate them in the light of the possibilities of existing competition protection in the EU.

III.2. Basics of complexity economics and the derived antitrust

Already at first glance, the complexity economics[33] seems to be a better fit to the realities of the online environment than neoclassical economics. Complexity economics does not consider market actors as uniform, always informed and rational; instead, it is based on their diversity and on the quantum of diffuse interactions between them, which are not limited to direct competition in each individual offer of a good or service. In addition to what we commonly call market competition, businesses compete at the level of entire ecosystems, hunting for the best ideas and employees, trying to appeal to generous investors, ideally temporarily creating a new market segment just for themselves. Each of the actors is more focused on maximising their chances of survival than on profit in an environment that is inherently imbalanced, dynamic, opaque and therefore uncertain in all its complexity.[34] This leads actors both to seek new opportunities (especially in sectors

and hence over society as a whole, by populating digital markets with many smaller, specialised, and, most importantly, competing online service providers wherever possible, and with sectoral regulation in the style of oversight of banks or energy companies where it cannot be done otherwise. While we acknowledge that, particularly in terms of society's growing overall dependence on online platforms (particularly marked in the era of covid lockdowns), such a taming of the biggest players in the digital world may make sense, from a competitive perspective it may bring the negative impacts on efficiency, innovation, user comfort and security outlined in the previous part of the text. It is therefore not unreasonable to look for new possible solutions outside the traditional framework, i.e. outside the ideal that in every market a competition between direct rivals must prevail.

[32] In addition to the seminal article mentioned in the Introduction, op. cit. ref. 5, these ideas can be found in SCHREPEL, T. Complexity Science for Antitrust Lawyers. In: *Network Law Review* [online]. [2023-10-31]. Available at: <https://www.networklawreview.org/complexity-science-antitrust/> and more thoroughly in SCHREPEL, T. Being An Arthurian: Complexity Economics, Law, and Science. In: *DCI Working Paper* [online]. 12. 9. 2023 [2023-10-31]. Available at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4568754>.

[33] See e.g. in BRIAN ARTHUR, W. Foundations of complexity economics. *Nature Reviews Physics*. 2021, Vol. 3, No. 2, pp. 136–145.

[34] Economics of complexity and its approach to economic reality are usually characterised by the following features: holistic approach to economy, bounded rationality of market actors, their dispersed interactions, no global controller, cross-cutting hierarchical organization, ongoing adaptation, novelty niches, out-of-equilibrium dynamics, non-linear relationships, prevailing uncertainty. BRIAN ARTHUR, W. op. cit. ref. 34.

promising high returns on invested capital) and to avoid risk in those where the neoclassical assumption of long-term diminishing returns from increased supplies holds. Thus, the pressure on firms' decision-making is not so much exerted by direct competition between them in the traditionally defined relevant markets as by the overall uncertainty to which they should ideally respond by 'leapfrogging', risk-shaking of the market, e.g. by trying out a new technology or business model. This is desirable and promising, whether we are concerned with the wealth produced or with high competitiveness. Of course, firms may also be inclined to reduce the prevailing uncertainty of an imbalanced and dynamic market by trying to freeze it in turn, e.g. by tying up as many clients as possible, slowing down entry or innovation by potential competitors. And that, in turn, is behaviour that needs to be discouraged.

From the foregoing, one can sense the main points of contact between the economics of complexity and competition law, as identified by N. Petit and T. Schrepel. Competition protection should not rely primarily on direct rivalry, but on uncertainty. Rivalry is, of course, one cause of uncertainty, but the online environment offers more such causes. Paradoxically, online trading does reduce uncertainty in some respects, because it makes information about offers instantly available and online AI aggregators and comparators have made it pointless to try to outbid competitors by quickly discounting or otherwise making the offer more attractive in a readily identifiable way. However, when one considers that the main battles in the online environment are not so much in the market as for the market(s),[35] and often for markets whose future contours are more suspected than known, it is clear that uncertainty is created by every strategic-looking change in behaviour, every promising new development, every diversification of activities, every inclination of investors towards a project, every departure or arrival of a top manager or scientific team in a company, etc. Although Google, Apple and Meta, for example, are not directly competing in most of the classically defined relevant markets, in terms of the economics (and antitrust) of complexity they put each other in a position of uncertainty about future developments in online sector and thus exert pressure on each other. This can provoke both the aforementioned 'flight forward' reaction but also the attempt to consolidate positions gained by freezing the status quo.

In addition to rivalry, the invoked uncertainty has an obvious relation to contestability. Again, however, it overlaps with it on the one hand, but is not exhausted by it on the other. It has other sources and causes than the opening of each relevant market to new actors and their offers. Both uncertainty and contestability suffer if large online platforms resort to lock-ins of users or suppliers, to non-sharing of relevant data, to the creation of walled gardens etc. The same, however, may not be true in the case of a quick takeover of a new start-up, nor for the strategy of so-called self-preferencing, where an online search engine, comparison app or marketplace gives priority to its own offer. What always matters is, as N. Petit and T. Schrepel point out, in line with the teachings of complex economics,

[35] This is the logic reflected in the slogan: "Competition is for losers: If you want to create and capture lasting value, look to build a monopoly." See in THIEL, P. Competition Is for Losers. *The Wall Street Journal* [online]. 2014 [2023-10-31]. Available at: <https://www.wsj.com/articles/peter-thiel-competition-is-for-losers-1410535536>. Peter Thiel is co-founder of PayPal, Palantir Technologies, and Founders Fund, he was also the first outside investor in Facebook.

whether we are in a situation of constant or diminishing returns on supply and demand side or, on the contrary, a situation of increasing returns. In the first case, we are in a situation that classical competition law envisages. In such a situation, it is necessary to prevent monopolization through the petrification of market conditions, i.e., to actually prohibit and punish any practice by which the gatekeeper of the eco-system tries to cement its position. Such a practice may consist in making "invisible" the competitive offer in the marketplace or in the search engine, in preventing the use of other technological solutions, in limiting the portability of profiles and data, in quick acquisitions of promising start ups etc.

However, there the second case – the increasing returns situation – which is not at all exceptional in the online environment, thanks to the positive feedback confirming that further investment will bring greater and greater benefits, as the expansion of digitalisation does not seem to hit its limits for a long time (unlike the economy of material goods, where higher production and consumption have physical and economic limits). It is then necessary to assume that we are in a situation of great promises: there is no lack of incentives for new breakthroughs, for efforts to replace the existing monopoly with a new monopoly, in short, for maximizing the use of positive feedback loops to further invest in innovation and to outperform others. Here, therefore, it is necessary to distinguish precisely between practices that can shake up the market by provoking others to try something better, to replace the gatekeeper, and those by which an already historically entrenched gatekeeper slows down the market and makes it more transparent in its favour. So again, all methods of lock-ins will be worthy of banning, but not necessarily all forms of self-preferencing (see below in part III). An extreme example of the different orders that competition protection should give to companies depending on increasing and decreasing returns are mergers and takeovers on the one hand and price collusion on the other. In increasing returns, it is not necessary to go into the details of takeovers, but it is necessary to prevent price collusion that can petrify conditions in an otherwise expanding industry. However, with diminishing returns, the opposite is true: takeovers of dynamic competitors are detrimental because they cement the incumbent leader's position, but price collusion can even benefit uncertainty because it keeps more players in the market and thus creates the precondition for the market to dynamize itself over time (no cartel can be relied upon, and none lasts forever).[36]

III.3. The key change is in the mental model

Thus, the uncertainty, that competition protection in the online sector should be about, is primarily related to dynamism and innovation at the level of the company and its product, but also at the levels of its ecosystem and the industry as a whole. It is therefore only right to ensure that markets are open and fair to the extent that they help dynamism and innovation to prevail at all three of these levels - even if there is a dynamic and efficient monopoly within a particular market! This contrast between classical competition protection and that based on complexity economics is described by N. Petit and T. Schrepel

[36] These examples are taken from z PETIT, N., SCHREPEL, T. op. cit. ref. 6, p. 557.

as follows. There is a difference between the mental model of the "physicist", trained in neoclassical economics, and the "park ranger" spirit corresponding to complexity economics. "The difference in mental model is that physicists seek to achieve static and predictable outcomes (moving a monopoly towards competition), while park rangers seek to maintain dynamic and unpredictable processes (moving a monopoly towards competition or towards a new monopoly)."[37] Inevitably, it follows that enforcing contestability and fairness (neutrality) across the online environment, as the DMA does for internet gatekeepers, is not always the right solution, as this deontological approach can have negative consequences for the dynamism, innovation and growth of businesses and the industry as a whole.[38] The economics of complexity is therefore definitely not on the side of competition protection, which is dogmatically based on the systematic enforcement of artificially open markets and equal conditions of competition in them.[39]

IV. COMPETITION PROTECTION BASED ON THE ECONOMICS OF COMPLEXITY – THE FUTURE OUTLOOK

IV.1. Different understanding of the underlying assumptions and the objectives pursued

The last part of the text aims to turn attention from concepts to reality and to try to answer the question of what competition protection could gain from the above-described approach. First of all, it should be emphasised that the economics of complexity itself, let alone competition protection based on it, has so far been more of a research agenda and a generator of discussion on where further developments in this field might go. In any case, it cannot be expected to provide a ready-made set of rules that should govern competition protection in the complex reality of online markets. On the other hand, there is no doubt that if the basic conclusions of complexity economics are more relevant to the situation in online markets than the postulates of neoclassical economics, they also show well the shortcomings of a conception of competition protection based on neoclassical assumptions of direct competition between rational competitors in each market. It is already apparent from the tone of previous part of this text that the preference for "fairness and contestability" in competition protection in online markets does not quite match the insights of complexity economics. The very choice between deontological and consequentialist approaches to competition protection is frozen in inadequate, simplistic schemes that do not work with the complex uncertainty that breeds growth and change.

One can therefore agree with N. Petit and T. Schrepel that the economics of complexity should lead competition law to further question its premises and the protected values for-

37 Ibid. p. 558.

38 According to T. Schrepel, the DMA is precisely an example of regulation "incapable of adapting to its effects". See in SCHREPEL, T. op. cit. ref. 33.

39 Given these conclusions, it is clear that neoclassical economics and antitrust based on it are not rejected as a whole, nor does anyone argue that their application is inappropriate in many situations. The difference lies in the underlying "mental model", the basic understanding of the state in which markets should be maintained. In some situations, the application of traditional anti-trust prescriptions aimed at greater efficiency, consumer welfare, fairness and contestability of markets can keep them in a state of uncertainty.

mulated from them. In practice, it should focus on measures that encourage uncertainty,[40] which shake up markets, dynamize their actors and lead to further disruptions in technologies and business models. The key concept of *distortion of competition* should preferably be interpreted as an attempt to remove uncertainty with a potentially negative impact on the dynamics of change and innovation in the eco-system. This may not sound so revolutionary, because when it comes to uncertainty and innovation dynamics there is a striking similarity with, for example, the existing interpretation of anti-competitive concerted practices,[41] as well as some compatibility with the traditional Significant Impediment to Effective Competition (SIEC) test in merger control.[42] Some overlap between the traditional approach and the new one must not, however, obscure the need for a change of mental model, as both authors comment above in the metaphor showing the differences in approach between 'physicists' and 'park-rangers'. At the most general level, it is certainly still about functioning competition, but the more we move from the general to the specific, the more it becomes clear that complexity thinking requires a rethinking of many traditional ways of perceiving and evaluating reality.

With considerable simplification (which in itself contradicts the requirement of complexity!), the above can be illustrated by the case of the aforementioned self-preferencing. This is now universally prohibited to gatekeepers in the EU, as Article 6(5) of the DMA makes it. However, such a prohibition precludes weighing its various implications for the dynamics of markets! It would therefore be necessary to find all its known forms in practice (past Google, Amazon cases etc.) to evaluate their effects, as well as the effects of their prohibition or restriction, in order to be able to say what was happening in one or another particular case with uncertainty. We must be interested in whether uncertainty has been restored by the measure taken or whether, on the contrary, the sanctioned guardian has merely been deprived of the means to innovate and competitors have been offered a convenient, non-innovation-inducing solution. Indeed, the forced opening of markets through the strict neutrality of online gatekeepers may have a demotivating effect on both the gatekeeper and its challengers, who are given a chance even if they do not bring anything groundbreakingly new. We would then very likely find that there are forms of self-preferencing that increase uncertainty and encourage competition under certain conditions, and the solution introduced earlier (not for gatekeepers!) by Regulation (EU) 2019/1150 then gives a better chance to uncertainty and dynamism. This regulation does not prohibit "differential treatment" by providers of online mediation services, but it does oblige them to be transparent by communicating the conditions under which offers are displayed in an online search or marketplace. Thus, the profitable and potentially dynamizing practice of self-preferencing is not banned across the board, but the transparency

[40] PETIT, N., SCHREPEL, T., op. cit. ref. 6, p. 566: "Multilevel analysis, feedback loops, and uncertainty-increasing intervention constitute the starting points for an intellectual renovation of neoclassical antitrust method."

[41] "The concept of concerted practices refers to undertakings that knowingly engage in collusive behaviour to reduce uncertainty in the market." In: *LexiNexis Legal Guidance* [online]. [2023-10-31]. Available at: <https://www.lexisnexis.co.uk/legal/guidance/concerted-practices>.

[42] "All in all, the SIEC test shows less reliance placed on market share indicators, but with greater emphasis to assessing the competitive characteristics of the relevant market, the dynamics of competition between the concentration parties and the effects of notified transactions." In: *Concurrences – Dictionary – Test SEIC (Merger)* [online]. [2023-10-31]. Available at: <https://www.concurrences.com/en/dictionary/siec-test-mergers>.

requirement gives challengers the opportunity to outbid the online platform creator with greater skill and ingenuity.[43]

IV.2. Complexity also in terms of methods and instruments of competition protection

Of course, practice does not lend itself to simplistic reasoning. To decide competition cases, the shift to complexity would require highly computerised modelling of the effects of each individual action, or enforced countermeasure, on the dynamics of firm and market behaviour. This implies that these would be highly complex models, involving multiple markets, both in the sense of whole ecosystems and standard relevant markets (with their multi-sidedness), but also accounting for dynamics within firms and also inter-firm, intersectoral and inter-national competition for all inputs and preconditions for further business and development (capital, labour, regulation…). It would be necessary to replay the different settings of these models when including or excluding or changing these or those variables. From this, perhaps some theories of harm to competitive uncertainty, and hence to the dynamism and innovation that certain gatekeeping behaviour can cause in the prevailing parameters of the sector (primarily those with a positive feedback loop and therefore increasing returns) could gradually crystallise. And beyond that, also to show appropriate *ex-post* (antitrust) or *ex-ante* (regulation) measures that would restore uncertainty, dynamism and innovation. It cannot be ruled out that we would see surprising solutions in terms of prohibitions on certain conduct or design of remedies. It is not hard to guess that the big issue would be the predictability, speed and overall administrability of legal-regulatory measures based on an operation that is complex not only in its theoretical underpinnings but also in its practical conduct.

The existing competition law (in the narrow sense of the word), based on relatively loose and flexible general clauses of its main prohibitions (Articles 101 and 102 TFEU), could survive such a transition to complexity – collusion between competitors or certain conduct of a dominant, or even a merger or takeover, would still be prohibited if it harmed competition as defined by the tools of complexity, i.e. as harming the permanent uncertainty that benefits dynamism, growth, innovation. However, the expected problem would be the need to accumulate a considerable amount of empirical evidence through ad hoc surveys of the state of the industry and the firm in it (*inter alia*, in terms of return on supply and demand side), which would have the effect of prohibiting at one time, but at another time permitting conduct with certain identical features, as mentioned above in the examples of price collusion, self-preferencing or the quick takeover of a promising start-up. This would imply a situational definition and application of a particular rule, and thus legal uncertainty for all those who need, if not clear rules, then at least the clearly ex-

[43] Art 5 *(Ranking)* of the Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019 on promoting fairness and transparency for business users of online intermediation services, is captured in its first paragraph: "Providers of online intermediation services shall set out in their terms and conditions the main parameters determining ranking and the reasons for the relative importance of those main parameters as opposed to other parameters." Article 7 then does not prohibit "differentiated treatment" by providers of online intermediation services, but subjects it precisely to the requirement of prior transparency.

pressed standards we are used to from competition law as it exists today.[44] Aware of these difficulties, let us recall that despite our long experience with traditional anti-trust tools, the EU has decided that it will be easier to regulate the largest online platforms instead with a further simplistic, sectoral *ex-ante* measure (the DMA), which, as a matter of principle, may not be a mistake at all.[45]

IV.3. Rethinking existing case law and regulation

It can perhaps be optimistically assumed that, by gradually accumulating the results of demanding modelling and gathering experience from practice, even the competition protection based on the economics of complexity would arrive at per se prohibited practices of online platforms (e.g., lock-ins) and practices whose harmfulness to competition needs to be comprehensively tested (e.g., self-preferencing). This can be helped, as again suggested by N. Petit and T. Schrepel, by looking for analogies to complexity thinking in the reasoning of the European Commission and the European Court of Justice. The more existing decisions, preferably of course from the online sector, are subjected to such an analysis, the clearer it will become what correspondences and differences are there between classical and complex competition law thinking. We may find that some traditional decision-making or evidentiary criteria are not so far removed from this concept.

Similarly, it would be useful to look at each of the DMA's orders and prohibitions both *a priori* in terms of their adaptability to the recommendations of the economics of complexity, and *ex post*, empirically, when it comes to its individual application to the practice of an internet gatekeeper. Already at the given state of knowledge, it can be predicted that this *ex-ante* instrument of direct regulation demanding fairness and contestability from online markets will have more difficulty coping with concepts of complexity than classical antitrust. But we will also be able to measure and consider whether remaking the DMA according to the recipes of complexity brought at the same time a risk to deprive it of some of the societal effects that we want to preserve despite their problematic nature from a purely competitive point of view. In both cases, it will be a research agenda for lawyers, hand in hand with economists, involving a complex analysis of data from the market and the firm in question, and thinking through alternative scenarios in terms of whether the conduct under scrutiny (or the remedies taken against it) shake or unfreeze the market, and whether they foster change, dynamism and innovation.

[44] Current competition law, with its emphasis on an effects-based approach in its focus on efficiency and consumer welfare, has also partly turned into a battle of expert opinions as to whether or not certain conduct is likely (and with what degree of likelihood) to threaten competition. But it can still build on more than a century of dominance of neoclassical economics and on their non-complex assumptions and models, which, unlike complexity economics, are intuitively understandable and applicable. And, antitrust, built on these assumptions, has also been refining its own concepts for more than a century.

[45] Despite some criticism of the DMA here, it is not appropriate to reject such regulation a priori. As the theory of "bounded rationality" says, we need to and usually do deliberately restrict our freedom of choice in order to reduce complexity of problems we have to face. And good, albeit restrictive, regulation is in the case of highly complex systems of interaction usually better than no or insufficient regulation, as the experience of financial markets shows, whose deregulation has led to their global disruption in the first decade of the 21st century. See in detail, e.g. HA-JOON, C. *23 Things They Don't Tell You About Capitalism*. London: Penguin, 2011, pp. 169–177. Even N. Petit and T. Schrepel, in op. cit. ref. 5, give place to regulation in their proposals for complex antitrust, but only regulation that will unfreeze the market(s). The DMA thus requires refinement, not discarding.

CONCLUSION

EU competition law is undergoing a certain rethinking of its foundations due to the development of online business, but how big this rethinking should be and what direction it should take requires further discussion and research on this issue. The initial analysis carried out above has sought to show that competition law is indeed expanding its instrumentality (the DMA) and its focus (on fairness and contestability) under the pressure of online platforms, but that it is doing so on the basis of simplistic ideas about the functioning of markets and market power still derived from neoclassical economics. If we then concede that complexity economics provides a mental model that is better suited to describe and analyse online markets, we gain a basis from which to criticise and question this old-fashioned targeting of competition protection.

However, complexity economics applied to competition has yet to develop concepts and derive rules and procedures that are practically applicable. Both the analytical clarity of the newly conceived competition protection, its translation into rules and standards of law, and ultimately its mastery by administrative-justice practice will still require enormous effort. At this stage, however, it is clear that it would not in principle be a negation of all existing rules and standards of competition protection. Freezing the industry, reducing competitive uncertainty and the innovative dynamics within it, overlap substantially with the traditional values of free and undistorted competition - both the greater efficiency indicative of consumer welfare and the openness of markets and a fair chance to compete. Some of the traditional prohibitions imposed by the competition authorities would therefore remain unchanged, but their justification and the prioritisation of cases in which they are imposed could change. Some per se prohibitions would very likely be changed to prohibitions conditional on proof of negative effects on competitive uncertainty. The design and application of *ex-ante* regulation (represented by the DMA and possible similar measures) would become considerably more complex.

It is not at all clear that the change in the mental model and the resulting change in the objectives and methods of competition protection will ever be implemented in practice. The fact that the EU has responded to the complexity of the digital world with essentially simplistic *ex-ante* regulation is consistent with how human reason has always approached the theoretical and practical handling of complex phenomena. The DMA undoubtedly makes the terrain clearer, giving it a clearer framework of mandatory and prohibited behaviours, which may be more appropriate for advancing societal priorities (including, but not limited to, competition considerations) than attempting extremely complex ad hoc analysis and modelling of possible scenarios involving hundreds of variables. While complexity is certainly a legitimate argumentative base and an attractive research agenda, only the future will tell whether it will also become a starting point and a tool for practical competition regulation.