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## An Analysis of Algorithmic Collusion under Indian Competition Law: Comparative Study with EU and US

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*Artificial intelligence and algorithms have transformed numerous business practices, from pricing strategies to decision-making processes. However, they also present significant challenges to competition law, particularly concerning algorithmic collusion. Algorithmic collusion occurs when businesses use algorithms that either inadvertently or intentionally create coordinated effects, leading to anti-competitive outcomes. This paper explores algorithmic collusion within Indian competition law, specifically under the Competition Act 2002. It examines whether the current legal framework, designed primarily to address overt collusion, is adequate to tackle the subtler coordination enabled by algorithms. By reviewing regulatory developments globally—including in the European Union and the United States—the paper highlights gaps in India’s regulatory approach. It argues that while the Competition Act’s broad interpretation of agreements could theoretically encompass certain forms of tacit algorithmic collusion, enforcing these provisions remains highly challenging. To address these issues, the paper proposes amendments to the Act, such as shifting the burden of proof in cases involving algorithm-driven parallel conduct. This study contributes to the broader discourse on how Indian competition law must evolve to ensure fair markets in an increasingly digital, algorithm-reliant economy.*

**Keywords:** *algorithms, anti-competitive practices, artificial intelligence, competition law, collusion.*

## **INTRODUCTION**

In today's fast-paced era of technological innovation, algorithms and Artificial Intelligence ('AI') have become essential tools for businesses worldwide. These technologies, from dynamic pricing strategies to supply chain optimisation, have revolutionised market operations and strategies. However, alongside these advancements come significant challenges to fair competition. One of the most intriguing and complex issues lies at the intersection of AI and competition law: the risk of algorithms—particularly pricing algorithms, which are often deployed for real-time optimal pricing—unintentionally fostering collusion among competitors. This phenomenon, known as algorithmic collusion, introduces new forms of anti-competitive coordination, posing a serious threat to market fairness.

Algorithmic collusion occurs when algorithms, initially designed to operate independently, interact in ways that lead to harmful or anti-competitive outcomes. This unintended coordination often emerges when algorithms are programmed to respond to or predict the behaviour of competing algorithms, resulting in tacit collusion without explicit agreements. For instance, pricing algorithms designed to compete may start learning from each other, ultimately fixing prices at higher levels, reducing competition, and manipulating markets—effects similar to those of traditional cartels. Additionally, algorithms trained on biased data can perpetuate discriminatory practices, exacerbating social inequities and further distorting markets.

The increasing reliance on algorithm-driven practices raises critical questions about transparency, accountability, and fairness in algorithmic decision-making. As algorithms continue to evolve, competition law faces the dual challenge of detecting and preventing such collusion while ensuring technological advancements do not undermine market integrity.

In India, traditional competition laws have primarily targeted explicit cartels and overt price-fixing schemes, where firms directly collude to engage in anti-competitive practices. Section 3 of the Competition Act 2002<sup>1</sup> ('Act') prohibits agreements that cause or are likely to cause an appreciable adverse effect on competition in the country. However, algorithmic collusion operates in a grey area, often devoid of direct human involvement or explicit agreements,

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<sup>1</sup> Competition Act 2002, s 3

relying instead on autonomous algorithms designed to optimise profit or market share. This creates significant obstacles to detection and enforcement.

Globally, competition authorities are increasingly examining the implications of AI in markets, recognising that algorithms can enable anti-competitive practices without human oversight. While jurisdictions such as the European Union and the United States have initiated discussions and investigations into algorithmic collusion, India's regulatory framework has yet to fully address these challenges. Although the Competition Commission of India ('CCI') is proactive in tackling traditional forms of collusion, it faces the monumental task of adapting to the complexities posed by AI and algorithm-driven markets.

This paper explores the concept of algorithmic collusion and its implications for Indian competition law. It evaluates whether the existing legal framework under the Act is adequately equipped to address these emerging challenges, particularly in light of global regulatory developments. Additionally, the study identifies sectors in India most vulnerable to algorithmic collusion and proposes policy and regulatory reforms to bridge any gaps. By analysing the evolving nature of collusion in digital markets, this paper contributes to the broader discourse on ensuring fair competition in an increasingly algorithm-driven world.

### **SCOPE OF SECTION 3 OF THE COMPETITION ACT**

Anti-competitive agreements are comprehensively defined under the Act to include any arrangement, understanding, or coordinated action—whether formal or informal, written or unwritten, and whether legally enforceable or not. This definition is broader than that of the earlier MRTP Act. Section 2(b)<sup>2</sup> of the Act expands the scope by including 'action in concert,' a concept comparable to 'concerted practice' in the European Union and 'collusion' in the United States. The CCI has acknowledged the informal and secretive nature of such agreements, as seen in the case of *Re: Alleged Anti-Competitive Conduct by Maruti Suzuki India Limited*<sup>3</sup>. The CCI observed that anti-competitive agreements often lack formal documentation, making detection

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<sup>2</sup> Competition Act 2002, s 2(b)

<sup>3</sup> *In re: Alleged Anti-Competitive Conduct by Maruti Suzuki India Limited* (2019) Case No 01/2019

challenging. To address this, the Act's definition is intentionally broad and open-ended, even encompassing tacit agreements signalled through subtle gestures like a nod or wink.

Section 3(3)<sup>4</sup> plays a critical role in regulating agreements between enterprises or associations of enterprises and individuals. This section goes beyond formal agreements as defined under Section 2(b) by also including practices or decisions made by associations, extending its scope to cartels. The term 'Practice' has been broadly interpreted to include activities related to trade, business, or services, while 'decision' is understood in its common usage. A relevant example is the *Kerala Cine Exhibitors Association* case<sup>5</sup>, where the CCI ruled that a joint decision by the parties to boycott certain films amounted to restricting their distribution in the market.

Although Section 3(3) uses terms like 'practice' and 'decision,' potentially allowing for broader interpretations, the CCI has adopted a more restrictive approach. It has clarified that a mere practice or decision, without an accompanying agreement or understanding, does not fall under this provision. For Section 3(3) to apply, an express or implied agreement must underpin the practice. While the section's language reflects the legislature's intent to define 'agreement' inclusively compared to civil law systems, 'practice' and 'decision' apply only to associations of enterprises or persons, excluding independent conduct by individual enterprises or persons.

One key feature of Section 3(3) is the presumption of an appreciable adverse effect on competition ('AAEC') once a horizontal agreement is established. This shifts the burden of proof to the accused enterprises to demonstrate that their agreement does not harm competition based on the factors outlined in Section 19(3) of the Act. However, this presumption is rebuttable. Indian jurisprudence holds that a presumption establishes only a prima facie case, requiring the accused to present evidence to counter it. The Supreme Court has clarified that a presumption is not evidence but indicates where the burden of proof lies. Thus, once a horizontal agreement is proven, the accused must show that its pro-competitive benefits outweigh any anti-competitive effects.<sup>6</sup> This differs from the per se rule in the United States, where no further inquiry is conducted once a horizontal agreement is established.

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<sup>4</sup> Competition Act 2002, s 3(3)

<sup>5</sup> *Kerala Cine Exhibitors Association v Kerala Film Exhibitors Federation* (2015) CCI 15

<sup>6</sup> *Sodhi Transport Co v State of Uttar Pradesh* (1986) SC 1099

## WHAT IS COLLUSION?

The common definition of the term ‘Collusion’ refers to any coordination or agreement among competing firms aimed at increasing profits above the non-cooperative equilibrium, leading to a deadweight loss. In essence, collusion is a strategy for joint profit maximisation by competing firms, often at the expense of consumers. To achieve and sustain a collusive equilibrium over time, competitors must establish a system to regulate their interactions, enabling them to (1) agree on a ‘common policy,’ (2) monitor adherence to this policy, and (3) enforce compliance by punishing deviations. Economists typically distinguish between two forms of collusion: explicit and tacit.<sup>7</sup>

Explicit collusion involves anti-competitive behaviour maintained through explicit agreements, whether written or oral. The most straightforward way for firms to achieve explicit collusion is by directly interacting to agree on optimal pricing or output levels.<sup>8</sup>

Tacit collusion, on the other hand, encompasses forms of anti-competitive coordination that do not require explicit agreements. Instead, competitors maintain collusion by recognising their mutual interdependence. In such scenarios, each participant independently determines its profit-maximising strategy without direct coordination with others. This typically occurs in transparent markets with few players, where firms leverage collective market power without explicit communication.<sup>9</sup>

From an economic perspective, collusion is often viewed as a natural market outcome. However, the legal perspective emphasises the methods competitors use to achieve such collusion. Consequently, competition laws generally do not prohibit collusion itself but target anti-competitive agreements. If collusion results from such agreements, it is considered a legal violation. While interpretations of ‘agreement’ differ across jurisdictions, most require evidence

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<sup>7</sup> OECD, *Algorithms and collusion: Competition policy in the digital age* (OECD 2017)

<sup>8</sup> *Ibid*

<sup>9</sup> João E Gata, ‘Controlling Algorithmic Collusion: Short Review of the Literature, Undecidability, and Alternative Approaches’ (2019) CICEE - Working Paper Series <<http://dx.doi.org/10.26619/UAL-CICEE/WP04.2019>> accessed 11 November 2024

of direct or indirect communication between firms, proving that their actions were not independent.<sup>10</sup>

### **TACIT COLLUSION AND ACTION IN CONCERT UNDER THE COMPETITION ACT 2002**

Section 3 of the Act prohibits anti-competitive agreements, including those formed through ‘action in concert,’ which can manifest as tacit or informal cooperation between enterprises. The Raghavan Committee, which framed the Act, intentionally included ‘action in concert’ to capture tacit collusion and informal arrangements that may not involve formal agreements. In its report, the Committee observed that even oral or informal agreements could be deemed illegal if they violate the law. Proving the existence of such informal agreements typically relies on circumstantial evidence, like parallel behaviour between firms.<sup>11</sup> This concept of concerted practice, familiar in EU and US competition law, refers to informal cooperation without a formal agreement.

The Act, through the concept of ‘Action in Concert,’ allows for the inference of an agreement even when cooperation is tacit. This notion has been examined in several cases. In oligopolistic markets, businesses may exhibit parallel behaviour due to natural market conditions rather than an intention to collude. Therefore, courts and authorities must be careful not to penalise legitimate independent behaviour. The CCI has consistently held that mere parallel conduct does not amount to collusion unless supported by additional evidence, known as ‘plus factors,’ which suggest a ‘meeting of minds’. These plus factors are economic actions or outcomes that, beyond parallel behaviour, suggest coordinated action inconsistent with independent conduct. For example, in *Re M/s Sheth & Co*, the CCI found that price parallelism, combined with peculiar market conditions, indicated collusive bidding in violation of Section 3 of the Act.<sup>12</sup>

The concept of a ‘Meeting of Minds’ remains central to proving an agreement through ‘action in concert.’ However, the CCI has been cautious to avoid overreach in penalising parallel behaviour that may be defensible as conscious parallelism, where businesses independently

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<sup>10</sup> OECD (n 7)

<sup>11</sup> Ministry of Information and Broadcasting, Law and Justice and Company Affairs, *V S Raghavan Committee Report on Competition Law* (2000) pgs 1-2

<sup>12</sup> *Re M/s Sheth and Co v Competition Commission of India* (2015) CCI 12

align their conduct due to market conditions. In the *Cement Manufacturers Case*, the CCI found that a group of manufacturers had formed a cartel, as evidenced by their sharing of sensitive price, production, and supply information through a trade association. This facilitated price and production parallelism, which the CCI deemed a concerted effort to fix prices. Despite the market's oligopolistic nature, the CCI rejected the defense of interdependence and concluded that the manufacturers had engaged in collusion.<sup>13</sup>

In contrast, the *Tyre Manufacturers Case*, which involved a similar fact pattern, saw a different outcome. Despite recognising the tyre market's oligopolistic nature, the CCI held that there was insufficient evidence to prove collusion among tyre companies. Although there was parallelism in pricing and production, and information was shared through a trade association, the CCI concluded that there was no 'specific pattern' to demonstrate a formal agreement between the companies.<sup>14</sup> This inconsistency in the CCI's approach between the two cases highlights the difficulties in determining when parallel behaviour crosses into collusion.

In the more recent case of *Rajasthan Cylinders and Containers Limited v Union of India*, the CCI ruled that LPG cylinder suppliers had engaged in cartelisation. However, the Supreme Court of India overturned this decision, stating that the CCI's reliance on plus factors, such as identical bids, was not sufficient to prove collusion. The Court held that the parallel behaviour was a natural result of market structure and oligopolistic interdependence rather than coordinated action.<sup>15</sup>

Despite the broad language of Section 3, which aims to capture a wide range of anti-competitive conduct, the inconsistency in interpreting plus factors and the defense of oligopolistic interdependence complicates the practical application of the provision. This results in uncertainty regarding when parallel conduct should be treated as tacit collusion under the Act.

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<sup>13</sup> *Builders Association of India v Cement Manufacturers' Association* (2016) CCI 46

<sup>14</sup> *All India Tyre Dealers' Federation v Tyre Manufacturers* (2013) CCI 12

<sup>15</sup> *Rajasthan Cylinders & Containers Ltd v Union of India* (2020) 16 SCC 615

## **ALGORITHMIC COLLUSION**

An algorithm is a form of AI reasoning used to find probable solutions to problems. Algorithms are valued for their cost-effectiveness and efficiency, and today, they play a significant role in business operations, including managing production, gathering market data, and self-learning by observing market conditions. However, the use of algorithms in business can also lead to instances or suspicions of algorithmic collusion. The interaction between algorithms and humans is vast, creating various potential scenarios. Ariel Ezrachi and Maurice Stucke describe four distinct ways in which algorithms may engage in collusion. They categorise these concerns into four scenarios: messenger, hub-and-spoke, predictable agent, and digital eye. Some scenarios involve algorithms that execute or support an explicit agreement, which would violate Section 3(3) of the Act. Other scenarios may involve the unilateral use of pricing algorithms that can lead to coordinated outcomes not explicitly prohibited by the Act. The article will focus on the hub-and-spoke, predictable agent, and digital eye scenarios. The messenger scenario, where algorithms are used to facilitate an explicit agreement, can be effectively addressed under the Act.<sup>16</sup>

## **HUB & SPOKE ARRANGEMENTS**

In most legal systems, direct communication between market participants aimed at engaging in anti-competitive behaviour, thereby harming consumer welfare, is classified as collusion. However, in many cases, these market participants do not exchange information openly but instead engage in more complex forms of collusion. One such method is the hub-and-spoke arrangement, where an entity at a different level of the supply chain (the hub) coordinates a conspiracy among competitors (the spokes) through a series of vertical agreements. From a competition law standpoint, this arrangement raises concerns due to indirect information sharing between competitors without direct communication, potentially leading to a collusive outcome.<sup>17</sup>

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<sup>16</sup> Nikita Koradia et al., 'Algorithmic Collusion and Indian Competition Act: Suggestions to Tackle Inadequacies and Naivety' in Stefan Van Uytsel (ed), *The Digital Economy and Competition Law in Asia* (Springer 2021)

<sup>17</sup> *Ibid*



Ezrachi and Stucke, when analysing the hub-and-spoke scenario, highlight the challenge of detecting algorithmic collusion, where competitors may collude through a hub or third-party facilitator. While the hub-and-spoke arrangement is inherently anti-competitive, the use of pricing algorithms and repricing software that support these arrangements in technologically driven markets can worsen the anti-competitive outcomes.<sup>18</sup>

Although hub-and-spoke arrangements may seem counterintuitive, they still exist and pose challenges, particularly in jurisdictions with less developed legal frameworks, where authorities may struggle to detect such sophisticated collusion. This issue is of particular concern in India, where jurisprudence on hub-and-spoke arrangements is limited, with the *Samir Agrawal v ANI Technologies* (Uber case) being a rare example. The reluctance of authorities to recognise the hybrid nature of these vertical and horizontal agreements stems from the scarcity of cases in the Indian context.

This reluctance was addressed in the proposed amendments to the Act in the Competition Bill 2020, which acknowledged the existence of such conduct. Many developed jurisdictions, like the US and the EU, do not provide detailed guidelines on when a hub-and-spoke conspiracy should be subject to a per se or rule-of-reason approach. India, after the UK, is among the few jurisdictions that explicitly proposed that a combination of horizontal and vertical agreements, such as hub-and-spoke, should be presumed to have an appreciable adverse effect on competition under the Competition Bill 2020. The Bill provides clarity on how to assess hub-and-spoke arrangements, though Indian jurisprudence on this issue remains limited.

The distinction between traditional hub-and-spoke arrangements and those facilitated by algorithms has become central to discussions on the role of algorithms in enabling collusion. The traditional understanding of hub-and-spoke requires expansion in cases involving algorithms, where the hub may not be part of the supply chain but could be an algorithm developer or other third-party facilitator unrelated to the colluding parties. It is essential to

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<sup>18</sup> Ariel Ezrachi and Maurice E Stucke, 'Sustainable and Unchallenged Algorithmic Tacit Collusion' (2020) 17(2) *Northwestern Journal of Technology and Intellectual Property* <<https://scholarlycommons.law.northwestern.edu/njtip/vol17/iss2/2/>> accessed 12 November 2024

differentiate between the two concepts, as this determines the liability of the hub or third-party facilitator.

In the case against Uber in India<sup>19</sup>, the company was accused of acting as a hub in a hub-and-spoke conspiracy by facilitating price-fixing among drivers through its platform. Uber, using machine learning, sets dynamic prices based on real-time demand, with drivers acting as spokes in the alleged conspiracy. The case claimed that Uber was a third-party intermediary exchanging sensitive commercial information, thus coordinating prices on behalf of drivers. However, the CCI, the National Company Law Appellate Tribunal ('NCLAT'), and the Supreme Court dismissed the case due to a lack of evidence proving collusion among drivers. The courts emphasised that for a hub-and-spoke conspiracy to hold, there must be evidence of a horizontal agreement between the drivers, which was absent. Merely following the platform's unified pricing mechanism was not enough to establish such an agreement. As a result, Uber's model was not considered anti-competitive. Critics argue that the Indian authorities missed the essence of hub-and-spoke conspiracy, particularly in cases where a third party (like Uber) sets prices on behalf of multiple independent contractors. While other jurisdictions, like the U.S. and the EU, have considered algorithm-driven pricing in their competition laws, India has yet to settle its stance on how to handle such business models. The case highlighted gaps in how Indian traditional frameworks of horizontal or vertical agreements under Sections 3(3) or 3(4) of the Act could have been evaluated under Section 3(1) as a commercial agreement with an AAEC. However, the CCI's reluctance to apply this expansive interpretation limited the scope of competition law in this case.

## **PREDICTABLE AGENT SCENARIO**

The predictable agent scenario involves enterprises deploying algorithms that produce predictable outcomes in response to market changes without sufficient evidence to prove a formal agreement between them. This setup typically features unilateral algorithm development by companies, aiming to achieve desired results, all while knowing that competitors might also

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<sup>19</sup> *Samir Agrawal v Competition Commission of India* (2021) 3 SCC 136

be using similar algorithms. Ezrachi and Stucke's analysis of algorithmic tacit collusion forms the basis for this discussion.

Algorithm-driven pricing intensifies the 'oligopoly problem' in digital markets. Scholars have noted that in oligopolistic markets, enterprises can align their prices without formal collusion, a concept known as 'Conscious Parallelism' or 'Oligopolistic Interdependence.' Algorithms enable competitors to monitor and respond to each other's pricing instantly, discouraging price-cutting as competitors would immediately follow suit. This price transparency reduces incentives to compete and fosters supra-competitive pricing, which can lead to tacit collusion.<sup>20</sup>

The challenge lies in addressing this tacit collusion under Section 3 of the Act. While parallel behaviour stemming from independent actions does not violate the Act, parallelism may be prohibited if 'plus factors' demonstrate a meeting of minds. CCI has used various indicators, such as pricing correlations and competitor communications, to establish collusion. However, in the digital era, these factors may no longer suffice in proving active conspiracy. Thus, despite the broad language of Section 3, proving tacit collusion involving algorithms remains difficult.

In the predictable agent scenario, companies develop pricing algorithms with the awareness that competitors will likely adopt similar strategies. Each enterprise programs its algorithm to maximise profits, expecting that competitors will follow a similar approach. Sometimes, all companies use the same third-party algorithm, making pricing outcomes even more predictable. However, because these actions stem from unilateral decisions, they may fall under the definition of conscious parallelism, which is not covered by the Act due to the absence of a meeting of minds.

A key feature of this scenario is the 'Knowledge' or 'Awareness' component. When companies deploy algorithms knowing that competitors are likely to reciprocate, this mutual expectation could arguably be construed as a meeting of minds. Given the transparency of digital markets, this shared awareness suggests that competitors anticipate similar behaviour. The author

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<sup>20</sup> Richard A Posner, 'Oligopoly and the Antitrust Laws: A Suggested Approach' (1968) 21 Stanford Law Review <<https://core.ac.uk/download/pdf/234134954.pdf>> accessed 12 November 2024

proposes that this expectation be interpreted as evidence of a meeting of minds, allowing for such behaviour to fall within the definition of 'Agreement' under the Act.

The author suggests a potential amendment to the Act to address this issue. Specifically, the burden of proof could be reversed in cases of algorithmic collusion. Instead of requiring proof of anti-competitive agreements, the CCI could presume a meeting of minds in instances of parallel behaviour in digital markets. The burden would then shift to the accused enterprises to prove that their behaviour was the result of independent business decisions rather than coordinated efforts.

This proposal, though controversial, highlights the need for stricter scrutiny of algorithmic collusion in digital markets. Unlike in other scenarios, companies consciously design algorithms that make collusion highly likely. Therefore, reversing the burden of proof could help address the challenges of regulating algorithm-driven collusion, though it must be carefully implemented to avoid stifling innovation.

While some may argue that industrial awareness alone is insufficient to establish collusion, the dynamics of digital markets necessitate a rethinking of the traditional rules. This approach should not be dismissed outright but instead considered as part of a broader conversation on regulating digital markets and algorithmic collusion.

## **DIGITAL EYE**

The third category of algorithmic collusion, identified by Ezrachi and Stucke, is the 'digital eye' scenario, also referred to as the self-learning scenario. In this situation, companies use self-learning algorithms to achieve goals such as profit maximisation. These algorithms, in addition to the initial input they receive, learn from their own experiences. While companies may be aware that tacit collusion could result from the algorithm's operation, it is not their explicit intent. Typically, companies set the desired outcomes (like maximising profits) but have little control over how the algorithm achieves these objectives. Self-learning algorithms can observe competitors' pricing patterns and may, on their own, determine that coordinating higher prices

is the optimal strategy. This poses a unique challenge because the collusion occurs at an AI level with minimal input from the companies themselves.<sup>21</sup>

As noted by the OECD in 2017, it's still unclear how machine learning algorithms might lead to a collusive outcome. These algorithms could create anti-competitive behaviours without any clear agreement or intent among competing firms. Unlike a 'Predictable Agent' model, where firms intentionally employ algorithms with the understanding that collusion might occur, the self-learning scenario lacks this intent, meaning any tacit collusion is an unintended consequence. As a result, such anti-competitive behaviour by self-learning algorithms might escape legal oversight.<sup>22</sup>

Regarding the Indian context and Section 3(3) of the Act, the automated nature of self-learning algorithms presents a potential regulatory gap. When multiple firms use self-learning algorithms designed to optimise profits, these algorithms might independently recognise that conscious parallelism—maintaining supra-competitive prices—is a sustainable strategy. This could be more likely if the firms source their algorithms from the same developer, leading to similarities in the programming. Since these algorithms can monitor each other's prices and retaliate against undercutting, they can effectively enforce price coordination, maintaining a supra-competitive environment. However, despite this behaviour fitting the description of an anti-competitive agreement, current law requires that such agreements be made between 'enterprises' or 'persons,' which does not cover algorithms.

To address this, amendments to the Act are needed to encompass anti-competitive collusion driven by self-learning algorithms. The existing law, designed for traditional markets, may be inadequate for the digital landscape, where algorithmic collusion can happen easily. While banning deep learning algorithms might seem like a solution, it could hinder business innovation as industries increasingly move to digital platforms. Therefore, innovative legal solutions are needed to balance the reliance on self-learning algorithms with maintaining competitive market conditions.

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<sup>21</sup> Ezrachi (n 18)

<sup>22</sup> OECD (n 7)

## MESSENGER

In these cases, the business deploys algorithms to implement anti-competitive agreements first conceived by humans. Well-publicised cases, such as the Poster & Frames case<sup>23</sup> in the UK and the David Topkins case<sup>24</sup> in the USA, had a significant impact on how antitrust regulators approached algorithmic collusion. In both of these cases, online vendors agreed not to undercut each other's prices, using automatic pricing software to align their pricing strategies. This software made sure the prices did not deviate between the various sellers. Commissioner Margrethe Vestager pointed out that it is automated systems that make cartels more effective and create new challenges for anti-cartel enforcement.<sup>25</sup>

## LIABILITY OF ALGORITHMS UNDER SECTION 3

The use of self-learning algorithms by multiple enterprises can lead to a situation unregulated by the current Act. These algorithms, programmed to optimise profits, might independently discover that conscious parallelism is a profitable strategy, resulting in supra-competitive prices. If enterprises procure the same algorithm, the likelihood of tacit collusion increases, as the algorithms could monitor each other's prices and discourage price-cutting by anticipating retaliatory actions. As a result, these algorithms may end up sustaining anti-competitive behaviour as defined under Section 3(3) of the Act. However, algorithms themselves are neither 'enterprises' nor 'persons' under the Act, leaving this behaviour outside its scope.

To address this gap, the Act needs an amendment to account for anti-competitive practices orchestrated by deep-learning algorithms. Simply banning such algorithms would hinder business innovation, especially as digital platforms dominate modern marketplaces. Instead, India must explore solutions that balance the reliance on algorithms while maintaining fair

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<sup>23</sup> 'Decision of the Competition and Markets Authority: Online sales of posters and frames Case 50223' (*Competition and Markets Authority*, 12 August 2016) <<https://assets.publishing.service.gov.uk/media/57ee7c2740f0b606dc000018/case-50223-final-non-confidential-infringement-decision.pdf>> accessed 10 November 2024

<sup>24</sup> *United States v Tompkins* [1997] Crim Case No 15-cr-00201

<sup>25</sup> Kunal Singh, 'Analysing the Implications of Algorithmic Collusion: The Way Forward for the CCI?' (*RFMLR RGNUL*, 30 May 2022) <<https://www.rfmlr.com/post/analysing-the-implications-of-algorithmic-collusion-the-way-forward-for-the-cci>> accessed 10 November 2024

competition. The Act, designed for traditional markets, needs to evolve to address the complexities of the digital age and algorithmic collusion effectively.

The challenge posed by self-learning algorithms to competition law is novel and evolving, necessitating innovative solutions. One approach could be to hold enterprises accountable for their algorithm's actions by applying principles of agency under contract law. If algorithms are deemed autonomous agents of the enterprise, the enterprise could be held liable for their actions. However, this would require granting legal personhood to algorithms, enabling them to qualify as agents under the Indian Contract Act.

The principle of agency, based on the Latin maxim *qui facit per alium facit per se* ('he who acts through another does the act himself'), suggests that an enterprise could be liable for its algorithm's actions. However, as algorithms do not fit into the current legal definition of 'person', India would need to consider amending the law to recognise AI as artificial juristic persons.

While some argue this shift is necessary as AI becomes more prevalent, others highlight concerns under Section 188 of the Contract Act, which limits an agent's authority to lawful actions. Since algorithms can only act based on programming, any unlawful behaviour could be traced back to the enterprise or developer. Therefore, programming algorithms to comply with competition laws is essential, and failure to do so should result in enterprise liability.

## COMPARISON WITH OTHER JURISDICTIONS

It is important to compare and contrast how various jurisdictions interpret the formation of agreements within their legal frameworks. In this discussion, we will focus on analysing decisions related to concerted practices under the competition laws of the European Union.

### **European Union -**

The EU and India's competition laws share similarities, particularly with terms like 'Concerted Practices' and 'Actions in Concert,' which broaden the scope of agreements that could harm competition. Article 101 of the Treaty on the Functioning of the European Union (TFEU)

addresses anticompetitive agreements or concerted practices that affect market competition.<sup>26</sup> However, it does not cover tacit collusion unless explicit collusion is proven. In the *Wood Pulp* case, the European Court of Justice (ECJ) ruled that parallel market behaviour is insufficient to prove collusion unless accompanied by evidence of information exchange. As a result, the EU's jurisdiction struggled to address tacit price collusion.<sup>27</sup>

In *ICI v Commission* (Dyestuffs), the ECJ interprets concerted practice as coordination between firms that substitutes cooperation for competition without forming an explicit agreement. This distinction between agreements and concerted practices hinges on adverse market effects, while India's Competition Act presumes both agreements and concerted practices to be illegal, making its scope stricter.<sup>28</sup>

In cases like *Suiker Unie v Commission*, the ECJ further developed the concept of concerted practices by ruling that practical cooperation could substitute competition, even without formal agreements. The ECJ held that undertakings must independently decide their market actions without coordination.<sup>29</sup> Subsequent cases, such as *Polypropylene*<sup>30</sup> and *T-Mobile*<sup>31</sup>, clarified that a causal link between coordination and subsequent market behaviour establishes concerted practices.<sup>32</sup>

India's competition law, though relatively new, has a broad scope and is equipped to tackle algorithmic collusion in digital markets. The definition of agreements and recognition of concerted practices ensure that algorithmic collusion falls within the ambit of the law. However, better enforcement mechanisms are necessary to prosecute violations in digital markets, though amendments to the Act are not required to redefine agreements.

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<sup>26</sup> Consolidated Versions of the European Union and the Treaty on the Functioning of the European Union 2012, art 101

<sup>27</sup> *A Ahlström Osakeyhtiö and Ors v Commission of the European Communities* [1988] ECR 5193

<sup>28</sup> *Imperial Chemical Industries Ltd v Commission of the European Communities* [1972] ECR 619

<sup>29</sup> *Coöperatieve Vereniging Suiker Unie v Commission of the European Communities* [1975] ECR 1663

<sup>30</sup> *United Kingdom of Great Britain and Northern Ireland, French Republic and the Federal Republic of Germany v Council of the European Communities* [1991] ECR II-883

<sup>31</sup> *T-Mobile Netherlands BV v Raad van bestuur van de Nederlandse Mededingingsautoriteit* [2009] ECR I-4529

<sup>32</sup> *Ibid*



**United States -**

In the U.S., the antitrust framework is primarily governed by the Sherman Act (1890), the Federal Trade Commission ('FTC') Act, and the Clayton Act. Section 1 of the Sherman Act prohibits agreements between individuals or entities that restrain free trade.<sup>33</sup> However, whether this section includes 'tacit agreements' has been widely debated in landmark cases. In *Bell Atlantic Corp. v Twombly*, the court ruled that the ambiguous nature of tacit agreements could align with broad market strategies, potentially indicating a conspiracy.<sup>34</sup> Scholars like Richard Posner have argued that tacit collusion should be considered part of 'agreements' under Section 1<sup>35</sup>, but courts have rejected this view. While the courts acknowledge that tacit collusion can harm consumers, they deem it an inevitable outcome in rational oligopolistic markets.

This stance was reaffirmed in *In Re: Chocolate Factory Antitrust Litigation*, where the court opined that conscious parallelism or tacit collusion, despite its anticompetitive outcomes, is not prohibited under the Sherman Act. The court reasoned that conscious parallelism is not considered an agreement but rather a natural phenomenon in oligopolistic markets.<sup>36</sup> Additionally, tacit collusion remains lawful because the courts lack a remedy to address such behaviour. Thus, the courts view tacit collusion as a natural consequence for rational market players in oligopolies.

Similarly, in the *Martha Vineyards* case, gas station owners accused of price coordination were ruled in favour of by the First Circuit Court, which supported conscious price parallelism. While explicit collusion is illegal under Section 1 of the Sherman Act, tacit collusion is considered legal. In contrast, the FTC Act, with its broader scope, requires the plaintiff to demonstrate that a practice is unfair because it harms consumers, consumers cannot reasonably avoid it, and the

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<sup>33</sup> '15 U.S. Code s 1 - Trusts, etc., in restraint of trade illegal; penalty' (*Legal Information Institute*) <<https://www.law.cornell.edu/uscode/text/15/1>> accessed 11 November 2024

<sup>34</sup> *Bell Atlantic Corp v Twombly* [2007] 550 US 544

<sup>35</sup> Keith N Hylton, 'Oligopoly Pricing and Richard Posner' (2018) 18 *Antitrust Source* <[https://scholarship.law.bu.edu/faculty\\_scholarship/272/](https://scholarship.law.bu.edu/faculty_scholarship/272/)> accessed 11 November 2024

<sup>36</sup> *In Re Chocolate Factory Antitrust Litigation* [2010] 602 F 3d 578

harm is not outweighed by benefits.<sup>37</sup> It is recommended that the CCI adopt the reasoning from Section 5 of the FTC Act<sup>38</sup> rather than the limited view under the Sherman Act.

As for algorithmic collusion, U.S. antitrust laws face challenges in addressing this issue effectively. The narrow interpretation of agreements under the Sherman Act, which excludes tacit collusion, may not be sufficient to tackle algorithmic collusion. Algorithms could facilitate coordinated behaviour without explicit agreements, making it difficult to prove under current laws. While the FTC Act provides broader enforcement mechanisms, the U.S. competition framework would likely require further updates and regulations to address algorithmic collusion in digital markets adequately.

## CONCLUSION

The growing reliance on algorithms in business operations, particularly for pricing strategies, presents significant challenges for competition law. In India, the existing framework under the Act struggles to address algorithmic collusion, especially in tacit forms where direct human involvement or explicit agreements are absent. While the Act is well-equipped to tackle traditional anti-competitive practices, it falls short in regulating scenarios where algorithms unintentionally facilitate collusion, causing market distortions similar to those created by traditional cartels.

An examination of cases and global regulatory trends reveals that jurisdictions such as the European Union and the United States also face challenges in addressing algorithm-driven market coordination. However, CCI must adapt to the specific challenges posed by algorithmic collusion, particularly in sectors most vulnerable to digital disruptions. This paper argues that India's competition law could benefit from a broader interpretation of agreements and the introduction of amendments to address regulatory gaps in governing AI-enabled collusion.

Proposed reforms include holding enterprises accountable for the actions of their algorithms based on principles akin to agency law and shifting the burden of proof in cases involving digital

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<sup>37</sup> *Martha's Vineyard Scallops LLC v United States* [2016] 845 F 3d 58

<sup>38</sup> Federal Trade Commission Act 1914, s 5

market parallelism. Although these measures may be contentious, they could enhance the CCI's capacity to ensure fair competition in the digital economy without stifling innovation.

To safeguard market integrity in the digital era, India's competition law must evolve to address the complexities of algorithm-driven markets. It is essential to ensure that technological advancements strengthen, rather than undermine, the principles of free and fair competition.