

Algorithmic Gatekeeping: The Role of Recommendation Systems in Music Streaming and Competition Law

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ABSTRACT

The emergence of digital streaming platforms has brought about a significant change in the global music industry. With their algorithmic recommendation systems- services like Spotify and YouTube Music are now basically active curators of cultural consumption- rather than merely just being passive distributors. These systems basically determine what music listeners hear, which musicians are promoted, and who eventually gets paid royalties. The final goal of this paper is to basically analyse algorithmic gatekeeping in music streaming from the perspective of competition law- with a particular or special emphasis on the disparity or difference that exists, in power that results from a small number of platforms controlling promotion and discovery. Based on platform data and comparative studies- the paper also investigates how recommendation systems basically can either support or challenge market dominance by giving preference to some artists or labels while marginalising others.

Drawing on and considering comparative studies and platform data- the paper also explores how recommendation systems can just reinforce or disrupt market dominance- privileging or rather prioritising certain artists or labels while side-lining others. So it essentially speaks of and also argues that such algorithmic interventions- though technologically neutral on the surface- may amount to exercises of market power with implications under the Indian Competition Act of 2002. The paper also further highlights the relative absence of legal scrutiny on algorithmic bias in India and suggests the need for regulatory frameworks that balance innovation with fairness and transparency.

By situating this issue at the intersection of intellectual property, competition law, and digital regulation- the paper also aims to essentially contribute to emerging debates on platform accountability. It ultimately calls for a re-examination of how competition authorities conceptualize dominance and abuse in data-driven, algorithmically mediated markets.

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Keywords: Algorithms, Competition Law, Digital Platforms, Music Streaming, Recommendation Systems

INTRODUCTION

It is pertinent to note that, the contemporary music industry is no longer defined by radio broadcasts, compact discs, or even traditional record store shelves. Over the past decade- digital platforms such as Spotify, YouTube Music, and Apple Music have certainly transformed the way music is produced, distributed, and consumed.² It is also important to gauge that, at the centre or the heart of this transformation are algorithmic recommendation systems that shape user experience by curating playlists, suggesting new tracks or songs- and even influencing what kind of artists listeners are exposed to. For millions of users, these algorithms have become the invisible gatekeepers of cultural consumption, which is overlooked in daily life due to the lack of awareness about the same.

The growing influence of these systems, however, raises important questions of law and policy, specifically with regards to safeguards for the same. While copyright scholarship and discourse has basically already long debated ownership, royalty distribution, and even the impact of digital piracy- way less attention has been paid to the competitive consequences of algorithmic curation. Unlike earlier eras in the music industry- where a handful of or basically just a few selected major record labels dictated access, today it is the platforms themselves that control this very visibility and discovery.³ This shift in power has profound implications: there is the possibility of bias in playlists that just cannot be rule out, preferential promotion of artists linked to major labels, or even the marginalisation of independent creators.

Against this backdrop, this paper examines algorithmic gatekeeping in music streaming services through the lens of competition law, particularly the Indian Act of 2002⁴. It further also argues that the dominance of platforms- combined with these rather opaque recommendation systems- basically creates new challenges for ensuring fair access and diversity in the digital marketplace. By situating the issue at the intersection of intellectual

² Arditi, D., 2018. Digital subscriptions: The unending consumption of music in the digital era. *Popular Music and Society*, 41(3), pp.302-318.

³ Guo, X., 2023. The evolution of the music industry in the digital age: From records to streaming. *Journal of Sociology and Ethnology*, 5(10), pp.7-12.

⁴ The Competition Act, No. 12 of 2003, Acts of Parliament (India).

property and competition regulation, this study explores an area that remains relatively under-researched in Indian legal scholarship. In doing so, it highlights the need for greater transparency, accountability, and possibly regulatory intervention to ensure that algorithms do not become silent arbiters of cultural production in the twenty-first century.

STATEMENT OF PROBLEM

The structure of the music industry has changed significantly as a result of the emergence of rather new music streaming services. With the use of curated playlists and algorithmic recommendation systems- platforms such as Spotify, Apple Music, and YouTube Music have evolved into mechanisms that can determine which songs gain exposure and thus even consequent commercial success. This is derived from their ability and access to such a wide range of user data. Due to this change- platform operators now hold a new kind of power concentration, which has certainly marked an end to the major record labels' long-standing dominance.⁵

However, it becomes pertinent to note that complex issues are brought up by this seemingly increasing algorithmic control. Algorithmic gatekeeping can basically produce opaque and rather data driven barriers to entry that are challenging to identify and even more challenging to control, this is definitely in contrast to traditional anticompetitive behaviour, where power was used through price manipulation or exclusive licensing.⁶

For example, showing a self-preference all of the platform affiliated music, discriminatory playlist placements, or preferential promotion of specific tracks can skew or basically distort independent artists' access to the market and even possibly violate fair competition laws. There isn't much guidance on how the Competition Act of 2002⁷ should evaluate such algorithmic practices in India, where competition law pertaining to digital platforms is still developing. Even the enforcement is basically made more difficult by recommendation systems' lack of transparency- since impacted parties frequently and usually lack the evidence necessary to establish discrimination or market foreclosure on paper. By critically analysing how algorithmic recommendation systems in music streaming platforms may affect the competitive

⁵ *supra* at note 2.

⁶ Hesmondhalgh, D., 2021. Is music streaming bad for musicians? Problems of evidence and argument. *New Media & Society*, 23(12), pp.3593-3615.

⁷ The Competition Act, No. 12 of 2003, Acts of Parliament (India).

dynamics in the Indian music industry and whether current legal frameworks are sufficient to handle such algorithm-driven market power, this paper fills this particular gap.

RESEARCH QUESTIONS

- i. How have music streaming platforms altered the traditional market structure of the music industry, particularly in terms of control over distribution and promotion?
- ii. In what ways do algorithmic recommendation systems and curated playlists act as gatekeepers influencing music consumption patterns?
- iii. To what extent can such algorithmic practices be scrutinized under the Competition Act, 2002, particularly under provisions relating to abuse of dominant position and anti-competitive agreements?
- iv. What challenges arise in detecting and proving anti-competitive effects caused by opaque algorithmic decision-making processes?
- v. What regulatory or legal interventions could ensure that recommendation systems promote fair competition and market access for independent artists?

SIGNIFICANCE

This research is rather significant because it engages with a rapidly evolving intersection of technology, law, and even market regulation- that has yet to receive focused attention of scholars and professionals in the Indian context. While much of the existing literature on music streaming focuses on copyright law and royalty distribution- there are very few studies that critically analyse this particular competition law dimension of algorithmic recommendation systems.⁸ By examining algorithmic gatekeeping through the lens of Indian competition law- this paper brings or draws attention to a new and underexplored form of market power - in fact, one that is not based on ownership of intellectual property, but on control over digital visibility and consumer choice structures or architecture of the same.⁹ In doing so, it highlights how data driven decision making can create subtle or feeble but then again, rather powerful entry barriers for independent artists, with potential and rather adverse implications for cultural diversity and innovation in this creative economy.

⁸ Antal, D., Fletcher, A. and Ormosi, P., 2021. Music streaming: Is it a level playing field?. *Competition Policy International Antitrust Chronicle*, 2(2).

⁹ Lozic, J., 2019. Digitalization creates a new paradigm of the global music industry: The traditional music industry is under pressure of the streaming platforms. *Economic and Social Development: Book of Proceedings*, pp.179-190.

The findings of this study aim to basically speak of a broader impact beyond the music industry- basically offering a framework to analyse algorithmic bias and self-preferencing on other digital platforms such as perhaps e-commerce marketplaces, video-streaming platforms, and app stores. This cross-sectoral or inter-sectoral relevance of sorts¹⁰ makes the research particularly valuable for regulators, policymakers, and competition authorities who are currently grappling with questions of platform accountability in the digital economy.

Finally, the study aims to also contribute to the global discourse on platform regulation by situating the Indian experience within comparative perspectives- basically potentially informing future amendments to the Competition Act, 2002¹¹ and shaping policy debates on algorithmic transparency, fairness, and consumer welfare.

SCOPE AND LIMITATION

The scope of this research is set on exploring the impact of algorithmic recommendation systems and curated playlists on competition within the Indian music streaming market, but it also tries to call for a rather inter-sectoral application¹² to understand the harms of algorithmic gatekeeping in general also. It focuses on how these systems may influence visibility, market access, and consumer choice, and also further examines whether such practices could amount to anti-competitive conduct under the Competition Act, 2002 or not. The study also considers the role of regulatory authorities in addressing these issues and briefly draws parallels with global trends to contextualize the Indian scenario.¹³

Despite the broad applicability of its themes- as said above- this study is subject to several important limitations that define the boundaries of its conclusions as well. The most significant constraint is the inherent opacity of the "black box"¹⁴ algorithms themselves as rather trade secrets that are proprietary. This means that the study is precluded from accessing source code

¹⁰ Potnis, D., Tahamtan, I. and McDonald, L., 2025. Negative consequences of information gatekeeping through algorithmic technologies: An Annual Review of Information Science and Technology (ARIST) paper. *Journal of the Association for Information Science and Technology*, 76(1), pp.262-288.

¹¹ *The Competition Act*, No. 12 of 2003, Acts of Parliament (India).

¹² Pałka-Suchojad, K., 2021. Who keeps the gate? Digital gatekeeping in new media. *Zeszyty Prasoznawcze*, (2 (246)), pp.91-100.

¹³ Voinea, D.V., 2025. Reconceptualizing Gatekeeping in the Age of Artificial Intelligence: A Theoretical Exploration of Artificial Intelligence-Driven News Curation and Automated Journalism. *Journalism and Media*, 6(2), p.68.

¹⁴ Durán, J.M. and Jongsma, K.R., 2021. Who is afraid of black box algorithms? On the epistemological and ethical basis of trust in medical AI. *Journal of medical ethics*, 47(5), pp.329-335.

or certain internal training data, rendering the findings primarily theoretical and doctrinal rather than empirically proven, as it would be difficult to do so. This is also actually compounded by the nascent and evolving state of jurisprudence in this area- meaning the paper's arguments are necessarily prospective, building on existing legal principles in the absence of a settled body of case law directly addressing algorithmic gatekeeping in India. It basically tries to connect existing jurisprudence to an evolving conception.

RESEARCH OBJECTIVES

- ❖ To examine how algorithmic recommendation systems and curated playlists shape visibility, promotion, and competition in the Indian music streaming market.
- ❖ To analyse whether algorithmic gatekeeping practices may amount to anti-competitive conduct under the Competition Act, 2002, particularly under provisions on abuse of dominance and market foreclosure.
- ❖ To explore the challenges posed by the opacity of algorithmic decision-making in assessing harm to competition and market access for independent artists.
- ❖ To suggest potential legal and policy interventions that could ensure fairness, transparency, and competitive neutrality in platform-driven music distribution and could further extend to other industries potentially.

I. DEFINING DOMINANCE AND FRAMING THE ABUSE: ALGORITHMIC GATEKEEPING UNDER SECTION 4 OF THE COMPETITION ACT, 2002

Traditional antitrust principles must be an rather, need to be reevaluated in order to apply competition law to digital markets. Market power for music streaming services is basically rooted in their control over the sort of architecture of discovery- the algorithmic recommendation systems that serve as the rather new, powerful gatekeepers of cultural consumption- rather than just being a mere function of subscriber volume or just mere numbers.¹⁵ According to India's competition framework, examining these systems necessitates two steps: first would be basically determining a platform's dominant position in a specific relevant market, and second would be developing a cogent or a rather persuasive theory of harm that basically frames its algorithmic practices as perhaps potentially abusive under

¹⁵ Hutchinson, C.S., 2022. Potential abuses of dominance by big tech through their use of Big Data and AI. *Journal of Antitrust Enforcement*, 10(3), pp.443-468.

Section 4¹⁶ of the Competition Act, 2002. This analysis needs to go beyond crude or basically simplistic comparisons and take into account the distinct economic features of multifaceted, data driven platforms.

A. The Fallacy of Traditional Market Definition in Algorithmic Ecosystems

The foundational step for the CCI would perhaps be the delineation and a demarcation of the “relevant market”, a task that is further complicated by the multi sided nature of music streaming platforms.¹⁷ These platforms serve at least two distinct user groups: listeners (consumers) and content creators (artists or labels). While the consumer-facing market might be basically and rather broadly defined as the “market for online audio streaming services in India,” this definition is rather inadequate as it fails to capture the competitive dynamics on the supply side- where the artists basically compete for algorithmic visibility- which is a non-monetary, yet crucial, form of currency that needs to be recognised.

A more sophisticated or rather comprehensive approach would be to define a two sided relevant market- basically acknowledging the interdependencies between the two sides. The value for listeners increases with more content, and the value for artists increases with more listeners (indirect network effects). Dominance, therefore, in that case cannot and would not be assessed solely by subscriber market share.¹⁸

Instead, the CCI must consider metrics that have to be unique to the digital economy. A key factor would be perhaps control over vast datasets of user behaviour. A platform's recommendation algorithm is a capital asset that appreciates with data- this basically means that the more users listen, the more data is generated, and the more effective the algorithm becomes at retaining users and predicting hits.¹⁹ This creates a powerful data feedback loop, which acts as a sort of barrier to entry for the new competitors. A new entrant- even with a superior interface, cannot replicate or copy basically the personalization capabilities of an one

¹⁶ The Competition Act § 4, No. 12 of 2003, Acts of Parliament (India).

¹⁷ Prey, R., 2018. Nothing personal: Algorithmic individuation on music streaming platforms. *Media, Culture & Society*, 40(7), pp.1086-1100.

¹⁸ Tim Ingham, *The 5 Most Important Numbers in the UK Music Streaming Market*, MUSIC BUSINESS WORLDWIDE (July 27, 2022), <https://www.musicbusinessworldwide.com/the-5-most-important-numbers-in-the-uk-music-streaming-market/> (last accessed 4:02PM, 8th September, 2025).

¹⁹ Sánchez-Moreno, D., Gil González, A.B., Muñoz Vicente, M.D., López Batista, V. and Moreno-García, M.N., 2017, June. Recommendation of songs in music streaming services: Dealing with sparsity and gray sheep problems. In *International Conference on Practical Applications of Agents and Multi-Agent Systems* (pp. 206-213). Cham: Springer International Publishing.

that possesses years of a vast record listener data. Therefore, in its assessment of dominance under the factors listed in the Act, the CCI should give significant weight to non-price factors also- such as the scale and scope of data collection, the sophistication of the platform's analytical capabilities, or even the intensity of indirect network effects.

The traditional SSNIP²⁰ (Small but Significant and Non-transitory Increase in Price) test that exists for market definition is largely irrelevant and becomes redundant in markets where services are often offered at a zero price to consumers (ad supported nature also), funded by data monetization. The true market power so, lies in the control over the flow of information and the ability to shape consumer choice architecture- which basically demands a more functional and less formalistic approach to defining dominance.

B. Algorithmic Discrimination as an 'Unfair Condition' under Section 4(2)(a)(i)

Once dominance is established, the central legal challenge basically comes to frame algorithmic curation as an "abuse." Section 4(2)(a)(i) of the Competition Act²¹, prohibits the imposition of "unfair or discriminatory" conditions and it also provides the most technically challenging avenue. The nuance herein, basically lies in distinguishing between pro-competitive personalization versus say, anti-competitive discrimination. A platform will argue its algorithm is simply matching users with music they are likely to enjoy- a pro-consumer innovation. However, this neutrality is rather illusory is what is argued here- when the algorithm's utility function is optimized not for consumer welfare or cultural diversity, but for platform centric metrics like maximizing engagement time or minimizing royalty payouts rather.²²

This optimization can lead to a form of "auditory redlining,"²³ wherein the algorithm systematically under represents or reduces the visibility of certain genres, independent artists, or demographic groups that do not conform to the most commercially profitable listening patterns perhaps. The precedent set in the case of *Belaire Owner's Association v. DLF Ltd*²⁴ ,

²⁰ Mandrescu, D., 2018. The SSNIP test and zero-pricing strategies: Considerations for online platforms. *Eur. Competition & Reg. L. Rev.*, 2, p.244.

²¹ The Competition Act § 4(2)(a)(i), No. 12 of 2003, Acts of Parliament (India).

²² Araujo, C.S., Cristo, M. and Giusti, R., 2019, September. Predicting music popularity on streaming platforms. In *Simpósio Brasileiro de Computação Musical (SBCM)* (pp. 141-148). SBC.

²³ Eidsheim, N.S., 2023. Rewriting Algorithms for Just Recognition: From Digital Aural Redlining to Accent Activism. In *Thinking with an Accent*. University of California Press.

²⁴ *Belaire Owner's Ass'n v. DLF Ltd.*, Case No. 19 of 2010, Competition Comm'n of India (India).

where the CCI condemned the imposition of one-sided terms is applicable here. Here, the terms of engagement are not in a written contract but are instead, sort of encoded in the platform's opaque infrastructure.²⁵ An artist has no ability to negotiate with the algorithm or understand why their music is being sidelined. This information asymmetry creates a dependency that is ripe for abuse.

C. Leveraging Data Dominance: A Theory of Harm under Section 4(2)(e)

Perhaps the most sophisticated and forward looking theory relates to the principle of leveraging, prohibited under Section 4(2)(e)²⁶ of the Act. The CCI's decision in the *Google Android case*²⁷ provides a clear precedent, finding that Google unlawfully leveraged its dominance in the mobile market to basically favour its own apps. For music streaming platforms, the leveraged asset is not just market access- but along with that data dominance. A platform leverages its comprehensive knowledge of listener preferences and emerging trends to basically gain an advantage in adjacent markets.

A dominant streaming platform knows which unsigned artist is gaining traction in a specific city, what their fanbase demographic is, and what ticket price they could command or could be. If the platform uses this exclusive data to launch its own concert promotion arm or to sign emerging artists to its own label, for example, it is leveraging its data dominance to basically just foreclose competition in these secondary markets. A traditional record label or concert promoter cannot compete with a rival that has a perfect, real-time map of market demand. This is a more subtle form of leveraging than simple self-preferencing in search results; it is the monopolization of market intelligence.²⁸ The Supreme Court's ruling in *CCI v. Co-Ordination Committee of Artists and Technicians of W.B. Film and Television*²⁹ confirms that the CCI has jurisdiction over creative industries, providing a foundation for investigating these complex, data-driven theories of harm and also basically ensuring that the digital music ecosystem remains a field of fair competition.

²⁵ Ferraro, A., Serra, X. and Bauer, C., 2021, August. What is fair? Exploring the artists' perspective on the fairness of music streaming platforms. In *IFIP conference on human-computer interaction* (pp. 562-584). Cham: Springer International Publishing.

²⁶ The Competition Act § 4(2)(e), No. 12 of 2003, Acts of Parliament (India).

²⁷ *Google LLC v. Competition Comm'n of India*, Appeal No. 01 of 2023, CompAT (Mar. 29, 2023) (appeal from Case No. 39 of 2018, Competition Comm'n of India, Oct. 20, 2022) (India).

²⁸ Rudkovska, N., 2020. EVOLUTIONARY STAGES OF DEVELOPMENT OF INTEGRATION FORMS OF THE MONOPOLIZATION PROCESS (44).

²⁹ *Competition Comm'n of India v. Co-Ordination Comm. of Artists & Techs. of W.B. Film & Television*, (2017) 5 SCC 17 (India).

II. SURVEILLANCE CAPITALISM ENGINE: ECONOMIC INCENTIVES FOR ALGORITHMIC BIAS AND DATA EXTRACTION

To effectively regulate algorithmic gatekeeping, it is very crucial to understand why exactly these systems operate the way they do. Their design is not solely for user satisfaction but is basically deeply rooted in the economic model of the modern digital platform- which is a model Shoshana Zuboff has termed "surveillance capitalism"³⁰. Music streaming platforms, in this view, are not just content distributors- but they are also data extraction machines that sort of commodify user behaviour.

Zuboff also argues³¹ that the core business of platforms is the extraction of "behavioural surplus"- this means that user data that goes beyond what is necessary to provide the service. For a music streaming platform- the basic service is basically just playing a song the user selects. The behavioural surplus is everything else that it does- what you listen to, when, what you skip, what you add to playlists, your location while listening, and how your listening habits correlate with millions of others. This data is the raw material for creating "prediction products"³² which are sophisticated models of user behaviour that can be used to influence and guide future actions. The algorithm is thus, engineered to keep users on the platform longer, generating more data points- which in turn basically refines the prediction products and enhances the platform's value.

This incentivizes formation of algorithmic bias³³ that can have anti-competitive effects. For instance, an algorithm may discover that mainstream, formulaic pop music consistently generates longer listening sessions and lower skip rates. So, it will naturally begin to favour such content- creating a feedback loop that basically marginalizes any other niche or experimental genres. Even though, this isn't born out of a malicious intent to harm independent artists the competitive harm is real as independent artists who do not fit this sort of commercial criteria are thus disadvantaged.

³⁰ **SHOSHANA ZUBOFF**, *THE AGE OF SURVEILLANCE CAPITALISM: THE FIGHT FOR A HUMAN FUTURE AT THE NEW FRONTIER OF POWER* (2019).

³¹ *Id.*

³² Herteux, A., 2019. Behavioural capitalism and surveillance capitalism-a comparison of two interpretations of a development of capitalism, *Erich von Werner Society*.

³³ Ferrari, G., 2021. Big Tech strategies across markets: the role of self-preferencing in Digital Antitrust.

Another pertinent source is the NBER working paper on Spotify.³⁴ It demonstrates that placement on major editorial playlists has a "large causal impact on streaming numbers". This confirms that platforms have immense power to shape market outcomes. The decision of whose music to "over-promote" is an exercise of market power. When this power is used to favour platform affiliated content or partners, it moves from curation to anti-competitive self-preferencing.³⁵

Furthermore, this data centric model creates an intersection with data protection law. The Digital Personal Data Protection Act (DPDP Act), 2023³⁶, mandates that the processing of personal data must be for lawful purposes and with user consent. Recommendation systems rely on user profiling, which is basically "processing" under the Act. Platforms are obligated to be transparent about this data collection and profiling. The opacity of recommendation algorithms may therefore not only be an issue for competition law- but also a problem of data protection principles if users are not adequately informed about how their data is used to shape their consumption patterns. This highlights need for legal intervention also.³⁷ The logic of surveillance capitalism³⁸ reveals that algorithmic bias is not an accident; it is a feature of a profit-maximizing system, making it a legitimate and necessary target for regulatory scrutiny.

III. PROVING HARM IN THE BLACK BOX: EVIDENTIARY CHALLENGES AND REGULATORY PATHWAYS FORWARD

While a theoretical contention similar to the one above can be made that algorithmic gatekeeping constitutes an abuse of dominance- translating this into a successful enforcement action is has many practical and evidentiary challenges. The core of the problem lies in the

³⁴ Luis Aguiar et al., *Platform Power Struggle: Spotify and the Major Record Labels*, NBER Working Paper No. 33048 (2024).

³⁵ Rahbari, E. and Masoudi Tafreshi, A., 2024. Self-Preferencing in Digital Platforms: A Competition Law Analysis of Preferential Treatment and the Requirements for Ex-Ante Regulations. *Private Law*, 21(1), pp.91-107.

³⁶ *The Digital Personal Data Protection Act*, No. 22 of 2023, Acts of Parliament, 2023 (India).

³⁷ Khandenwal, P., 2023. Tying, Self-Preferencing and the Digital Competition Bill: A Changing Landscape for Competition Intervention?. *Indian JL & Tech.*, 19, p.68.

³⁸ Lyon, D., 2019. Surveillance capitalism, surveillance culture and data politics 1. In *Data politics* (pp. 64-77). Routledge.

opacity of algorithms³⁹- the proverbial "black box."⁴⁰ For an independent artist or label to bring a complaint to the CCI, they must not only allege harm but also provide credible evidence that the platform's algorithm systematically and unfairly disadvantaged them. This is an almost impossible burden given that algorithms are proprietary, complex, and constantly evolving.

A. The Asymmetry of Proof: Shifting from Causal Inference to Statistical Demonstration of Harm

The fundamental challenge in litigating algorithmic harm basically lies in the profound mismatch that exists between legal standards of proof and the actual reality of machine learning systems. Competition law has historically relied on finding a "smoking gun"⁴¹- which is a document, email, or basically just a clause in a contract- that demonstrates anti-competitive intent or a clear, causal link between an action and a market distortion. In the algorithmic context, this model collapses. There is no single line that just says, "suppress independent artists." Instead, harm emerges from the complex interplay of millions of data points and a utility function focussed towards platform centric goals- such as maximizing user engagement or ad revenue.

If an independent artist's music is de-prioritized, the platform can argue that its models predicted, based on vast historical data, that users would have a higher probability perhaps to engage with a mainstream track. This is the problem of "algorithmic confounding,"⁴² where the legitimate goal of personalization becomes a sort of a shield for discriminatory outcomes. Furthermore, the very nature of causation is rather different. Usually we just seek a linear, deterministic chain of events. In a machine learning model, outcomes are probabilistic.⁴³ The algorithm doesn't guarantee a song will fail- it just slightly lowers its probability of being

³⁹ Eslami, M., Vaccaro, K., Lee, M.K., Elazari Bar On, A., Gilbert, E. and Karahalios, K., 2019, May. User attitudes towards algorithmic opacity and transparency in online reviewing platforms. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (pp. 1-14).

⁴⁰ Langer, M. and König, C.J., 2023. Introducing a multi-stakeholder perspective on opacity, transparency and strategies to reduce opacity in algorithm-based human resource management. *Human Resource Management Review*, 33(1), p.100881.

⁴¹ Munayyer, Y.E., 2015. *The smoking gun: Toward understanding the decisions behind repressive outcomes* (Doctoral dissertation, University of Maryland, College Park).

⁴² Chaney, A.J., Stewart, B.M. and Engelhardt, B.E., 2018, September. How algorithmic confounding in recommendation systems increases homogeneity and decreases utility. In *Proceedings of the 12th ACM conference on recommender systems* (pp. 224-232).

⁴³ Schauer, F. and Spellman, B.A., 2020. Probabilistic causation in the law. *Journal of Institutional and Theoretical Economics*, 176, pp.4-17.

recommended to millions of users, which basically amounts to market foreclosure.⁴⁴ Proving this requires access to the platform's training data, and the model's architecture- all of which are protected as trade secrets.⁴⁵ By that logic, for any complainant, the burden is not just high- it is structurally impossible to meet without regulatory intervention.

B. Proactive Regulatory Frameworks: Employing Competition Sandboxes as a Discovery Mechanism

Instead of merely trying to dissect past harms- the CCI should be empowered to foster a market for pro competitive algorithms. One approach, adapted from financial technology regulation, is the creation of a "competition sandbox."⁴⁶ This would be a controlled environment where tech companies, academics, and even the CCI itself could develop and test alternative recommendation algorithms based on principles of fairness, diversity, and contestability.

Imagine a scenario where the CCI- as a condition of approving a merger or as a remedy in an abuse of dominance case- requires a platform to participate in such a sandbox. Basically, for a set period, a small percentage of the platform's users could be randomly assigned to a "sandbox feed" powered by a transparent algorithm. By establishing a certain foundation, the CCI would be able to calculate the "opportunity cost" of the platform's current black box algorithm.⁴⁷ We could finally answer the question: how much more visibility would independent artists receive in a system not solely optimized for engagement?

C. Recalibrating Remedies: Counterfactual Auditing and Algorithmic Disgorgement

Even with better evidence- remedies must be tailored to the specific nature of algorithmic harm. Traditional remedies like cease and desist orders are insufficient as they do not compensate for past harm or deter future misconduct. This paper suggests that two innovative and rather new

⁴⁴ Kiay, A. and Nazaryan, F., 2022. Identifying the Effects of Algorithmic Gatekeeping in Media Platforms on the General Interests of Users. *Communication Research*, 29(110), pp.43-67.

⁴⁵ Potnis, D., Tahamtan, I. and McDonald, L., 2025. Negative consequences of information gatekeeping through algorithmic technologies: An Annual Review of Information Science and Technology (ARIST) paper. *Journal of the Association for Information Science and Technology*, 76(1), pp.262-288.

⁴⁶ Yang, Y., 2023. Practice and Exploration of Virtual Simulation System to Cultivate Cross-Border E-Commerce Talents in the Context of Big Data. *Journal of Big Data and Computing (ISSN: 2959-0590)*, 1(1), p.31.

⁴⁷ Everingham, M.R., Pelster, N., Mueller, R.P. and Davidian, K., 2008, January. Preparation and Handling Large Quantities of JSC-1A Lunar Regolith Simulant for the 2007 Regolith Excavation Challenge. In *AIP Conference Proceedings* (Vol. 969, No. 1, pp. 268-273). American Institute of Physics.

remedies should be added to the CCI's toolkit: counterfactual auditing and algorithmic disgorgement.

Counterfactual auditing basically moves beyond a simple compliance check. Instead of just asking, "Did the algorithm follow a set of rules?" - it asks a more profound question, which is "What would the market have looked like but for the anti-competitive conduct?" This would basically involve regulatory appointed technical experts using the platform's own data to build simulation models.⁴⁸ These models would estimate the quantum of harm- for instance, the number of "lost streams" or the suppressed market share of independent music- by comparing the actual outcomes with a simulated baseline of a rather neutral algorithm⁴⁹ (perhaps informed by the results of a regulatory sandbox).

Apart from this, the CCI could employ the remedy of "algorithmic disgorgement."⁵⁰ This principle, borrowed from securities law- basically requires a wrongdoer to surrender the profits obtained from their illegal or unethical conduct.⁵¹ A disgorgement order would require the platform to thus pay profits back. However, now, these funds should not simply go to the treasury but could be paid into a dedicated "Artist and Innovation Fund." This fund could then be used to provide grants, marketing support, and technical assistance to independent artists. So, this basically creates a powerful deterrent and ensures that the fruits of anti-competitive conduct are used to restore the competitive balance.

D. A Paradigm Shift in Platform Responsibility: The Doctrine of Information Fiduciaries

Another solution involves a fundamental re conceptualization of the legal relationship between dominant platforms and their users. Drawing on the work of Jack Balkin, it is argued that platforms controlling critical information infrastructure should basically be treated as "information fiduciaries."⁵² Imposing a fiduciary duty would introduce two critical obligations:

⁴⁸ Barredo-Arrieta, A. and Del Ser, J., 2020, July. Plausible counterfactuals: Auditing deep learning classifiers with realistic adversarial examples. In *2020 International joint conference on neural networks (IJCNN)* (pp. 1-7). IEEE.

⁴⁹ Lee, S.C., 2022. A black box approach to auditing algorithms. *Issues In Information Systems*, 23(2).

⁵⁰ Goland, J.A., 2022. Algorithmic Disgorgement: Destruction of Artificial Intelligence Models as the FTC's Newest Enforcement Tool for Bad Data. *Rich. JL & Tech.*, 29, p.1.

⁵¹ Belkadi, L. and Jasserand, C., 2023, July. From algorithmic destruction to algorithmic imprint: generative AI and privacy risks linked to potential traces of personal data in trained models. In *ICML 1st Workshop on Generative AI and Law*.

⁵² Balkin, J.M., 2015. Information fiduciaries and the first amendment. *UCDL Rev.*, 49, p.1183.

a duty of care and a duty of loyalty. The duty of care would require platforms to ensure their algorithms are robust or rather comprehensive, non-discriminatory, and definitely do not cause foreseeable harm to market participants. The duty of loyalty would basically be even more transformative. It would legally obligate the platform to act in the best interests of its users (both artists and listeners) and prohibit it from using its algorithmic power for self preferencing or to just exploit its users' data.

IV. THE SPECTRE OF ALGORITHMIC COLLUSION: TACIT COORDINATION IN PLAYLIST CURATION

Beyond the mere unilateral conduct of a single dominant firm, another pertinent existing threat to competition lies in the potential for algorithmic collusion. This is basically an issue in global antitrust jurisprudence where two or more dominant platforms, without explicit agreement, might coordinate their behaviour through the use of self learning algorithms.⁵³ In the context of music streaming, the recommendation and playlisting algorithms of major platforms could learn that prioritizing mainstream artists is the most profitable strategy. If all major platforms' algorithms independently converge on and then follow this strategy, it creates the same anti-competitive effect as an explicit cartel agreement. This presents an immense challenge for the CCI, requiring a fundamental reevaluation of how "agreement" and "concerted practice"⁵⁴ are understood in the digital age.

A. The Platform as a Digital Cartel Manager

The traditional "hub and spoke" cartel⁵⁵ basically involves a central entity (the hub- in this case like a supplier) facilitating collusion among downstream players (the spokes or like retailers). In the digital era, this model can be re conceptualized with the platform itself acting as the hub. The platform's algorithm, which sets the parameters for visibility and success, basically just becomes the coordinating mechanism through which otherwise competing entities can achieve a collusive outcome.

⁵³ Gebicka, A. and Heinemann, A., 2016. Can Computers form Cartels? About the need for European institutions to revise the concertation doctrine in the information age. *Journal of European Competition Law and Practice*, (7), pp.431-441.

⁵⁴ Patakyová, M.T., 2020. Notion of anticompetitive agreement challenged in digital environment. *European Studies-the Review of European Law, Economics and Politics*, 7(1), pp.237-252.

⁵⁵ Garrod, L., Harrington Jr, J.E. and Olczak, M., 2021. *Hub-and-spoke cartels: Why they form, how they operate, and how to prosecute them*. MIT Press.

In that case, there is no need for the labels to communicate with each other. They need only communicate with the "hub"- the algorithm- by just feeding it data. These parallel inputs will teach the platforms' algorithms- which are basically built to identify and magnify trends- to prioritise this kind of content. As a result, independent artists are marginalised and major labels control the most valuable digital real estate creating a de facto market allocation. By designing its algorithm with a specific objective function- such as maximizing user session time- it basically then creates the very environment that makes this form of tacit coordination possible and profitable. The legal challenge under Section 3⁵⁶ of the Competition Act is basically now to frame this complex interaction as a form of agreement.

B. Algorithmic Monoculture and the Foreclosure of Innovation

A second, more passive form of algorithmic collusion arises not from strategic interaction, but from structural parallelism.⁵⁷ In a concentrated market- it is highly likely that the few dominant streaming platforms will utilize similar algorithmic architectures⁵⁸ and then basically train them on similar vast datasets of user behaviour, and optimize them for similar commercial objectives. This can lead the algorithms to independently and logically converge on identical or highly similar curation strategies, creating what can be termed an "algorithmic monoculture."⁵⁹ This concept, basically then describes a market that becomes dangerously uniform. A music market dominated by a single "successful" algorithmic strategy becomes vulnerable to the foreclosure of innovation.⁶⁰

The harm to competition is profound. It erects barriers to entry for artists who produce novel or experimental work. It also constitutes a long term harm to consumer welfare by reducing the diversity and resilience of the cultural ecosystem. For the CCI, tackling this issue requires a move towards structural remedies. Instead of just punishing behaviour, the CCI might need

⁵⁶ *The Competition Act* § 3, No. 12 of 2003, Acts of Parliament, 2003 (India).

⁵⁷ Caforio, V., 2025. Algorithmic Collusion in EU Competition Law: Decoding the Puzzle.

⁵⁸ Hanspach, P. and Galli, N., 2025. Algorithmic collusion: an interdisciplinary perspective. In *Research Handbook On Competition And Technology* (pp. 127-150). Edward Elgar Publishing.

⁵⁹ Zhang, L.H., Milli, S., Jusko, K., Smith, J., Amos, B., Revel, M., Kussman, J., Titus, L., Radharapu, B., Yu, J. and Sarma, V., 2025. Cultivating Pluralism In Algorithmic Monoculture: The Community Alignment Dataset, <https://arxiv.org/abs/2507.09650> (last accessed 8:02PM, 10th September, 2025).

⁶⁰ Gur-Arieh, S. and Lee, C., 2025, June. Consistently Arbitrary or Arbitrarily Consistent: Navigating the Tensions Between Homogenization and Multiplicity in Algorithmic Decision-Making. In *Proceedings of the 2025 ACM Conference on Fairness, Accountability, and Transparency* (pp. 3336-3349).

to consider interventions that mandate "algorithmic diversity,"⁶¹. This would break the monoculture and reintroduce a degree of and diversity into the market, ensuring that innovation is not just stifled.

C. Algorithmic Accountability

The greatest hurdle in applying Section 3⁶² of the Competition Act to algorithmic collusion is the requirement to prove an "agreement" or a "concerted practice," which traditionally implies a "meeting of the minds." Proving this is nearly impossible when the actors are autonomous, self learning algorithms. To overcome this, a new evidentiary and legal standard is required: a shift from proving intent to establishing "algorithmic accountability."⁶³

Under this standard, the CCI would not need to find evidence of something like human level communication or explicit agreement.⁶⁴ Instead, the inquiry would focus on two key elements. First, causality and effect- basically can it be demonstrated through data analysis that the parallel behaviour of the algorithms led to anti-competitive outcomes (like price stabilization, output restriction, market foreclosure) that are statistically unlikely to have occurred in a competitive market?

Second, foreseeability- dealing with whether the firms should have reasonably foreseen that deploying these types of powerful, self-learning optimization algorithms in a highly concentrated market would create a significant risk of tacit collusion? This is sort of similar to a negligence standard. This re-frames the legal question. It is no longer "Did they agree to collude?" but rather "Did they take reasonable care to prevent their autonomous agents from colluding?" This standard of algorithmic accountability would place a proactive duty on dominant firms to design their systems with competition principles in mind.

V. CULTURAL HOMOGENIZATION AS A NON-PRICE HARM TO CONSUMER WELFARE

⁶¹ Sørensen, J.K. and Schmidt, J.H., 2016. An Algorithmic Diversity Diet?: Questioning Assumptions behind a Diversity Recommendation System for PSM.

⁶² *The Competition Act* § 3, No. 12 of 2003, Acts of Parliament, 2003 (India).

⁶³ Diakopoulos, N., 2015. Algorithmic accountability: Journalistic investigation of computational power structures. *Digital journalism*, 3(3), pp.398-415.

⁶⁴ Kemper, J. and Kolkman, D., 2019. Transparent to whom? No algorithmic accountability without a critical audience. *Information, Communication & Society*, 22(14), pp.2081-2096.

Competition law's traditional focus is basically on quantifiable economic harms- such as higher prices, reduced output, or stifled or rather reduced innovation. However, in cultural markets like music streaming- one of the most significant harms of algorithmic gatekeeping is qualitative and societal-⁶⁵ which is the erosion of cultural diversity. When recommendation systems, optimized for engagement and commercial appeal, create feedback loops that consistently favour mainstream genres and artists, the result is a gradual homogenization of the musical landscape. This constitutes a non-price harm to consumer welfare that the CCI is empowered to protect under its mandate.⁶⁶ The "interest of consumers" is not limited to just their financial interest but extends to the quality, variety, and diversity of the goods and services available to them.

The challenge naturally is in basically quantifying this harm. This requires moving beyond traditional economic metrics and developing new analytical frameworks. One approach could be to use bio-diversity indices, such as the Shannon or Simpson index⁶⁷, adapted for cultural products. By analysing the music available on a platform versus the much smaller subset that is actively recommended, the CCI could generate a "diversity score" for the platform's recommendations. A declining score over time, or a score that is significantly lower than a randomly generated recommendation set- could serve as quantitative evidence of homogenization.

This framing allows for a more robust and rather complete application of the Competition Act. The act of a dominant platform using its algorithmic power in a way that systematically reduces the variety of music reaching consumers can be framed as an abuse under Section 4(2)(b)(i)⁶⁸, which prohibits limiting or restricting the "production of goods or services or market therefor". Here, the "market" is not just for music in general, but for diverse and niche musical expressions.⁶⁹ Recognizing cultural homogenization as a cognizable harm would represent a significant evolution in Indian competition law- basically just affirming that in creative

⁶⁵ Yu, L., 2023. Personalized Recommendation, Publicness Erosion and Anti-Monopoly Measures in Digital News Market. *Law Sci.*, 2, p.111.

⁶⁶ Srivastava, S. and Gupta, A., 2022. A Paradigmatic Analysis of Anti-Competitive Agreements and Cartelization-How India's Antitrust Watchdog Has Retaliated. *Issue 4 Indian JL & Legal Rsch.*, 4, p.1.

⁶⁷ Morris, E.K., Caruso, T., Buscot, F., Fischer, M., Hancock, C., Maier, T.S., Meiners, T., Müller, C., Obermaier, E., Prati, D. and Socher, S.A., 2014. Choosing and using diversity indices: insights for ecological applications from the German Biodiversity Exploratories. *Ecology and evolution*, 4(18), pp.3514-3524.

⁶⁸ *The Competition Act* § 4(2)(b)(i), No. 12 of 2003, Acts of Parliament, 2003 (India).

⁶⁹ Buttigieg, E., 2009. *Competition Law: Safeguarding the Consumer Interest: a comparative analysis of US antitrust law and EC competition law* (Vol. 40). Kluwer Law International BV.

industries- consumer welfare is inextricably linked to the richness and diversity of the cultural ecosystem.

VI. PROMOTIONAL TOOLS AND THE INSTITUTIONALIZATION OF ALGORITHMIC BIAS

While much of the debate on algorithmic bias focuses on the organic and data focussed operation of recommendation systems- a more direct form of gatekeeping is emerging through the platform provided promotional tools. Services like Spotify's "Marquee" or "Discovery Mode" allow artists and labels to pay to have their music algorithmically promoted to targeted user segments.⁷⁰ On the surface, these are presented as democratic marketing tools, allowing artists to bypass traditional intermediaries and reach listeners directly. However, in a market controlled by a dominant platform- these can basically just function as a sophisticated form of digital payola.⁷¹

The competition law concern here is multi-faceted. First, these tools can exacerbate and increase the very biases they claim to overcome. An algorithm's primary signal is user engagement. When a major label pays to artificially inflate the initial exposure of a track, it basically generates user data and engagement signals. The algorithm, in turn, interprets this paid for popularity as organic interest⁷², leading it to recommend the track even more widely. This creates a "rich get richer" dynamic,⁷³ where financial power can be basically directly converted into algorithmic favourability, drowning out organically emerging independent music. This practice could be scrutinized under Section 4(2)(a)(i)⁷⁴ as the imposition of a discriminatory condition.

Second, the very existence of these tools can create a soft form of tying or bundling, falling under Section 4(2)(d)⁷⁵. While not a formal tie-in, there may be an implicit understanding that artists who heavily invest in a platform's promotional products will basically receive more

⁷⁰ LaGroue, J.A., 2025. *The Work of Music in the Streaming Age: How Algorithms and Artificial Intelligence Influence the Art, Industry, and Aura of Music* (Doctoral dissertation, The Pennsylvania State University).

⁷¹ Buccafusco, C. and García, K., 2021. Pay-to-playlist: The commerce of music streaming. *UC Irvine L. Rev.*, 12, p.805.

⁷² *Id.*

⁷³ Saygin, T.M., 2022. *Music Industry's Turbulent Relation with Streaming: Political Economy of Spotify* (Master's thesis, Middle East Technical University (Turkey)).

⁷⁴ *The Competition Act* § 4(2)(a)(i), No. 12 of 2003, Acts of Parliament, 2003 (India).

⁷⁵ *The Competition Act* § 4(2)(d), No. 12 of 2003, Acts of Parliament, 2003 (India).

favourable treatment in other areas- such as algorithmic visibility.⁷⁶ This creates pressure on artists to participate in the platform's paid ecosystem- and thus just reinforcing the platform's market power. Further, unlike the backroom deals of the radio payola era, digital payola is transparent, scalable, and built directly into the market's infrastructure. It represents a critical avenue for legal intervention.

VIII. COMPARATIVE ANALYSIS: GLOBAL REGULATORY APPROACHES TO ALGORITHMIC GATEKEEPING

The challenge of regulating algorithmic gatekeepers is a global one- and a comparative analysis of international approaches offers critical insights for India. The European Union has pioneered a proactive, *ex-ante* regulatory model through its Digital Markets Act (DMA)⁷⁷- which basically imposes a set of upfront obligations on platforms designated as "gatekeepers." This basically includes a direct prohibition on algorithmic self-preferencing and mandates for data access- so offering a powerful blueprint for remedying the information asymmetry and biased curation.

In stark contrast, the United States has traditionally relied on a litigation-driven, *ex-post* enforcement model,⁷⁸ using its long-standing Sherman Act to bring large-scale antitrust lawsuits against tech giants like Google and Amazon after harm has occurred. ⁷⁹While this approach is flexible, it is often slow and rather resource intensive, and may basically even fail to address issues like emergent algorithmic collusion before a market has irreversibly "tipped." For India, the optimal path forward lies in a hybrid model that synthesizes the strengths of both. This would involve adopting the EU's proactive stance by legislatively defining a category of "Systemically Important Digital Intermediaries"⁸⁰ and applying clear, *ex-ante* rules against self-preferencing and other unfair practices. Simultaneously, India must retain and strengthen the CCI's existing *ex-post* enforcement powers, inspired by U.S. agencies, to investigate novel

⁷⁶ Bonini, T. and Magaouda, P., 2024. *Platformed! How streaming, algorithms and artificial intelligence are shaping music cultures*. Cham, Switzerland: Palgrave Macmillan.

⁷⁷ Kasikci Unalan, A., 2025. Ex-ante and Ex-post Enforcement Mechanisms in Digital Markets under EU Competition Law and Digital Markets Act.

⁷⁸ Bignami, F., 2011. Cooperative legalism and the non-Americanization of European regulatory styles: The case of data privacy. *The American Journal of Comparative Law*, 59(2), pp.411-461.

⁷⁹ Waldén, J. and Davoodi, B., 2024. Ex Post vs. Ex Ante Enforcement: Competition Law and the Digital Markets Act.

⁸⁰ Almeida, J.G.D., 2024. *Regulating competition in platform economy: European Union's Digital Market Act's challenges and opportunities and analysis from a developing economy perspective* (Doctoral dissertation, Universidade de São Paulo).

theories of harm and address unique market abuses. By blending the regulatory certainty of the European model with the enforcement flexibility of the American one, India can basically craft a rather forward looking legal framework.

FINDINGS

This research was undertaken to investigate the efficacy of the Competition Act, 2002⁸¹, in addressing the anti-competitive harms that are posed by algorithmic gatekeeping in India's music streaming industry. The analysis basically reveals that while the existing legal framework contains the doctrinal foundations or seeds rather to tackle these challenges, its traditional application is insufficient. The findings of this paper are presented as follows, representing a call for a significant evolution in both legal interpretation and regulatory practice.

A. The Nature of Dominance in Algorithmic Markets is Defined by Data Control, Not Market Share Alone

The paper finds that traditional measures of dominance- like revenue or subscriber count- are insufficient for music streaming services now. Control over large, unique user behaviour datasets and the advanced algorithmic architecture based on them are basically the sources of true market power. As a result, the CCI evaluation of dominance needs to change to give more weight to elements like the volume of data gathered and the strength of indirect network effects than it does to conventional market share analysis.⁸²

B. Algorithmic Abuse is an Emergent Property of System Design, Not Necessarily an Act of Malicious Intent.

This research finds that anti-competitive harm is not typically the result of an explicit "smoking gun" instruction to suppress certain artists, which is basically the norm in competition law. Instead, abuse emerges from the design of algorithms optimized for platform-centric goals rather than for market fairness or cultural diversity. This leads to several forms of cognizable abuse under Section 4⁸³ of the Competition Act:

⁸¹ The Competition Act, No. 12 of 2003, Acts of Parliament, 2003 (India).

⁸² Nuccio, M. and Guerzoni, M., 2019. Big data: Hell or heaven? Digital platforms and market power in the data-driven economy. *Competition & Change*, 23(3), pp.312-328.

⁸³ The Competition Act § 4, No. 12 of 2003, Acts of Parliament, 2003 (India).

- ❖ **Discriminatory Conditions:** Algorithmic prioritization of basically mainstream content is just an unfair and discriminatory condition for market access on independent or niche artists, violating Section 4(2)(a)(i).⁸⁴
- ❖ **Denial of Market Access:**⁸⁵ The "algorithmic invisibility"⁸⁶ that results from this biased curation amounts to a de facto denial of market access under Section 4(2)(c).⁸⁷
- ❖ **Data-Driven Leveraging:** Platforms leverage their dominance in the primary streaming market, which is built on user data, to gain unfair advantages in ancillary or basically other markets like artist management and live promotions, a clear violation of Section 4(2)(e).⁸⁸

C. The Evidentiary Burden in Algorithmic Cases is Structurally Unfair and Requires a Regulatory Shift.

The paper finds that the current model for bringing a case before the CCI is functionally obsolete in the context of algorithmic harms. The opacity of the "black box" creates a profound information asymmetry- making it basically just impossible for an independent artist or label to prove that their harm was the result of anti-competitive conduct rather than legitimate personalization. The paper finds that an alternative or perhaps a more proactive regulatory posture is necessary to overcome this evidentiary deadlock. This includes empowering the CCI to conduct proactive algorithmic audits and establishing regulatory sandboxes to create evidence of what a competitively neutral market would look like.

D. The Scope of Competitive Harm Extends Beyond Unilateral Conduct to Systemic and Cultural Harms.

The investigation finds that the threat to competition is not limited to the actions of a single dominant firm but extends to systemic market failures facilitated by algorithms.

- ❖ **Algorithmic Collusion:** A significant, forward-looking threat is the emergence of tacit collusion under Section 3⁸⁹ of the Act, where the use of similar algorithms by dominant

⁸⁴ The Competition Act § 4(2)(a)(i), No. 12 of 2003, Acts of Parliament, 2003 (India).

⁸⁵ Guin, R. and Gupta, A., 2025. Epistemic Injustice in the Digital Age: Social Media, Silencing, and the Politics of Credibility. *Journal of Humanities and Education Development*, 7(3), p.618998.

⁸⁶ Glatt, Z., 2022. Precarity, discrimination and (in) visibility: An ethnography of "The Algorithm" in the YouTube influencer industry. In *The Routledge companion to media anthropology* (pp. 544-556). Routledge.

⁸⁷ The Competition Act § 4(2)(c), No. 12 of 2003, Acts of Parliament, 2003 (India).

⁸⁸ The Competition Act § 4(2)(e), No. 12 of 2003, Acts of Parliament, 2003 (India).

⁸⁹ The Competition Act § 3, No. 12 of 2003, Acts of Parliament, 2003 (India).

platforms leads to an "algorithmic monoculture."⁹⁰ This results in a market-wide suppression of innovation without any explicit agreement, a phenomenon that requires a new legal standard of "algorithmic accountability."⁹¹

- ❖ **Cultural Homogenization:** The paper finds that the systematic reduction in the diversity of discoverable music constitutes a tangible, non-price harm to consumer welfare. This can and should be recognized by the CCI as a form of market restriction under Section 4(2)(b)(i)⁹², affirming that consumer interest in cultural markets includes variety and choice, not just price.

SUGGESTIONS AND RECOMMENDATIONS

Based on the findings that the current competition law framework is not well equipped to address the nuanced or the aforementioned harms of algorithmic gatekeeping, this paper puts forth a series of targeted recommendations. These suggestions are designed to create a more transparent and competitive digital music ecosystem in India, moving from a reactive basically to a proactive regulatory posture.

A. Legislative and Institutional Reforms:

- ❖ **Amend the Competition Act, 2002:**

The Act should be amended to explicitly recognize the unique characteristics of digital markets.⁹³ This includes formally defining concepts like "data dominance" as a factor in assessing a firm's market position and clarifying that "denial of market access" includes algorithmic invisibility and suppression.

- ❖ **Establish a Specialized Digital Markets Unit (DMU) within the CCI:**

The complexities of algorithmic systems require specialized expertise. A dedicated DMU- basically staffed with data scientists, engineers, and economists specializing in digital platforms- should be established. This unit would be responsible for conducting proactive market studies, developing technical tools for algorithmic auditing, and advising on enforcement actions and remedies in the digital sector.

⁹⁰ Gur-Arieh, S. and Lee, C., 2025, June. Consistently Arbitrary or Arbitrarily Consistent: Navigating the Tensions Between Homogenization and Multiplicity in Algorithmic Decision-Making. In *Proceedings of the 2025 ACM Conference on Fairness, Accountability, and Transparency* (pp. 3336-3349).

⁹¹ O'Brien, J.D., Rubin, H., Wong, K. and Fazelpour, S., 2025. Epistemic Monocultures and the Effect of AI Personalization. In *Proceedings of the Annual Meeting of the Cognitive Science Society* (Vol. 47).

⁹² *The Competition Act* § 4(2)(b)(i), No. 12 of 2003, Acts of Parliament, 2003 (India).

⁹³ Eng, V. and See, T., 2015. Competition Act 2010: the issues and challenges. *European Journal of Law and Economics*, 40(3), p.587.

❖ Introduce a 'Duty of Care' for Dominant Platforms:

A legislative amendment should be considered to impose a statutory "duty of care"⁹⁴ on platforms designated as dominant gatekeepers. This would require them to take reasonable steps to prevent their algorithms from basically causing foreseeable anti-competitive harm.

B. Proactive Regulatory and Enforcement Mechanisms:**❖ Mandate Algorithmic Transparency and Explainability:**

For dominant platforms, the CCI should be empowered to mandate a baseline level of algorithmic transparency.⁹⁵ This would not require the disclosure of proprietary source code but could involve compelling platforms to provide clear, comprehensible documentation on the key parameters, objectives, and data inputs of their recommendation systems. This would empower both regulators and market participants to better understand the entire system basically.

❖ Implement a Regulatory Sandbox for Algorithmic Design:

The CCI should pioneer a "competition sandbox"⁹⁶ for algorithmic recommendation systems. This would allow for the testing of alternative algorithms designed to promote objectives like cultural diversity or fairness. The data generated would provide an empirical baseline against which the anti-competitive effects of existing, practically these opaque algorithms could be measured.

❖ Adopt a 'Shift in the Burden of Proof' in Prima Facie Cases:

In cases where a complainant can demonstrate a prima facie case of significant harm on a dominant platform- the burden of proof should perhaps shift to the platform to demonstrate that its algorithmic actions were non-discriminatory and basically served a legitimate, pro-competitive purpose.

C. Development of Soft Law and Stakeholder Collaboration:**❖ Facilitate a Multi-Stakeholder Code of Conduct:**

⁹⁴ Bayer, J., 2021. Rights and duties of online platforms. *Perspectives on platform regulation: Concepts and models of social media governance across the globe*, pp.25-45.

⁹⁵ Tao, L., 2024. *The 'Gatekeeper' Scope of the Digital Markets Act: An Analysis of Its Soundness and Compatibility of 'Dominant Position in the Competition Law*, NEL Rev., 10, p.108.

⁹⁶ *supra* at note 88.

The CCI, in collaboration with the Ministry of Information and Broadcasting, could even perhaps facilitate the creation of a voluntary Code for Algorithmic Fairness⁹⁷ in Music Streaming. This would bring together platforms, major labels, independent artist bodies, and academics to develop industry best practices regarding data use, promotional tools, and algorithmic design, fostering a culture of accountability alongside formal regulation.

CONCLUSION

The advent of music streaming- which has been powered by sophisticated recommendation algorithms, has basically completely reshaped the creation, distribution, and consumption of music. In addition to providing certain new levels of personalisation and access- it has also concentrated a lot of and rather enormous gatekeeping power in the hands of a small number of powerful platforms. The results of this study indicate that market and technological advancements are essentially surpassing the existing Competition Act of 2002. By proposing new ideas like examining "algorithmic collusion" as a type of coordinated practice, recognising "cultural homogenisation" as a non-price consumer harm, and basically applying the doctrine of "Information Fiduciaries" to dominant platforms, this paper tries to go beyond a straightforward application of pre-existing doctrines.

Ultimately, this serves as a call for a paradigm shift of sorts. India needs to change its antitrust laws from being reactive and intent-focused to being proactive, effects-based, and basically just more structurally aware. The objective is to steer innovation in the direction of a more competitive and equitable future- not to stifle it. India can preserve the rather vibrant nature of its creative economy for future generations by making sure that algorithms serve the public interest of diversity and justice rather than just the private interest of engagement and profit. The stakes- the very future of our cultural landscape- demand that we rise to the challenge.

⁹⁷ Biju, P.R. and Gayathri, O., 2024. Analysis of data policies, structural oppression and AI algorithms in India. *International Journal of Public Law and Policy*, 10(4), pp.449-471.