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CORPORATE LIABILITY FOR EMERGENT ALGORITHMIC COLLUSION: COMPETITION LAW AS AN INSTRUMENT OF AI SAFETY GOVERNANCE

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ABSTRACT

In digital markets, autonomous pricing algorithms are becoming multi-agent artificial intelligence systems that present a threat of emergent collusion without human coordination. This paper considers such conduct as a failure at the alignment in distributed AI settings and investigates whether corporate liability under the competition law has a viable governance framework to AI safety. Based on the doctrinal interpretation and the systems-based evaluation of the algorithmic application, the paper shows that the principles of the competition law in terms of effects and enterprise liability can be applicable to independent agents in the market. It claims that corporate responsibility does not serve as a form of ex post enforcement but a regulatory mechanism to ensure a strong oversight, transparency, and responsible design of AI. The results place competition law as a very important tool in achieving trustworthy and safety-congruent AI implementation in digital infrastructures.

KEYWORDS: Algorithmic Collusion, AI Safety, Corporate Liability, Competition Law, Multi- Agent Systems, Digital Market Governance.

1. INTRODUCTION

The autonomous pricing algorithms are becoming more and more data-driven and distributed agents of digital market infrastructures. These systems are in continuous operation to monitor the competitors, real time adjustment of prices and optimization of profit objectives with minimum human intervention in highly dynamic online environments. Although these types of systems increase efficiency and responsiveness, the interplay of these systems in a multi-

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agent environment can create emergent effects, such as long-term supra-competitive pricing. In cases where the agents of the price tend to align to the coordinated behaviour without explicit communication, the outcome is similar to collusion even though there is no agreement among human beings.

This situation creates a critical AI safety issue. The issue of alignment in multi-agent systems extends beyond the need to assure that a particular model pursues the interests of its creator; it also deals with the interaction of autonomous agents with each other in common settings. Emergent collusion can thus be conceptualized as systems failure as optimization processes generate socially destructive results that are inconsistent with the larger economic and regulatory principles. It is heightened by the increase in autonomy, adaptive learning, and a lack of transparency in the process of algorithmic decision making.

Simultaneously, current legal systems are still based on the doctrines, which were created to coordinate human interactions. The traditional interpretation of competition law presupposes that the agreement or concerted practice should be proven in order to be held liable due to collusion. This assumption is questioned by the emergence of autonomous systems of pricing, making it hard to assign blame and responsibility to the attribution. In the absence of explicit human coordination, the grounds of corporate liability will be disputed. However, lack of direct human effort does not eliminate market evil and neither does it rule out the contribution of firms in designing, implementing, and overseeing such systems.

This essay believes that AI safety in digital markets can be achieved through corporate liability in the competition law. Instead of considering emergent algorithmic collusion as a doctrinal anomaly, it can be solved by means of well-established rules of enterprise responsibility, effects-based analysis, and foreseeability. Placing the liability in the context of the wider concept of AI safety and alignment, the paper revisits competition law as not only an ex post enforcement device, but as a structural solution to a well-rounded oversight, transparency, and responsible application of autonomous pricing systems.

2. MULTI- AGENT AI ENVIRONMENTS AS AUTONOMOUS PRICING SYSTEMS

The digital markets are being highly dependent on autonomous pricing systems which are adaptive decision-making systems. These systems consume real-time market information as

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well as competitive prices, demand variations, inventory status and consumer response indicators. Pricing algorithms are based on optimization methods and machine learning algorithms to ensure that output strategies are frequently updated to achieve specific goals defined during the pre-definition phase, like revenue, market share, or profit margins. In most implementations, the human intervention only involves the setting of initial parameters, objective functions and deployment conditions.

In terms of AI systems, these kinds of pricing infrastructures are similar to multi agent environments. Both firms have an autonomous agent which communicates with each other indirectly via the common market interface. Though there is no communication amongst the agents, their outputs, that is, changes in prices, are observables and they shape the learning and response behaviour of other agents. This feedback loop has the potential to give stable behavior patterns over repeated iterations.

In adaptive systems based on reinforcement-type optimization or dynamic rules-based adaptation, agents are not trained on coordination protocols, but they learn by the responses of the environment. When price increases are consistently followed by higher profits that are also matched by the competitors, the system can eventually converge to price equilibria that can be similar to coordinated results. Notably, such convergence does not presuppose the collaboration of programmed instructions. Rather, it can be a product of decentralised optimisation of a competitive yet interdependent digital ecosystem.

This type of dynamics has pointed to a fundamental safety issue in multi-agent AI systems, which is that individually rational maximisation can produce socially detrimental results. This issue is commonly conceptualised in safety and alignment studies as an incompatibility between a local reward functional and larger social goals. The system architecture will encourage tacit coordination patterns as an unintentional consequence of having the system architecture programmed to maximise firm-level profit, without compliance constraints or oversight mechanisms that are integrated into the pricing agent.

Transparency also makes it hard to monitor. Numerous machine learning systems are complex, high-dimensional systems in which decision paths inside them cannot be easily interpreted. Although firms are not necessarily aiming to collude, they may still be unable to see the full picture of how algorithmic strategies change based on the market conditions.

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Autonomy coupled with adaptive learning and limited transparency thus present the circumstances where emergency collusions may constitute a by-product of system design and not a premeditated human design.

It is critical to view autonomous pricing algorithms as multi-agent AI systems because they have two advantages. First, it places emergent collusion in the context of more extensive discussions on the safety and alignments of AI instead of viewing it as a competition law aberration. Second, it elucidates that corporate actors are still in a position of being architects of such systems. The model has goals planned by firms, data to be used, operational constraints, and choice of monitoring and intervention.

In the second section, the systems-based perspective is developed further through considering emergent collusion as a type of alignment failure in the digital market infrastructures.

3. EMERGENT COLLUSION AS AN ALIGNMENT FAILURE

Independent pricing mechanisms that run within common online marketplaces are widely similar to multi-agent systems of learning. The agents act independently, and each agent is acting to maximise a reward function, usually profits, and the agent responds to signals produced by other agents in the same environment. Even though these systems are modelled to compete, an iterative interaction of the systems can result in stable equilibria that are approximating to coordinated outcomes.

The concept of alignment is used in AI safety studies to refer to the compatibility between the operational behavior of a system and larger normative goals. In the case of single-agent systems, alignment problems are normally faced during optimization objectives where the intended human values or constraints are not met. The alignment in multi-agent environments however is more structurally complicated. Although the behavior of individual agents can be optimal in accordance with the objectives assigned to them, the overall system behavior can result in a conflict with the social or regulatory expectations.

It is possible to explain emergent collusion in this context. As price agents receive information about the sustained high returns resulting with parallel price increments, decentralized optimization can be slowly strengthening the pricing mechanisms that will lead to less competitive pressure. There is no direct coordination procedure needed. Rather, convergent

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may be brought about through an adaptive loop and environmental reinforcement. The system is rationally local to the objective performance of each firm, but globally out of step with competitive market standards.

This inconsistency is not imaginary only. A characteristic of digital markets is a short response time cycle, fineness of data collection and algorithmic surveillance. These qualities increase the speed and sustainability of the change of strategy. Pricing algorithms in this case have the ability to read and respond to competitor adjustments in milliseconds, which reduces the possibility of discrepancy in pricing and increases the likelihood of predicting each other. The created environment is appropriate for tacit stabilisation.

This is a failure in AI safety of integration. As long as compliance parameters such as antitrust sensitivity parameters or profit deviation incentives are not a part of the system architecture, profit-maximizing dynamics will become dominant at will. It is irrelevant that no clear collusive intention is given, which does not disbelieve the fact that the result is systemic. Rather, it indicates that there can be damaging structural interaction patterns but not those which are deliberately constructed by humans.

The alignment lens elucidates two implications that are essential. To begin with, emergent collusion cannot be theoretically understood merely as a legal anomaly but in fact as a foreseeable risk of decentralised mechanisms of optimization. Second, the safety governance should not focus only on malicious design, but also on the predictable convergence of the system. The successful implementation of autonomous agents into competitive markets by firms implies the successful implementation of socio-technical infrastructures whose overall behaviour does not just rely on a single algorithmic choice.

By identifying emergent collusion as an alignment failure, the field of corporate responsibility is set. When companies design objective functions, establish monitoring parameters and have them decide on the intensity of oversight, then the results of alignment are not technologically autonomous, in a normative sense. The following section thus analyses the extent of corporate control and predictability inherent in algorithmic implementation.

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4. COMPETITION LAW AS AI GOVERNANCE: CORPORATE LIABILITY

One of the underlying premises of the competition law, which is that the coordination assumes communication of intent among the actors in the economy, is disrupted by the development of autonomous pricing systems. Supra-competitive results can be achieved in digital markets where adaptive algorithms control the interactions but not express agreement, which is decentralized. It is not whether machines can collude in the moral sense, therefore, but whether corporate actors can be subject to regulation over systemic configurations that are predictable to create anti-competitive equilibria. In this re-formulated question, corporate responsibility under competition law has an expanded role that goes beyond the punishment of misconduct; it is a lawful establishment of AI regulation.

The undertaking is the major locus of responsibility in the traditions of both the European Union and the United States antitrust. As long as the European Commission jurisprudence has stressed that the liability accrues to the entities who engage in economic activity regardless of the complexity of its internal organization. Likewise, the practice of U.S. Department of Justice and Federal Trade Commission enforcing makes its way on the basis that mediation by technologies cannot disintegrate corporate agency. Responsibility is not divided by the implementation of an algorithm, it is restructured.

This normative reorganization is important. The homogeneous pricing systems are not organic entities. They are man-made elements that are incorporated in business models. The goals of optimization, the data structure to use, the reaction speed to be tuned, the learning parameters, and the decision to have human control mechanisms interfere with the data anomalies is determined by the firms. Although not in the case of human-created specific pricing outputs, the institutional structures of specific pricing outputs are designed. Corporate liability is not dependent on explicit direction to set prices; it is situated on the foreseeability of competitive corruption due to system construction.

The principle of concerted practice in European competition law has been, and always remained, a loose-fitting doctrine tool that could help in the coordination of action, even in the absence of legal agreement. The questioning point of interest is that the undertakings are aware of having replaced the vagaries of competition with the sober cooperation. This framework has the problem of being challenged by algorithmic interaction, but not invalidated by it. In which

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the companies implement high-frequency surveillance networks that are capable of immediately identifying and reflect the opposing price changes, they essentially minimize the uncertainty of strategy in manners comparable to the common information exchange systems. Where the stabilizing impacts of such systems can be reasonably expected, further deployment can be adequate to meet the knowledge component needed under Article 101 TFEU. Loss of human dialogue does not in any way disqualify the action of being part of a structure that reduces competition.

The US framework has a more restrictive threshold due to its demand of agreement based on Section 1 of the Sherman Act. Conscious parallelism, in itself, has long been found to be inadequate to form the basis of liability. However, the line of thought between parallelism and tacit coordination is and is more permeable in algorithmic markets. The problem of independent adaptation versus engineered interdependence becomes analytically unstable when pricing agents are explicitly programmed to spy on their rivals and act in response to them in an algorithmic manner. Although the broadening of the agreement definition might be a challenge to courts, enforcement agencies have indicated that algorithmic tools can be used as facilitating devices that turn market structure into a coordination substrate. The very decision to deploy can act as a type of anticipatory matching to the possible responses of the rivals.

To grasp the issue of liability within this context, it is necessary to change the focus of analysis to shift away toward architectural governance instead of episodic communication. Corporate responsibility is not an anthropomorphic notion of algorithms; it is based on the realization that firms create the incentive environment that algorithms exist within. Technological design is therefore placed under ex ante pressure by liability. The antitrust implementation risk causes companies to internalize systemic risks during the stages of development and deployment. It promotes investment on compliance audit, behavioural surveillance and defence on convergent pricing trends. In this way, the competition law becomes a distributed regulatory regime which stipulates the contours of AI system architecture without necessarily specifying what code to write.

This are the roles of governance which are particularly suitable in multi-agent learning environment. The individual firms may act to maximize the profits but they will not be coordinated yet they shall generate the stable supra-competitive results. All these equilibria become susceptible to becoming technological determinisms by the absence of a system that

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causes any blame to the deployment decisions. Corporate indemnification becomes disruptive of that normalization. It affirms that algorithmic autonomy does not absolve undertakings of their regulatory role of ensuring that the market structure is of a healthy competition.

In this regard, competition law in algorithmic markets functions more as a retrospective blame tool than a prospective alignment tool. It forces companies to strike a balance between profit maximization and structural integrity of competitive situations. Instead of broadening the doctrine of antitrust to the extent of defining it out of existence, this redirect gives the doctrine renewed energy, by stopping the exploitation of competition by transforming its ways of coordination. The machine does not eliminate the firm as the ownership of the responsibility, but rather increases the importance of corporate governance decisions.

5. IMPLICATIONS OF REGULATORY DESIGNS IN TRUSTWORTHY AI IN MARKET SYSTEMS.

When corporate responsibility in competition law is perceived as an implicit governance mechanism, the regulatory design issue is what is necessary to develop a trustworthy AI in a competitive market without adverse effects on innovation or a mis-allocation of enforcement resources. It is not only a matter of the doctrinal adaptation but the calibration of the institutions. The autonomy of pricing systems is performed at the borderline between the technological optimization and the market structure; the reaction of the regulatory bodies should thus consider the two aspects simultaneously.

The digital regulation has at some point been envisaged by the European Union as a layer of governance ecosystem in which the sectoral regulations will be merged with the broader technology regulation frameworks. The normative overlap between the two could be observed though competition enforcement can be considered separately. The European commission has also mentioned a vision of digital markets, stressing on transparency, accountability and structural fairness. The algorithmic pricing systems in this image cannot be referred to as the neutral computing devices, as they are institutional aspects that shape the economic transaction. Market systems cannot rely on collusive outcomes of AI to be just post hoc. It demands procedural and architectural transparency which is sufficient enough to enable the ex ante risk to be detected. The companies that introduce adaptive pricing ought to be capable of explaining how their models operate, audit the behavior that arises, and demonstrate that they made reasonable precautions against coordination. These expectations do not turn the competition

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authorities into the technical code supervisors. Rather, they introduce compliance in corporate governance systems that have market-level implications.

Such an influence is already manifested on the United States where the antitrust law has traditionally provided the case-by-case adjudication to carefully regulate the ex ante. The American Department of Justice and Federal Trade Commission agencies now have greater tolerance regarding the fact that the structural interdependence may be bolstered by the algorithmic markets. Although the doctrinal conservatism on agreement continues, a change in the regulation design discourse where the contribution of the transparency requirements, internal compliance reporting and algorithmic auditability to the furtherance of antitrust objectives without categorical prohibitions on the use of technology are being talked about.

The international policy debates are more sweeping even including the competition law and AI governance. Digital market forums Multilateral forums such as the OECD have thought of algorithmic collusion as a systemic risk in digital markets. These deliberations show that governance issue is not a matter of a given jurisdiction. There are also cross-border autonomous systems and the pricing algorithms usually operate in systems that are integrated worldwide. The risks of fragmentation of regulations are that it will cause the development of asymmetries in the regulation and will be used by the firms as weapons.

Reliable AI in the market systems, therefore, lies in the balance between three dimensions, i.e., foreseeability, oversight, and proportionality. Foreseeability will require the firms to test and document emergency coordination prospectiveness prior to implementation. Oversight entails the existence of monitoring mechanisms that are capable of detecting regular supra-competitive convergence. The regulatory expectations of proportionality are that it is market structure, and firm size and complexity of technology-sensitive regulating expectations. Excessive requirements will households kill price formation, whereas excessive regulation can lead to algorithmic oligopolies.

More importantly, the regulatory structure must be immune to the temptation of trying to relegate the idea of algorithmic collusion as a technical failure. It is in itself a structural interaction problem. The pricing agents operate in the environment within which the extent of concentration in the market, level of transparency and availability of information are. Effective regulation will require therefore co-ordination of competition control agencies, technology

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control agencies and corporate compliance agencies. Good code does not introduce trustful AI in the markets, the symbiosis between the technological implementation and the institutional responsibility creates the same.

Lastly, it is neither the intention to criminalize creativity nor the unwillingness to offer regulation in the aftermath of complexity that is the objective. It is rather to redefine legal doctrine and regulatory framework to ensure that digital optimization does not negatively affect competition. The normative foundation is the competition law, and the procedures are the principles of AI governance. These two have the potential to offer a model that would solve emergent collusion without tainting the original rationale of market economies.

6. CONCLUSION

It is a structural rearrangement in the structure of the competitive markets since this is the development of independent pricing mechanisms. It is not merely that what has long been rightly regarded as the province of the human deliberation and strategic signalling is being mediated by adaptive algorithms that can communicate with each other at a very high rate, pattern recognise and learn where to be reinforced, but is also being programmed. Such a technological development is not merely an acceleration of the already existing processes within the market, it is a change in the epistemic and institutional assumptions on which the competition law has been founded traditionally. The point of concern now is not, anymore, the explicit price fixing of firms, but the robustness of algorithmic infrastructures to generate functionally collusive outcomes without communicative motive, and whether or not legal doctrine ought to respond to this.

Article has argued that emergent algorithmic collusion is not to be thought of as a violation of the competition law, but rather as a pathology of failure in multi-agent optimization environment. The independent pricing agents are typically coded to maximize profit given limitations set by the company. These systems may be prone to supra-competitive equilibria in cases where they are applied in concentrated digital markets where there is transparency and fast feedback due to decentralized adaptation. Agents are independent maximizing agents whose collective may lead to price stabilization, which may reduce competition. The final product is the competition to a custom that determines collusion in agreement and substitutes the examination of coordination with the communicative intention.

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But lack of human communication is not a disintegration of corporate responsibility. As a comparative study on the European Union and the United States antitrust systems shows, still the undertaking remains the center of legal responsibility. The practice and the jurisprudence of the European Commission on the enforcement justify that coordination exists in the cases where the undertakings consciously substitute the practical cooperation with the uncertainty of the rivalry. Although the Sherman Act Section 1 has an agreement prerequisite, enforcement perceptions voiced by the United States Department of Justice and the Federal Trade Commission began to recognize that algorithmic tools can be coordination-supporting arrangements in the US. The same applies in both jurisdictions; the liability nature is the same; it is not machines that are liable but firms.

This continuity is normative in nature. Algorithms are not simply generated in markets, but they are developed, formulated, and executed by corporate members by keeping in mind their strategic interests. The companies determine the standards of optimization elements embedded in the pricing methods, the information they consider in leading learning processes, how quickly they respond, and the presence of effective systems of meaningful oversight. In spite of the fact that it is not humans who write specific outputs, the institutional context of such outputs is created. Corporate liability is therefore a governing procedure that promotes prospective system design and not a form of punishment.

No there is no need to reform competition law into an AI regime of governance by breaking the doctrines. Instead, it means re-tuning the system of foundations, such as foreseeability, knowledge, facilitation, and structural substitution to the facts of algorithmic interaction. The normative issue of concern is whether firms can reasonably anticipate their deployment choices to cause less uncertainty in the competition and establish the stable supra-competitive equilibria. In the regions where this foreseeability is relevant, additional application of the non-regulated autonomous pricing systems will transform technological architecture into a sort of substitute of agreement.

It is important to note that the algorithms are not made to have the personality of the human being or given the status of a legal agent as an independent entity of artificial systems in this discussion. That would confuse the institutional fact that algorithms are used to incentive frameworks that are human decision-makers. Machine learning autonomy The term autonomy applies to denote operational autonomy, and not normative autonomy. Corporate governance

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decisions are pegged towards legal accountability. Competition law thus serves as a disciplinary action in the sense that it establishes the line to limit such actions but does not dictate some technical fixes.

The other regulatory implication is not antitrust. The market systems founded on trustworthy AIs require procedural visibility, in-house auditing functionality, and documentation procedures that can recognize the pattern of convergence as they happen. Such governance structures never turn the competition authorities into technocrats with the goal of monitoring the code; rather, they confirm the belief that the firms which adopted adaptive systems must examine and deal with the systemic risks. The considerations in the agendas of the international policies such as the OECD stress the notion that algorithmic collusion is a cross-jurisdictional phenomenon that is deep-rooted in the global digital markets. The requirement of good governance has to be in line with the competition doctrine and general AI oversight structures, however.

It is not an anti-innovative or even anti-technological panic repositioning. The independent pricing systems can introduce efficiencies, reduce the cost of transacting, and increase the responsiveness of the consumers. It does not focus on the prohibition of implementing algorithms but to introduce competitive protection on its design. This type of integration is only encouraged by the corporate liability as it is perceived as a governance mechanism. It is a sign that firms are to anticipate systemic risks and integrate constraints that ensure strategic independence. Through this, it would be loyal to the initial intent of the antitrust law in protecting the competition process, and not in charging technological advancement.

Lastly, the interplay between artificial intelligence and competition law is a sign of an overall shift in theory of regulation. The socio-technical infrastructures are taking the place of the mediators of markets, whose behaviour is an effect of interaction rather than explicit coordination. The law theory must change accordingly according to this new course, though, by abandoning the communicative intent analysis of a case to the structural approach of incentive design and foreseeability. This development does not need to abandon the principles but need to make sure that the principles are used with new forms of coordination which can be developed using algorithmic systems.

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Autonomous algorithms do not cancel the competition law, on the contrary, they even make it bigger. The learning speed, adaptation and action of machine speed wherein pricing agents are concerned, only continues to improve with the sustained increase in digital market. The rivalry among competitors in such kind of environment could be sustained based on the fact that the independence of technology does not mean institutional responsibility. To make the competition law resistant to the force of algorithmic change, it is possible to conceptualize corporate liability as an instrument of AI regulation and use the principles of regulatory design into the regulation of markets.

To this extent, the future of antitrust is not threatened by the artificial intelligence; it is defined by it. It is a dilemma to ensure that algorithmic innovation is created in manners that it does not eliminate but rather upholds discipline of the competition. On the condition that law has the potential of balancing the decisions of corporate deployment, and the structural validity of the markets, autonomous systems need not evolve to become the instruments of silent coordination. Instead, they could evolve as efficiency-enhancing tools that will be established within a legal system that will not eliminate rivalry as the basis of economic order.

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DECLARATION

The author declares that this research paper is an original work and has not been submitted for publication or academic evaluation elsewhere. All research, analysis, arguments, and conclusions were developed independently by the author.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest regarding the publication of this research paper. The research was conducted independently for academic purposes without any financial or institutional influence.

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REFERENCES

[1] A. Ezrachi and M. E. Stucke, *Virtual Competition: The Promise and Perils of the Algorithm-Driven Economy*. Harvard University Press, 2016.

[2] OECD, *Algorithms and Collusion: Competition Policy in the Digital Age*. OECD Publishing, 2017.

[3] M. E. Stucke and A. Ezrachi, "Artificial Intelligence and Collusion: When Computers Inhibit Competition," *University of Illinois Law Review*, 2017.

[4] T. Calvano, G. Calzolari, V. Denicolò, and S. Pastorello, "Artificial Intelligence, Algorithmic Pricing and Collusion," *American Economic Review*, 2020.

[5] J. Harrington, "Developing Competition Law for Collusion by Autonomous Artificial Agents," *Journal of Competition Law & Economics*, 2018.

[6] European Commission, *Competition Policy for the Digital Era*, 2019.

[7] N. Petit, *Big Tech and the Digital Economy*. Oxford University Press, 2020.

[8] OECD, *Artificial Intelligence, Machine Learning and Competition*, 2018.

[9] A. Gal and N. Elkin-Koren, "Algorithmic Consumers," *Harvard Journal of Law & Technology*, 2017.

[10] S. Russell and P. Norvig, *Artificial Intelligence: A Modern Approach*, 4th ed., Pearson, 2021.