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Collective Dominance in Digital Markets: Limitations of Section 4 of the Competition Act

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ABSTRACT

The emergence of digital markets has fundamentally altered traditional concepts of competition and market dominance. Digital platforms operate through network effects, extensive data collection, algorithmic systems and interconnected ecosystems that enable a limited number of enterprises to exercise significant influence over market conditions and consumer behaviour. In such markets, competitive power is often exercised collectively or structurally by multiple enterprises functioning in an interdependent manner rather than by a single dominant entity. However, Section 4 of the Competition Act, 2002 focuses primarily on the abuse of a dominant position by an individual enterprise or a formally recognised group, which creates substantial limitations in addressing collective dominance in digital economies. This paper critically analyses the inability of the existing Indian competition law framework to regulate effectively the collective dominance arising in digital platform markets. It examines the distinctive characteristics of digital markets, including network effects, data concentration, platform dependency, multi-sided market structures and algorithmic coordination, which challenge conventional methods of determining relevant markets and assessing dominance. The study argues that the traditional single-firm dominance model under Section 4 is inadequate to capture the realities of digital ecosystem power, where anti-competitive effects may emerge through coordinated market influence without explicit agreements or formal monopolistic structures. The paper further undertakes a comparative examination of the European Union's approach towards collective dominance and digital competition regulation, particularly under Article 102 of the Treaty on the Functioning of the European Union and the Digital Markets Act. By analysing comparative jurisprudence and recent developments in digital competition law, the study highlights the need for reform within the Indian competition regime. It concludes that India requires a more adaptive and technology-oriented competition framework capable of recognising collective dominance and effectively regulating digital gatekeepers in order to ensure fair competition, innovation and consumer welfare in the evolving digital economy.

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I. INTRODUCTION

The expansion of digital technology has transformed the manner in which markets function in the modern economy. Online platforms, search engines, e-commerce websites, social media networks, digital advertising systems and app-based services now occupy a dominant position in everyday commercial activity.[1] Digital enterprises no longer compete only on price or product quality; instead, they rely heavily upon data collection, technological infrastructure, user networks and algorithmic systems to strengthen their market position.[2] The increasing dependence of consumers and businesses upon digital platforms has given rise to growing concern about the concentration of economic power and the possibility of anti-competitive conduct within digital markets.

Competition law plays a significant role in maintaining market fairness by preventing practices that adversely affect competition and consumer welfare.[3] In India, the Competition Act, 2002 was enacted to regulate anti-competitive agreements, abuse of dominant position and combinations which may cause an appreciable adverse effect on competition.[4] Section 4 of the Act specifically prohibits the abuse of a dominant position by an enterprise or group. The provision seeks to prevent unfair practices such as discriminatory conditions, predatory pricing, denial of market access and the misuse of market power. However, the framework of Section 4 is largely based upon the traditional concept of dominance exercised by a single enterprise operating independently within a defined market.

The changing nature of digital markets has challenged this traditional understanding of dominance. In digital platform economies, market power is often exercised collectively through interconnected ecosystems, shared technological dependence, network effects and control over data infrastructure.[5] A small number of digital enterprises may collectively influence consumer behaviour and market conditions without entering into explicit anti-competitive agreements.[6] Such influence may arise through parallel conduct, algorithmic coordination, platform dependency and structural interdependence among dominant firms. This phenomenon is

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[1] JACQUES CRÉMER, YVES-ALEXANDRE DE MONTJOYE & HEIKE SCHWEITZER, COMPETITION POLICY FOR THE DIGITAL ERA 4–6 (Eur. Comm'n 2019).
[2] UNCTAD, DIGITAL ECONOMY REPORT 2021: CROSS-BORDER DATA FLOWS AND DEVELOPMENT: FOR WHOM THE DATA FLOW 17–22 (2021).
[3] RICHARD WHISH & DAVID BAILEY, COMPETITION LAW 1–4 (10th ed. 2021).
[4] The Competition Act, 2002, No. 12, Acts of Parliament, 2003 (India).
[5] MAURICE E. STUCKE & ALLEN P. GRUNES, BIG DATA AND COMPETITION POLICY 52–57 (2016).
[6] OECD, ALGORITHMS AND COLLUSION: COMPETITION POLICY IN THE DIGITAL AGE 9–13 (2017).

generally described as "collective dominance", a situation in which multiple enterprises together possess the ability to influence the market independently of competitive pressures.[7]

Indian competition law does not expressly recognise collective dominance under Section 4. The existing framework mainly addresses unilateral abuse by a single dominant enterprise or by formally connected group entities.[8] As a result, many forms of anti-competitive conduct emerging in digital markets remain outside the effective scope of regulation. Digital markets frequently operate within oligopolistic structures in which dominance is not always attributable to one enterprise alone.[9] Consequently, the present legal framework leaves a regulatory gap between anti-competitive agreements under Section 3 and unilateral dominance under Section 4.

In contrast, several foreign jurisdictions, particularly the European Union, have adopted broader approaches towards collective dominance and digital market regulation.[10] The European Union has recognised that digital markets require specialised regulatory mechanisms capable of addressing ecosystem control, gatekeeper power and coordinated market influence. These developments highlight the growing inadequacy of conventional competition law principles when applied to digital economies.

This paper critically examines the limitations of Section 4 of the Competition Act, 2002 in addressing collective dominance in digital markets. It analyses the concept of collective dominance, the structural features of digital platform economies and the regulatory challenges faced by competition authorities in India. The paper further evaluates comparative international approaches and argues for the reform of Indian competition law so that emerging forms of digital market power can be regulated effectively.

II. LITERATURE REVIEW

The concept of dominance under competition law has traditionally been examined through the lens of single-firm market power and monopolistic behaviour. Early scholarship on competition law focused primarily on preventing unilateral abuse by enterprises possessing substantial control over production, pricing or market access.[11] Richard Whish and David Bailey explain

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[7] ALISON JONES, BRENDA SUFRIN & NIAMH DUNNE, JONES & SUFRIN'S EU COMPETITION LAW: TEXT, CASES, AND MATERIALS 548–553 (7th ed. 2019).
[8] Competition Act, 2002, § 4.
[9] ARIEL EZRACHI & MAURICE E. STUCKE, VIRTUAL COMPETITION: THE PROMISE AND PERILS OF THE ALGORITHM-DRIVEN ECONOMY 37–41 (2016).
[10] Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on Contestable and Fair Markets in the Digital Sector (Digital Markets Act), 2022 O.J. (L 265) 1.
[11] 1 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION 32–35 (4th ed. 2013).

that the primary objective of abuse of dominance provisions is to prevent enterprises from distorting market competition through exclusionary or exploitative conduct.[12] Traditional competition law frameworks were therefore designed for industrial markets in which market structures, competitors and products were comparatively stable and identifiable.

With the growth of digital markets, academic discourse has increasingly shifted towards the challenges posed by technology-driven economies. Maurice Stucke and Allen Grunes argue that digital platforms derive competitive advantage not only from market share but also from data accumulation, algorithmic systems and network effects.[13] They observe that control over consumer data enables digital enterprises to strengthen entry barriers and expand market influence beyond traditional economic indicators. Similarly, Ariel Ezrachi and Maurice Stucke highlight that algorithmic decision-making and automated pricing systems may facilitate coordinated market behaviour even in the absence of explicit agreements between firms.[14] Their work demonstrates that digital markets create new forms of market power that cannot always be addressed through conventional competition law analysis.

The doctrine of collective dominance has received significant attention within European competition law scholarship. Alison Jones, Brenda Sufrin and Niamh Dunne explain that collective dominance exists where multiple independent enterprises together possess sufficient economic strength to behave independently of competitors and consumers.[15] European jurisprudence has recognised that anti-competitive harm may arise from oligopolistic structures and tacit coordination even without formal collusion.[16] This broader interpretation has influenced the development of competition law in the European Union, particularly in the regulation of digital platforms.

In the Indian context, scholarship on collective dominance remains comparatively limited. The existing literature largely focuses on abuse of dominance under Section 4 of the Competition Act, 2002 and on the enforcement practice of the Competition Commission of India.[17] It has also been argued that the present framework inadequately addresses anti-competitive conduct emerging from digital ecosystem structures and coordinated platform influence. The absence of express recognition of collective dominance under Indian law leaves a significant gap between anti-competitive agreements under Section 3 and unilateral abuse under Section 4.

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[12] WHISH & BAILEY, *supra* note 3, at 175–180.
[13] STUCKE & GRUNES, *supra* note 5, at 41–48.
[14] EZRACHI & STUCKE, *supra* note 9, at 55–63.
[15] JONES, SUFRIN & DUNNE, *supra* note 7, at 548–555.
[16] Case T-342/99, *Airtours plc v. Comm'n*, 2002 E.C.R. II-2585.
[17] Competition Act, 2002, § 4.

Recent studies of digital competition law further emphasise the limitations of conventional dominance tests in digital markets. OECD work on digital competition notes that market power in digital economies is frequently linked to data control, network dependency and platform interconnectivity rather than solely to market share.[18] Likewise, the European Union's Digital Markets Act reflects a growing international recognition that traditional ex post competition enforcement may be insufficient to regulate digital gatekeepers effectively.[19]

Although substantial literature exists on digital competition and on abuse of dominance individually, limited research specifically examines the inability of Section 4 of Indian competition law to address collective dominance in digital markets. This paper seeks to bridge that gap by analysing the interaction between collective dominance theory and digital platform economies while evaluating the limitations of the present Indian competition law framework.

III. Research objectives

The primary objective of this paper is to examine critically the limitations of Section 4 of the Competition Act, 2002 in addressing collective dominance within digital markets. The study seeks to analyse whether the existing framework governing abuse of dominant position is capable of regulating emerging forms of market power exercised by digital platform enterprises.[20] The research further aims to evaluate the adequacy of traditional competition law principles when applied to technologically driven and data-centric market structures.

Another important objective of the study is to understand the concept of collective dominance and its increasing relevance in digital economies. Digital markets are often characterised by network effects, platform dependency, algorithmic coordination and data concentration, which enable multiple enterprises to influence market conditions collectively without necessarily entering into formal anti-competitive agreements.[21] The paper therefore intends to examine the extent to which such collective market power remains outside the effective scope of Indian competition law.

The paper also aims to analyse the distinctive characteristics of digital platform markets and the challenges they pose to conventional methods of determining dominance and relevant market boundaries.[22] Particular emphasis is placed upon the difficulties faced by competition authorities

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[18] OECD, COMPETITION IN DIGITAL MARKETS 17–23 (2020).
[19] Digital Markets Act, *supra* note 10.
[20] Competition Act, 2002, § 4.
[21] STUCKE & GRUNES, *supra* note 5, at 52–58.
[22] OECD, COMPETITION IN DIGITAL MARKETS, *supra* note 18, at 14–19.

in identifying anti-competitive conduct arising through ecosystem control and interdependent digital market structures.

A further objective of the research is to undertake a comparative analysis of international approaches towards collective dominance, especially within the European Union competition regime.[23] The study examines the development of collective dominance jurisprudence under European competition law and evaluates regulatory developments such as the Digital Markets Act in order to identify possible lessons for India.

Finally, the paper seeks to propose the legal and regulatory reforms necessary to strengthen Indian competition law in the context of digital markets. The study aims to suggest measures that may enable the Competition Commission of India to regulate collective market power effectively, ensure fair competition and protect consumer welfare in the rapidly evolving digital economy.

IV. Research questions

The present study seeks to examine the emerging issue of collective dominance in digital markets and the limitations of the existing Indian competition law framework in addressing such market power. In furtherance of this objective, the paper is guided by the following research questions:

1. Does Section 4 of the Competition Act, 2002 adequately address collective dominance in digital markets?
2. Is the traditional concept of unilateral dominance under Indian competition law sufficient to regulate the complex structure of digital platform economies?
3. How do network effects, data concentration, platform dependency and algorithmic coordination contribute to collective market power in digital markets?
4. What are the major legal and regulatory challenges faced by the Competition Commission of India in identifying and regulating collective dominance in digital ecosystems?
5. To what extent can the comparative approaches adopted by the European Union, particularly under the Digital Markets Act, provide guidance for reforming Indian competition law?

[23] Jones, Sufrin & Dunne, *supra* note 7, at 548–556.

6. Does the existing framework under Sections 3 and 4 of the Competition Act, 2002 leave a regulatory gap in addressing coordinated market power within digital markets?
7. What legal and policy reforms are necessary to strengthen Indian competition law so that digital gatekeepers and collective dominance can be regulated effectively?

V. HYPOTHESIS

The present study proceeds on the hypothesis that Section 4 of the Competition Act, 2002 is inadequate to regulate collective dominance in digital markets effectively, because the provision focuses primarily upon unilateral dominance exercised by a single enterprise or formally recognised group. The traditional framework of abuse of dominant position was developed for conventional industrial markets and therefore does not sufficiently address the structural and interconnected nature of digital platform economies.

The study further hypothesises that digital markets create new forms of market power through network effects, data concentration, platform dependency, algorithmic coordination and ecosystem integration, which enable multiple enterprises to influence market conditions collectively without necessarily engaging in explicit anti-competitive agreements.[24] Consequently, anti-competitive conduct emerging from digital ecosystems may fall outside the effective scope of both Section 3 and Section 4 of the Competition Act, 2002, creating a significant regulatory gap within Indian competition law.[25] The paper also proceeds on the assumption that the absence of express recognition of collective dominance under Indian competition law weakens the ability of the Competition Commission of India to regulate coordinated digital market power effectively.[26] In contrast, comparative jurisdictions such as the European Union have adopted broader approaches towards collective dominance and digital gatekeeper regulation, demonstrating the need for more adaptive and technology-oriented competition frameworks.[27] Accordingly, the study hypothesises that meaningful legal and regulatory reforms are necessary to modernise Indian competition law so that collective dominance can be addressed effectively and fair competition ensured within evolving digital markets.

[24] STUCKE & GRUNES, *supra* note 5, at 52–60.
[25] Competition Act, 2002, §§ 3–4.
[26] COMPETITION COMM'N OF INDIA, MARKET STUDY ON E-COMMERCE IN INDIA: KEY FINDINGS AND OBSERVATIONS (Jan. 8, 2020).
[27] Digital Markets Act, *supra* note 10.

VI. RESEARCH METHODOLOGY

The present study adopts a doctrinal and analytical method of legal research to examine the limitations of Section 4 of the Competition Act, 2002[28] in addressing collective dominance in digital markets. The research is based primarily upon secondary sources, including statutes, judicial decisions, reports of regulatory authorities, scholarly books, research articles, journal publications, policy papers and international legal materials relating to competition law and digital market regulation.[29]

The doctrinal approach has been employed to analyse the statutory framework governing abuse of dominant position under Indian competition law, particularly the interpretation and application of Section 4 by the Competition Commission of India and the appellate authorities.[30,31] The study further examines the legal principles underlying the concept of collective dominance and evaluates whether the present framework adequately addresses anti-competitive conduct emerging within digital platform economies.

The research also adopts a comparative analytical approach by examining developments in European Union competition law concerning collective dominance and digital market regulation. Particular emphasis has been placed upon Article 102 of the Treaty on the Functioning of the European Union and the Digital Markets Act in order to understand international approaches towards regulating digital gatekeepers and coordinated market power.[32] Comparative analysis has been undertaken to identify possible lessons and reforms relevant to the Indian competition law framework.

The study additionally incorporates conceptual analysis of the economic and technological characteristics of digital markets, including network effects, data concentration, algorithmic coordination and multi-sided platform structures.[33] These concepts are examined in order to evaluate the emerging forms of market power that challenge traditional competition law principles.[34]

The scope of the research is confined to the examination of collective dominance in digital markets within the context of Indian competition law. The study focuses primarily upon the

[28] Competition Act, 2002, § 4.
[29] Ian Dobinson & Francis Johns, *Qualitative Legal Research*, in RESEARCH METHODS FOR LAW 16, 18–24 (Mike McConville & Wing Hong Chui eds., 2007).
[30] COMPETITION COMM'N OF INDIA, MARKET STUDY ON E-COMMERCE, *supra* note 26.
[31] COMPETITION COMM'N OF INDIA, MARKET STUDY ON THE TELECOM SECTOR IN INDIA: KEY FINDINGS AND OBSERVATIONS (Jan. 22, 2021).
[32] Digital Markets Act, *supra* note 10.
[33] Competition Act, 2002, §§ 3–4.
[34] EZRACHI & STUCKE, *supra* note 9, at 63–70.

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limitations of Section 4 and does not undertake an extensive empirical analysis of market data or a quantitative economic assessment. The research aims to provide a critical legal evaluation of the existing framework and to propose the reforms necessary for strengthening digital competition regulation in India.

VII. Concept of dominant position under Section 4 of the Competition Act

Competition law seeks to maintain fair market conditions by preventing enterprises from acquiring or misusing economic power in a manner that adversely affects competition and consumer welfare.[35] One of the principal mechanisms through which this objective is achieved is the regulation of abuse of dominant position. In India, Section 4 of the Competition Act, 2002 prohibits the abuse of a dominant position by an enterprise or group.[36] The provision is intended to ensure that enterprises possessing substantial market power do not engage in practices that distort competition or restrict market access for competitors.

Section 4(2) identifies various forms of abusive conduct, including the imposition of unfair or discriminatory conditions, predatory pricing, denial of market access, limitation of production or technical development, and the use of dominance in one market to enter or protect another market.[37] However, the law does not prohibit dominance itself; it prohibits only the abuse of such dominance.[38] Determining whether an enterprise occupies a dominant position is therefore a fundamental requirement for establishing liability under Section 4.

The Explanation to Section 4 defines "dominant position" as a position of strength enjoyed by an enterprise in the relevant market in India which enables it to operate independently of competitive forces or to affect its competitors, consumers or the relevant market in its favour. This definition reflects the traditional competition law approach, which focuses primarily on unilateral market power exercised by a single enterprise. The assessment of dominance under Indian competition law depends upon the determination of the "relevant market", which comprises both the relevant product market and the relevant geographic market.[39]

Section 19(4) of the Competition Act, 2002 sets out several factors for determining dominance, including market share, the size and resources of the enterprise, economic power, commercial

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[35] WHISH & BAILEY, *supra* note 3, at 1–6.
[36] Competition Act, 2002, § 4.
[37] *Id.* § 4(2).
[38] Competition Act, 2002, § 4(1). *See also Competition Comm'n of India v. Steel Auth. of India Ltd.*, (2010) 10 SCC 744 (India).
[39] Competition Act, 2002, §§ 2(r)–(t).

advantages, dependence of consumers, entry barriers and market structure.[40] These factors are generally suited to traditional industrial markets in which competition is based upon price, production capacity and physical market presence. Digital markets, however, present unique challenges because market power is often derived from non-traditional factors such as data control, technological ecosystems, user networks and algorithmic systems.[41]

The Competition Commission of India has increasingly examined digital market practices while interpreting Section 4. In *Umar Javeed v. Google LLC*, the *Google Android* case, the Commission observed that dominance in digital markets may arise through ecosystem integration, pre-installation obligations and control over mobile operating systems.[42] Similarly, the investigation ordered against Amazon and Flipkart highlighted concerns relating to preferential treatment, platform dependency and data advantages within e-commerce markets.[43] These cases indicate that digital platforms may exercise significant influence over market conditions despite operating within rapidly evolving and interconnected ecosystems.

Nevertheless, the present framework of Section 4 continues to focus primarily upon unilateral dominance exercised by an individual enterprise or by formally connected group entities.[44] The provision does not expressly recognise collective dominance arising through coordinated market influence, interdependent digital ecosystems or oligopolistic digital structures. As a result, anti-competitive effects emerging from collective digital market power may remain beyond the effective scope of regulation under Indian competition law.

The concept of dominance under Section 4 therefore reflects a conventional market-oriented approach that may be inadequate in addressing the complexities of digital platform economies. The growing concentration of digital power among a limited number of technology enterprises demonstrates the need to reconsider traditional methods of assessing dominance and anti-competitive conduct within modern digital markets.

VIII. UNDERSTANDING COLLECTIVE DOMINANCE

The concept of collective dominance has emerged as an important principle in modern competition law, particularly in markets characterised by oligopolistic structures and interdependent economic behaviour.[45] Unlike traditional unilateral dominance, which focuses upon the market power of a single enterprise, collective dominance refers to a situation in which

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[40] Competition Act, 2002, § 19(4).
[41] STUCKE & GRUNES, *supra* note 5, at 48–55.
[42] *Umar Javeed v. Google LLC*, Case No. 39 of 2018 (CCI Oct. 20, 2022) (India).
[43] *In re Delhi Vyapar Mahasangh v. Flipkart Internet Pvt. Ltd.*, Case No. 40 of 2019 (CCI Jan. 13, 2020) (India).
[44] Competition Act, 2002, § 4.
[45] JONES, SUFRIN & DUNNE, *supra* note 7, at 548–553.

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two or more independent enterprises together possess the ability to influence market conditions and behave independently of competitors and consumers.[46] Such dominance may arise even in the absence of formal agreements, mergers or explicit collusion between the enterprises concerned.

Collective dominance generally develops in concentrated markets in which a limited number of firms hold substantial market power and are able to coordinate their conduct either directly or indirectly.[47] In such situations, enterprises may collectively control pricing structures, market access, production levels, technological standards or consumer choices without necessarily violating conventional cartel prohibitions.[48] The doctrine therefore recognises that anti-competitive harm may result not only from monopolistic behaviour but also from coordinated market influence exercised by multiple firms operating within the same economic environment.

The theoretical foundation of collective dominance is closely associated with oligopoly theory in economics. Oligopolistic markets are characterised by the presence of a small number of dominant firms whose decisions are interdependent.[49] In such markets, enterprises are often aware that their commercial decisions influence competitors and may consequently adopt parallel or coordinated market behaviour. This phenomenon becomes particularly significant in digital markets, where algorithmic systems, real-time data monitoring and platform interconnectivity facilitate strategic alignment among firms.[50]

Collective dominance must be distinguished from anti-competitive agreements under Section 3 of the Competition Act, 2002.[51] Section 3 primarily addresses explicit or implicit agreements that cause an appreciable adverse effect on competition, such as cartels, bid-rigging and price-fixing arrangements. Collective dominance, however, does not necessarily require proof of an agreement or concerted practice. Instead, it focuses upon the collective ability of enterprises to exercise market power and restrict effective competition through structural market conditions.[52]

Similarly, collective dominance differs from unilateral dominance under Section 4, which traditionally requires proof that a single enterprise occupies a dominant position within the relevant market.[53] The existing Indian framework largely emphasises individual market strength and does not expressly recognise the possibility that multiple independent enterprises may

[46] WHISH & BAILEY, *supra* note 3, at 590–596.
[47] GIORGIO MONTI, EC COMPETITION LAW 334–338 (2007).
[48] OECD, COMPETITION IN DIGITAL MARKETS, *supra* note 18, at 19–24.
[49] DENNIS W. CARLTON & JEFFREY M. PERLOFF, MODERN INDUSTRIAL ORGANIZATION 245–252 (4th ed. 2005).
[50] EZRACHI & STUCKE, *supra* note 9, at 55–68.
[51] Competition Act, 2002, § 3.
[52] JONES, SUFRIN & DUNNE, *supra* note 7, at 554–558.
[53] Competition Act, 2002, § 4.

jointly possess dominant economic influence. Consequently, several forms of coordinated digital market power may remain outside the effective scope of Indian competition law.

The doctrine of collective dominance has received significant recognition within European competition law. In *Airtours v. Commission*, the Court of First Instance acknowledged that collective dominance may arise where market conditions facilitate tacit coordination among firms and enable them to adopt a common market policy independently of competitors and consumers.[54] European jurisprudence has therefore adopted a broader understanding of market power, capable of addressing anti-competitive effects emerging from oligopolistic structures and interdependent conduct.

In the context of digital markets, collective dominance assumes greater significance because digital enterprises frequently operate within interconnected ecosystems involving shared data infrastructure, network effects and technological dependencies.[55] A small number of dominant platforms may collectively shape market access, digital advertising, app distribution, online visibility and consumer behaviour. These features challenge the traditional competition law assumption that dominance can be exercised only unilaterally by a single enterprise.

The absence of express recognition of collective dominance within Indian competition law therefore creates a substantial regulatory limitation. As digital markets continue to evolve, competition authorities increasingly face difficulties in regulating anti-competitive conduct arising from ecosystem control, algorithmic coordination and collective platform influence. Understanding the concept of collective dominance is therefore essential for evaluating the adequacy of Section 4 in addressing the realities of modern digital economies.

IX. NATURE AND CHARACTERISTICS OF DIGITAL MARKETS

Digital markets differ substantially from traditional industrial markets in structure, operation and sources of economic power.[56] Conventional competition law principles were largely developed for markets based upon physical goods, stable consumer behaviour and price-oriented competition. In contrast, digital markets operate through technological infrastructure, data-driven systems, online platforms and interconnected networks that evolve continuously with innovation and consumer interaction.[57] These distinctive characteristics create new forms of market power and raise complex challenges for competition regulation.

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[54] *Airtours*, *supra* note 16.
[55] STUCKE & GRUNES, *supra* note 5, at 59–66.
[56] OECD, COMPETITION IN DIGITAL MARKETS, *supra* note 18, at 13–18.
[57] UNCTAD, *supra* note 2, at 21–27.

One of the most significant characteristics of digital markets is the existence of network effects. A network effect arises when the value of a product or service increases as the number of users expands.[58] In digital platform economies, large user bases strengthen the attractiveness and utility of platforms, enabling dominant enterprises to consolidate their market position. Social media platforms, search engines, online marketplaces and communication applications often benefit from strong network effects that make market entry difficult for new competitors.[59] As more consumers join a particular platform, competing enterprises face increasing barriers in attracting users and establishing viable alternatives.

Another important feature of digital markets is data concentration. Digital enterprises collect and process vast quantities of consumer data relating to preferences, purchasing behaviour, online activity and user interactions.[60] Such data enables platforms to improve algorithmic efficiency, personalise services, target advertisements and predict consumer behaviour more effectively than their competitors.[61] Consequently, access to large volumes of data becomes a significant source of competitive advantage and market influence. In many cases, dominance in digital markets is closely linked to control over data infrastructure rather than merely to market share or production capacity.

Digital markets also function as multi-sided platforms involving interactions between different categories of users.[62] For example, e-commerce platforms simultaneously connect sellers, consumers, advertisers and logistics providers, while search engines link users, advertisers and content providers. The interdependence between these groups complicates the determination of relevant markets and the assessment of competitive effects.[63] Traditional competition law analysis, which often focuses upon a single product market, may therefore prove inadequate in evaluating the complex relationships present within digital ecosystems.

Algorithmic systems and artificial intelligence further distinguish digital markets from conventional economic structures.[64] Digital platforms increasingly rely upon automated decision-making processes for pricing, recommendations, advertising placement and content visibility. These algorithms may facilitate parallel market behaviour and coordinated outcomes among competing firms even in the absence of explicit agreements.[65] Real-time

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[58] JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 405–409 (1988).
[59] STUCKE & GRUNES, *supra* note 5, at 43–49.
[60] OECD, DATA-DRIVEN INNOVATION: BIG DATA FOR GROWTH AND WELL-BEING 11–15 (2015).
[61] EZRACHI & STUCKE, *supra* note 9, at 38–44.
[62] DAVID S. EVANS & RICHARD SCHMALENSEE, MATCHMAKERS: THE NEW ECONOMICS OF MULTISIDED PLATFORMS 27–34 (2016).
[63] WHISH & BAILEY, *supra* note 3, at 90–96.
[64] OECD, ALGORITHMS AND COLLUSION, *supra* note 6, at 9–14.
[65] EZRACHI & STUCKE, *supra* note 9, at 55–63.

monitoring of competitors' conduct through algorithms can contribute to tacit coordination and reduce competitive uncertainty within concentrated digital markets.

Another defining characteristic of digital markets is ecosystem integration and platform dependency. Major technology enterprises often operate interconnected services, including search engines, app stores, payment systems, cloud services, digital advertising networks and operating systems.[66] Such integration enables dominant enterprises to expand their influence across multiple markets and to create strong consumer dependency upon their ecosystems. Consumers frequently become locked into a particular digital ecosystem because of interoperability limitations, switching costs and accumulated user data.[67] As a result, dominant platforms acquire the ability to influence market access and consumer behaviour across several sectors simultaneously.

Digital markets are additionally characterised by rapid innovation and dynamic market conditions.[68] Technological developments occur at a pace significantly faster than traditional regulatory processes, making it difficult for competition authorities to identify anti-competitive conduct in a timely manner. Market structures may evolve rapidly, and enterprises can acquire substantial influence within a short period through technological innovation, acquisitions or data-driven expansion strategies.[69]

These unique characteristics demonstrate that market power in digital economies extends beyond conventional indicators such as price control or production capacity. Dominance increasingly arises through network effects, data accumulation, technological ecosystems and algorithmic coordination. Consequently, traditional competition law frameworks, including Section 4 of the Competition Act, 2002, may face substantial limitations in regulating digital markets effectively and in addressing emerging forms of collective dominance.

X. Collective dominance in digital platform economies

Digital platform economies have changed the traditional understanding of market dominance and competition.[70] Unlike conventional markets, digital markets function through online platforms, data systems, network effects and interconnected services. In many situations, market power is exercised not by a single enterprise alone but by a few dominant digital companies

[66] *Umar Javeed*, *supra* note 42.
[67] Stucke & Grunes, *supra* note 5, at 60–65.
[68] Crémer, de Montjoye & Schweitzer, *supra* note 1, at 8–11.
[69] UNCTAD, *supra* note 2, at 35–39.
[70] OECD, Competition in Digital Markets, *supra* note 18, at 15–20.

collectively influencing the market.[71] The concept of collective dominance has therefore become increasingly important in digital competition law.

Digital markets are generally concentrated in the hands of a limited number of large technology enterprises.[72] Companies such as Google, Amazon, Meta and Apple operate across several sectors, including online advertising, e-commerce, app distribution, social media and cloud services. Their interconnected services enable them to exercise significant influence over digital markets.[73] Although these enterprises may not formally collude, their combined market presence often creates barriers for competitors and strengthens collective market power.

One major feature contributing to collective dominance in digital markets is network effects.[74] A digital platform becomes more valuable as more users join it. As a result, dominant platforms continue to attract additional users while smaller competitors struggle to enter the market.[75] This strengthens the position of a few large enterprises and reduces effective competition.

Data concentration is another important factor.[76] Digital enterprises collect large amounts of consumer data through online activities, advertisements and platform usage. Access to such data provides competitive advantages in advertising, consumer targeting and service improvement.[77] Consequently, a few enterprises collectively controlling large amounts of data can significantly influence market behaviour.

Digital markets also rely heavily upon algorithms and automated systems.[78] Algorithms are used for pricing, advertisements, rankings and recommendations. These systems may encourage similar market behaviour among competing enterprises even without direct communication or agreement.[79] Such algorithmic coordination makes it difficult for traditional competition law frameworks to identify anti-competitive conduct.

Further, digital enterprises often create integrated ecosystems involving app stores, payment systems, operating systems, search engines and advertising networks.[80] Consumers and businesses become dependent upon these ecosystems, making it difficult to switch to alternative

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[71] JONES, SUFRIN & DUNNE, *supra* note 7, at 552–558.
[72] UNCTAD, *supra* note 2, at 28–35.
[73] STUCKE & GRUNES, *supra* note 5, at 58–64.
[74] TIROLE, *supra* note 58, at 405–409.
[75] CRÉMER, DE MONTJOYE & SCHWEITZER, *supra* note 1, at 9–13.
[76] OECD, DATA-DRIVEN INNOVATION, *supra* note 60, at 11–16.
[77] EZRACHI & STUCKE, *supra* note 9, at 38–45.
[78] OECD, ALGORITHMS AND COLLUSION, *supra* note 6, at 9–15.
[79] EZRACHI & STUCKE, *supra* note 9, at 55–68.
[80] *Umar Javeed*, *supra* note 42.

services.[81] This ecosystem dependency further strengthens the collective influence of dominant digital enterprises.

The present framework of Section 4 of the Competition Act, 2002 focuses mainly upon dominance exercised by a single enterprise or group.[82] Digital platform markets, however, often involve collective and structural forms of market power. The existing legal framework therefore faces serious limitations in regulating collective dominance within digital economies.

XI. LIMITATIONS OF SECTION 4 IN ADDRESSING COLLECTIVE DOMINANCE

Section 4 of the Competition Act, 2002 prohibits the abuse of a dominant position by an enterprise or group.[83] The provision focuses mainly upon unilateral dominance exercised by a single enterprise within a relevant market. While this framework may be effective in traditional markets, it faces several limitations when applied to digital platform economies and collective dominance.[84]

One major limitation of Section 4 is its narrow focus on single-firm dominance.[85] Digital markets are often controlled by a few large enterprises that collectively influence market conditions through network effects, data concentration and ecosystem dependency.[86] Section 4, however, requires the identification of one dominant enterprise before abuse can be established. As a result, situations in which multiple firms together exercise market power may remain outside the scope of regulation.[87]

Another limitation is the narrow definition of the term "group" under the Act.[88] The provision covers only enterprises connected through shareholding, board control or other control relationships. In digital markets, collective dominance may arise even without such formal links.[89] Large technology enterprises may operate independently within interconnected ecosystems and still collectively influence competition through similar business models, algorithms and data practices. Such forms of coordinated market influence are difficult to address under the existing framework.

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[81] STUCKE & GRUNES, *supra* note 5, at 65–70.
[82] Competition Act, 2002, § 4.
[83] Competition Act, 2002, § 4.
[84] WHISH & BAILEY, *supra* note 3, at 175–182.
[85] JONES, SUFRIN & DUNNE, *supra* note 7, at 552–556.
[86] OECD, COMPETITION IN DIGITAL MARKETS, *supra* note 18, at 18–24.
[87] STUCKE & GRUNES, *supra* note 5, at 58–64.
[88] Competition Act, 2002, § 4, Explanation (c), read with § 5, Explanation (b).
[89] EZRACHI & STUCKE, *supra* note 9, at 55–63.

Section 4 also faces difficulties in determining the relevant market in digital economies.[90] Traditional competition law generally relies upon price, substitutability and product-based analysis to define markets. However, many digital services are provided free of charge, and platforms operate across multiple interconnected sectors simultaneously.[91] This makes market definition more complicated and reduces the effectiveness of conventional dominance assessments.

Further, digital markets are highly dependent upon data and algorithms.[92] Market power is increasingly derived from access to user data, technological infrastructure and automated systems rather than merely from market share.[93] Section 4 does not specifically address data concentration or algorithmic coordination as independent sources of dominance. Consequently, anti-competitive conduct arising through algorithmic systems and digital ecosystem control may escape effective regulation.

The rapid evolution of digital markets creates additional enforcement challenges for the Competition Commission of India.[94] Technology changes faster than regulatory processes, and digital enterprises continuously expand into new sectors through acquisitions and ecosystem integration.[95] Investigating such complex digital structures requires technical expertise, market analysis and timely intervention, which traditional competition law mechanisms may struggle to provide.

Therefore, although Section 4 remains an important tool for regulating abuse of dominance, its present framework appears inadequate to address collective dominance in digital markets effectively. The rise of digital platform economies demonstrates the need for broader and more adaptive competition law mechanisms capable of regulating collective and ecosystem-based market power.

XII. Challenges in Competition Regulation of Digital Markets

The regulation of digital markets has become one of the most difficult challenges in modern competition law.[96] Digital markets operate differently from traditional markets because they rely upon technology, data, algorithms and interconnected online platforms.[97] These features create

[90] Whish & Bailey, *supra* note 3, at 90–96.
[91] Crémer, de Montjoye & Schweitzer, *supra* note 1, at 10–14.
[92] OECD, Algorithms and Collusion, *supra* note 6, at 9–15.
[93] Stucke & Grunes, *supra* note 5, at 52–60.
[94] Competition Comm'n of India, Market Study on E-Commerce, *supra* note 26.
[95] UNCTAD, *supra* note 2, at 36–40.
[96] OECD, Competition in Digital Markets, *supra* note 18, at 13–20.
[97] UNCTAD, *supra* note 2, at 20–27.

new forms of market power that are often difficult for competition authorities to identify and regulate effectively.

One major challenge is the rapid growth and constant evolution of digital markets.[98] Technology-based enterprises expand quickly and continuously introduce new services, making it difficult for regulators to keep pace with market developments. By the time an investigation is completed, market conditions may already have changed significantly.[99] This reduces the effectiveness of traditional competition law enforcement.

Another important challenge is defining the relevant market in digital economies.[100] Traditional competition law generally identifies markets on the basis of product substitutability and price competition. However, many digital services, such as search engines, social media platforms and online applications, are offered free of charge to users.[101] As a result, conventional methods of determining market share and economic power become less effective in digital environments.

Data concentration also creates significant regulatory difficulties.[102] Digital enterprises collect vast amounts of consumer data, which can be used to improve services, strengthen advertising systems and influence consumer behaviour. Enterprises with greater access to data acquire substantial competitive advantages, making market entry difficult for smaller firms.[103] Competition authorities often face challenges in assessing the extent to which data control contributes to market dominance and anti-competitive conduct.

Algorithmic systems and artificial intelligence present additional challenges.[104] Digital platforms use algorithms for pricing, advertisements, rankings and recommendations. These systems may facilitate coordinated market behaviour without explicit communication between enterprises.[105] Detecting algorithmic coordination is difficult because traditional competition law generally requires proof of an agreement or of direct anti-competitive conduct.

Another major concern is ecosystem dependency and gatekeeper power.[106] Large technology enterprises operate interconnected digital ecosystems involving app stores, operating systems, payment services, cloud infrastructure and advertising networks. Businesses and consumers

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98 CRÉMER, DE MONTJOYE & SCHWEITZER, *supra* note 1, at 8–12.
99 STUCKE & GRUNES, *supra* note 5, at 65–69.
100 WHISH & BAILEY, *supra* note 3, at 90–96.
101 OECD, COMPETITION IN DIGITAL MARKETS, *supra* note 18, at 17–19.
102 OECD, DATA-DRIVEN INNOVATION, *supra* note 60, at 11–16.
103 EZRACHI & STUCKE, *supra* note 9, at 38–45.
104 OECD, ALGORITHMS AND COLLUSION, *supra* note 6, at 9–15.
105 EZRACHI & STUCKE, *supra* note 9, at 55–63.
106 *Umar Javeed*, *supra* note 42.

become dependent upon these ecosystems for market access and digital visibility.[107] Such dependency enables dominant platforms to influence competition across multiple sectors simultaneously.

The Competition Commission of India also faces practical challenges in regulating digital markets because of technical complexity and limited technological expertise.[108] Investigating digital platforms often requires an advanced understanding of algorithms, data systems, artificial intelligence and online business models. Traditional competition law mechanisms may therefore be insufficient to regulate modern digital market structures effectively.

Furthermore, the existing legal framework focuses primarily upon anti-competitive agreements and unilateral abuse of dominance.[109] Digital markets, however, frequently involve collective and structural forms of market power that do not fit easily within conventional legal categories. This creates a regulatory gap in addressing anti-competitive practices arising from digital ecosystem control and collective dominance.

The unique nature of digital markets therefore demonstrates the need for more adaptive competition law approaches capable of regulating data-driven economies and rapidly evolving technological platforms effectively.

XIII. Comparative analysis: the European Union approach towards collective dominance

The European Union has played an important role in the development of the concept of collective dominance within competition law.[110] Unlike the Indian framework, European competition law recognises that market power may be exercised collectively by multiple independent enterprises even in the absence of formal agreements.[111] This broader interpretation has enabled European authorities to address anti-competitive conduct arising in oligopolistic and digital markets more effectively.

Article 102 of the Treaty on the Functioning of the European Union (TFEU) prohibits the abuse of a dominant position by one or more undertakings within the internal market.[112] The European courts have interpreted this provision to include collective dominance, where two or more undertakings together possess economic strength enabling them to behave independently of

[107] Stucke & Grunes, *supra* note 5, at 58–64.
[108] Competition Comm'n of India, Market Study on E-Commerce, *supra* note 26.
[109] Competition Act, 2002, §§ 3–4.
[110] Jones, Sufrin & Dunne, *supra* note 7, at 548–560.
[111] Whish & Bailey, *supra* note 3, at 590–596.
[112] Consolidated Version of the Treaty on the Functioning of the European Union art. 102, May 9, 2008, 2008 O.J. (C 115) 47, 89.

competitors and consumers.[113] The doctrine was significantly developed through judicial decisions such as *Italian Flat Glass* and *Airtours v. Commission*.[114]

In *Airtours v. Commission*, a merger control case, the Court of First Instance held that collective dominance may exist where market conditions encourage coordinated behaviour among enterprises.[115] The Court identified the conditions for such a finding: sufficient market transparency, a mechanism capable of sustaining coordinated conduct over time, and the absence of an effective competitive reaction from actual or potential competitors and consumers. Although the Court annulled the Commission's decision because those conditions had not been established on the evidence, the judgment expanded the understanding of dominance beyond single-firm control and recognised that anti-competitive effects may emerge from oligopolistic market structures.

The European Union has also adopted a proactive approach towards regulating digital markets. The enactment of the Digital Markets Act introduced special obligations for large digital platforms designated as "gatekeepers".[116] The Act seeks to prevent unfair practices by dominant digital enterprises and to ensure fair competition within digital ecosystems. It imposes obligations relating to data usage, interoperability, self-preferencing and access to platform services.[117]

The European approach recognises that digital markets possess unique characteristics, such as network effects, data concentration and ecosystem dependency, which traditional competition law alone may not adequately address.[118] The Digital Markets Act therefore supplements existing competition law by introducing ex ante regulatory measures aimed at preventing anti-competitive conduct before market harm becomes irreversible.[119]

Compared with the European Union, the Indian competition law framework remains relatively narrow in addressing collective dominance.[120] Section 4 of the Competition Act, 2002 focuses mainly upon unilateral dominance exercised by a single enterprise or by a group connected through ownership and control relationships.[121] Indian law does not expressly recognise

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[113] JONES, SUFRIN & DUNNE, *supra* note 7, at 552–555.
[114] Joined Cases T-68/89, T-77/89 & T-78/89, *Società Italiana Vetro SpA v. Comm'n*, 1992 E.C.R. II-1403; *Airtours*, *supra* note 16.
[115] *Airtours*, *supra* note 16.
[116] Digital Markets Act, *supra* note 10.
[117] *Id.* arts. 5–7.
[118] OECD, COMPETITION IN DIGITAL MARKETS, *supra* note 18, at 20–26.
[119] Digital Markets Act, *supra* note 10, pmbl.
[120] Competition Act, 2002, § 4.
[121] *Id.*

collective dominance arising among independent enterprises operating within concentrated digital markets.

The European model demonstrates that competition regulation in digital economies requires broader legal interpretation and specialised regulatory mechanisms.[122] The recognition of collective dominance and gatekeeper power within the European Union provides important guidance for India in reforming its competition law framework to regulate digital platform markets effectively.

XIV. Role of the Competition Commission of India in digital market regulation

The Competition Commission of India (CCI) is the primary regulatory authority responsible for enforcing competition law in India.[123] Established under the Competition Act, 2002, the Commission seeks to prevent anti-competitive practices, promote fair competition, protect consumer interests and ensure freedom of trade within Indian markets.[124] With the rapid expansion of digital economies, the role of the CCI has become increasingly significant in addressing competition concerns arising from online platforms and technology-based enterprises.

Digital markets present unique regulatory challenges because market power is often derived from data concentration, network effects, platform dependency and ecosystem integration rather than from traditional indicators such as pricing or production capacity.[125] Consequently, the CCI has gradually expanded its focus towards digital platform regulation and competition issues within online markets.

One of the major contributions of the CCI has been its market studies of digital sectors. The Commission conducted important studies of e-commerce and of the telecom sector in order to understand emerging competition concerns within digital markets.[126] These studies highlighted issues such as preferential treatment, data advantages, platform neutrality, deep discounting and the dependency of sellers upon digital platforms.[127] The studies also recognised that digital markets require a more dynamic and technology-oriented regulatory approach.

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122 STUCKE & GRUNES, *supra* note 5, at 70–75.
123 Competition Act, 2002, § 7.
124 *Id.* pmbl.
125 OECD, COMPETITION IN DIGITAL MARKETS, *supra* note 18, at 17–24.
126 COMPETITION COMM'N OF INDIA, MARKET STUDY ON E-COMMERCE, *supra* note 26; COMPETITION COMM'N OF INDIA, MARKET STUDY ON THE TELECOM SECTOR, *supra* note 31.
127 COMPETITION COMM'N OF INDIA, MARKET STUDY ON E-COMMERCE, *supra* note 26; COMPETITION COMM'N OF INDIA, MARKET STUDY ON THE TELECOM SECTOR, *supra* note 31.

The CCI has additionally investigated several major technology enterprises for alleged abuse of dominant position. In the *Google Android* case, the Commission held that Google had abused its dominant position in relation to the Android mobile ecosystem through restrictive agreements and pre-installation obligations imposed upon device manufacturers.[128] The decision emphasised that control over digital ecosystems and app distribution systems can significantly influence market competition and consumer choice.

Similarly, the CCI ordered an investigation into Amazon and Flipkart on allegations of preferential treatment, exclusive arrangements and anti-competitive practices within e-commerce markets.[129] These proceedings demonstrated the Commission's growing concern with platform dominance and digital ecosystem control.

Despite these efforts, the CCI faces several limitations in regulating digital markets effectively.[130] The existing provisions of Sections 3 and 4 of the Competition Act, 2002 focus mainly upon anti-competitive agreements and unilateral abuse of dominance.[131] Digital markets, however, often involve collective and structural forms of market power which may not fit easily within conventional legal categories. The absence of express recognition of collective dominance under Indian competition law therefore restricts the ability of the CCI to address coordinated market influence within digital ecosystems.

The Commission also encounters practical challenges such as technical complexity, rapidly evolving technologies, cross-border digital operations and the need for specialised expertise in data analytics and algorithmic systems.[132] Investigating digital platforms requires advanced technological understanding and timely regulatory intervention, which traditional enforcement mechanisms may struggle to provide.

Therefore, while the Competition Commission of India has taken important steps towards regulating digital markets, the evolving nature of digital platform economies demonstrates the need for stronger legal frameworks, specialised digital competition mechanisms and greater recognition of collective dominance within Indian competition law.

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[128] *Umar Javeed*, *supra* note 42.
[129] *Delhi Vyapar Mahasangh*, *supra* note 43.
[130] STUCKE & GRUNES, *supra* note 5, at 65–72.
[131] Competition Act, 2002, §§ 3–4.
[132] EZRACHI & STUCKE, *supra* note 9, at 70–75.

XV. Need for legal and regulatory reforms

The rapid expansion of digital markets has demonstrated that traditional competition law frameworks are no longer fully adequate to regulate modern forms of market power.[133] Digital platform economies operate through data concentration, network effects, ecosystem dependency and algorithmic coordination, which create competition concerns beyond the scope of conventional market analysis.[134] Significant legal and regulatory reforms are therefore necessary to strengthen the Indian competition law regime and to address collective dominance in digital markets effectively.

One of the most important reforms required is the express recognition of collective dominance under the Competition Act, 2002.[135] The present framework of Section 4 focuses mainly upon unilateral abuse by a single enterprise or by formally connected group entities.[136] Digital markets, however, often involve coordinated market influence exercised collectively by a few dominant enterprises without explicit agreements or ownership relationships. Recognising collective dominance would enable competition authorities to address anti-competitive conduct arising from oligopolistic and ecosystem-based market structures.[137]

Another important reform relates to the assessment of dominance in digital markets.[138] Traditional indicators such as market share and pricing are often insufficient in technology-driven economies in which services may be offered free of charge.[139] Competition law should therefore incorporate additional factors, such as control over data, network effects, access to digital infrastructure, platform dependency and algorithmic influence, in determining dominance.[140] This would allow a more accurate evaluation of market power within digital ecosystems.

There is also a need for specialised regulation of digital gatekeepers.[141] Large technology enterprises controlling app stores, search engines, social media platforms, online advertising systems and digital marketplaces are able to influence market access and consumer behaviour significantly.[142] India may draw guidance from the European Union's Digital Markets Act,

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[133] CRÉMER, DE MONTJOYE & SCHWEITZER, *supra* note 1, at 8–14.
[134] STUCKE & GRUNES, *supra* note 5, at 52–64.
[135] Competition Act, 2002, § 4.
[136] *Id.*
[137] JONES, SUFRIN & DUNNE, *supra* note 7, at 552–558.
[138] WHISH & BAILEY, *supra* note 3, at 90–96.
[139] OECD, COMPETITION IN DIGITAL MARKETS, *supra* note 18, at 18–24.
[140] EZRACHI & STUCKE, *supra* note 9, at 55–68.
[141] UNCTAD, *supra* note 2, at 34–39.
[142] STUCKE & GRUNES, *supra* note 5, at 65–72.

which imposes specific obligations upon dominant digital platforms in order to prevent unfair practices and ensure fair competition.[143]

Strengthening the institutional capacity of the Competition Commission of India is equally necessary.[144] Digital market investigations require expertise in technology, algorithms, artificial intelligence and data analytics. The Commission should therefore be equipped with specialised technical teams and digital market experts capable of examining complex platform ecosystems and algorithmic systems effectively.[145]

Further, competition law enforcement mechanisms must become faster and more proactive.[146] Traditional investigations often consume substantial time, while digital markets evolve rapidly. Delayed intervention may allow anti-competitive practices to become irreversible before regulatory action is completed.[147] Ex ante regulatory measures and preventive oversight mechanisms may therefore be necessary in highly concentrated digital sectors.

International cooperation also plays an important role in digital market regulation, because major technology enterprises operate across multiple jurisdictions.[148] Cooperation between competition authorities can improve information sharing, enforcement efficiency and regulatory consistency in addressing cross-border digital competition issues.

Legal and regulatory reforms are therefore essential to modernise Indian competition law and to ensure the effective regulation of collective dominance in digital markets. A broader and technology-oriented competition framework would help to promote innovation, maintain fair competition and protect consumer welfare within the evolving digital economy.

XVI. FINDINGS AND SUGGESTIONS

The study finds that Section 4 of the Competition Act, 2002 is designed primarily to regulate unilateral abuse of dominance by a single enterprise or formally connected group.[149] While this framework may be effective in traditional markets, it is inadequate to address the realities of digital platform economies, in which market power is often exercised collectively through network effects, data concentration, algorithmic coordination and ecosystem dependency.[150]

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143 Digital Markets Act, *supra* note 10.
144 COMPETITION COMM'N OF INDIA, MARKET STUDY ON E-COMMERCE, *supra* note 26.
145 OECD, ALGORITHMS AND COLLUSION, *supra* note 6, at 12–16.
146 CRÉMER, DE MONTJOYE & SCHWEITZER, *supra* note 1, at 13–15.
147 EZRACHI & STUCKE, *supra* note 9, at 70–75.
148 UNCTAD, *supra* note 2, at 41–45.
149 Competition Act, 2002, § 4.
150 STUCKE & GRUNES, *supra* note 5, at 52–64.

The research further finds that digital markets differ substantially from conventional industrial markets.[151] In digital economies, dominance is not always determined by pricing or market share alone. Instead, control over data, online visibility, digital infrastructure and technological ecosystems has become an important source of economic power.[152] Consequently, traditional competition law standards struggle to capture effectively the anti-competitive conduct arising within interconnected digital platforms.

Another important finding of the study is that Indian competition law does not expressly recognise the doctrine of collective dominance.[153] The absence of such recognition leaves a regulatory gap between anti-competitive agreements under Section 3 and unilateral abuse of dominance under Section 4.[154] As a result, coordinated market influence exercised by a few dominant digital enterprises may remain outside effective legal scrutiny.

The study also finds that the Competition Commission of India has taken important steps towards regulating digital markets through market studies and investigations concerning large technology enterprises.[155] However, the Commission continues to face challenges relating to technical complexity, rapidly evolving technologies, algorithmic systems and cross-border digital operations.[156] Existing enforcement mechanisms are often slow compared with the speed at which digital markets evolve.

Comparative analysis of the European Union demonstrates that broader legal approaches towards collective dominance and digital gatekeeper regulation can provide more effective competition oversight.[157] The European Union's Digital Markets Act reflects a proactive regulatory model specifically designed for digital platform economies.[158] Such developments highlight the need for the modernisation of Indian competition law.

In the light of these findings, the study suggests that Indian competition law should be amended to recognise collective dominance in digital markets expressly.[159] The assessment of dominance should incorporate factors such as data control, network effects, algorithmic influence and ecosystem dependency rather than relying solely upon traditional market share analysis.[160]

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[151] OECD, COMPETITION IN DIGITAL MARKETS, *supra* note 18, at 13–24.
[152] EZRACHI & STUCKE, *supra* note 9, at 38–45.
[153] JONES, SUFRIN & DUNNE, *supra* note 7, at 552–558.
[154] Competition Act, 2002, §§ 3–4.
[155] COMPETITION COMM'N OF INDIA, MARKET STUDY ON E-COMMERCE, *supra* note 26.
[156] OECD, ALGORITHMS AND COLLUSION, *supra* note 6, at 12–16.
[157] WHISH & BAILEY, *supra* note 3, at 590–596.
[158] Digital Markets Act, *supra* note 10.
[159] JONES, SUFRIN & DUNNE, *supra* note 7, at 558–560.
[160] CRÉMER, DE MONTJOYE & SCHWEITZER, *supra* note 1, at 10–14.

The study further suggests strengthening the institutional and technical capacity of the Competition Commission of India by establishing specialised digital market units and increasing technological expertise in areas such as artificial intelligence, data analytics and platform regulation.[161] Faster enforcement procedures and preventive regulatory mechanisms should also be introduced to ensure timely intervention in digital competition matters.[162]

Finally, the research suggests that India should adopt a more dynamic and technology-oriented competition law framework capable of addressing collective market power and of ensuring fair competition, innovation and consumer welfare within the rapidly evolving digital economy.

XVII. CONCLUSION

The rapid growth of digital markets has fundamentally transformed the nature of competition and market power in the modern economy. Digital platforms operate through network effects, data concentration, algorithmic systems and interconnected ecosystems that enable a limited number of enterprises to exercise substantial influence over market conditions and consumer behaviour.[163] These developments have exposed significant limitations within traditional competition law frameworks that were designed primarily for conventional industrial markets.

This study has demonstrated that Section 4 of the Competition Act, 2002 focuses mainly upon unilateral abuse of dominant position by a single enterprise or formally connected group.[164] While such an approach may be suitable for traditional market structures, it is inadequate in addressing collective dominance emerging within digital platform economies. Digital markets frequently involve coordinated and structural forms of market power arising through data control, platform dependency, algorithmic coordination and ecosystem integration rather than through direct monopolistic behaviour.[165] Consequently, several anti-competitive practices may remain outside the effective scope of Indian competition law.

The research further highlights that Indian competition law presently lacks express recognition of collective dominance.[166] This leaves a regulatory gap between anti-competitive agreements under Section 3 and unilateral dominance under Section 4. The absence of clear legal provisions addressing collective market influence weakens the ability of the Competition Commission of India to regulate digital platform ecosystems and rapidly evolving technology-driven markets effectively.

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[161] COMPETITION COMM'N OF INDIA, MARKET STUDY ON THE TELECOM SECTOR, *supra* note 31.
[162] EZRACHI & STUCKE, *supra* note 9, at 70–75.
[163] OECD, COMPETITION IN DIGITAL MARKETS, *supra* note 18, at 13–24.
[164] Competition Act, 2002, § 4.
[165] STUCKE & GRUNES, *supra* note 5, at 52–64.
[166] JONES, SUFRIN & DUNNE, *supra* note 7, at 552–558.

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Comparative analysis of the European Union framework demonstrates that broader approaches towards collective dominance and digital gatekeeper regulation can provide more effective protection against anti-competitive conduct in digital economies.[167] The European Union's Digital Markets Act reflects the growing international recognition that digital markets require specialised and proactive regulatory mechanisms beyond traditional competition law principles.

The study therefore concludes that meaningful legal and regulatory reforms are necessary to modernise Indian competition law in the context of digital markets. Recognition of collective dominance, the incorporation of digital-specific factors in assessing market power, the strengthening of institutional expertise and the adoption of proactive digital competition measures are essential for ensuring fair competition and consumer welfare. A more adaptive and technology-oriented legal framework would enable India to regulate emerging forms of digital market power effectively and to address the challenges posed by collective dominance in the evolving digital economy.

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[167] WHISH & BAILEY, *supra* note 3, at 590–596.