Pérez-Llorca

TECHLAW

Artificial intelligence

MARCH 2024

A challenge for companies and for regulators

Josefina García Pedroviejo

Partner, Financial Services and Investment Funds

jgarciapedroviejo@perezllorca.com
+34 91 389 01 09

Jon Marina

Lawyer, Financial Services and Investment Funds

jmarina@perezllorca.com
+34 91 343 74 80

_ JOSEFINA GARCÍA, JON MARINA

The use of artificial intelligence in the stock market (high-frequency trading)

Algorithmic trading is understood as a process of executing orders through automated trading instructions that are pre-programmed to take into account variables such as price, timing and execution volume. In turn, **high-frequency trading** (**HFT**) is a sub-type of algorithmic trading that follows investment strategies supported by complex mathematical models and focuses on taking advantage of market inefficiencies and short-term price movements.

HFT systems carry out a large number of buy and/or sell transactions, in small volumes and over very short periods of time, with strategies designed to execute trades in a matter of microseconds to take advantage of the small price fluctuations that occur during these periods. HFT has become a prominent trading strategy in today's financial markets and is gaining traction as its systems are refined.

Originally, algorithmic trading systems focused more on speed and volume than intelligence. The algorithms followed preset rules: given a certain situation, the algorithm reacted in a certain way and then again and again, with possible scenarios branching off from different possible decisions. Because of their inability to reprogram themselves or restructure their decision-making base, these systems were limited in the face of market changes that invalidated the paradigm on which the algorithm was based. Therefore, one of the key elements in the development and success of HFT has been the use of AI, which has radically transformed the way in which transactions are conducted by giving traders the ability to create algorithms with ever-increasing learning capabilities.

> ***One of the key elements in the development and success of HFT has been the use of artificial intelligence, which has radically transformed the way in which transactions are conducted by giving traders the ability to create algorithms with ever-increasing learning capabilities.***

1. Concept and regulation of HFT

These systems were first regulated in the European Union ("**EU**") through the interaction between Directive 2004/39/EC of the European Parliament and of the Council of 21 April 2004 on markets in financial instruments ("**MiFID I**"), Commission Directive 2006/73/EC of 10 August 2006 implementing Directive 2004/39/EC, and the ESMA Guidelines of 24 February 2012 on systems and controls in an automated trading environment for trading platforms, investment firms and competent authorities. These extended the conduct of business rules of MiFID I and Directive 2006/73/EC to investment firms that use electronic trading systems, including trading algorithms, to trade on own account and to execute orders on behalf of their clients.

In the ten years following MiFID I, the use of electronics in trading evolved very significantly and became a part of the market reality and fully used by market participants. The European Union therefore considered it

appropriate to define the concept of HFT[1], and to address the risks arising from it in a targeted manner.

Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments ("**MiFID II**") imposed a number of obligations related to algorithmic trading and HFT in order to address risks such as possible overreactions to market events by HFT systems that may accentuate market volatility in cases of problematic situations. Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse also regulated the risk that both algorithmic trading and HFT techniques could lend themselves to certain types of market abuse conduct.

Furthermore, Articles 17 and 48 of MiFID II provide certain obligations relating to the use of algorithmic trading and, in particular, HFT, to be complied with both by market participants and by the markets themselves.

Thus, investment firms engaged in algorithmic trading or HFT should have:

i) appropriate governance and decision-making processes;

ii) systems and risk controls suitable to the business they operate to ensure that their trading systems are resilient, have sufficient capacity, are subject to appropriate trading thresholds and limits and prevent the sending of erroneous orders or the creation of anomalies in trading conditions;

iii) procedures for monitoring and reviewing the operation of these systems;

iv) procedures and mechanisms to prevent and manage the risk of market abuse and ensure business continuity; and

v) mechanisms for keeping records of their trading systems for cooperation with the competent authorities.

In addition, firms that make use of HFT or algorithmic trading systems must notify the competent national authority of their home Member State, which may request the information it considers necessary to verify compliance with the conditions set out in the previous paragraph, as well as with the other rules of conduct applicable to them.

As regards Member States' regulated markets, MiFID II requires them to put in place effective systems, procedures and arrangements to ensure that their trading systems:

i) are resilient;

ii) have sufficient capacity to handle peak order and message volumes;

iii) are able to ensure orderly trading under conditions of severe market stress;

iv) are fully tested to ensure such conditions are met; and

v) are subject to effective business continuity arrangements to ensure the continuity of their services if there is any failure of its trading systems.

2. AI as a driver of HFT

Thanks to the integration of AI, the algorithms used for HFT have acquired the ability to learn from market changes and redirect their decision-making processes in order to maintain their pre-established objectives. This is due to machine learning and deep learning. The former is understood as the development of algorithms and models that allow machines to learn and improve without being explicitly programmed, by extracting relevant features from past data and using these features to make predictions or decisions.

Thanks to the integration of AI, the algorithms used for HFT have acquired the ability to learn from market changes and redirect their decision-making processes in order to maintain their pre-established objectives. This is due to machine learning and deep learning.

Deep learning, as a variant of machine learning, focuses on training multi-layered artificial neural network models. These networks are inspired by the structure and functioning of the human brain and are able to learn and represent information in a hierarchical way, as well as to automatically learn from complex features and patterns in the analysed data, and generate more accurate results compared to other machine learning methods.

In this way, AI has enabled HFT traders to analyse large amounts of data in real time, make decisions based on complex patterns and minute movements in the markets, and create algorithms that evolve on their own, learn from past data and results, and are able to adapt to market changes and forecast possible movements with greater accuracy. This has led to a significant improvement in the speed and efficiency of transactions and has enabled HFT systems to make predictions and trading decisions based on real-time and historical information with a hit rate that, in the case of certain systems, has exceeded 60%.

1 Article 4(40) of MiFID II: '*high-frequency algorithmic trading technique' means an algorithmic trading technique characterised by: (a) infrastructure intended to minimise network and other types of latencies, including at least one of the following facilities for algorithmic order entry: co-location, proximity hosting or high-speed direct electronic access;(b) system-determination of order initiation, generation, routing or execution without human intervention for individual trades or orders; and (c) high message intraday rates which constitute orders, quotes or cancellations*.

3. Benefits and implications of AI in high-frequency trading

The application of AI in HFT has proven to be beneficial in several respects, mainly because it enables faster and more accurate decision making, which contributes to lower transaction costs, improved liquidity and speed of execution, and reduced spreads between bid and ask prices by introducing a higher volume of orders into the market. Moreover, AI has the ability to adapt and learn autonomously, allowing for continuous improvement of investment strategies.

However, the extreme diversity and complex characteristics of AI trading give rise to (i) debate about its impact on market participants' behaviour, (ii) ambiguity in assessing its effects on market efficiency, liquidity and volatility, and (iii) concerns about the role of regulators.

One school of thought argues that algorithms combined with AI can trigger chain reactions and exacerbate market volatility in extreme situations. In addition, competition between different AI-driven HFT systems may lead to further fragmentation of the market.

> ***One group of specialists argues that the mix of algorithms and AI has the potential to trigger sequences of events that intensify market volatility under critical circumstances. Moreover, rivalry between various AI-based high-frequency trading (HFT) systems could lead to a further division of the market.***

For example, the use of HFT systems combined with AI facilitates traders' access to price manipulation mechanisms such as spoofing, i.e. placing buy or sell orders with the intention of creating a false impression of supply or demand. These orders are quickly withdrawn before they are executed, leading to artificial price movements. In this regard, in May 2010 there was an event known as the Flash Crash, during which the Dow Jones Industrial Average fell by approximately 1,000 points in a matter of minutes, before recovering almost completely. This has been attributed to a combination of factors, including spoofing by a UK operator and the use of HFT systems that generated a rapid cascade of automated sales. This event highlighted the risks associated with the interaction between HFT and the lack of adequate supervisory and control mechanisms in financial markets.

4. Conclusion

The integration of AI into HFT has revolutionised financial markets by offering benefits such as faster and more accurate decisions, greater efficiency and risk management. However, ethical and regulatory challenges have arisen due to the complexity and diversity of AI algorithms. The concern lies in the possibility of chain reactions, increased market volatility and price manipulation.

In this regard, it is worth noting the innovative Artificial Intelligence Act adopted by the European Union on 13 March, a pioneering legislative framework aimed at establishing harmonised rules on AI within Member States. This Act, the result of a long legislative process, reflects a balanced approach that seeks to promote innovation and technological development, while ensuring the protection of the health, safety and fundamental rights of European citizens.

As regards the use of AI in financial markets, the Act foresees, in its Recital 158 and Article 74, that competent authorities responsible for the supervision and enforcement of financial services legislation, including, where appropriate, the European Central Bank, should be designated as competent authorities for the purpose of supervising the implementation of this Act, including for market surveillance activities, as regards AI systems provided or used by regulated and supervised financial institutions.

In short, while this is one of the greatest innovations of our era, in terms of financial markets, algorithmic trading with AI has contributed significantly to the complexity of the current market environment and the socio-economic risk involved. Regulation appropriate to the magnitude of this phenomenon is therefore necessary to promote and develop this type of technology while ensuring investor protection and preserving financial stability.

Pérez-Llorca

TECHLAW

Artificial intelligence

MARCH 2024

A challenge for companies and for regulators

José María de Paz

Partner, Corporate/M&A and ESG Criteria and Climate Change Regulation

jdepaz@perezllorca.com
+34 93 481 30 80

_ JOSÉ Mª DE PAZ

Greentech and artificial intelligence

Consistent with the philosophy contained within the **European Green Pact** that the principle of sustainability should inform all EU policies, the text of the Regulation of the European Parliament and of the Council laying down harmonised rules on Artificial Intelligence (the "**Artificial Intelligence Act**"), adopted by the European Parliament on 13 March 2024, includes a number of provisions incorporating this connection between sustainability and artificial intelligence ("**AI**").

Firstly, and in programmatic terms, Recital 46 of the Artificial Intelligence Act states that a high-risk AI system should not be used in the European Union if it poses an unacceptable risk to the public interests of the Union as protected by Union law. In this regard, Article 1 of the Artificial Intelligence Act identifies the protection of the environment as one of the fundamental rights to be protected in relation to potential adverse effects of AI systems deployed in Europe.

> ***Recital 46 of the Artificial Intelligence Regulation states that a high-risk AI system should not be used in the European Union if it poses an unacceptable risk to important public interests as recognised and protected by Union law.***

Further to Recital 46, Article 27 of the AI Act provides that prior to deploying a high-risk AI system, deployers, provided that they are public law entities, private entities providing public services (e.g. domestic water supply, waste collection, etc.) or deployers of high-risk systems listed in Annex III, point 5, (b) (systems for assessing the creditworthiness of natural persons) and (c) (systems for assessing risk and pricing in relation to life or health insurance in relation to natural persons), shall perform an assessment of the impact on fundamental rights that the use of such system may produce on fundamental rights, including, as mentioned above, the environment.

In turn, Article 27 stipulates that, as part of this assessment, the deployer shall indicate the measures to be taken in the event that those risks materialise.

In addition to the provisions of Recital 46 and its elaboration in Article 27, Article 95, regulating codes of conduct with the aim of encouraging their voluntary application to AI systems other than high-risk systems, includes, among other elements, objectives for assessing and minimising the impact of AI systems on environmental sustainability, including energy-efficient programming practices.

Also, for the technical documentation from suppliers of general-purpose AI models referred to in Article 53, Annex XI requires reporting of the known or estimated energy consumption of the model.

In the light of the above, we note that the final text of the AI Act incorporates the element of sustainability into several aspects of the regulation, and can therefore be said to fulfil the mandate to align with the content of the European Green Pact.

> ***The current text of the Artificial Intelligence Act consistently integrates the principle of sustainability in various aspects of its regulation, thus fulfilling the requirement to be in line with the objectives of the European Green Pact.***

Furthermore, the reference to energy efficiency is consistent with the technical screening criteria for the economic activity of data processing, hosting and related activities contained in paragraph 8.1 of Annex I of the Delegated Regulation 2021/2139 (which elaborates on the Taxonomy Regulation in relation to the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to climate change mitigation or climate change adaptation).

Having said all this, it is worth noting that sustainability has been given a somewhat lower profile in the drafting of the Artificial Intelligence Act compared to its influence on many other EU regulations, possibly as a consequence of a consideration of the desirability of facilitating as far as possible a regulatory framework for AI that does not put European companies at a competitive disadvantage vis-à-vis American, Chinese or Indian companies.

Pérez-Llorca

TECHLAW

Artificial intelligence

MARCH 2024

A challenge for companies and for regulators

Jaime de Blas

Partner, Competition

jdeblas@perezllorca.com
+34 91 436 33 10

Diego de la Vega

Lawyer, Intellectual Property and Technology

ddelavega@perezllorca.com
+34 91 423 70 23

Isabel Iglesias

Knowledge and Legaltech advisor

iiglesias@perezllorca.com
+34 91 423 47 45

_ JAIME DE BLAS, DIEGO DE LA VEGA, ISABEL IGLESIAS

The influence of artificial intelligence on the market: Competition aspects

1. Introduction

AI has become a fundamental pillar in the evolution of the global marketplace, transforming entire industries with disruptive innovations. Its ability to process and analyse large volumes of data at unprecedented speeds and with unprecedented accuracy offers significant competitive advantages to companies that adopt it, which can have a significant impact on markets.

In this context of continuous innovation, competition law takes becomes very important, as it takes on the challenge of adapting to the new reality imposed by AI and digital commerce. Competition law is central to ensuring that competition and innovation progress in a market operating under free competition, and the challenge is twofold: on the one hand, it must protect the dynamics of well-functioning and competitive markets; and on the other hand, it must address emerging challenges, ensuring that technological developments do not undermine the principles of free competition.

In this dynamic and evolving context, competition law is a crucial pillar in the regulation of market practices, navigating the delicate balance between fostering disruptive innovation and preventing concentrations of power that inhibit fair and equitable competition.

> ***Competition law plays a crucial role in regulating market practices, ensuring free competition and preventing anti-competitive behaviour. In the context of AI, this body of law faces new challenges to adapt and continue to protect the dynamism of markets***

2. Effects of AI on market competition

While AI fosters innovation, it in turn impacts on existing competition in markets, presenting both opportunities and challenges for maintaining dynamic and competitive markets, including:

- **Promotion of competition**: AI can level the playing field, allowing startups and small and medium-sized enterprises (SMEs) to compete with larger companies. The existence of AI-based tools and platforms can provide these small businesses with access to analytical capabilities and operational efficiencies that were previously reserved for resource-rich businesses that could afford to invest heavily.

- **Market concentration**: AI can also impact market concentration. The development and implementation of cutting-edge AI solutions historically required significant investments in talent and data, resources that were only available to large enterprises. This is now changing, and AI therefore opens up new opportunities for smaller companies.

- **Risk of collusion and monopolies**: The ability of AI to process real-time information and adapt market strategies can, in theory, facilitate sophisticated forms of implicit collusion, where AI systems from different companies can arrive at non-competitive pricing strategies without the need for direct communication between them. Moreover, in markets with significant

barriers to entry, the dominance of certain markets by companies with advanced AI capabilities could lead to monopolistic situations or oligopolies, where the lack of competition results in less innovation and worse conditions for consumers.

In conclusion, AI is reshaping the innovation and competition landscape, presenting a complex set of challenges and opportunities for businesses, regulators and society as a whole.

AI can both stimulate and restrict competition. On the one hand, it promotes competition based on quality and innovation; on the other hand, it can contribute to the creation of monopolies or oligopolies if the barriers to entry for new competitors are too high.

3. Algorithms, regulation and collusion

The integration of AI and algorithms into business processes and market decisions has transformed the way companies operate and compete with each other. However, this technological transformation also introduces new challenges for competition law, especially with regard to collusion. In our analysis below, we have considered how algorithms can facilitate collusive practices, challenging traditional regulatory paradigms and calling for a revaluation of market surveillance and regulation strategies.

3.1. Definition and functioning of algorithms in AI

Algorithms in AI are sets of instructions or rules specifically programmed to perform particular tasks, process data or solve problems. These algorithms stand out because of their ability not only to execute predefined actions but also to learn and refine themselves through data analysis. This ability to learn and adapt enables algorithms to improve real-time decisions, anticipate market trends and personalise services for users.

An algorithm, in this context, acts as a decision-making system, where the quality of its results depends both on the quality of the input data and on the design of the algorithm itself. When an algorithm is able to adjust its decision methods based on previous experience, it is considered a self-learning algorithm.

The significance of self-learning algorithms for competition law manifests itself in two main ways. Firstly, the results generated by these algorithms can be complex and difficult for humans to understand due to the multitude of factors, the volume of data and the complex rules involved, which poses a challenge in terms of legal liability and competition regulations. Secondly, access to large volumes of data is crucial for the development of efficient algorithms, directly linking the accumulation of data to the dynamics of market competition.

In addition, the trend towards personalisation in the digital economy, driven by data collection and the use of algorithms, poses challenges and opportunities. While personalisation can benefit consumers in certain contexts, it can also have ambiguous consequences, such as when personalisation limits exposure to a diverse range of perspectives, as in the case of content recommendations such as news, where it may restrict access to a wider range of viewpoints.

3.2. Use of algorithms

As mentioned above, the use of algorithms can have both advantages (pro-competitive effects, both for sellers and service providers, who can refine their offer much better, and for buyers and platform users, who can access a virtually personalised offer) and disadvantages that create distortions in the European competition system. It is in relation to this last point that the Digital Markets Act[1] (“**DMA**”) is presented as a mechanism to address, at least partially, some of these problems, of which two major aspects can be identified:

a) The deliberate design of an algorithm, especially when incorporated into an AI system by a specific operator to function in a particular way, could be used to hinder or prevent customers or users of that system from accessing products or services offered by competitors or, in line with the general problem of bias, this design may influence users to make purchases unintentionally. This, of course, severely restricts their freedom of choice and, *a priori*, appears to contravene national and European competition law.

b) Algorithms are a very useful tool to implement collusive arrangements and even to encourage tacit collusion, as they have the ability to facilitate coordination, parallelism or synchronisation between different market players[2].

An example of the first case would be AI systems designed by cartel members to monitor the prices offered by each member in order to quickly identify possible deviations from what was agreed and act accordingly. In relation to

1 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).

2 Examples include subliminal advertising, which has long since received attention from the legislator or, more recently and in the field of data protection, dark patterns, defined by the Spanish Data Protection Agency in its file no. EXP202211953 (PS/00080/2023) as follows: “the term dark patterns refers to user interfaces or user experience implementations intended to influence people’s behaviour and decisions in their interaction with websites, apps and social networks [...] dark patterns can be presented to the user in processing operations of various kinds, such as during the registration or sign-up process for a social network, when logging in or also in other scenarios such as in the configuration of privacy options, in cookie banners, during the process of exercising rights, in the content of a communication informing about a breach of personal data or even when trying to unsubscribe from the platform.” In short, these actions involuntarily condition the behaviour of buyers of all types of products and services.

the second case, it should be noted that tacit collusion is in principle legal, but that the use of AI systems to track competitors' prices may have the effect of equalising supply in a way that indirectly restricts supply to buyers or users of digital platforms.

Algorithms are the core of AI, designed to perform specific tasks, learn and improve over time. Its application in market analysis and strategic decision-making is becoming increasingly common.

3.2.1. Algorithms in a vertical context

The practice of resale price maintenance ("**RPM**"[3]) is prohibited as a restriction by object under Article 101 of the Treaty on the Functioning of the European Union ("**TFEU**") and its counterpart Article 1 of Law 15/2007 of 3 July 2007 on the Protection of Competition ("**LPC**"). However, suppliers are allowed to recommend selling prices to retailers without exerting any pressure on them or offering any incentives that might limit their freedom to set the final selling price.

In this context, the new Vertical Block Exemption Regulation was published in the OJEU on 11 May 2022, and the European Commission ("**EC**"), for its part, published new Guidelines on Vertical Restraints[4]. This new regulation, in addition to reiterating some of the matters established by the previous 2010 Regulation, introduced a number of new features, including the fact that minimum advertised prices will, as a general rule, be considered an indirect method of RPM and, as such, a particularly severe restriction. In contrast, the price monitoring tools frequently used in online commerce are not, by themselves, considered to be a form of RPM.

The use of algorithms in the supervision of RPMs facilitates the enforcement of these practices, improving the effectiveness of the restrictions without necessarily constituting RPM behaviour. These algorithms increase price transparency, allowing suppliers to identify and potentially penalise retailers that do not adhere to suggested prices. This dynamic may discourage deviations from price recommendations, de facto transforming "recommended" prices into fixed or minimum resale prices. In addition, when one retailer conforms to the RPM and is algorithmically monitored, other retailers may be incentivised to raise their prices to align, which can result in higher prices across the board, even among those who do not directly adopt the manufacturer-imposed resale price.

3.2.2. Algorithms in a horizontal context: express and tacit collusion

Although the effects of **express collusion** (based on anti-competitive agreements) and **tacit collusion** may be similar, their legal implications differ significantly[5]. Express collusion is considered unlawful due to the explicit nature of the agreement between the parties to limit competition, as it concerns agreements and concerted practices within the meaning of Articles 101 of the TFEU and 1 of the LPC. On the other hand, tacit collusion - which emerges from parallel behaviour between competitors without an explicit agreement - is not necessarily prohibited[6].

Tacit collusion is most viable in markets where high transparency is present, where few players can monitor and react quickly to competitors' actions, thus discouraging competition through discounts. This keeps prices artificially high without formal agreements. Traditionally, this situation materialised in oligopolistic markets[7], but the incorporation of pricing algorithms and market analysis allows these dynamics to be replicated even in markets with more participants. The use of algorithms increases transparency and facilitates more efficient collusion, enabling rapid price adjustments in response to competitors. This phenomenon is intensified by algorithms that learn from past experience and interaction with AI, which make autonomous decisions that make it difficult to detect collusion and allocate liability, thus complicating regulation and the maintenance of competitive markets.

3 Defined as an agreement between a supplier and a retailer to establish a fixed or minimum retail price.

4 Further information can be found in our legal briefing (in Spanish), "*Principales novedades del nuevo reglamento y Directrices de Restricciones Verticales*", available at: https://www.perezllorca.com/wp-content/uploads/2022/06/nota-juridica-principales-novedades-del-nuevo-reglamento-y-directrices-de-restricciones-verticales.pdf

5 In this regard, see the chapter "Algorithms and competition law" that we published in the 2018 Competition Law Year in Review.

6 This type of collusion occurs when a company aligns its actions with those of its competitors independently and without prior coordination. In fact, Article 101 of the TFEU does not deprive economic operators of the right to adapt intelligently to the existing and anticipated conduct of their competitors. According to the CJEU, each producer is free to change its prices, taking into account the present or foreseeable conduct of its competitors. In the Imperial Chemical Industries case, the CJEU held that "although every producer is free to change his prices, taking into account in so doing the present or foreseeable conduct of his competitors, nevertheless it is contrary to the rules on competition contained in the Treaty for a producer to cooperate with his competitors, in any way whatsoever, in order to determine a coordinated course of action relating to a price increase and to ensure its success by prior elimination of all uncertainty as to each other's conduct regarding the essential elements of that action, such as the amount, subject-matter, date and place of the increases". The judgment is available at the following link: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:61969CJ0048

7 A type of market structure characterised by a small number of companies or producers that dominate the supply of goods or services, giving them significant power over prices and market conditions.

3.2.3. Algorithms used for different purposes

Algorithms can be used for different purposes, such as **to detect deviations from the agreed price between horizontal competitors**, in which case such monitoring could be part of the infringement[8]; or to **implement pre-existing explicit collusion**, in relation to which it is worth remembering that the infringement materialises at the moment of the collusive communication, regardless of the method used to implement or enforce such agreements[9]. Algorithms **can also be used by online competitors to engage in explicit collusion** by agreeing on a strategy for the allocation of prices. In addition, if competitors entrust price management to a common third party through an intermediary in a "hub and spoke" system, this could constitute an infringement of competition policy.

3.3. Risks of AI-facilitated collusion

Traditionally, collusion - understood to be an agreement between competitors to avoid competition and manipulate markets to their advantage - required direct communication and agreements between the parties. However, AI algorithms introduce the possibility of tacit or implicit collusion, where AI systems can independently arrive at pricing or market strategies that limit competition without the need for direct communication between companies.

Algorithms can monitor competitors' market behaviour and automatically adjust prices and offers in response, creating an environment where price competition is significantly reduced. This type of algorithmic collusion is particularly worrying because it can be extremely difficult to detect and prove under existing legal frameworks, given that there are no explicit agreements between the parties.

In addition, algorithms can use real-time and historical data to predict competitors' actions and adapt strategies in a way that maximises joint profits without the need for explicit agreements. This can result in price stabilisation and market conditions that are detrimental to competition and consumers.

The ability of algorithms to adjust prices and market conditions in real time poses significant risks of collusion, even without explicit communication between competitors. This challenges traditional regulatory frameworks.

4. Algorithms and regulation

The recent DMA[10] devotes a large number of its articles and a no less extensive number of its recitals to regulating the functioning of the European digital market, as well as to justifying a regulation that, since its entry into force, mainly affects large internet platforms or, using its own terminology, gatekeepers[11], which are the obligated parties.

The DMA is therefore a very topical piece of competition law which, among other things, warns how algorithms are capable of disrupting the competition system. Irrespective of this, the DMA is based on the same principles as all other digital regulation in recent years, which invariably starts with the premise of the proper functioning of the European internal market[12]. The healthy exercise of competition in the European market is a requirement that affects all sectors and their operators, including the digital sector, which is why the use of algorithms on a large scale has also deserved regulatory treatment from the point of view of competition law.

8 In addition, for the purpose of fines, the EC can increase the "gravity" percentage when companies implemented their agreement or concerted practices rigorously. For example, in Case AT.40098 - Blocktrains, the EC stated that "*Furthermore, the infringement featured different anti-competitive elements (customer allocation and price-coordination) and was thoroughly and rigorously implemented*", see the following link: https://ec.europa.eu/competition/antitrust/cases1/202330/AT_40098_4464923_827_12.pdf

9 In the case of Eturas, for example, several travel agencies used a common online travel booking system. The system administrator sent an e-mail to some of the travel agencies, proposing to implement a software rule limiting the possibility of discounts of more than 3% in the online booking system. The CJEU held that "Article 101(1) TFEU must be interpreted as meaning that, where the administrator of an information system, intended to enable travel agencies to sell travel packages on their websites using a uniform booking method, sends to those economic operators, via a personal electronic mailbox, a message informing them that the discounts on products sold through that system will henceforth be capped and, following the dissemination of that message, the system in question undergoes the technical modifications necessary to implement that measure, those economic operators may — if they were aware of that message — be presumed to have participated in a concerted practice within the meaning of that provision, unless they publicly distanced themselves from that practice, reported it to the administrative authorities or adduce other evidence to rebut that presumption, such as evidence of a systematic application of a discount exceeding the cap in question." The judgment is available at the following link: https://curia.europa.eu/juris/document/document.jsf?text=&docid=173680&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=2346359

10 Regulation (EU) 2022/1925 of the European Parliament and of the Council of 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 ("DMA"). Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32022R1925

11 Article 2.1 of the DMA defines gatekeepers as undertakings providing core platform services, provided they exceed certain thresholds of influence, number of users and turnover.

12 To cite just two among countless examples, Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC ("GDPR"), considers that national fragmentation of the processing of personal data may be an obstacle to the exercise of economic activities at Union level, distort competition and prevent authorities from carrying out their tasks under Union law (Recital 9) and, with even more conviction, Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019, on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC, directly begins by reasoning that the Treaty on European Union (TEU) provides for the establishment of an internal market and the establishment of a system preventing distortions of competition in that market. Further harmonisation of the laws of the Member States on copyright and related rights (Recital 1).

AI is transforming the market in profound ways, affecting, among many other areas, competition, innovation and regulation. From a competition law perspective, the influence of AI can be analysed in relation to various aspects, particularly in the EU context, where regulatory instruments such as as the DMA and the DSA are redefining the rules of the game for technology companies and consumers.

The reason is to be found in Recital 7 of the DMA, which considers that gatekeepers adopt "global or at least pan-European business models and algorithmic structures". Moreover, it considers that "they can adopt, and in some cases have adopted, different business conditions and practices in different Member States", which is considered to be a risk to the functioning of the internal market because of the differences that may arise in terms of competition between gatekeepers in the market.

To address all these issues, the DMA does not provide for a specific regulation on algorithms, but it does give the relevant competition authorities certain powers of transparency regarding the use of algorithms by large internet platforms, for example by providing in Article 21 that the EC has the power to access the algorithms used by a company in the context of its inspection work or, for example, in Article 30(3)(e), which allows fines to be imposed on companies that "fail to provide access to data, algorithms or information about testing in response to a request".

Finally, it should be noted that the Digital Services Act ("**DSA**")[13] , which is not primarily focused on competition issues like the DMA, also addresses the issue of algorithms. In particular, Article 14 states that the information to be provided by providers of intermediary services[14] should include "information on any policies, procedures, measures and tools used for the purpose of content moderation, including algorithmic decision-making and human review."

5. Challenges and opportunities

As indicated throughout this article, AI presents both challenges and opportunities for competition law, and it will be up to legislators to balance the need to promote innovation and the integration of advanced technologies with the protection of fair competition and the prevention of anti-competitive behaviour, which will require a thorough understanding of AI technologies and their impact on markets, as well as an agile regulatory framework that can adapt to the rapidly evolving digital sector.

The dynamism of AI means that existing legislation and regulation can quickly become obsolete, requiring a flexible and proactive approach to updating and implementing it.

5.1. Legal and regulatory challenges

The challenges faced in this area include:

- **Adaptability**: One of the main challenges is the ability of existing legislation and regulation to keep up with the accelerating pace of AI innovation. The dynamic nature of this technology, coupled with its ability to rapidly alter market conditions, requires a regulatory approach that can adapt quickly to new developments.
- **Identification and assessment of collusion through algorithms**: AI facilitates new forms of collusion that are difficult to detect and assess with traditional competition enforcement tools, which is why regulators face the challenge of developing ways of identifying collusive practices that do not necessarily conform to traditional models of explicit agreements between competitors.
- **Market definition and assessment of market power**: The ability of AI to create new products and services and transform entire industries raises questions about how relevant markets should be defined and how market power should be assessed. The dynamics of competition in digital environments, often characterised by network effects and economies of scale, require a renewed focus on assessing the competitive impact of corporate actions.
- **Data protection and privacy**: The accumulation of large volumes of data that are necessary for the training and day-to-day operation of AI systems raises significant concerns in terms of privacy and data protection. In addition, the concentration of data in a few hands may reinforce barriers to entry and increase market power, further complicating the challenges for competition law. In fact, the technological and IT cost of developing AI systems is concentrated in a few companies.

5.2. Opportunities for competition policy

Below are some of the opportunities we have identified for the field of competition law:

- **Improved monitoring tools**: The same technology that poses new challenges also offers powerful tools for regulators. AI can be used to enhance market surveillance capabilities, allowing competition authorities to analyse large data sets to identify patterns that suggest collusive or abusive practices.

13 Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022, on a Single Market for Digital Services and amending Directive 2000/31/EC. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32022R2065

14 According to Article 3 of the DSA, these are mere conduit, caching or hosting services, which affects many services provided over the Internet, some of which are concurrent with the DMA, such as the services offered by large platforms.

- **Promoting competition in digital markets**: Competition policy can incentivise the use of AI in a way that promotes competition and innovation. This includes fostering interoperability and access to data to prevent large platforms from establishing immovable monopolies, as well as supporting startups and SMEs in the development and adoption of AI technologies.

- **Development of dynamic regulatory frameworks**: In the face of constant innovation, authorities can explore more flexible and dynamic regulatory frameworks, including ex ante regulation and principles-based approaches that can adapt to changing technological and market conditions.

- **Collaboration**: Given the global nature of the digital economy and AI, there is a significant opportunity for international regulatory and competition policy cooperation. This could include harmonisation of standards and practices, as well as the exchange of information and strategies to address common challenges.

> ***AI also offers valuable tools for regulators, such as the ability to monitor markets more efficiently and detect anti-competitive practices with greater accuracy.***

In conclusion, AI influences the market in a significant way, raising new questions and challenges for competition law. Instruments such as the DMA and DSA are important steps towards regulating digital markets in the age of AI, seeking to ensure that innovation and competition can flourish in a way that benefits society as a whole.

Pérez-Llorca

TECHLAW

Artificial intelligence

MARCH 2024

A challenge for companies and for regulators

Barcelona
-
Brussels
-
Lisbon
-
London
-
Madrid
-
New York
-
Singapore

perezllorca.com