

BEYOND HUMAN: RECONSTRUCTING ARTICLE 101 TFEU FOR AUTONOMOUS ALGORITHMIC COLLUSION

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Abstract

The European Union's "Economic Constitution" establishes competitive markets as a prerequisite for democracy and liberty. However, autonomous pricing algorithms challenge this order by achieving cartel-like outcomes through optimization rather than human conspiracy. In these digital environments, coordination emerges as a stable, self-enforcing result of structural adaptation and price transparency. This shift threatens the fundamental right to competitive markets guaranteed by the Treaties and the Charter of Fundamental Rights.

Current Article 101 TFEU doctrine is paralyzed by anthropocentric requirements, such as a "concurrence of wills" and the requirement of "direct or indirect contact". Under the Eturas standard, the presumption of innocence prohibits liability without proof of awareness, a threshold impossible to meet when algorithms coordinate autonomously. This creates an enforcement gap where private algorithmic power operates beyond legal reach, ultimately undermining the Rule of Law.

*To resolve this "constitutional antinomy," the paper proposes importing administrative law concepts, specifically *acte détachable* and *fait générateur*. By isolating the human "design phase" as a separable act, liability can be anchored in the intentional decision to deploy a coordination-prone system. This framework shifts the focus from the autonomous execution phase to the triggering event of deployment, where human agency and awareness reside.*

This reconstruction satisfies proportionality and respects the presumption of innocence through the use of rebuttable presumptions and accountability principles derived from GDPR Article 22. Grounded in the Ordoliberal tradition, the proposal frames the regulation of algorithmic design as a positive obligation of the state to maintain a competitive order. Such an evolution of Article 101 TFEU is essential to ensure that constitutional guarantees remain effective in automated markets

1. CONSTITUTIONAL FRAMEWORK: COMPETITIVE MARKETS AS FUNDAMENTAL RIGHTS

1.1. The Economic Constitution of the European Union

The European Union rests upon what Ordoliberal scholars termed an 'Economic Constitution' (*Wirtschaftsverfassung*), a normative framework wherein the competitive market order constitutes not merely a matter of policy but a prerequisite for democracy and liberty.¹

¹ Walter Eucken, *Grundsätze der Wirtschaftspolitik* (Mohr Siebeck, 6th ed. 1990), pp. 254-291; David J. Gerber, 'Constitutionalizing the Economy: German Neo-liberalism, Competition Law and the New Europe' (1994) 42 *American Journal of Comparative Law* 25.

This constitutional commitment is expressed through multiple Treaty provisions that, read together, establish a right to competitive market conditions.

Article 119(1) TFEU mandates that economic policy be 'conducted in accordance with the principle of an open market economy with free competition.' Protocol No. 27 on the Internal Market and Competition, annexed to the Treaties with equivalent force, provides that 'the internal market as set out in Article 3 of the Treaty on European Union includes a system ensuring that competition is not distorted.'² The Court of Justice has consistently interpreted these provisions to create justiciable obligations for both Union institutions and Member States.

The Charter of Fundamental Rights reinforces this architecture through Article 16 (freedom to conduct a business) and Article 38 (consumer protection). The Explanations Relating to the Charter clarify that Article 16 is exercised 'in accordance with Union law,' a formulation that incorporates the competitive market guarantees of Articles 101-102 TFEU into the fundamental rights framework.³ When market structures calcify through coordination, the 'freedom to conduct a business' becomes an empty shell for new entrants, and the 'high level of consumer protection' guaranteed by Article 38 is nullified through supra-competitive pricing.

The constitutional status of competition protection carries wider consequences. Unlike policy objectives subject to legislative discretion, fundamental rights create positive obligations upon Member States and Union institutions. The failure to maintain enforcement mechanisms capable of protecting competitive markets against identifiable threats may itself constitute a violation of Treaty obligations, especially when new technology renders existing tools obsolete.

1.2. The Phenomenon of Autonomous Algorithmic Coordination

Contemporary digital markets have witnessed the emergence of pricing mechanisms that challenge the core assumptions of competition law. Autonomous pricing algorithms (software systems which determine market prices through optimization processes, without continuous human intervention) are increasingly capable of achieving cartel-like outcomes: supra-competitive pricing, output restrictions, and tacit market allocation.⁴ The distinctive characteristic is that these outcomes emerge through processing of publicly available market

² Treaty on the Functioning of the European Union, Article 119(1). Protocol No. 27 on the Internal Market and Competition.

³ Charter of Fundamental Rights of the European Union, Articles 16 and 38. The Explanations Relating to the Charter [2007] OJ C303/17 clarify that Article 16 encompasses competitive market access.

⁴ Emilio Calvano et al., 'Artificial Intelligence, Algorithmic Pricing, and Collusion' (2020) 110 American Economic Review 3267.

data, without communication between competitors, human decisions to coordinate, or awareness that coordination is occurring.

In traditional markets, coordination is notoriously challenging. Parties must communicate to reach consensus and monitor others to detect deviation. Because communication creates evidentiary risk and monitoring remains imperfect, cartels are inherently unstable. Article 101 TFEU targets communication ('meeting of minds,' 'concerted practice') as the locus of illegality. Where coordination cannot persist without contact, prohibiting contact effectively prevents coordination.

Algorithmic markets eliminate human constraints. Pricing algorithms operate in environments of radical transparency where competitor prices are instantly observable. They process this information continuously and adjust strategies at speeds impossible for human decision-makers. Through iterative optimization, they discover that aggressive price competition triggers retaliation while parallel pricing maximizes long-term returns. Coordination emerges as the stable outcome of rational adaptation, through structure instead of conspiracy. What Gunther Teubner describes as 'societal constitutionalism' (private normative orders competing with state law) manifests in algorithmic pricing systems. They function as 'digital constitutions' governing economic relations beyond democratic control.⁵

Game theory illuminates this process. The Nash equilibrium—a state where no player can improve their payoff by unilaterally changing strategy—provides the mathematical foundation for understanding algorithmic coordination.⁶ In repeated pricing games, algorithms converge toward supra-competitive equilibria because the structure of digital markets (price transparency, rapid response capability, infinite iteration) satisfies the conditions under which cooperative outcomes become self-enforcing. Each algorithm's strategy is optimal given competitors' strategies; deviation triggers punishment through price wars. Traditional cartels require explicit agreement to reach such equilibria because human limitations impede coordination. Algorithms achieve identical outcomes through autonomous learning, rendering the equilibrium stable without communication. The Nash framework thus explains why algorithmic coordination is not aberrational but *structurally inevitable* given market conditions.

⁵ Gunther Teubner, *Constitutional Fragments: Societal Constitutionalism and Globalization* (Oxford University Press, 2012), pp. 89-118.

⁶ John F. Nash, 'Equilibrium Points in N-Person Games' (1950) 36 Proceedings of the National Academy of Sciences 48. For application to algorithmic pricing, see Ai Deng, 'What Do We Know About Algorithmic Tacit Collusion?' (2018) 33 Antitrust 88.

1.3. The Constitutional Antinomy

These technological developments create what may be termed a constitutional antinomy—a direct collision between fundamental rights guarantees that the law cannot simultaneously uphold. On one hand, the Treaty framework and Charter guarantee access to competitive markets; consumers possess rights to undistorted competition and fair pricing derived from Article 38 Charter and the consumer welfare objectives underlying Articles 101-102 TFEU. On the other hand, Charter Article 48(1) establishes the presumption of innocence, which the Court of Justice has held to prohibit liability absent proof of awareness.

When algorithms coordinate autonomously, these rights conflict. Protecting the right to competitive markets requires holding undertakings liable for algorithmic coordination they did not intend or program, and of which they possessed no awareness. Yet the presumption of innocence, as interpreted in *Eturas*, prohibits precisely such attribution. The 'constitutional guarantee' of competitive markets becomes a 'legal reality' of systematic non-enforcement.

This gap represents more than regulatory inadequacy; it constitutes erosion of the Rule of Law itself. As Tudor Drăganu argued, the supremacy of law (*supremația legii*) demands that no exercise of power, whether public or private, escape legal oversight.⁷ When algorithmic systems *de facto* determine the prices citizens pay for goods and services, yet remain beyond legal reach, this fundamental promise is betrayed. Drăganu's insight that the scope of judicial review must encompass the reality of administrative power regardless of the forms it assumes⁸ applies with equal force to private algorithmic governance. The 'administration' of the modern firm exercises power through algorithms; if such power escapes review, the rule of law is undermined.

2. THE DOCTRINAL PARALYSIS OF ARTICLE 101 TFEU

2.1. The Agreement Requirement and the Problem of Will

Article 101(1) TFEU prohibits 'all agreements between undertakings... which have as their object or effect the prevention, restriction or distortion of competition.' The Court of Justice has consistently interpreted agreements as requiring a 'concurrence of wills' between at least two parties. In *Bayer*, the Court held that 'the concept of an agreement... centres around

⁷ T. Drăganu, *Drept constituțional și instituții politice. Tratat elementar. (Constitutional Law and Political Institutions. Elementary Treatise*, Vol. I, Lumina Lex Publishing, Bucharest 1998, p. 98.

⁸ T. Drăganu, *Actele de drept administrativ (Administrative Law Acts)*, Editura Științifică Publishing, Bucharest 1959, p. 110.

the existence of a concurrence of wills between at least two parties, the form in which it is manifested being unimportant so long as it constitutes the faithful expression of the parties' intention.⁹

This formulation embeds assumptions about consciousness and intentionality that algorithmic systems cannot satisfy. Algorithms possess objective functions (profit maximization) but do not form intentions in the legally cognizable sense. The 'will' to maximize profit is a legitimate business objective. That this objective produces coordinated outcomes represents an emergent property of market interaction, not the content of any will. Attributing a 'will to collude' to software is an anthropomorphic fiction that could not be sustained.

Case law presupposes that agreements reflect deliberate choices by identifiable human actors. In *Société Technique Minière*, the Court held that agreements require 'the existence of an arrangement between two parties.'¹⁰ When algorithms achieve coordination through learning from market data, no 'arrangement' occurs. The software which executes optimization functions responds to market conditions that themselves result from other algorithms executing similar functions.

2.2. The Concerted Practice and the Contact Requirement

The concept of 'concerted practice' offers an alternative pathway that dispenses with the formality of agreement while retaining the requirement of coordination. In *T-Mobile Netherlands*, the Court defined a concerted practice as 'a form of coordination between undertakings which, without having reached the stage where an agreement properly so-called has been concluded, knowingly substitutes practical cooperation between them for the risks of competition.'¹¹ Critically, the Court held that concerted practices require 'direct or indirect contact' between competitors, contact that serves to reduce strategic uncertainty.

The *ICI* formulation proves instructive: Article 101 'precludes any direct or indirect contact between such operators, the object or effect whereof is either to influence the conduct on the market of an actual or potential competitor or to disclose to such a competitor the course of conduct which they themselves have decided to adopt or contemplate adopting on the

⁹ *Case C-2/01 P Bundesverband der Arzneimittel-Importeure eV and Commission v Bayer AG*, Judgment of 6 January 2004, ECLI:EU:C:2004:2, para 97.

¹⁰ *Case 56/65 Société Technique Minière v Maschinenbau Ulm*, Judgment of 30 June 1966, ECLI:EU:C:1966:38, p. 249.

¹¹ *Case C-8/08 T-Mobile Netherlands BV v Raad van bestuur van de Nederlandse Mededingingsautoriteit*, Judgment of 4 June 2009, ECLI:EU:C:2009:343, paras 26-27, 32-33.

market.¹² This formulation targets *behavioural* contact, exchanges of information between competitors intended to reduce market uncertainty.

In digital markets, uncertainty is reduced not by illicit communication but by the transparency of virtual environments. Algorithms monitor competitor prices via public data feeds and adjust instantaneously. This structural information transmission resembles the 'intelligent adaptation' permitted under *Wood Pulp*: 'parallel conduct cannot be regarded as furnishing proof of concertation unless concertation constitutes the only plausible explanation for such conduct.'¹³ In oligopolistic markets, parallel pricing was held to represent 'a rational response' to market conditions rather than evidence of collusion. Algorithmic parallel pricing satisfies this standard, since each algorithm independently maximizes profit based on publicly observable data.

The challenge is that *Wood Pulp*'s 'only plausible explanation' standard assumes coordination without communication is difficult to achieve and sustain. This assumption applies to human actors who face coordination problems, commitment issues, and monitoring difficulties. It does not extend to algorithms, which sustain coordination precisely because market transparency, instant responsiveness, and optimization overcome these obstacles. The doctrine designed to distinguish lawful oligopolistic interdependence from unlawful concertation inadvertently shields the most effective coordination mechanism ever developed.

2.3. The Awareness Requirement and *Eturas*

Eturas elevated awareness to constitutional status, creating the most significant barrier to algorithmic coordination enforcement. The case involved an online travel booking platform whose administrator sent messages announcing a discount cap, then implemented the restriction through the platform's algorithms. The question was whether travel agencies using the platform could be held liable for the resulting coordination absent proof they were aware of the restriction.¹⁴

The Court held that 'the presumption of innocence precludes the national competition authority or the competent national court from finding, solely on the basis of the dispatch of the

¹² *Case 48/69 Imperial Chemical Industries Ltd v Commission*, Judgment of 14 July 1972, ECLI:EU:C:1972:70, para 64.

¹³ *Joined Cases C-89/85, C-104/85, C-114/85, C-116/85, C-117/85 and C-125/85 to C-129/85 A. Ahlström Osakeyhtiö and others v Commission (Wood Pulp II)*, Judgment of 31 March 1993, ECLI:EU:C:1993:120, paras 71-72, 126-127.

¹⁴ *Case C-74/14 Eturas UAB and Others v Lietuvos Respublikos konkurencijos taryba*, Judgment of 21 January 2016, ECLI:EU:C:2016:42, paras 38-44.

message by the system administrator, that the travel agencies in question must necessarily have been aware of the content of that message' (paragraph 38). More broadly, 'where the national court has doubts as to the participation of the operators in a concerted practice... the presumption of innocence... precludes that court from considering... that those undertakings participated in the concerted practice' (paragraph 44). Charter Article 48(1) and ECHR Article 6(2) thus impose substantive limits on the attribution of competition law liability.¹⁵

Advocate General Szpunar's Opinion reinforced this reading: 'collaboration between undertakings requires the meeting of minds and cannot exist in the absence of awareness.'¹⁶ While this formulation protects fundamental rights, it creates an enforcement gap. When algorithms achieve coordination autonomously, no humans possess awareness that it is occurring. Algorithms operate independently, learning strategies through market interaction rather than human instruction.

The humans deploying pricing algorithms typically instruct them to maximize profit, which constitutes a legitimate business objective. That algorithms subsequently discover coordination as the optimal strategy represents an outcome human neither programmed nor foresaw. Given the *Eturas* standard, such undertakings cannot be 'presumed to participate' in concerted practices they did not know were occurring.

2.4. The Conceptual Impossibility

The effect of these requirements taken together is conceptual impossibility rather than mere evidentiary challenge. The 'agreement' framework requires will that algorithms cannot possess. The 'concerted practice' alternative requires contact that does not occur when coordination emerges from market observation. The *Wood Pulp* causation standard protects parallel conduct as 'rational adaptation' even when it produces identical outcomes to hardcore cartels. The *Eturas* requirement paralyses the attribution of liability in the absence of awareness.

This is not a gap that aggressive enforcement can close. The issue is structural: Article 101's liability framework presupposes human agency at every juncture, yet algorithmic coordination eliminates it from the causal chain. The provision cannot reach conduct it was not designed to address.

¹⁵ Charter of Fundamental Rights, Article 48(1); ECHR Article 6(2). See also Case C-235/92 P *Montecatini SpA v Commission*, Judgment of 8 July 1999, ECLI:EU:C:1999:362, para 175.

¹⁶ Opinion of AG Szpunar in Case C-74/14 *Eturas*, ECLI:EU:C:2015:493, paras 47-56.

3. RECONSTRUCTION THROUGH ADMINISTRATIVE LAW

3.1. The Acte Détachable Doctrine: Temporal Separation

The constitutional antinomy may be resolved by importing the administrative law concepts created for problems which involve multistage decision-making and outcomes that are temporally and causally severed from the initial human choices. French administrative law's *acte détachable* (separable act) doctrine provides such a tool.¹⁷

The *Conseil d'État* developed *acte détachable* to enable judicial review of specific administrative acts embedded within broader operations.¹⁸ Where a court cannot annul an entire governmental contract due to third-party interests or public interest considerations, it may nonetheless annul the decision to contract if that decision was *ultra vires* or riddled with procedural flaws. This creates a fiction of separability to ensure that the rule of law penetrates complex operations.

In algorithmic coordination cases, corporate market conduct may be deemed as a two-stage operation. The Design/Deployment Phase constitutes the 'separable act', involving the decision to deploy a specific algorithm with specific characteristics (optimization objectives, data inputs, response parameters, supervision mechanisms). This phase is human, intentional, and hence reviewable. The Market Execution Phase comprises the algorithm's autonomous functioning, the 'operation' where coordination emerges. Similarly to contract performance in administrative law, it involves the execution of prior decisions through mechanisms which function beyond continuous human control.

By applying *acte détachable* logic, competition authorities shift focus from the Execution Phase (where intent is absent) to the Design Phase (where it exists). The wrong becomes not the coordination itself, but the administrative decision to deploy a system prone to coordination without adequate safeguards.

3.2. The Fait Générateur Framework: Causal Reconstruction

The doctrine of *fait générateur* ('triggering fact') provides such causation analysis as is better suited to algorithms than *Wood Pulp's* 'only plausible explanation' standard.¹⁹ In French administrative law, establishing responsibility requires three elements: the *fait générateur*

¹⁷ Hubert Charles, *Acte rattachable et acte détachable en droit administratif français* (LGDJ, 1968); Conseil d'État, Section, 4 avril 2014, *Département de Tarn-et-Garonne*, n° 358994.

¹⁸ René Chapus, *Droit administratif général*, Tome 1 (Montchrestien, 15th ed. 2001), pp. 1089-1102.

¹⁹ Didier Truchet, *Droit administratif* (PUF, 8th ed. 2021), pp. 456-478.

(event causing harm), *dommage* (damage), and *lien de causalité* (causal link). The critical feature is separating the triggering event from the subsequent outcome.

Under *fait générateur* causation, the first element is algorithm design or deployment incorporating coordination-enabling features. The triggering event occurs at the design phase when humans make technical choices with full awareness and control. The *résultat* is supra-competitive market outcomes achieved through parallel pricing. The *lien de causalité* requires proof that design features materially enabled outcomes that would have been impossible or substantially less likely under alternative designs.

This framework solves *Eturas*'s awareness problem by placing the coordination 'event' at the design phase rather than the market execution phase. The deployment decision, if treated as the triggering event, enables attributing liability based on full human awareness.

3.3. GDPR Article 22: Accountability Principles

GDPR Article 22(1) provides that data subjects possess 'the right not to be subject to a decision based solely on automated processing... which produces legal effects concerning him or her or similarly significantly affects him or her.'²⁰ While Article 22(1) applies primarily to data protection contexts, its accountability principles may extend to address automated systems producing significant effects on legal interests.

The Court of Justice in *SCHUFA* emphasized the material effects of automated processing rather than relying exclusively on formal criteria.²¹ *Dun & Bradstreet Austria* established that 'complexity cannot excuse inadequate explanation,' requiring controllers to explain automated decision rationales in sufficient detail to allow for contestation.²² The principle that automated systems must be explainable and contestable applies to market contexts.

The Article 29 Working Party Guidelines on Automated Decision-Making elaborate meaningful intervention requirements, such as authority to change decisions, competence to consider factors algorithms may not process, capacity to override recommendations, and positioning to ensure genuine independence.²³ Transposed to competition contexts, firms must

²⁰ Regulation (EU) 2016/679 (GDPR), Article 22(1).

²¹ *Case C-634/21 SCHUFA Holding AG v Bundesbeauftragte für den Datenschutz und die Informationsfreiheit*, Judgment of 7 December 2023, ECLI:EU:C:2023:957, paras 48-52, 69-73.

²² *Case C-203/22 CK v Magistrat der Stadt Wien (Dun & Bradstreet Austria)*, Judgment of 27 February 2025, ECLI:EU:C:2025:117.

²³ Article 29 Working Party, Guidelines on Automated individual decision-making and Profiling (WP251rev.01, 2018), pp. 21-27.

demonstrate genuine supervisory authority, technical understanding to enable assessment, documented procedures proving oversight, and performance metrics prioritizing compliance.

The *Meta v. Bundeskartellamt* precedent supports integration: the Court established that competition authorities may assess GDPR compliance when applicable to competition contexts.²⁴ They need not enforce GDPR Article 22 directly, only apply competition law principles informed by its accountability standards.

4. FUNDAMENTAL RIGHTS RECONCILIATION: PROPORTIONALITY AND THE PRESUMPTION OF INNOCENCE

4.1. The Proportionality Framework

The reconstruction proposed above imposes new obligations upon undertakings which deploy algorithmic pricing systems, obligations that limit business freedom (Charter Article 16). Such limitations must be justified through the proportionality framework the Court of Justice has adopted from German constitutional methodology²⁵ and applies in fundamental rights cases.²⁶ Charter Article 52(1) permits limitations that are 'provided for by law,' 'respect the essence' of rights, and, subject to proportionality, 'genuinely meet objectives of general interest recognised by the Union.'²⁷

The framework serves objectives of constitutional importance: protecting the integrity of the internal market (Article 3 TEU), consumer protection (Charter Article 38), and maintaining the rule of law through accountability for exercises of market power. The Court in *Schindler*²⁸ and *KME Germany*²⁹ has affirmed that competition enforcement serves Treaty objectives which justify proportionate limitations upon economic freedoms.

Requiring meaningful human oversight and imposing liability for design-phase decisions is suitable for preventing algorithmic coordination. Empirical research demonstrates that

²⁴ *Case C-252/21 Meta Platforms Inc v Bundeskartellamt*, Judgment of 4 July 2023, ECLI:EU:C:2023:537, paras 47-52.

²⁵ BVerfG, 1 BvR 400/51, *Lüth* (15 January 1958) BVerfGE 7, 198.

²⁶ *Case C-112/00 Eugen Schmidberger, Internationale Transporte und Planzüge v Austria*, Judgment of 12 June 2003, ECLI:EU:C:2003:333, paras 81-82.

²⁷ Charter Article 52(1).

²⁸ *Case C-501/11 P Schindler Holding Ltd v Commission*, Judgment of 18 July 2013, ECLI:EU:C:2013:522, paras 33-38.

²⁹ *Case C-272/09 P KME Germany AG v Commission*, Judgment of 8 December 2011, ECLI:EU:C:2011:810, paras 102-106.

coordination is a function of design parameters.³⁰ By punishing coordination-prone designs, the framework forces firms to redesign systems and directly prevents harm. Human oversight can detect coordination, while design constraints can prevent it altogether.

Alternative approaches prove either less effective or more restrictive. Intent-based enforcement fails for the reasons documented. Total prohibition of algorithmic pricing would violate Article 16 disproportionately and chill innovation. Voluntary industry standards fail due to collective action problems and enforcement gaps. Pure *ex post* enforcement through fines proves less effective because algorithmic coordination is difficult to detect and prosecute. Meaningful oversight requirements constitute the least restrictive effective measure, preserving algorithmic pricing while demanding accountability.

Finally, the benefits (competitive markets, consumer welfare, accountability) must be balanced against costs (compliance costs, innovation stalling). Consumer harm from algorithmic coordination, in the form of supra-competitive pricing which affects potentially millions of consumers, reaches substantial magnitudes. Compliance costs for implementing meaningful oversight total at thousands or low millions depending on firm size. The magnitude differential overwhelmingly supports protection. The 'social function of property' concept, developed in *Hauer*³¹ and grounded in Duguit's transformative jurisprudence,³² confirms that economic freedoms must serve community welfare rather than enable personal enrichment at collective expense.

4.2. Rebuttable Presumptions and the Presumption of Innocence

The proposed framework employs a rebuttable presumption: once coordination-enabling design, oversight gaps, and coordinated outcomes are proven, causation is presumed unless defendants rebut. This must be filtered through ECtHR Article 6(2) case law.

In *Salabiaku v. France*, the ECtHR established that 'presumptions of fact or of law operate in every legal system' and are not prohibited by Article 6(2) provided they 'remain within certain limits,' take into account the 'importance of what is at stake' and maintain 'the rights of the defence.'³³ Three criteria govern permissibility.

³⁰ Emilio Calvano et al., 'Artificial Intelligence, Algorithmic Pricing, and Collusion' (2020) 110 American Economic Review 3267.

³¹ *Case 44/79 Hauer v Land Rheinland-Pfalz*, Judgment of 13 December 1979, ECLI:EU:C:1979:290, para 23.

³² Léon Duguit, *Les transformations du droit public* (Armand Colin, 1913), pp. 33-52.

³³ *Salabiaku v France* App no 10519/83 (ECtHR, 7 October 1988), para 28.

The first criterion is rational connection. In *Janosevic v. Sweden*, the Court held presumptions must be 'based on logic and past experience rather than arbitrary inference.'³⁴ Empirical research demonstrates a strong connection between design features and coordinated outcomes.³⁵ The connection proves far stronger than many ECtHR-approved presumptions (possession of stolen goods presuming theft participation or unexplained wealth near criminal enterprise presuming proceeds from crime).

The second criterion is rebuttal capacity. In *Telfner v. Austria*, the Court held presumptions violate Article 6(2) when rebuttal requires proving 'negative facts impossible to establish' or when evidence is 'not reasonably available.'³⁶ Defendants in algorithmic coordination cases can rebut through multiple pathways using evidence within their possession: provide GDPR-compliant explanations to prove independent optimization; demonstrate meaningful supervision occurred; establish parallel pricing reflected legitimate aims such as cost shocks; prove through simulation testing that design prohibits coordination.

The last criterion centers on procedural fairness. Comprehensive safeguards preserve overall fairness: authorities bear the initial burden of proof, defendants have complete case file access, expert evidence is permitted from both sides, all determinations are fully appealable and fines remain proportionate to harm. The framework distinguishes itself from strict liability through genuine rebuttal pathways and operational safe harbours for firms which implement certain design features.

Finally, *Eturas* addressed whether platform users could be liable for coordination they were unaware the platform was facilitating. The algorithmic framework addresses a different question: whether firms deploying algorithms can be held liable when they were aware algorithms possessed the capability to coordinate but lacked awareness it would occur. *Eturas* is respected, because the required proof is that firms were aware (or should have been aware) of coordination-enabling capabilities before the presumption operates.

4.3. Positive Obligations and the Duty to Protect

An additional argument emerges from positive obligations jurisprudence. In *Fadeyeva v. Russia*, the ECtHR held that states have positive obligations under Article 8 ECHR to regulate

³⁴ *Janosevic v Sweden* App no 34619/97 (ECtHR, 23 July 2002), paras 100-104.

³⁵ Emilio Calvano et al., 'Artificial Intelligence, Algorithmic Pricing, and Collusion' (2020) 110 *American Economic Review* 3267.

³⁶ *Telfner v Austria* App no 33501/96 (ECtHR, 20 March 2001), paras 15-18.

private industry to prevent hazards affecting quality of life.³⁷ The failure to regulate despite knowing the risks triggers state responsibility.

The 'economic environment' constitutes the habitat of the modern citizen. Just as states must regulate pollution to protect physical well-being, they must regulate 'algorithmic pollution' to protect economic well-being. The failure to adapt Article 101 TFEU to reach algorithmic coordination, which produces harms identical to traditional cartels, constitutes failure to fulfil this obligation.

5. THEORETICAL ANCHORAGE

5.1. Ordo liberalism and the Constitutional Duty of Market Maintenance

The theoretical justification for this intervention finds its deepest roots in the Ordoliberal tradition (Walter Eucken, Franz Böhm) that shaped EU competition law.³⁸ Ordo liberalism teaches that the market is not a natural phenomenon but a legal construct requiring constant state maintenance. The 'interdependence of orders' (*Interdependenz der Ordnungen*) posits that economic and legal orders are interwoven: if the legal order fails to police private power, the economic order collapses.

Unlike *laissez-faire* liberalism, Ordo liberalism imposes a positive obligation on the state to intervene structurally (*Ordnungspolitik*) to preserve competitive conditions. Regulating algorithmic design is not mere interference with market freedom, but the fulfilment of a duty. When algorithms achieve coordination that human cartels could not sustain, the Ordoliberal imperative demands adaptation to preserve the competitive order the Treaties guarantee.

5.2. The Object/Effect Distinction and Algorithmic Coordination

The Court's case law on 'object' versus 'effect' restrictions offers a potential pathway. In *Allianz Hungária*, the Court held that assessment of an anticompetitive object requires examining 'the content of its provisions, its objectives and the economic and legal context of which it forms a part.'³⁹ In *Groupement des cartes bancaires*, the Court emphasized that the

³⁷ *Fadeyeva v Russia* App no 55723/00 (ECtHR, 9 June 2005), para 89.

³⁸ Franz Böhm, 'Die Ordnung der Wirtschaft als geschichtliche Aufgabe und rechtsschöpferische Leistung' in Böhm, Eucken and Großmann-Doerth (eds), *Ordnung der Wirtschaft*, vol. 1 (1937).

³⁹ *Case C-32/11 Allianz Hungária Biztosító Zrt v Gazdasági Versenyhivatal*, Judgment of 14 March 2013, ECLI:EU:C:2013:160, paras 34-38.

'object' category is reserved for conduct which reveals 'a sufficient degree of harm to competition' to render the analysis of effects unnecessary.⁴⁰

Deploying algorithms with coordination-enabling features in concentrated, transparent markets might be characterized as conduct with anticompetitive object—not because the deployer intends coordination, but because the economic and technical context reveals sufficient degree of harm is inherent. The *BIDS* precedent (arrangements to reduce capacity have anticompetitive object regardless of intent) supports assessing deployment through objective effects rather than subjective purpose.⁴¹

CONCLUSION

This paper has demonstrated that autonomous algorithmic coordination creates a constitutional antinomy within the European Union. The fundamental right to competitive markets (Articles 101-102 and 119 TFEU, Protocol No. 27, and Charter Articles 16 and 38) conflicts with the presumption of innocence (Charter Article 48(1)) as interpreted in *Eturas*. Article 101 TFEU's anthropocentric liability standards (awareness, contact, meeting of minds) prove incapable of extending to coordination that emerges from algorithmic market interaction.

The proposed solution draws upon administrative law theories that address similar issues of temporal and causal separation between decisions and subsequent outcomes. The French *acte détachable* doctrine enables isolating the design phase (where agency exists) from the execution phase (governed by autonomy). The *fait générateur* framework restructures causation analysis—it treats deployment/design decisions as triggering events for the market outcomes. GDPR Article 22 accountability principles clarify the proposed oversight standards.

The fundamental rights analysis demonstrates that this proposal satisfies proportionality requirements and respects the presumption of innocence through rebuttable presumptions which satisfy the *Salabiaku* criteria. The reconciliation with *Eturas* lies in distinguishing awareness of coordination *capabilities* (at design phase) from awareness of outcomes (absent).

The constitutional demand is clear. When the guaranteed right to competitive markets crumbles because the law cannot reach the threats which undermine it, institutional legitimacy is affected. Algorithmic coordination produces identical harms to traditional cartels, hence it

⁴⁰ *Case C-67/13 P Groupement des cartes bancaires v Commission*, Judgment of 11 September 2014, ECLI:EU:C:2014:2204, paras 49-58.

⁴¹ *Case C-209/07 Competition Authority v Beef Industry Development Society Ltd*, Judgment of 20 November 2008, ECLI:EU:C:2008:643, paras 15-17.

must receive equivalent legal treatment. Otherwise, the commitment to competitive market order, central to the European integration project since the Treaty of Rome, loses credibility. The synthesis of administrative doctrine with competition law demonstrates that adaptation is possible. The 'legal reality' of algorithmic markets demands that constitutional guarantees must evolve to preserve their function.

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