# COMPETITION CONCERNS IN CLOUD SERVICES MARKET AND APPLICATION OF INDIAN COMPETITION LAW

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# Competition Concerns in Cloud Services Market and Application of Indian Competition Law

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# 1. Introduction

Cloud services refer to information technology (IT) resources and applications delivered on demand over the internet, managed by third-party providers, allowing businesses and individuals to access computing power, storage, and software without needing to manage their own infrastructure.[1] Cloud services serve as key infrastructure for the digital transformation of economies, including the increasing adoption of artificial intelligence (AI) and internet of things (IoT). More and more enterprises are looking for scalable, secure, dependable and cost-effective IT solutions that are off-premises, thus fuelling a remarkable growth in the cloud services market.

According to one estimate, the global cloud services market size was valued at US$676.29bn in 2024, and is projected to reach around US$ 2.3 trn by 2032, growing at a compound annual growth rate (CAGR) of 16.6% during this period.[2] In India, the market size of cloud services was valued at US$9.98 bn in 2024, and is projected to grow from US$ 11.69 bn in 2025 to US$ 48.81 bn at a GGAR of 17.20% during the period.[3] According to a report by NASSCOM, the cloud service market has the potential to account for around 8% relative share of the national GDP and create 14 million jobs in 2026.[4]

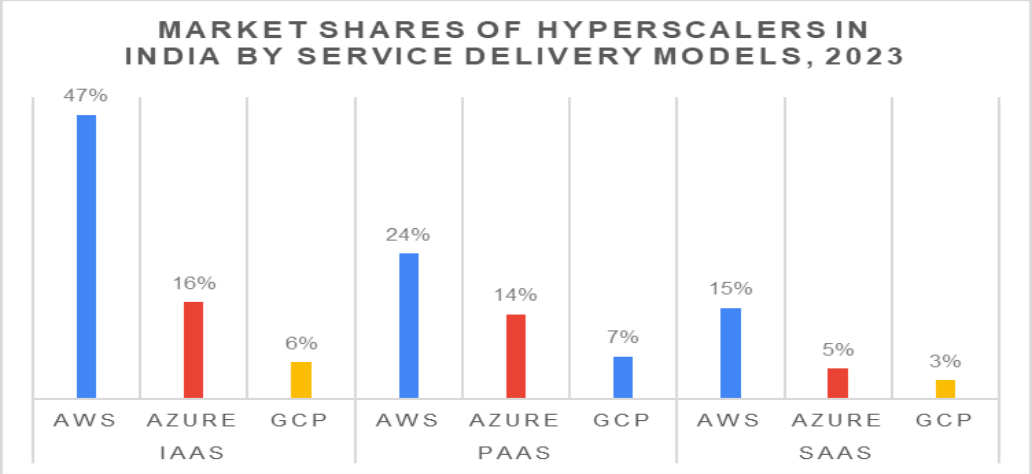
There are several ways by which the cloud services market is categorised or segmented, which include by its fundamental models or layers, such as, Infrastructure as a Service (IaaS)[5], Platform as a Service (PaaS)[6] and Software as a Service (SaaS)[7]; or by its deployment models such as public cloud[8], private cloud[9], hybrid cloud[10] and multi-cloud[11]. It should, however, be

1 https://www.hpe.com/in/en/what-is/cloud-services.html
2 https://www.fortunebusinessinsights.com/cloud-computing-market-102697
3 https://www.marketresearchfuture.com/reports/india-cloud-computing-market-21416
4 NASSCOM, Future of cloud services in India
5 IaaS provides most basic level of services and offers virtualized computing resources over the internet, including servers, storage, networks, and virtualization.
6 PaaS provides a platform for developing, running, and managing applications, including the operating system, middleware, development tools, and programming languages.
7 SaaS provides ready-to-use software applications over the internet on a subscription basis.
8 Public clouds are shared by multiple users and managed by a third-party provider.
9 Private clouds are dedicated to a single organization, either on-premises or hosted by a third party, and offer greater control and customization.
10 Hybrid clouds combine both public and private clouds, allowing for flexibility and control.
11 Multi-cloud is a cloud deployment model in which a customer uses public cloud services provided by two or more cloud service.

noted that in most use-cases, different IT services across IaaS, PaaS and SaaS are mixed and matched, hence blurring such distinctions in practice.

Though there are more than 30 cloud service providers (CSPs) in India encompassing one or more of several categories, a few big players, which operate in almost all the segments, enjoys majority of the market share.

Big CSPs like Microsoft Azure, Amazon Web Services (AWS) and Google Cloud Platform (GCP) collectively account for approximately 65% of the Indian cloud services market as of 2022.[12] At the same time, many enterprises continue to maintain on-premise IT infrastructure, often adopting hybrid models where cloud services complement rather than fully replace in-house systems. Nonetheless, these big CSPs have significantly contributed to the development of the digital economy in India, including a vibrant start-up ecosystem, particularly by providing cost-effective public cloud and plug-and-play SaaS services. No wonder public cloud and SaaS segments are growing at a faster rate than the other segments of the cloud services market.[13]




*Source: IDC*[14]

Be that as it may, like other digital markets, the cloud services market has been under scanner of regulators world over from competition perspective to assess fairness in the market. Viewing the centrality of cloud services in the burgeoning digital economy, several competition authorities have conducted market studies and have flagged competition concerns in the cloud services market. A few competition authorities have also dealt with some cases involving anti-competitive practices in the clous services market.

12 Core Devs. AWS vs Azure Market Share: Who's Leading the Cloud Race?
13 IDC: Indian Public Cloud Services Market to Reach $25.5 Billion by 2028, Growing at a CAGR of 24.3%
14 Ranjan, R. (2024, June). Indian cloud market analysis. IDC.

As per market studies by various competition authorities[15] and relevant academic papers[16], major competition concerns are high market concentration, barriers to entry and switching barriers, including poor interoperability. Based on these studies, the following are some specific competition concerns in the cloud services market:

- Cloud credits and discounts
- Egress Fees
- Technical barriers and poor interoperability
- Licensing restrictions
- Tying and bundling
- Self-preferencing
- Data leveraging

This paper illustrates these identified competition concerns in the cloud services market and presents a competition analysis, including how such concerns can be dealt with under the Competition Act, 2002 of India. It also contains certain recommendations in the concluding section.

[15] (1) Authority for Consumers and Markets (ACM), Netherland, Public Market study cloud services DEF; (2) Autorité de la concurrence, France, Cloud computing: the Autorité de la concurrence issues its market study on competition in the cloud sector | Autorité de la concurrence; (3) Competition and Market Authority (CMA), United Kingdom (UK); Summary of final decision; (4) Japan Fair Trade Commission (JFTC), Report Regarding Cloud Services | Japan Fair Trade Commission; and (5) Korea Fair Trade Commission (KFTC), KFTC Announces Results of Cloud Sector Survey - Kim & Chang

[16] (1) Frederic Jenny, Home | Fair Software Study; (2) CUTS International, bp-competition-issues-in-cloud-service-sector.pdf; and (3) Payal Malik, Indian_CloudComputing_market.pdf

# 2. Competition Analysis of the Reported Concerns

Before doing competition analysis of the above-mentioned identified competition concerns, including under the Indian competition law (that is, Competition Act, 2002), it is important to understand relevant characteristics of the cloud service market.

## 2.1. Market Characteristics

### 2.1.1. High Level of Concentration

It is reported in almost all the market studies that the cloud service market is a concentrated market, particularly in the infrastructure layer (IaaS). It is understood that there are quite a number of players in the SaaS layer. PaaS segment is moderately concentrated.

However, in India, the scene may be different even for IaaS market, as there are several players operating in this segment. Therefore, instead of relying on data from other countries, it will be prudent to generate India-centric data, and then analyse layer-wise (or specific cloud service-wise) level of market concentration. Future policy decisions need to be taken only after that. (It should be noted, however, that concentration *per se* does not trigger competition enforcement.)

### 2.1.2. Economies of scale

The economies of scale can be achieved from the size and multiplicity of data centres (necessary to provide cloud services). Not only building a data centre is costly, but its operating and energy costs are quite high, which constitute around 80% of the total cost according to one estimate. The difference in costs between a data centre of a 5,000 m² and a data centre of 50,000 m² is around 200% for both cost items. In addition, economies of scale can also be achieved in terms of security and reliability. Further, large operators also obtain higher discounts on hardware equipment due to large purchases.[17]

[17] ACM, Public Market study cloud services DEF

### 2.1.3. Vertical Integration

Big CSPs are vertically integrated, operating on all layers of cloud, and hence are able to offer a full-stack solution. Such integrated cloud services have advantages for both users and CSPs. For instance, users can purchase cloud services for all their requirements from a single provider under one contract, and can avail volume discounts. Further, all those services work optimally as they operate in a single architecture. For CSPs, vertical integration can save costs, reduce dependency and help gather more market information, among other things.[18]

More so cloud services show strong complementarities with various digital products, creating an interconnected ecosystem. These complementarities led to vertical integration – traditional IaaS providers expanded into PaaS and SaaS (e.g. AWS), and leading SaaS players or software vendors (for example, Microsoft and Google) entered into IaaS services.[19]

However, a high degree of vertical integration has a bearing on competition dynamics in the cloud services market. Since it is hard for smaller CSPs to offer an integrated package, the economies of scope are in favour of big players. Further, vertical integration allows CSPs to leverage a strong position in part of the services and transfer it to other services. A few large CSPs may enjoy stronger economies of scope being part of a conglomerate (conglomerate effects).[20]

### 2.1.4. Network Effects

Network effects in the cloud services market have been reported in market studies of competition authorities. The cloud services marketplaces with a large user base attract more third-party services, which in turn draw more users. The independent software vendors (ISVs) generally develop their services on infrastructure provided by CSPs with a large user base, in order to reach a larger base of potential buyers.[21]

Therefore, CSPs with the most users attract more ISVs, which attracts more users, and the cycle continues. Since big CSPs offer a large third-party ecosystem via their marketplaces, they attract more customers, reinforcing a virtuous cycle of adoption, investment, and innovation within their ecosystems.[22]

### 2.1.5. Entry barriers

A high level of investment is one of the key barriers for a new cloud infrastructure provider. Unless the new entrants invest at a very large scale and enjoy economies of scale and scope, it may be very difficult for them to compete with big CSP incumbents. They would need to

[18] Ibid
[19] OECD, Competition in the provision of cloud computing services (EN)
[20] Ibid. (also ACM, supra17)
[21] ACM, supra17
[22] OECD, supra19

compete with big established players in many aspects, such as brand value, trust, offering a large number of services in all layers, among others.

## 2.2. Competition Concerns and their Enforcement under Competition Law of India

The Competition Act, 2002 empowers the Competition Commission of India (CCI) to curb and check market practices that have anti-competitive effects in Indian markets. Under the Act, CCI can investigate and pass orders on anti-competitive agreements, abuse of dominance and mergers & acquisitions (M&As), as well as can also undertake competition advocacy.

Most of the competition concerns in the cloud services market are likely to fall under the 'abuse of dominance' provisions (discussed below). This will include, among other things, assessing the degree of market power exercised by CSPs, their strategic positions across various layers and how their practices hinder competition.

Determination of 'relevant market' is the first step to analyse whether a firm enjoys a 'dominant position'[23] therein. The wider the relevant market, the less will be the probability of a firm being established as a dominant player. On the other hand, if the relevant market is determined narrowly, there will be more chances of a firm becoming a dominant firm. Once the firm's 'dominant position' is established, the authority will move to analyse whether the impugned practices amount to 'abuse' within the meaning of the Act, and subsequently pass an order based on its analysis.

### 2.2.1. Relevant Market

Defining the market is a tool to identify and define the boundaries of competition between firms. The main purpose of determining the relevant market, which includes the relevant geographic market and relevant product market, is to identify those actual competitors of the undertakings involved that are capable of constraining those undertakings' behaviour and of preventing them from behaving independently of effective competitive pressure.[24]

According to the Supreme Court of India, "*the relevant product and geographic market for a particular product may vary depending on the nature of the buyers and suppliers concerned by the conduct under examination and their position in the supply chain. For example, if the questionable conduct is concerned at the wholesale level, the relevant market has to be defined from the perspective of the wholesale buyers. On the other hand, if the concern is to examine*

[23] Dominant position means a position of strength, enjoyed by a firm in the relevant market in India, which enables it to operate independently of competitive forces or affect its competitors or consumers in its favour.

[24] eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31997Y1209(01)&from=EN

*the conduct at the retail level, the relevant market needs to be defined from the perspective of buyers of retail products*."[25]

Since the cloud services can be accessed from anywhere in the world via the internet, the geographic market can be global. However, there may be practical or regulatory requirements for domestic storage and processing of data, for example, banking data under Indian law has to be stored and processed only within the country. In such markets, the relevant geographic market can be national.

For the determination of the relevant product market, the principle of substitutability or interchangeability is applied, considering factors such as physical characteristics, price, and consumer preferences, among others.[26] For instance, in cases like online hotel booking, the CCI has distinguished between online intermediation services and direct booking channels, emphasising unique service bundles provided by online travel agencies.[27]

Determining the relevant product market for cloud services may be quite complex. Whether the whole of the cloud services market is one relevant product market or the hundreds of cloud services would form distinct product markets? Often for any IT solution, users subscribe to more than one cloud services. Similarly, should the relevant product market be determined according to the cloud layers – IaaS, PaaS and SaaS? In practice, however, it may be quite complex to separate layers for any IT solution.

Cloud services are highly heterogeneous, spanning solutions like computing, storage, AI, and IoT. Enterprises often mix cloud and on-premises solutions due to cost control, data sovereignty and security, and advancements in on-premises infrastructure.[28] Thus, cloud providers may also face competition from on-premises IT service providers. Both on-premise and cloud infrastructure can be substituted for one another for certain IT solutions like 'data storage' services. Therefore, in such situations, can on-premise and cloud services form part of the same relevant product market?

The UK CMA, while conducting the market inquiry, did venture into determining the relevant market (please note that this is not a real case or dispute before the CMA). Most CSPs submitted that IaaS and PaaS should constitute the same relevant market, as there is no such clear-cut categorisation in their operations, and it also doesn't reflect in customers' behaviour. The CMA, however, preferred, for the purpose of market study, to define IaaS and PaaS as separate relevant markets.[29]

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25 Competition Commission of India v. Coordination Committee of Artistes and Technicians of West Bengal Film and Television and Ors. - (2017) 5 SCC 17; https://indiankanoon.org/doc/118036852/

26 Section 2(t), Competition Act, 2002

27 CCI. In Re: FHRAI, Casa2 Stays Pvt Ltd. vs MakeMyTrip, Ibibo, OYO (Case Nos 14 of 2019 & 01 of 2020)

28 ETCIO. December 3, 2024. Cloud repatriation: Will it pick pace in 2025?

29 CMA, January 2025; Provisional decision report

Therefore, some complex sets of questions may come up to CCI while determining the relevant market in the cloud services sector, which in turn would require some credible evidence, particularly a users' survey on substitutability, instead of relying on mere theoretical knowledge. In 2019, CUTS International conducted a primary study[30] on the relevant market in the ride-sharing industry in the Delhi-NCR region, applying the SSNIP[31] and SSNDQ[32] framework. The findings suggested 'relevant market' different from the one determined by the CCI in a case involving ride-sharing industry in the same region.

### 2.2.2. Cloud Credits and Discounts

In order to attract customers (competition for the market), CSPs often offer credits to new customers. Such credits may be of low value in form of offering some cloud services free for a limited time period (generally to attract individual users) or may be quite high in monetary value and duration of offer (generally to attract start-ups). The latter form is being frowned upon from a competition perspective, because the scale at which the big or deep-pocketed CSPs offer such cloud credits will be quite difficult to match by small CSPs. However, such cloud credits do result in efficiency gains for start-ups due to low initial costs and freedom to experiment with cloud services.[33]

'Committed spend discounts' incentivise customers to commit to a specific spending level with cloud providers in exchange for reduced prices.[34] While beneficial for customers seeking cost savings, these discounts can create a lock-in effect, discouraging users from exploring alternative providers or migrating to other services. Long-term contracts with volume-based discounts discourage customers from switching providers or adopting multi-cloud strategies.[35] Traditionally, volume-based discounts have been acceptable market practices. Thus, CSDs – a form of volume-based discounting strategy – is also a common business practice across various industries, including IT services. Volume-based discounts grow purely with the quantity a buyer takes over an agreed period and are generally not considered anticompetitive in nature.[36]

However, with the digital transformation of markets, discounting has been used as a tool to attract business and end users to one's platform, that is, to incentivise the transition from traditional to digital markets. Thus, discounts are tools to gain market share where competition is *for* the market and help in achieving the critical mass of the network effect.

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30 An Evidence-Based Analysis of Relevant Market in Delhi-NCR Region, 2019, CUTS International; evidence-based-analysis-the-case-of-ride-sharing-in-delhi-national-capital-region.pdf

31 Small but Significant Non-transitory Increase in Price

32 Small but Significant Non-transitory Decrease in Quality

33 OECD; DAF/COMP(2025)8

34 Tech Republic. January 2025. UK Cloud Services Market 'Not Working As Well As It Could,' Says Competition Authority

35 ICRIER. Payel Malik, Bhargavee Das, Harishankar Thayyil Jagadeesh. August 2024. A Competition Analysis of the Indian Cloud Computing Market

36 Competition Commission of India vs. Schott Glass India. https://api.sci.gov.in/supremecourt/2014/19707/19707_2014_5_1501_61745_Judgement_13-May-2025.pdf

Volume-based discounts can also generate efficiencies that are ultimately passed on to the consumers through lower prices. CSDs, in particular, allow consumers reach cost savings in proportion to their workload requirements and help them predict, plan, and manage their IT solutions. Such discounts may raise concerns when tied to some exclusivity condition with the provider, but when the discounts are offered on a non-discriminatory, volume-based basis, they are better viewed as pro-competitive rather than anticompetitive.

Under the Competition Act, 2002, large or deep discounts are dealt with as 'predatory pricing', one of the abuses of dominance. Predatory pricing means the sale of goods or services at a price which is below the cost, with a view to reducing competition or eliminating competitors.[37] In earlier cases of e-commerce dealt with by the CCI, generally, it was found that no one player was commanding any dominant position. Hence, the matter didn't move any further. The CCI has also been cautious of over-intervention in the digital markets. Since it is unlikely that any one CSP will have a dominant position in the Indian market, the matter of cloud credits and other discounts may not get adverse orders from the CCI.

The Indian law does not provide for 'collective' abuse of dominance, though the same had been advocated on earlier occasions. Further, the determination of market power or dominance may yield different results if CCI adheres to certain suggestions by the Competition Law Review Committee (CLRC).[38] The Committee was of the view that the provisions of the Act (Section 19(4)) are wide and flexible enough to take into account 'control over data' and 'network effects' as factors while determining dominance of a firm.[39]

In 2016, the Competition Appellate Tribunal (COMPAT)[40] held that CCI should take into account factors other than market share, such as availability of financial resources, global developments, discounts and incentives offered.[41] The Supreme Court, substantiating the COMPAT ruling, observed that the loss per trip by Uber does not make any economic sense other than pointing to Uber's intent to eliminate competition in the market. Since such losses can affect its competitors or market in its favour, *prima facie* indicates the firm's position of strength.[42]

In light of the CLRC's suggestions and previous court rulings, if CCI begins to give more weightage to factors other than market share, the trend might change. However, the CCI had also observed in one case that "*recognising the growth potential as well as the effectiveness*

37 Section 4(2) Explanation (b)
38 https://www.ies.gov.in/pdfs/Report-Competition-CLRC.pdf
39 Ibid, Page 157
40 The appeal from CCI now goes to National Competition Law Appellate Tribunal (NCLAT).
41 COMPAT, Appeal No. 31 of 2016 (Meru v. Uber)
42 Uber India Systems Pvt. Ltd. Appellant(s) Vs. Competition Commission of India & Ors. https://api.sci.gov.in/supremecourt/2017/2103/2103_2017_5_2_16524_Judgement_03-Sep-2019.pdf

*and consumer benefits that such markets can provide, …any intervention in such markets needs to be carefully crafted lest it stifles innovation*".[43]

The UK-CMA cloud market inquiry found that 'Committed Spend Discounts' do not harm competition, at least in the present scenario. It also recognises that discounts are beneficial to customers and IT providers in that they facilitate investment decisions.[44]

While research suggests that cloud credit is only one of the factors influencing customer behaviour[45], the issue of lock-in needs to be considered in the light of widespread adoption of multi-cloud strategies, which allows enterprises to distribute workload across providers and reduce dependence on any single CSP. In fact, a survey indicates that multi-cloud deployment is now the dominant model in India, with nearly 98% of enterprises using more than one cloud provider.[46]

In light of the above discussion, and looking at the importance of cloud services in India's digital transformation and facilitation of the Indian start-up ecosystem, it is unlikely that CCI will intervene with much vigour on the issue of discounting and cloud credits in this market.

### 2.2.3. Egress Fees

Cloud providers offer networking services enabling customers to transfer data: (a) into their infrastructure ('ingress'), (b) within their infrastructure ('internal transfers'), and (c) out of their infrastructure ('egress').[47] While ingress is generally free, there are cost implications for internal transfers and egress. In particular, the Egress fees are a significant component of cloud pricing structures. Egress fees, and complexities involves in pricing, can hinder users' ability to switch providers or adopt a multi-cloud strategy, leading to unpredictable and higher costs.[48] This financial barrier discourages migration to alternative providers, creating a lock-in situation for its users.

The issue of charging high egress fees is most likely to be dealt under the 'abuse of dominance' provisions of the Competition Act, 2002. Egress fees by dominant firms may be deemed as excessive pricing, or used to restrict competition or harm consumers. However, the outcome by CCI on any future dispute will be dependent upon whether the impugned firm is dominant in the relevant market, as has been described above.

Though no enforcement action has yet been taken by any competition authority, few recommendations have been made by some based on their market studies. For instance, UK-

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43 Case No. 20 of 2018

44 UK-CMA, 2025; Summary of final decision

45 Cloud_Services_Market_Investigation_Qualitative_Customer_Research_Final_Report_.pdf

46 98% of Indian enterprises using public cloud chose a multicloud strategy, ETCIO

47 ACM, supra17

48 US Federal Trade Commission. FTC Takes Action to Stop Payment Processor First American from Trapping Small Businesses with Surprise Exit Fees and Zombie Charges

CMA had explored three potential remedies for egress fees: outright banning, capping fees relative to other charges by providers, and capping fees based on actual costs.[49] In the final decision report of the cloud services market investigation[50], the CMA inquiry group has proposed designating AWS and Microsoft with 'Strategic Market Status' in cloud services under the UK's Digital Markets, Competition and Consumer (DMCC) Act. Doing this would empower CMA to make identified interventions.

The findings of the CMA inquiry were contested. For instance, Microsoft had pointed out that major CSPs like AWS, Microsoft and Google Cloud have removed egress fees, worldwide, prompted by the requirements of the European Union Data Act.[51] It further emphasised that the removal of egress fee did not lead to a significant increase in the switching rates, as for almost all customers, egress fees are not "the main concern" or a "relevant factor". AWS echoed similar views in its submission.

AWS argued that CSPs like them charge customers for data transfers and do not inquire about the reasons for such data transfer. In other words, the egress fee is charged not specifically for switching or multi-clouding, but are charged based on usage.[52] Further, a vast majority (over 90%) of AWS' customers do not incur egress charges, as they fall within the free tier – data transfers of up to 100GB per month. Notably, CSPs are increasingly being incentivised to reduce the Data Transfer Out (DTO) fees in order to stay competitive[53], with some providers such as AWS and Google Cloud, now offering zero egress fees for certain categories of data transfer, with charges applied only to the premium services[54]. Furthermore, the prevalence of multi-cloud environments suggests that egress fees do not play a material barrier to switching CSPs.

Further, with respect to the proposed remedies in the CMA's provision report suggesting the invocation of the DMCC Act, it argued that banning only AWS and Microsoft from charging egress fees will create an uneven field and will distort market competition, which in turn will harm UK consumers.[55]

It seems that in the near future, egress fees are likely to be significantly reduced to the mere cost of transfer, either due to competitive pressure or due to data regulation regimes. In such a scenario, CCI may need to take into account the future market dynamics while dealing with any matter related to egress fees.

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49 CMA. Egress Fees Working Paper

50 CMA, 2025, Final decision report

51 As per the EU Data Act any 'switching charges,' including egress fees, should not exceed the direct costs incurred by the data processing service provider

52 AWS_response_to_provisional_decision.pdf

53 Amazon AWS Joins Google Cloud In Removing Egress Costs

54 Free data transfer out to internet when moving out of AWS | AWS News Blog

55 AWS submission before CMA.

### 2.2.4. Technical Barriers to Interoperability

Interoperability refers to the ability to exchange and utilise data, applications, and software tools across different cloud service providers. Thus, the lack of interoperability between different cloud services means that users cannot easily combine services from multiple providers. This poses as a technological switching barrier restricting users' ability to choose the best services for their needs and, hence, limits competition among providers. Interoperability also has a bearing on data portability (seamless data transfer between providers), as greater interoperability facilitates portability.[56]

Technical barriers to interoperability often lead to vendor lock-in, where users find it difficult to switch providers after their initial choice. This is primarily due to the complexity of transferring data and the interdependencies between various cloud services and business processes.[57] Once a user integrates their operations with a specific provider's services, moving to another provider can be costly and time-consuming, discouraging competition.[58]

The Application Programming Interfaces (APIs) on which cloud services rely to communicate between systems vary across providers. Thus, substantial code modifications are required when moving to another service provider, which increases migration costs. In addition, it also necessitates retraining employees to manage and optimise the new cloud ecosystem.[59] All these require users to review compatibility and compliance requirements before making any switching decision. Such technical barriers are particularly problematic for the PaaS layer (and SaaS), which is highly integrated with other services.[60] IaaS solutions are relatively standardised.

When services cannot communicate effectively, users are often forced to remain within a single provider's ecosystem, further entrenching their dependence on that provider. This creates path dependence for the users.[61]

Interoperability promotes market competition, and any technical barriers to it can largely be addressed through standardisation or technological interventions. Effective standards can enhance market efficiency, foster innovation, and reduce switching costs, ultimately preventing customer lock-in and promoting a more competitive cloud market.[62]

At the same time, it is imperative to recognise that some technical barriers, such as skill gap or feature differentiation, are inherent to IT services market and are not intentionally/artificially

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56 OECD, supra19
57 CMA, June 2024, Technical barriers working paper
58 ACM, supra17
59 OECD, supra19
60 French Competition Authority, Cloud computing: the Autorité de la concurrence issues its market study on competition in the cloud sector | Autorité de la concurrence
61 ACM, supra17
62 OECD, supra19

imposed by the cloud providers. In fact, global CSPs such as AWS provide open APIs and Software Development Kits (SDKs) that enable customers and third parties to build compatible software and solutions, as well as free training and certification programmes to help bridge this skill gap. Moreover, a complete elimination of all technical barriers would risk making all cloud services equivalent, which in turn would reduce the incentive to innovate, thereby limiting the consumers' choice.

Industry players and standard development and setting organisations have roles to play in promoting interoperability. Over the past two decades, cloud providers have already been incentivised to reduce migration barriers by supporting a wide range of operating environments, databases, storage, and container types, as well as by investing in automation and AI-based tools to facilitate smoother transitions.

However, it also needs to be understood that too many standards may favour large CSPs over smaller ones, which may reinforce market concentration and dominance instead of promoting competition.[63] In addition, imposing mandatory standards on CSPs may not be feasible in the highly dynamic IT sector, where new technologies are constantly developed in order to provide heterogeneous IT solutions. Cloud services, thus, are also on a continuous innovation path in order to meet users' requirements.

Competition authorities like CCI can play a constructive role by advocating for open and inclusive standardisation process as far as possible, which could prevent big CSPs from using their market power to exclude rivals, while also allowing sufficient flexibility for innovation.

Competition enforcement, however, may be used if any artificial or deliberate technical barriers are created to negate interoperability. For instance, one of the submissions by Google Cloud before CMA alleges that Microsoft is selectively refusing to provide information necessary for third-party cloud Identity and Access Management (IAM) providers to be able to interoperate seamlessly with Active Directory – a broader foreclosure strategy.[64]

The CMA believes that CSPs like Google Cloud – a relatively new entrant but part of a big deep-pocketed conglomerate – have a greater incentive to reduce technical barriers by promoting interoperability and innovative technological interventions.[65] Google agrees with it and has shown commitment to reducing technical barriers to interoperability.[66] This in turn may put competitive pressure on big CSPs like AWS and Microsoft Azure to be more interoperable. In past, openness and interoperable characteristics have been attributed to the success of Google's Android in the mobile operating system market.

63 OECD, supra19
64 CMA, Google_response_to_the_provisional_decision.pdf
65 CMA, supra50
66 CMA, supra64

Nonetheless, limiting consumers' ability to switch workloads by creating artificial technical barriers could end up causing customers to move their entire workload to another CSP or even return to an on-premise solution. At times on-premise solution may be more preferable to better address customers' latency, security or architectural requirements. In practice, many enterprises already adopt multi-cloud strategies, distributing workloads across different providers to optimise performance, reliability, and cost—a trend that is becoming increasingly prevalent, where customers may enlist separate providers for compute, data, and other IT services.

### 2.2.5. Licensing Restrictions

There are reported issues with respect to the integration of software and cloud services, where software vendors are leveraging their market power by imposing unilateral terms in licensing that could be restrictive for competing CSPs. For example, in 2019, Microsoft, through licensing, imposed limitations on using its software on third-party cloud infrastructure. This coincided with the launch of its own cloud infrastructure (Azure). Such practices may pose competition concerns by increasing competitors' costs and creating entry barriers for new CSPs.[67]

Microsoft has been criticised for its licensing strategies, including facing a UK lawsuit alleging that the company overcharges businesses using rival platforms such as Amazon and Google for Windows Server software.[68]

Restrictive clauses in any licensing agreement can be dealt with under 'anti-competitive agreements'[69] as well as under 'abuse of dominance' provisions of the Competition Act. In the cloud services market, standard contracts are prevalent between big CSPs and small business users, where the latter hardly have any countervailing power. Thus, it is more likely that their disputes will fall under 'abuse of dominance' provisions.

The UK-CMA did an in-depth analysis of Microsoft's licencing practices, and has provisionally found (in January 2025) that its conduct is harming competition as it partially forecloses its rivals (AWS and Google). The licensing practices of Microsoft, particularly related to Windows and SQL Servers, were found to be restricting downstream competition.[70] While the UK-CMA findings from its cloud services market investigation have been welcomed by some CSPs like AWS and Google Cloud, it was contested hard by Microsoft, arguing,

67 CISPE, 2022

68 Reuters (2024). Microsoft faces UK lawsuit over cloud computing licences | Reuters

69 For instance, in Case No. 02/2015 (Monsanto case), CCI observed that clauses in sub-license agreement were in nature of 'refusal to deal' and 'exclusive supply agreements' under S.3(4) of Competition Act, which relates to 'anticompetitive agreements'

70 CMA, supra29

among other things, that the scenarios upon which CMA has relied do not match with customers' actual buying patterns.[71]

On similar grounds as above, in September 2024, Google Cloud had filed a complaint in the European Commission against such licensing practices of Microsoft. Google alleged that customers pay a 400% mark-up to keep running Windows Server on rival cloud computing operators, which did not apply if they used Microsoft's Azzure. In addition, users of rival cloud system would get limited and delayed security updates, Google alleged.[72]

A study[73] had estimated that the first-year extra costs incurred by customers needing to repurchase existing "bring your own licence" (BYOL) Microsoft 365 software licences to be used in conjunction with third-party cloud services were up by 80–100% compared to when no such requirement was imposed.

Further, in July 2024, Microsoft had settled an antitrust complaint with Cloud Infrastructure Service Providers in Europe (CISPE) to avert EU investigation. The settlement, however, did not include AWS, Google Cloud and AliCloud. CISPE had complained to the EC in late 2022 alleging that terms and conditions imposed by Microsoft under its licenses were harming Europe's cloud computing ecosystem.[74]

The above-said competition concerns are largely limited to Microsoft's legacy software products (e.g., Windows and SQL Servers), which are traditional, long-established software systems that many enterprises still depend on for core IT functions**,** where licensing restrictions create artificial cost disadvantages for rival CSPs. This, however, needs to be differentiated from substitutable IT services offered by other CSPs, which generally do not raise competition issues.

Given this history, such complaints with respect to licensing practices in the cloud services market may also arise in India, and very likely, CCI will investigate and analyse such matters vigorously. The legal provisions in India are somewhat similar to those of the EC, however, market scenarios may be different.

### 2.2.6. Tying and Bundling

'Bundling' is offering multiple products or services together at a discounted rate. For users, this practice has financial incentives (in the form of tied discounts) and technical incentives (seamless operation of bundled services from one CSP).[75] However, bundling can go against less integrated CSPs, which generally offer equivalent products separately (a compulsion due to a smaller number of products in their baskets) and hence may incur higher costs. Thus, large

71 Microsoft_response_to_provisional_decision_2.pdf
72 Google complains to EU over Microsoft cloud practices | Reuters
73 Quantification-of-Cost-of-Unfair-Software-Licensing_Prof-Jenny_-June-2023_web.pdf
74 Microsoft in $22 mln deal to settle cloud complaint, ward off regulators | Reuters
75 ACM, supra17

integrated cloud providers may use the bundling strategy to strengthen their position across various cloud layers, favouring integrated solutions over best-of-breed technologies.

'Tying' occurs when the purchase of one product is conditioned on the mandatory use of another. This is a potential competition issue in the cloud services market, and can involve contractual obligations that favour the given CSP's ecosystem.

The widely reported matter dealt by the European Commission with respect to the pre-installed and integrated Microsoft Teams with Office 365 can be cited as an example. Microsoft later (in 2023) unbundled Teams from Microsoft 365 and Office 365, first in Europe and later globally. Similarly, licensing policy of Oracle, whereby it linked software licenses to maintenance contracts, has been frowned upon for tying.[76]

Tying and bundling are often used together, but they differ in structure, intent and legal treatment from a competition policy perspective (see the table below). In both cases, however, the 'rule of reason' approach is applied, weighing consumer harm against potential efficiencies.

**Table: Difference between Tying and Bundling**

| **Feature** | **Tie-In Arrangement** | **Bundling** |
|---|---|---|
| **Definition** | Sale of one product is *conditional* on buying another | Multiple products sold together, often at a discount |
| **Coercion Element** | Yes—buyer *must* purchase the tied product | No—buyer *chooses* the bundle, often for convenience |
| **Availability** | Tied product may not be available separately | Bundled items usually available individually |
| **Legal Focus** | Often scrutinized for *restricting competition* | Evaluated for *price discrimination or foreclosure* |
| **Example** | Buy printer only if you buy our ink | Buy phone + case + charger as a discounted package |

[76] OECD, supra19

Under the Competition Act, 2002, **tie-in arrangements**[77] are dealt within the provisions for 'anticompetitive agreements', and may also be dealt with under 'abuse of dominance' provision if the impugned conduct is by a dominant firm. Such arrangements can be dealt under Section 4(2)(a) if a dominant firm imposes unfair conditions, which may include tie-ins.

The CCI, in a case,[78] had set out the following three ingredients to be satisfied for a tie-in arrangement:

(i) Presence of two separate products or services capable of being tied. The requirement is that the purchase of a commodity is conditioned upon the purchase of another commodity;
(ii) The seller must have sufficient market power with respect to the tying product to appreciably restrain free competition in the market for the tied product. The seller has to have such power in the market for the tying product that it can force the buyer to purchase the tied product; and
(iii) The tying arrangement must affect a "not insubstantial" amount of commerce. That means tying arrangements are generally not perceived as being anticompetitive when a substantial portion of the market is not affected.

In *Fx Enterprise Solutions India Pvt. Ltd. Vs. Hyundai Motor India Limited*,[79] the CCI considered allegations against Hyundai *inter alia* of tie-in arrangements with its exclusive dealers with respect to the sale of three products viz., CNG kits, Lubricants, and Car Insurance. After in-depth analysis, CCI found Hyundai indulging in tie-in arrangements only with respect to lubricants, and accordingly fined the car company. The CCI held that "*in so far as the OP* [Hyundai] *mandates its dealers to use particular oil/ lubricants and penalises its dealers where non-recommended oils are used, it would amount to "tie-in arrangement' in contravention of Section 3(4)(a), read with Section 3(1) of the Act*."[80]

However, this CCI order was set aside by the National Company Law Appellate Tribunal (NCLAT), though not strictly on the merits. NCLAT set it aside because CCI didn't decide the relevant market and did not base its order on any specific evidence other than that provided by the Director General.[81]

There are also examples of firms being tried and fined in the digital space. In 2001, a US Court found Microsoft guilty of violating the American antitrust law by tying its Internet Explorer

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77 As per the definition in Section 3(4) of the Act, "tie-in arrangement" includes any agreement requiring a purchaser of goods or services, as a condition of such purchase, to purchase some other distinct goods or services

78 Sonam Sharma v. Apple & Ors., C. No. 24 of 2011; https://cci.gov.in/antitrust/orders/details/248/0

79 Case Nos. 36 & 82 of 2014; https://www.cci.gov.in/antitrust/orders/details/791/0

80 Ibid

81 Competition Appeal No. 06 of 2017; https://nclat.nic.in/sites/default/files/migration/upload/6594600435ba2337253f81.pdf

browser to the Windows operating system, and hence stifling competition from Netscape.[82] In 2018, the EC fined Google for (i) tying the Google Search app with the Play Store, its mobile app store; and (ii) tying its mobile web browser, Chrome, with Play Store and the Google Search app.[83]

As far as **bundling** is concerned, it is generally dealt under 'abuse of dominance' provisions (particularly, Section 4(2)(a)(i) – Abuse of dominance by imposing unfair conditions) of the Competition Act, 2002. It may also be dealt under S.3(4) meant to deal with anticompetitive vertical agreements.

Recently, in March 2025, CCI looked into a case alleging Microsoft of abusing its dominance by bundling Microsoft Defender antivirus with its Windows operating system. The complaint claimed that Microsoft's practice of pre-installing and pre-activating Microsoft Defender in Windows OS has effectively sidelined third-party antivirus providers. The CCI, however, dismissed the complaint as users were free to install alternative antiviruses and that Defender was a built-in feature, not a standalone product.[84]

What is known as the *Indian Android Case,*[85] the CCI, among many other things, found Google abusing its dominant position by bundling apps like Chrome, YouTube etc. with Android OS under Section 4(2)(a)(i) of the Competition Act, 2002. The CCI, in its order of 20 October 2022, apart from fining Google heavily, directed it *inter alia* not to force Original Equipment Manufacturers (OEMs) (read mobile manufacturers) to preinstall a bouquet of Chrome browser, YouTube, Google Maps, Gmail or any other application of Google. Also, licensing of Play Store (including Google Play Services) to OEMs shall not be linked with the requirement of pre-installing Google search services, Chrome browser, YouTube, Google Maps, Gmail or any other application of Google. Upon appeal, these parts of the CCI order were upheld by the NCLAT in March 2023.[86]

The CCI had examined (in 2020-21) whether bundling of Meet with Gmail by Google constituted abuse of dominance. It, however, dismissed the case due to a lack of coercion and freedom for consumers to use any other communication apps.[87]

Since vertical integration is one of the features of the cloud services market, the presence of tie-in arrangements may not be denied. Similarly, there are tendencies to offer bundled cloud services. However, it must be noted that these are not *per se* anti-competitive and hence a rule

82 U.S. v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001) :: Justia
83 https://ec.europa.eu/competition/antitrust/cases/dec_docs/40099/40099_9993_3.pdf
84 https://www.cci.gov.in/images/antitrustorder/en/order1741002777.pdf
85 Case No. 39 of 2018, CCI Order dated 20/10/2022; https://cci.gov.in/antitrust/orders/details/1070/0
86 Google Llc & Anr vs Competition Commission of India & Ors, NCLAT; https://indiankanoon.org/doc/54000789/
87 Case No. 39 of 2020, CCI; https://www.cci.gov.in/images/antitrustorder/en/3920201652255711.pdf

of reason is applied, factoring in benefits, such as price or security advantages, to the customers due to such market practices.

### 2.2.7. Self-Preferencing

Self-preferencing generally refers to conduct where a platform favours its own products, services, or affiliates over those of competitors, particularly when it controls the infrastructure or marketplace where competition occurs. Since there are CSP-owned marketplaces where third-party vendors can also offer their products for sale, self-preferencing can happen.

Both the CSP and onboarded vendors benefit due to the enhanced ecosystem and higher network effects. Independent Software Vendors (ISVs) often offer their third-party services directly to the users, but sometimes also through the marketplace of a cloud provider on whose IaaS their product is developed, or under a contractual relationship that they have with a cloud provider.[88]

However, if there are competing products on the marketplace that of owner and the third party, there can be instances where CSP may prioritise their products over third-party offerings, or integrate third-party services less well. This self-preferencing can reduce competition in the marketplace and can cause harm to on-boarded vendors. It may be noted that not all instances of self-preferencing can be anti-competitive, some may enhance efficiency and can be beneficial for the consumers. Thus, it needs to be analysed on case-to-case basis.

Though not specifically defined, self-preferencing can be dealt with under the 'abuse of dominance' provisions of the Competition Act, 2002. In particular, self-preferencing by a dominant firm can be examined to see if it imposes unfair or discriminatory conditions,[89] or limits technical developments[90] or restricts market access[91] or leverages its dominant position in one market to enter another market[92]. Self-preferencing is not *per se* illegal. CCI approaches it on a case-by-case basis, and its competition analysis factors in any beneficial effects of the impugned conduct.

The *Google Android Case*,[93] discussed above, can be cited as an example of self-preferencing, where it imposed conditions on OEMs, among others, to pre-install its own apps, obtain preferential placement for Google Pay, and mandatory use of Google payment system on Play Store. All these conducts restricted market access of competing services. CCI found such conducts violative of the Act, and ordered Google to cease and desist from such practices and also imposed a hefty fine on it.

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88 ACM, supra17
89 Under S.4(2)(a)(i) of the Competition Act, 2002
90 S.4(2)(b)(i)
91 S.4(2)(c)
92 S.4(2)(e)
93 Case No. 39 of 2018, CCI Order dated 20/10/2022; https://cci.gov.in/antitrust/orders/details/1070/0

Similarly, in the *Google vs. CUTS and Matrimonial.com* (2012),[94] the CCI found Google to be abusing its dominance by favouring its own services, such as Google Flights, Maps etc., in its general search results. CCI held that Google's conduct led to search bias, which harms both users and competing businesses. Apart from passing a cease-and-desist order, the CCI also imposed a fine on Google.

In the Market Study on E-Commerce in India[95] (2020) by CCI, some key findings and observations have been made with respect to 'platform neutrality'[96]. In the e-commerce space, it has been found that the online platforms, when they serve a dual role – both a marketplace and a competitor – on that marketplace, have the incentive to leverage their control over the platform in favour of their own/preferred vendors or private label products to the disadvantage of other sellers/service providers on the platform.[97]

The platforms essentially vertically integrate, which in turn incentivise it to improve their own or related entity's market position relative to their competitors by engaging in preferential treatment on the platform. The issue of preferential treatment by platforms, including factual establishment of the same and its effect on competition, is a matter of case-by-case determination.[98] The CCI has recommended that e-commerce platforms self-regulate certain aspects of their practices to foster trust and a predictable relationship with the business users in order to achieve the full competitive potential of e-commerce in India.

Though CSP marketplaces have altogether different dynamics from those of general e-commerce marketplaces, there may be instances where self-preferencing may happen. It may be a matter of further study and investigation.

### 2.2.8. Data Leveraging

Data leveraging refers to the practice where dominant enterprises use their control over users' personal and behavioural data to gain an unfair advantage in another market or to suppress competition. It is particularly an important issue where a digital platform performs a dual role – both a marketplace and a competitor.

A CSP-owned marketplace for cloud services may use transaction and other data on the platform to identify bestsellers and launch competitive products. The intermediary role of marketplaces (platforms) allows them to access and analyse valuable data such as price, sold quantities, demand, etc., with respect to each product, seller and geography. Apart from improving the quality of their services, this 'data leverage' can help them to introduce new products or boost their own sales or those of its preferred sellers. This may harm the other third-

94 Case No. 07 and 30 of 2012, CCI; https://www.cci.gov.in/antitrust/orders/details/746/0
95 https://www.cci.gov.in/economics-research/market-studies/details/18/6
96 Platform neutrality refers to non-discriminatory treatment by the platform towards sellers that are linked to it.
97 https://www.cci.gov.in/economics-research/market-studies/details/18/6
98 ibid

party services of the onboarded ISVs on the marketplace. The marketplace data, thus, can be leveraged to exclude competitors and new entrants.

Under the Competition Act, 2002, data leveraging can be examined under the abuse of dominance provisions (Section 4), particularly those relating to denial of market access, leveraging dominance in one market to enter another, and imposing unfair conditions.

The CCI dealt with the issue of data leveraging in the *Meta-WhatsApp Privacy Policy*[99] case, where WhatsApp's 2021 privacy policy mandated data sharing with Meta without providing any opt-out for users. The CCI, after in-depth investigation and analysis found this practice to be unfair and coercive (Section 4(2)(a)(i)), denial of market access to advertisement competitors (Section 4(2)(c)), and leveraging dominance in messaging market to dominate in advertising market (Section 4(2)(e)).

The CCI issued a cease-and-desist order and imposed a monetary fine. Further, the CCI restricted data WhatsApp from sharing user data with other Meta platforms for advertising purposes for five years. In addition, the CCI asked WhatsApp to improve transparency by clearly explaining data sharing practices and providing users with an opt-out mechanism of non-service-related data sharing, as well as ensuring future updates to comply with these requirements.[100] Upon appeal, the NCLAT partially stayed the CCI order, including the five-year ban, because it will impact the free-to-use WhatsApp business model that relies on advertising.[101]

The CCI, in its e-commerce market study, had recommended that platforms to self-regulate, including setting out clear and transparent policies on data collection, data usage, and potential and actual sharing of such data with third parties or related entities.[102]

### 2.2.9. Multi-cloud

Multi-cloud is a cloud deployment model in which a customer uses public cloud services provided by two or more cloud service. The trend of multi-clouding in India is on the rise – from 29% in 2020 to 55% in 2023.[103] According to one estimate, around 90% of large enterprises will adopt a multi-cloud strategy by 2027.[104] The main drivers for multi-clouding are specialised cloud capabilities, improved resilience, and to avoid lock-in.

Like multi-homing, in the competition analysis the instances of multi-cloud are taken as pro-competition market practices. The CCI is, therefore, likely to factor in the high instances and

99 Suo Motu Case No. 01 of 2021 In Re: Updated Terms of Service and Privacy Policy for WhatsApp users, CCI; https://www.cci.gov.in/images/antitrustorder/en/order1732001619.pdf
100 Ibid
101 https://nclat.nic.in/display-board/view_order
102 https://www.cci.gov.in/economics-research/market-studies/details/18/6
103 Multi-Cloud vs. Single Cloud: Which Works Best for Indian Enterprises? • Invenia
104 Gartner: 90% of organizations will adopt Hybrid Cloud through 2027

increasing trend of multi-cloud by users, in its competition analysis, while dealing with cases pertaining to the cloud services.

### 2.2.10. Commitment and settlement

In 2023, the Competition Act, 2002 was amended to introduce Commitment and Settlement mechanisms by adding Section 48A (Settlement) and 48B (Commitment). This is likely to have a profound effect on competition enforcement in digital markets, in general, and the cloud services market, in particular. As these provisions are largely meant for vertical agreements (Section 3(4)) and abuse of dominance (Section 4), which, as discussed above, are major provisions for addressing the reported competition concerns in the cloud services market. (The Commitment and Settlement provisions are not applicable to cartels or horizontal agreements under (Section 3(3)).

As no appeals are allowed under these two provisions related to Commitment and Settlement, it will result in expedited resolution of competition cases and reduction of load on CCI. The new provisions may also encourage voluntary compliance and early market correction. The first case settled under Section 48A is by Google, where it was found during the investigation to be abusing its dominance in the Android TV OS market. Vide this settlement, Google agreed to modify certain practices and pay the settlement amount.[105]

### 2.2.11. Recent Supreme Court Judgement on Abuse of Dominance

A Supreme Court (SC) judgement in May 2025 (*Competition Commission of India v. Schott Glass India*[106]) is likely to change the way CCI approaches abuse of dominance cases, and perhaps any other regulatory intervention. The Court clarified that a finding of abuse of dominance cannot be sustained unless the alleged conduct: results in actual or likely anticompetitive effects; and lacks objective commercial justifications.[107]

The SC emphasised that intervention under competition law must be grounded in rigorous fact-finding and economic analysis. It sets a valuable precedent on when volume-based discounts, functional rebates and bespoke deals with some customers are not abusive and may be legitimate commercial strategies, and recognises that certain restraints which are proportionate and ancillary to the commercial strategy may be permitted.[108]

The SC strongly opposed 'heavy-handed enforcement' of competition regulations, warning that the same could derail India's ambitions to become a global manufacturing and technology hub.[109] The Court, holding *inter alia* that an effect-based inquiry is integral to Section 4 of the

[105] https://www.cci.gov.in/images/pressrelease/en/press-release1745237010.pdf
[106] https://api.sci.gov.in/supremecourt/2014/19707/19707_2014_5_1501_61745_Judgement_13-May-2025.pdf
[107] https://www.chandhiok.com/post/c-m-e-alert-supreme-court-clarifies-that-abuse-of-dominance-requires-effects-analysis
[108] Ibid
[109] https://www.barandbench.com/amp/story/news/litigation/heavy-handed-competition-law-enforcement-can-hurt-indias-bid-to-become-manufacturing-hub-supreme-court

Competition Act, observed that "*If mere size or success were treated as an offence, and every dominant firm exposed to sanction without tangible proof of competitive harm, the law would defeat itself: it would freeze capital formation, penalise productivity, and ultimately impoverish the very public it is meant to protect*."[110]

The SC further observed: "*…India's bid to emerge as a global centre for manufacturing, life-sciences and technology will succeed only if regulation rewards scale and intervenes solely when genuine competitive harm is shown. Heavy-handed enforcement, divorced from market effects, would discourage the long-term capital and expertise the economy urgently needs. An effects-based standard is therefore not a mere procedural nicety. It is both a constitutional bulwark against arbitrary restraint of lawful enterprise and a strategic necessity if India is to capture the opportunities that more protectionist economies are in danger of forsaking*."[111]

[110] Ibid. Para 78
[111] Ibid. Para 79

# 3. Conclusion

In light of the above-discussions, it can be said that most of the reported competition concerns in the cloud services market can be dealt with under the Competition Act, 2002. With the addition of the commitment and settlement provisions and establishment of the digital market unit in the CCI, the time taken for dispute resolution is likely to come down considerably. However, a better understanding of cloud services and market dynamics in the Indian context is mooted for better competition analysis as well as regulatory interventions.

The CCI may, therefore, commission a market study for cloud services in India. Such a study will not only enhance a better understanding of the market structure and practices, it will also help in identifying areas of concern that merit interventions, including competition advocacy. This will also help the industry – CSPs and business customers – to discipline itself (self-regulation) and adopt pro-competition practices. The study outcome can also better inform the polity in considering whether to include 'cloud services market' in any ex ante regulatory framework that is presently discussed in India.

For easing technological barriers to competition, international cooperation may be mooted. Since cloud markets operate across borders, such cooperation can prevent regulatory fragmentation and help adopt balanced standards that includes interests of small CSPs.

Further, other regulations in the digital space that apply to cloud services may also be analysed from a competition perspective. The digital personal data protection regime is one of the most important one in this regard, as it has a bearing on interoperability and data portability.

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