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## DATA MONOPOLIES IN DIGITAL PLATFORM MARKETS – A DOCTRINAL INQUIRY INTO NON-PRICE HARMS AND REGULATORY GAPS

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### Abstract

Digital markets increasingly operate through the accumulation and analysis of large datasets. Firms rely on data to improve algorithms, personalise services, and optimise digital platforms.<sup>1330</sup> These developments have transformed competitive dynamics by introducing strong network effects and data-driven feedback loops.<sup>1331</sup> Such dynamics enable firms to gain market power without necessarily increasing prices, thereby challenging traditional competition law frameworks that rely heavily on price-based indicators of dominance.

This paper examines whether the framework governing abuse of dominance under Section 4 of the Competition Act, 2002 is capable of addressing market power arising from network effects and big data accumulation. Traditional competition law analysis focuses on price increases, supply restrictions, or exclusionary agreements as indicators of anti-competitive conduct.<sup>1332</sup> However, digital platforms often provide services at zero monetary price while monetising user data through targeted advertising and algorithmic optimisation.<sup>1333</sup> Consequently, conventional indicators of consumer harm may fail to capture competitive distortions arising in digital markets.

The research adopts a doctrinal methodology, analysing statutory provisions under the Competition Act along with interpretations by the Competition Commission of India. It further integrates economic literature on network effects and data-driven market power to examine structural characteristics of digital platforms. Academic literature demonstrates that data accumulation can generate entry barriers and reinforce market concentration through self-reinforcing network effects.<sup>1334</sup>

The paper argues that Section 4 is structurally limited in addressing non-price harms arising from data concentration and network effects. The provision was designed for traditional markets where dominance is reflected through price manipulation or explicit exclusionary conduct. Digital platforms, however, often consolidate market power through data advantages and ecosystem lock-in rather than direct pricing strategies.<sup>1335</sup>

The paper concludes that although the Competition Act theoretically applies to digital markets, its enforcement mechanisms require reinterpretation and potentially supplementary regulatory tools capable of recognising data-driven market power and network-based dominance.

### Keywords

Big Data, Network Effects, Digital Platforms, Com 2002, Market Power

<sup>1330</sup> Garima Gupta, *Does Big Data Provide a Competitive Advantage to Firms? An Antitrust Analysis*, SSRN (2020).

<sup>1331</sup> Inge Graef, *Market Definition and Market Power in Data: The Case of Online Platforms*, 38 *World Competition* 473 (2015).

<sup>1332</sup> Sumit Jain & Vikrant Singh, *Competition in Digital Markets: An Indian Perspective* (2024).

<sup>1333</sup> Garima Gupta, *supra* note 1.

<sup>1334</sup> Inge Graef, *supra* note 2.

<sup>1335</sup> *Id.*

## 1. Introduction

The expansion of the digital economy has significantly altered the structure of market competition. Digital platforms increasingly rely on the collection and processing of large volumes of user data to improve services and optimise algorithms.<sup>1336</sup> Data therefore functions as an important economic input in modern digital markets.<sup>1337</sup>

Unlike traditional industries, many digital platforms operate as multi-sided markets connecting different groups of users. These platforms frequently provide services at zero monetary cost while monetising user attention and behavioural data.<sup>1338</sup> As a result, traditional competition indicators such as price increases may not adequately capture anti-competitive conduct.<sup>1339</sup>

Economic literature has long recognised that certain markets exhibit network effects, where the value of a service increases as more users adopt it.<sup>1340</sup> Network effects generate positive feedback loops that allow early advantages to translate into long-term market dominance.. When additional users join a platform, the platform collects more data and improves its services, which in turn attracts further users.<sup>1341</sup>

Scholars describe this process as a data feedback loop, where data accumulation strengthens a firm's competitive advantage over time. Platforms that control large datasets are able to refine algorithms, personalise services, and improve user experience. New entrants may struggle to replicate these datasets, which creates barriers to entry in digital markets.<sup>1342</sup>

Network effects may also produce market tipping, a phenomenon where one platform emerges as the dominant standard because users prefer the network with the largest installed base.<sup>1343</sup> Once a platform achieves such scale, competing platforms may find it difficult to attract users despite offering similar services.

These dynamics raise significant challenges for competition law. Traditional antitrust frameworks were developed for markets where dominance manifests through price increases, supply restrictions, or explicit exclusionary agreements. Digital markets often operate differently. Many platforms provide services free of charge while monetising user data through advertising and analytics.<sup>21</sup> Consequently, the absence of price increases does not necessarily imply the absence of competitive harm.

The Indian competition regime, governed by the Competition Act, 2002, regulates market power through the prohibition of abuse of dominant position under Section 4.<sup>1344</sup> The statutory framework evaluates dominance by considering factors such as market share, size and resources of enterprises, entry barriers, and consumer dependence.<sup>1345</sup> Although these factors provide analytical flexibility, their application to digital platforms remains complex.

Recent investigations by the Competition Commission of India have highlighted these difficulties. Cases involving major technology companies have required the Commission to examine platform ecosystems, default settings, and data advantages.<sup>1346</sup> These cases illustrate the challenge of identifying anti-competitive conduct in markets where services are offered without monetary charges and competitive advantages arise from data accumulation rather than pricing behaviour.

<sup>1336</sup> Nivetha K. & Mummadi Jahnavi, *Big Data and Competition Policy in India: An Analysis*, 2023.

<sup>1337</sup> Id.

<sup>1338</sup> Inge Graef, supra note 2.

<sup>1339</sup> Garima Gupta, supra note 1.

<sup>1340</sup> Michael L. Katz & Carl Shapiro, *Systems Competition and Network Effects*, 8 J. Econ. Persp. 93 (1994).

<sup>1341</sup> Inge Graef, supra note 2.

<sup>1342</sup> Id.

<sup>1343</sup> Michael L. Katz & Carl Shapiro, supra note 11.

<sup>1344</sup> Competition Act, No. 12 of 2003, §4, India Code (2002).

<sup>1345</sup> Id. §19(4).

<sup>1346</sup> *Umar Javed v. Google LLC*, CCI Case No. 39 of 2018 (India).

This paper examines whether network effects and big data create forms of market power that fall outside the effective regulatory scope of Section 4 of the Competition Act. It argues that although the statutory framework theoretically accommodates digital market analysis, its enforcement mechanisms remain oriented toward traditional price-centric competition models.

The analysis proceeds by first examining the economic foundations of network effects and big data in digital markets. It then analyses the doctrinal framework of abuse of dominance under Section 4. The paper subsequently evaluates selected digital platform cases in India before assessing whether existing competition law tools adequately address data-driven market power.

## 2. Literature Review

The relationship between big data, network effects, and competition law has received increasing attention in recent academic scholarship. Scholars have examined whether the accumulation of large datasets creates structural advantages that may reinforce market power in digital markets. At the same time, there remains disagreement regarding whether traditional competition law frameworks are capable of addressing these emerging dynamics.

Early economic literature on network effects provides the theoretical foundation for understanding platform dominance in digital markets. Katz and Shapiro explain that certain products derive value from the number of users who adopt them.<sup>1347</sup> In such markets, the utility of a product increases as the network grows. This phenomenon is described as a network externality, where each additional user enhances the value of the network for existing users.<sup>1348</sup>

Network markets therefore exhibit strong positive feedback effects. Once a firm obtains

an early advantage in installed user base, the network tends to grow further because users prefer platforms with larger communities. Katz and Shapiro argue that these dynamics often produce market tipping, where one platform becomes the dominant standard in the market.<sup>1349</sup> As a result, competition in network markets may shift from price competition to competition over user adoption and platform ecosystems.<sup>1350</sup>

The emergence of digital platforms has significantly intensified these dynamics. Modern platforms collect vast quantities of user data, which can be analysed to improve services and optimise algorithms. Graef argues that the competitive advantage of online platforms increasingly depends on the scale and quality of data they possess.<sup>1351</sup> Data therefore functions as an important input in the production of digital services.<sup>1352</sup>

According to Graef, platforms operate within multi-sided markets, where interactions between different groups of users generate indirect network effects.<sup>10</sup> For example, a platform with a larger user base may attract more advertisers, while increased advertising revenue allows the platform to improve its services and attract additional users.<sup>11</sup> This interaction creates a self-reinforcing cycle of growth that strengthens the competitive position of dominant platforms.<sup>1353</sup>

Digital platforms collect various forms of user information, including volunteered, observed, and inferred data.<sup>13</sup> These datasets enable firms to improve algorithms and personalise services, potentially creating competitive advantages that rivals may find difficult to replicate.<sup>14</sup> However, data is not always an exclusive resource. It may be non-rivalrous and replicable, meaning large datasets do not automatically create entry barriers and must be

<sup>1347</sup>Michael L. Katz & Carl Shapiro, supra note 11.

<sup>1348</sup> Id

<sup>1349</sup> Id

<sup>1350</sup> Id

<sup>1351</sup> Inge Graef, supra note 2.

<sup>1352</sup> Id

<sup>1353</sup> Id

assessed within the specific context of the market.<sup>1354</sup>

Despite these qualifications, several scholars have argued that big data may still create significant barriers to entry in digital markets. Gupta argues that digital firms increasingly rely on large datasets to predict consumer behaviour and optimise pricing strategies.<sup>1354</sup> Data analytics enables firms to identify patterns in consumer preferences and refine service delivery. This process creates a data feedback loop, where increased usage generates more data, which further improves platform performance. Gupta further argues that big data may facilitate practices such as personalised pricing and algorithmic discrimination.<sup>26</sup> Firms may analyse consumer data to determine individual willingness to pay and adjust prices accordingly.<sup>1355</sup> These practices raise concerns about consumer welfare even when nominal prices remain low.<sup>1356</sup>

In addition to economic concerns, several scholars have examined the regulatory challenges posed by data-driven markets. Jain and Singh observe that the Indian competition law framework was originally designed for traditional markets characterised by price competition and supply restrictions.<sup>1357</sup> Digital markets, however, often exhibit different forms of market power arising from network effects and data concentration.<sup>1358</sup>

Their study of Competition Commission of India decisions between 2009 and 2024 indicates that proving abuse of dominance in digital markets remains difficult.<sup>1359</sup> Many investigations involving large technology firms resulted in non-contravention findings because the Commission struggled to identify conventional indicators of anti-competitive

conduct.<sup>1360</sup> This pattern suggests that existing legal frameworks may not fully capture the dynamics of digital platform markets.<sup>1361</sup>

Similarly, Nivetha and Jahnvi argue that big data has emerged as a critical competitive asset in the digital economy.<sup>1362</sup> Firms that control large datasets may acquire strategic advantages in advertising, analytics, and platform optimisation.<sup>1363</sup> At the same time, the authors emphasise that competition authorities must carefully assess whether data advantages genuinely restrict competition or merely reflect efficient business practices.<sup>1364</sup>

Their analysis highlights several forms of potential anti-competitive conduct involving data, including refusal to share datasets, discriminatory access to information, and exclusive agreements controlling data flows. These practices may enable dominant firms to reinforce their market position by limiting competitors' access to valuable information resources.<sup>1365</sup>

The literature has also examined the specific dynamics of digital payment platforms in India. Navya observes that the rapid growth of the Unified Payments Interface has significantly transformed the digital payments ecosystem.<sup>1366</sup> UPI has enabled real-time digital payments through mobile applications and has become one of the largest payment infrastructures globally.<sup>1367</sup> However, the concentration of transactions among a small number of payment applications has raised concerns regarding competition and market power.

Navya notes that although market concentration alone does not constitute a violation of competition law, it may raise concerns when combined with exclusionary

<sup>1354</sup> Garima Gupta, supra note 1.

<sup>1355</sup> Id

<sup>1356</sup> Id

<sup>1357</sup> Sumit Jain & Vikrant Singh, *Competition in Digital Markets: An Indian Perspective* (2024).

<sup>1358</sup> Id

<sup>1359</sup> Id

<sup>1360</sup> Id

<sup>1361</sup> Id

<sup>1362</sup> Nivetha K. & Mummadi Jahnvi, supra note 7

<sup>1363</sup> Id

<sup>1364</sup> Id

<sup>1365</sup> Id

<sup>1366</sup> Navya V., *Anti-Trust Regulations in UPI Sector in India*.

<sup>1367</sup> Id

practices or ecosystem advantages.<sup>1368</sup> The author also highlights that competition authorities must carefully define relevant markets when analysing digital payment platforms, as such services often operate within broader digital ecosystems.<sup>1369</sup>

While these studies provide valuable insights into data-driven markets, a significant research gap remains. Much of the existing literature focuses either on the economic characteristics of big data or on descriptive analyses of digital market developments. Less attention has been devoted to examining whether the legal framework governing abuse of dominance is structurally capable of addressing network-driven market power.

In particular, the framework under Section 4 of the Competition Act primarily addresses explicit exclusionary conduct such as unfair pricing, denial of market access, and leveraging of dominance.<sup>1370</sup> Digital platforms, however, may consolidate market power through data accumulation and network effects without engaging in traditional forms of exclusionary behaviour.

This paper therefore builds upon existing scholarship by examining whether data-driven network effects create forms of market power that fall outside the effective scope of Section 4 enforcement. By integrating economic theories of network effects with doctrinal analysis of Indian competition law, the paper seeks to assess whether the current regulatory framework adequately captures the realities of digital platform competition.

### 3. Economic Foundations of Network Effects and Big Data

Digital markets operate through economic mechanisms that differ significantly from traditional industrial markets. Platform services often rely on large networks of users and extensive data collection. These characteristics

shape market competition and influence how dominance emerges in digital ecosystems.

#### Network Effects

Certain goods and services derive value from the number of users participating in the network.<sup>1371</sup> As more users adopt a particular service, the overall utility of that service increases for all participants.<sup>2</sup> This phenomenon creates network effects, where the benefit received by one consumer depends on the total number of other consumers using the same system.<sup>1372</sup>

Markets characterised by network effects frequently exhibit positive feedback dynamics.<sup>1373</sup> An increase in the user base improves the attractiveness of the platform, which attracts additional users. The expansion of the network therefore reinforces its own growth. Such dynamics allow firms that obtain early adoption advantages to strengthen their market position over time.

The presence of network effects also alters the nature of competition. Firms attempt to expand their installed base of users rather than competing only through price reductions.<sup>1374</sup> Consumers may prefer platforms with larger user communities because those platforms provide greater compatibility and interaction opportunities. Consequently, the size of a platform's network may become a critical determinant of market success.<sup>1375</sup>

Network markets may therefore evolve toward market tipping.<sup>1376</sup> Once a platform acquires a sufficient user base, its advantage may become self-reinforcing.<sup>1377</sup> Competing platforms may struggle to attract users even if they offer similar or superior technological features. This process often results in high levels of market concentration in digital platform industries.

<sup>1368</sup> Id

<sup>1369</sup> Id

<sup>1370</sup> Competition Act, No. 12 of 2003, §4, India Code (2002).

<sup>1371</sup> Michael L. Katz & Carl Shapiro, supra note 11.

<sup>1372</sup> Id

<sup>1373</sup> Id

<sup>1374</sup> Michael L. Katz & Carl Shapiro, supra note 11.

<sup>1375</sup> Id

<sup>1376</sup> Id

<sup>1377</sup> Id

### Data-Driven Feedback Effects

The increasing role of data has intensified these network dynamics. Digital platforms collect significant quantities of information through user interactions. This information includes behavioural data, search queries, transaction histories, and engagement patterns.<sup>1378</sup> Such datasets can be analysed to improve service quality and optimise platform performance.<sup>1379</sup>

Data collection generates feedback effects that reinforce platform growth.<sup>1380</sup> Greater platform usage produces more data. Additional data allows firms to refine algorithms and enhance service quality. Improved services attract further users, thereby expanding the volume of data available to the platform.<sup>1381</sup> This interaction produces a cycle between data growth and expanding user participation.

Over time, the resulting data advantages may strengthen the competitive position of incumbent firms.<sup>1382</sup> Large datasets enable firms to develop more accurate predictive models and personalised services.<sup>1383</sup> Competing firms may find it difficult to replicate these advantages because comparable datasets are not readily available.<sup>1384</sup>

### Barriers to Entry in Data-Driven Markets

The interaction between network effects and data accumulation may produce structural barriers to entry in digital markets. Firms entering the market often lack access to the large datasets required to compete effectively. Without comparable data resources, new entrants may struggle to develop algorithms capable of matching the performance of established platforms.<sup>1385</sup>

The presence of switching costs may further reinforce these entry barriers.<sup>1386</sup> Users often

develop familiarity with particular platforms and store valuable information within those ecosystems. Migrating to alternative platforms may require transferring data, learning new interfaces, or losing access to established networks.<sup>1387</sup> Such switching costs may reduce the likelihood that consumers will adopt competing services.<sup>1388</sup>

Data-driven platforms may therefore benefit from both network effects and consumer lock-in.<sup>1389</sup> These dynamics strengthen the position of incumbent firms and may discourage new market entry. As a result, competition in digital markets may gradually shift toward a small number of dominant platforms controlling large user networks and datasets.<sup>1390</sup>

### Implications for Competition Law

The economic structure of digital markets presents notable challenges for traditional competition law enforcement. Conventional antitrust analysis often treats price increases as a primary indicator of market power or consumer harm.<sup>1391</sup> However, many digital platforms operate on zero-price models in which users receive services without direct monetary payment.<sup>1392</sup> Revenue is instead generated through data collection, targeted advertising, or cross-platform monetisation strategies.<sup>1393</sup> As a result, market power may exist even when consumer prices remain low or entirely absent.

In such environments, competitive advantage frequently arises from control over data resources and the scale of user networks rather than pricing strategies.<sup>1394</sup> Platforms with large user bases accumulate significant volumes of behavioural data that can be used to optimise algorithms, improve recommendations, and personalise services.<sup>1395</sup> These capabilities may

<sup>1378</sup> Inge Graef, supra note 2.

<sup>1379</sup> Id

<sup>1380</sup> Garima Gupta, supra note 1.

<sup>1381</sup> Id

<sup>1382</sup> Id

<sup>1383</sup> Id

<sup>1384</sup> Id

<sup>1385</sup> Garima Gupta, supra note 1.

<sup>1386</sup> Id

<sup>1387</sup> Id

<sup>1388</sup> Id

<sup>1389</sup> Inge Graef, supra note 2.

<sup>1390</sup> Id

<sup>1391</sup> Competition Act, No. 12 of 2003, §4, India Code (2002).

<sup>1392</sup> Garima Gupta, supra note 1.

<sup>1393</sup> Id

<sup>1394</sup> Inge Graef, supra note 2.

<sup>1395</sup> Id

shape consumer behaviour and platform visibility through search rankings, recommendation systems, or interface design. Such mechanisms influence competitive outcomes even though they do not directly involve price manipulation or explicit exclusionary conduct.

Indian competition enforcement has occasionally confronted these issues in cases involving digital platforms. In *Matrimony.com Ltd. v. Google LLC*, the Competition Commission of India examined whether search result manipulation and preferential display practices could distort competition in online search markets.<sup>1396</sup> The Commission observed that the design and presentation of search results could affect the visibility of competing services and thereby influence market access for rival platforms.<sup>1397</sup> Similarly, in *Vinod Kumar Gupta v. WhatsApp Inc.*, concerns were raised regarding the use and sharing of user data within digital platform ecosystems.<sup>1398</sup> These cases illustrate that competitive harm in digital markets may arise from control over information flows and platform architecture rather than from traditional pricing conduct.

As a result, legal frameworks that rely heavily on price-based indicators of harm may struggle to capture the competitive implications of data-driven platform markets. Even though the wording of the statute are broad enough to take into consideration non-price harms, Big data is nowhere defined or even classified as a harm speaking strictly from a market competition point of view. The fact that there is no monetary exchange for any of these transactions and data is collected only as an extension of the service provided posits a grey area. Moreover, it is not big data per se but the transactions and the further network effects that arise from these big data collection and retention that could prove anti-competitive. So even if regulations

were to be put in place, the next question would be whether the collection and retention of Big data be curtailed or just the transactions that arises out of it which supposedly gives these platforms the market advantage that can prove anti-competitive. These challenges raise important questions regarding whether existing abuse-of-dominance provisions are sufficiently equipped to address emerging forms of market power in the digital economy.

#### 4. Case Studies: Network Effects and Data Concentration in Digital Platforms

The interaction between network effects and data accumulation becomes more visible when examined through specific digital platforms. Payment infrastructures and search ecosystems provide particularly clear illustrations of how these dynamics reinforce market power. These markets demonstrate how platform dominance may emerge through user scale and data advantages rather than traditional price-based competition.

#### Unified Payments Interface and Digital Payment Platforms

India's Unified Payments Interface provides a useful example of network-driven platform competition. The system allows users to transfer funds instantly through mobile applications connected to bank accounts.<sup>1399</sup> This infrastructure has significantly expanded the adoption of digital payments by enabling seamless transactions between consumers, merchants, and financial institutions.<sup>1400</sup>

The competitive dynamics within the UPI ecosystem display clear network effects. As more consumers adopt a particular payment application, the value of that application increases for merchants who prefer platforms with larger user bases.<sup>1401</sup> Increased merchant acceptance further encourages consumer adoption because users prefer payment systems that are widely accepted across retail

<sup>1396</sup> *Matrimony.com Ltd. v. Google LLC*, Case Nos. 07 & 30 of 2012, Competition Commission of India (2018).

<sup>1397</sup> Id

<sup>1398</sup> *Vinod Kumar Gupta v. WhatsApp Inc.*, CCI Case No. 99 of 2016.

<sup>1399</sup> Navya V., supra note 37

<sup>1400</sup> Id

<sup>1401</sup> Michael L. Katz & Carl Shapiro, supra note 11.

environments.<sup>1402</sup> The payment network therefore becomes more valuable as participation within the network expands.

Transaction concentration within the UPI ecosystem has gradually shifted toward a small number of payment applications. A substantial share of digital transactions is processed through applications such as PhonePe and Google Pay, which collectively account for a large proportion of UPI transaction volumes.<sup>1403</sup> Large user bases enable these platforms to collect extensive transaction data and behavioural information relating to consumer payment patterns.<sup>7</sup>

Such datasets can be used to improve fraud detection systems, optimise payment interfaces, and refine service delivery.<sup>1404</sup> As the quality of the platform improves, users may become more inclined to continue using the same application for financial transactions.<sup>1405</sup> The resulting data advantages strengthen the competitive position of large payment platforms and may discourage entry by new competitors lacking comparable transaction datasets.<sup>1406</sup>

These dynamics demonstrate how network effects and transaction data can reinforce platform dominance even in the absence of traditional exclusionary conduct. Digital payment applications may expand their market position simply through network growth and service improvements derived from data analytics.

### Search Platforms and Data Feedback Loops

Search engines provide another example of how data accumulation can reinforce market power in digital markets. Online search services rely heavily on user interactions to refine search algorithms and improve the accuracy of search results. Search queries, click behaviour, and browsing patterns generate large volumes of

behavioural information that can be analysed to enhance algorithmic performance.<sup>1407</sup>

Data generated through search activity creates a feedback loop that strengthens platform performance. Greater user engagement produces additional data relating to search patterns and content relevance.<sup>1408</sup> This information allows search platforms to improve ranking algorithms and deliver more accurate results. Improved search quality attracts further users, which in turn increases the volume of data available to the platform.<sup>1409</sup>

This cycle allows platforms with large user bases to continuously improve their services through data-driven learning. Firms entering the search market may struggle to compete because they lack comparable datasets required to train and refine search algorithms. As a result, the competitive advantage of established search platforms may grow over time as additional data enhances algorithmic accuracy.<sup>1410</sup>

The integration of search services within broader platform ecosystems may further strengthen these advantages. Mobile operating systems, application stores, and search services often operate within interconnected digital environments. Platform integration allows firms to collect user information across multiple services and refine product functionality through cross-platform data analysis.<sup>1411</sup>

Investigations involving the Android ecosystem illustrate how such platform integration may reinforce dominance. The Competition Commission of India examined contractual arrangements requiring the pre-installation of certain applications on Android devices.<sup>1412</sup> These arrangements influenced the visibility and accessibility of competing applications within the mobile ecosystem. The case

<sup>1402</sup> Id

<sup>1403</sup> Navya V., supra note 37.

<sup>1404</sup> Id

<sup>1405</sup> Id

<sup>1406</sup> Id

<sup>1407</sup> Inge Graef, supra note 2.

<sup>1408</sup> Garima Gupta, *Does Big Data Provide a Competitive Advantage to Firms? An Antitrust Analysis* (SSRN 2020).

<sup>1409</sup> Id

<sup>1410</sup> Id

<sup>1411</sup> Inge Graef, supra note 2.

<sup>1412</sup> *Umar Javed v. Google LLC*, CCI Case No. 39 of 2018.

demonstrates how platform design and ecosystem integration can shape market outcomes even without explicit price manipulation.<sup>1413</sup>

### 5. Platform Dynamics and Section 4 A

The platform examples discussed above reveal that competitive advantages in digital markets may arise through scale and data access rather than through explicit exclusionary practices. In the UPI ecosystem, payment applications with larger transaction volumes accumulate extensive information on user behaviour and transaction patterns.<sup>1414</sup> Such information allows platforms to improve fraud detection systems, optimise payment interfaces, and refine user experience. Over time, these technological improvements may encourage users and merchants to continue relying on the same applications for financial transactions.<sup>1415</sup>

A similar pattern can be observed in search platform markets. Search services process large volumes of user queries and interaction data, which can be analysed to improve ranking algorithms and result accuracy. Platforms with higher search traffic therefore gain access to larger training datasets for algorithmic optimisation. Competing services operating with smaller user bases may find it difficult to match this level of performance because the accuracy of search algorithms depends heavily on historical interaction data.

These developments complicate the application of Section 4 of the Competition Act<sup>1416</sup>. The provision primarily addresses practices such as unfair pricing, denial of market access, or exclusionary contractual conditions. However, the competitive advantages observed in these platform markets do not necessarily arise from such conduct. Instead, they develop gradually through data accumulation and technological

optimisation. This creates a situation in which market power may strengthen even though the conduct involved does not clearly fall within the established categories of abuse.

### 6. Conclusion

Digital platform markets operate through economic mechanisms that differ significantly from traditional industrial markets. Network effects and large-scale data accumulation allow platforms to improve services through continuous user interaction. As user participation increases, additional data is generated, enabling firms to refine algorithms and optimise service delivery. These improvements attract further users, creating self-reinforcing feedback loops that strengthen the competitive position of incumbent platforms.

The analysis in this paper demonstrates that such dynamics may generate durable market power without the presence of traditional anti-competitive conduct. Abuse-of-dominance provisions under Section 4 of the Competition Act, 2002 primarily focus on practices such as unfair pricing, denial of market access, and exclusionary agreements. However, dominance in digital markets may emerge through network expansion and data advantages rather than explicit exclusionary behaviour. Consequently, conventional indicators used to assess dominance may not fully capture the competitive implications of platform ecosystems.

Existing scholarship has extensively examined the economic characteristics of big data and network effects in digital markets. However, relatively limited attention has been devoted to analysing whether the doctrinal framework governing abuse of dominance under Indian competition law adequately addresses these dynamics. This paper therefore addresses that research gap by integrating economic theories of network effects with doctrinal analysis of Section 4 enforcement. The analysis suggests that while the statutory framework remains theoretically applicable to digital markets, its

<sup>1413</sup> Id

<sup>1414</sup> Garima Gupta, *supra* note 1.

<sup>1415</sup> Id

<sup>1416</sup> Id

enforcement mechanisms remain closely aligned with price-centric competition models.

Accordingly, competition law analysis in digital markets may require greater attention to factors such as data access, network scale, and ecosystem integration. Recognising these structural characteristics would allow regulators to more effectively evaluate emerging forms of platform dominance and ensure that innovation in digital markets does not evolve into entrenched data-driven monopolies.

