Reading algorithms: foreseeability as a tool for competition analysis

Shivanghi Sukumar

Axiom5 Law Chambers, New Delhi

Divyanshu Dembi

Axiom5 Law Chambers, New Delhi

The rise of algorithmic alignment

Digital markets have given firms a new way to align behaviour: code. Algorithms can now align to monitor market conditions, adjust prices and react to competitors at speeds no human can match. This article uses 'algorithmic alignment' descriptively to refer to patterns of behaviour produced by algorithms, without assuming that such alignment amounts to an anti-competitive agreement under Indian competition law.

The focus here is on situations in which adaptive algorithms, deployed independently by competitors with no direct communication between them, learn from each other's behaviour and settle into patterns of market conduct. This kind of alignment poses the novel question for competition law: when algorithms settle into a shared pattern entirely through their own learning processes, on what basis, if any, can that pattern be treated as evidence of an anti-competitive agreement between competitors prohibited by section 3 of India's Competition Act (the 'Act')?

Answering that question requires revisiting how 'agreements', defined broadly under the Act, are inferred and whether existing doctrine can address scenarios in which outcomes reflect system architecture.

From intent to foreseeability

As alignment mechanisms shift from human communication to system architecture, the evidence also changes.

Traditional cartel enforcement relies on meeting minutes, emails or trade association exchanges to demonstrate a meeting of minds that constitutes an anti-competitive agreement. But algorithmic systems do not communicate in those ways. Instead, the traces of alignment lie in optimisation objectives and patterns of behaviour. The Competition Commission of India (CCI)'s Market Study on Artificial Intelligence and Competition (2025)[1] (the 'Market Study') underscores this point, noting the limits of existing traditional enforcement in relation to adaptive algorithms learning from each other without human intervention.

The task for regulators in these cases is not to search for human intention, but to determine whether firms created or adopted structures that made alignment sufficiently foreseeable to justify the inference of an anti-competitive agreement. Rather than tying liability to subjective intent, foreseeability shifts the question to what firms could reasonably anticipate about how their systems would behave and interact. This does not replace the statutory requirement of an agreement; it simply clarifies how agreements can be inferred when alignment occurs through code. In that sense, foreseeability bridges traditional cartel doctrine and the reality of algorithmic markets.

Against this background, the rest of this article examines how a foreseeability-based approach shapes three aspects of competition analysis:

1. doctrinal: how Indian jurisprudence already permits agreements to be inferred from circumstantial evidence;
2. institutional: the technical understanding that the CCI will need to evaluate whether algorithmic outcomes were reasonably predictable, given that the relevant facts increasingly lie in system behaviour rather than human exchanges; and
3. governance: as an evidentiary context in which a firm's understanding of its own systems helps to clarify what could realistically have been anticipated.

Together, these elements show how foreseeability can work within the existing framework of the prohibition of anti-competitive agreements between competitors under the Act while equipping the regulator to interpret forms of alignment produced by algorithms.

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1 See www.cci.gov.in/economics-research/market-studies/details/47/0 accessed 24 November 2025.

Doctrinal foundations: from intent to inference

Intent has traditionally been the anchor of cartel enforcement in Indian competition law. Early cases such as *Cement Manufacturers* (2012)[2] treated evidence of communication, that is, meetings, exchanges or coordinated conduct, as essential to identifying a 'meeting of minds'. Over time, courts recognised that an explicit agreement is not necessary. In *Excel Crop Care* (2017)[3] the Supreme Court, drawing on the European Court of Justice's (ECJ's) *Imperial Chemical* decision, clarified that a finding of agreement can rest on conduct and surrounding circumstances.

The acceptance of inferential reasoning creates room for developing a foreseeability-based lens to distinguish independent behaviour from alignment in more complex settings.

Indian law already requires asking whether observed behaviour reflects independently made decisions or whether the pattern is better explained by some form of anti-competitive alignment. In algorithmic settings, this assessment is more challenging because similar outcomes can arise for completely different reasons. Algorithms trained on comparable data, exposed to similar market signals or designed with similar optimisation goals could produce matching results independently. At the same time, systems can also learn from each other's behaviour in ways that create interdependence, even without communication. The same pattern of market outcomes can stem from different mechanisms.

Foreseeability can help to structure this inquiry by focusing on whether the outcomes in question were a reasonably predictable consequence of the systems firms chose to design or operate. If a pattern could have been anticipated from these choices, it is more plausible that the behaviour was not independent; if the pattern could not have been foreseen, independent decision-making is the more credible explanation. In this way, foreseeability helps to assess whether an agreement should be inferred under Indian competition law.

Institutional capacity: interpreting algorithmic conduct

A foreseeability-based understanding depends on what an authority can reconstruct. When learning systems adjust to each other without human intervention, the structure of the factual record changes. The materials that explain behaviour sit in model updates and development stages, and this reshapes what authorities review to evaluate foreseeability.

Some of these challenges have analogues in Indian enforcement. In earlier cartel cases, conduct often unfolded across a series of steps rather than in a single moment

2 See www.cci.gov.in/images/antitrustorder/en/2920101652433747.pdf accessed 24 November 2025.
3 See https://cci.gov.in/legal-framwork/judgements/8/0 accessed 24 November 2025.

(*Dry Cell Batteries*[4] (2016)), and explanations for parallel behaviour frequently involved several influences rather than a common plan (*Beer Cartel*[5] (2021), in which the regulator considered explanations revolving around the highly regulated nature of the beer industry in India). Algorithmic systems present these same issues in a different form: behaviour develops incrementally through repeated updates, outputs reflect several inputs processed simultaneously and parts of the system's evolution may not be visible from outcomes alone. These features do not alter the legal standard for a cartel under Indian competition law, but they affect the type of factual material that is necessary to apply it.

The broader implication for cartel enforcement is that algorithmic conduct shifts where the relevant facts reside. In traditional cases, the authority reconstructs behaviour from materials it can obtain independently: communications, instructions or meeting records. When the behaviour in question emerges from systems, the information that determines what outcomes were reasonably foreseeable sits largely with firms themselves: in development logs, earlier versions and the manner in which inputs were processed over time. The CCI's ability to infer agreement therefore depends less on uncovering exchanges between firms and more on interpreting how each firm's systems were structured to behave. This places greater practical significance on how firms document, understand and monitor the systems they deploy, an issue that shapes the governance considerations addressed next.

Governance: managing foreseeability

As foreseeability becomes analytically relevant, it also raises questions about how firms design and supervise the systems they deploy. There is no obligation on firms to prevent algorithmic alignment and the CCI has not articulated governance standards beyond its observations in the Market Study. Even so, the factual record needed to assess foreseeability often depends on how well a firm understands the behaviour of its own systems, and it may influence how regulators interpret technical evidence.

This creates a practical incentive for firms to maintain visibility into aspects of their systems that affect competitive independence, such as design choices and optimisation parameters. None of these measures are required under Indian competition law, but they can help to establish whether particular outcomes were the predictable result of identifiable system features or emerged from dynamics that couldn't reasonably have been anticipated.

4 See www.cci.gov.in/images/antitrustorder/en/suo-moto-case-no-0220161652433627.pdf? accessed 24 November 2025.

5 See www.cci.gov.in/images/antitrustorder/en/0620171652430028.pdf accessed 24 November 2025.

Viewed this way, governance is not about imposing new obligations, but about providing the material through which the foreseeability assessment can be carried out. It can help to clarify what firms could reasonably have anticipated, how their systems were configured and whether the design of their algorithms reflected choices that made such alignment predictable. As algorithms become more complex and adaptive, this kind of visibility is likely to become relevant, less as a standard of conduct and more as a source of evidence that enables regulators to distinguish between legitimate parallelism from patterns that support inferring an agreement.

Conclusion: a foreseeability-based future

Algorithmic systems do not change the legal test for an anti-competitive agreement between competitors under the Act, but they change what must be examined to apply it. When behaviour emerges from adaptive models rather than human communication, the core question, whether the pattern is more credibly explained by independent action or by alignment between different systems, requires attention to how the relevant systems were structured to respond. Foreseeability helps to answer this question by relating inference to what could reasonably have been anticipated from a system's design and operation, without extending liability to every instance of algorithmic parallelism.

As these systems become part of everyday competitive strategy, enforcement could turn on whether their behaviour can be understood with sufficient clarity to assess predictability. The corresponding task for firms is to understand how their own systems behave over time, so that the factual basis of that assessment is clear. Foreseeability, in this way, provides a principled way of applying the scope of the prohibition on anti-competitive agreements in markets where the mechanisms that generate outcomes now sit in code.

Shivanghi Sukumar is a partner and Divyanshu Dembi is an associate at Axiom5 Chambers in New Delhi. The views expressed in this article are personal.