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Applying the Essential Facilities Doctrine to Data Monopolies in the AI Era: EU Experience and Implications for China

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Abstract

In the era of artificial intelligence, acquiring high-quality datasets is crucial for model training and development. However, dominant enterprises may monopolise critical data and thereby abuse their market dominance. This paper explores the applicability of the Essential Facilities Doctrine (EFD) in the context of data monopolies. This research reveals how EU case law has progressively clarified the criteria for applying EFD to intangible assets, particularly evident in cases such as Magill, Bronner, IMS Health, Microsoft, and Android Auto. In contrast, although China's Anti-Monopoly Law and policy guidelines recognise certain elements of EFD, judicial practice remains conservative in explicitly adopting the principle, as demonstrated by the Qihoo v. Tencent case. Chinese scholars hold divergent views on whether this legal doctrine can be extended to the data domain. This paper recommends drawing upon EU experience: defining critical data through stringent criteria, balancing data acquisition with privacy safeguards, and formulating approaches aligned with China's data sovereignty strategy. Ultimately, it advocates for regulating data monopoly practices in the artificial intelligence sector through prudent and progressive legal development.

Keywords

Essential Facilities Doctrine; Data Monopolies; Artificial Intelligence.

1. Introduction

In this data-driven era, datasets are crucial for artificial intelligence development and training. Dominant enterprises may monopolise training data, thereby abusing their market dominance [1]. Dominant enterprises refer to those holding a leading position within a specific industry or sector. Abuse of market dominance denotes conduct whereby enterprises possessing significant market power utilise their position to distort, restrict, or eliminate competition. The "essential facilities doctrine" (EFD), applied to open physical infrastructure, may hold potential for regulating data monopolies. Essential facilities denote assets or infrastructure for which no reasonable alternative exists, and which third parties must access to supply their own products or services in the market. Replication is impracticable due to legal, economic, or technical barriers. Refusal by an undertaking to open essential facilities constitutes an abuse of market dominance, imposing obligations to transact or open access [2]. The European Union has advanced the application of this principle through cases such as Microsoft v. European Commission [3]. China may draw upon this experience in regulating data monopolies within the era of artificial intelligence.

China requires adjustments to its antitrust regime to address data monopolies in the AI sector. Chinese scholars have proposed perspectives on applying the essential facilities doctrine to this issue. Yang Fan contends that the doctrine can be applied to data platforms [4]. Chen Yongwei contends that distinguishing lawful from unlawful conduct is crucial when applying the essential facilities principle to regulate data monopolies [5]. Overall, whether and how the

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essential facilities theory, originating from tangible infrastructure, can be applied to regulating intangible data in the AI era requires further research.

The core of this research lies in applying methods such as legal text analysis, case studies, and judicial practice research to explore the application of the essential facilities doctrine within China's legal framework for regulating data monopolies in the field of artificial intelligence.

2. Antitrust Challenges Facing Data Access in the Era of Artificial Intelligence

2.1. Characteristics of Artificial Intelligence Data

The training of artificial intelligence models relies on vast quantities of high-quality data. The irreplaceability and network effects of data within the AI market may render it essential infrastructure.

Specific datasets may possess irreplaceability. Whilst datasets can be replicated, disseminated, and circulated, market competitors may struggle to find substitutes if they require particular data (such as detailed social network connections or historical user search records) and the firm holding that data is unwilling to transact or share it [6]. Differences in data type, scale, or temporal factors may contribute to irreplaceability. Competition authorities consider data itself to constitute a market entry barrier when new entrants cannot collect or purchase data of equivalent quality and quantity to that held by existing firm [7]. Market entry barriers are factors that reduce the likelihood or speed of new entrants entering a market by affecting anticipated sunk costs and/or expected profits after market entry, or by establishing physical, geographical, or legal barriers to entry. Market entry barriers may constitute an abuse of market dominance, thereby contravening antitrust laws [7].

Data network effects may intensify market concentration. Network effects occur when a platform's user base grows, increasing its attractiveness to further users. This feedback loop generates greater user data, thereby creating larger advantages for dominant firms [8]. Such positive feedback cycles may lead to monopolisation within AI markets.

In summary, firms controlling large-scale or unique datasets may constitute an abuse of market dominance. Both data and traditional facilities may constitute barriers to market entry; consequently, the essential facilities doctrine applied to traditional physical facilities may be applicable to data.

2.2. Data Antitrust Issues in the Era of Artificial Intelligence

The dominance of artificial intelligence firms over data may raise antitrust concerns. Regulators must navigate multiple objectives: promoting competition, incentivising innovation, and safeguarding privacy and security.

Promoting innovation is a key objective of antitrust law. Antitrust law maintains market competition, thereby compelling firms to innovate to enhance competitiveness [9]. Should dominant AI enterprises monopolise datasets to stifle innovation by others, compelling data sharing or transactions could benefit market-wide innovation. However, forced data sharing may diminish firms' incentives to collect data. For instance, Google invests heavily in data collection; if competitors could access this data free or at lower cost, Google's willingness to invest in data gathering would diminish [10].

Privacy and security concerns warrant attention when discussing data sharing. Excessive freedom of data flow may trigger privacy and security issues. For instance, compelling Google to share sensitive data could create privacy and national security vulnerabilities [10]. Moreover, when data flows to platforms beyond those initially consented to by users, its usage may exceed the scope of that consent [11].

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In conclusion, antitrust regulation of data in artificial intelligence markets must consider multiple factors, including incentivising innovation and safeguarding privacy security.

3. An Overview of the EU Essential Facilities Doctrine

3.1. EU Legislation

Article 102 of the Treaty on the Functioning of the European Union (TFEU) prohibits the abuse of a dominant position by undertakings, such as restricting competitors' production, market access, and technological development [12]. Restricting competitors' access to essential facilities may contravene this provision. The application of the essential facilities doctrine typically arises in situations involving upstream and downstream markets. Products in the upstream market lack substitutes and are essential for the downstream market. Should a dominant undertaking producing such upstream goods refuse to transact with or share its products with competitors in the downstream market, this may constitute an abuse of market dominance. The essential facilities doctrine may then apply, imposing obligations to transact or share.

3.2. The Essential Facilities Doctrine in EU Case Law

Magill marked the inception of the EU's application of the essential facilities doctrine [13]. The Court of Justice of the European Union ruled that the television broadcaster's refusal to grant licence for weekly programme listings impeded the emergence of innovative products, thereby infringing Article 102 of the TFEU.

Bronner requires that facilities subject to the essential facilities doctrine must be absolutely incapable of replication or substitution [14]. This case exemplifies the stringent standard for applying the essential facilities doctrine.

In IMS Health, the European Court of Justice established new criteria for applying the essential facilities doctrine [15]. The ruling determined that the essential facilities doctrine could apply to intangible assets, but that refusing competitors access to such assets would only constitute an abuse of market dominance if the following conditions were met: (i) the refusal impeded the emergence of new products or services for which potential consumer demand existed; (ii) there was a lack of objective justification; and (iii) the refusal was sufficient to eliminate all competition in the secondary (downstream) market. This case sought to strike a balance between encouraging innovation and promoting competition by further refining and clarifying the applicable standards.

Microsoft applied the essential facilities doctrine to the realm of networked information [3]. The court ruled that Microsoft's refusal to provide interoperability information would impede competitors' innovation and be detrimental to consumer interests. Consequently, this interoperability information was deemed an essential facility and must be made available to competitors.

In Android Auto, the Court of Justice of the European Union broadened the scope of application of the essential facilities principle, ruling that the Bronner strict standard applies only to infrastructure developed by dominant undertakings for their own exclusive use [16]. Even where open platforms or facilities specifically designed for third parties fail to meet the high threshold of irreplaceability under the Bronner standard, refusing to open such facilities to significantly enhance the appeal of competitive services to consumers may constitute an abuse of market dominance.

The evolution of EU case law demonstrates a trend towards clarifying the criteria for applying the essential facilities doctrine and expanding its scope of application. This principle may hold potential value for regulating monopolistic conduct in the artificial intelligence market data sector.

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4. The Current State of Application in China

4.1. Antitrust Laws and Policies

China's Anti-Monopoly Law prohibits enterprises from abusing their market dominance by refusing to transact. Article 22 prohibits such enterprises from utilising data and algorithms, technology, or platform rules to implement the aforementioned abuses of market dominance [17]. Although this provision does not explicitly invoke the essential facilities doctrine, it may serve as the legal basis for mandating data transaction obligations.

Article 16 of the Provisions on the Prohibition of Abusing Market Dominance stipulates: 'Enterprises with market dominance shall not, without justifiable grounds, refuse to allow counterparties to use their essential facilities under reasonable conditions [18]. This indicates that the essential facilities doctrine has been incorporated into policy-level implementing rules.

Article 14 of the Guidelines on Anti-Monopoly in Platform Economy stipulates that where an operator controlling essential facilities within the platform economy refuses to transact with counterparties on reasonable terms, such conduct may constitute an abuse of market dominance [19]. This provision indicates that data holdings constitute a key factor in determining essential facilities. The inclusion of data considerations within the criteria for assessing essential facilities in these policy guidelines demonstrates the Chinese government's growing emphasis on the importance of data openness.

The Opinions on Establishing a More Effective Market-Oriented Factor Allocation Mechanism designate data as one of the five key elements for advancing market-oriented allocation reforms [20]. This reflects the policy's emphasis on data.

These laws and policies demonstrate that although the Chinese government has not explicitly enshrined the principle of essential facilities in legislation nor formally recognised data as an essential facility, it is progressively attempting to apply this principle within antitrust policy and is beginning to recognise the significance of data antitrust regulation.

4.2. The Acceptance of the Essential Facilities Doctrine in China

Case law constitutes a source of law within the European Union, where the principle of essential facilities has gradually been established through judicial precedent. In China, statutory law remains the sole source of legislation. While the principle of essential facilities is not explicitly codified within legal statutes, its acceptance has progressively manifested in policy documents. Consequently, the principle of essential facilities retains scope for further development within the Chinese legal framework.

China's judiciary maintains a cautious and conservative stance towards recognising data as essential facilities. In the landmark Qihoo 360 v. Tencent case, the Supreme People's Court declined to invoke the legal doctrine of essential facilities and did not impose data-sharing obligations upon internet enterprises [21]. This principle remains unestablished within China's judicial system, while data-based intangible assets have yet to be deemed of antitrust significance.

Academic circles in China hold divergent views on the application of the essential facilities doctrine. For instance, Fan Yang advocates applying the critical facilities principle to determine whether data control practices contravene antitrust law [4]. Yongwei Chen cautions that applying this principle to data necessitates clear assessment criteria [5]. Jian Wang and Zongze Wu contend that due to the doctrine's limitations and the practical difficulties of enforcing data access regulations, a conservative and prudent approach should be adopted when classifying data as infrastructure [22].

In summary, Chinese legislation has yet to explicitly recognise the essential facilities doctrine, whilst the judiciary maintains a conservative and cautious stance. Policy documents indicate

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the government's inclination towards applying this doctrine and increasing emphasis on data antitrust matters. The academic community continues to debate the potential application and methodologies of the essential facilities doctrine within data openness. The potential and approaches for employing this doctrine in data antitrust regulation during the current era of artificial intelligence warrant further in-depth research and discussion.

5. Lessons China Can Learn from the European Union

5.1. Defining Essential Data

EU case law has established strict and explicit criteria for applying the essential facilities doctrine, which may be used to determine whether data in the artificial intelligence market constitutes an essential facility. These criteria are: (i) the input is non-substitutable; (ii) refusal of access may eliminate effective competition in downstream markets; (iii) there is a lack of legitimate justification; and (iv) refusal of access may impede the emergence of new products beneficial to consumers [23]. These explicit and rigorous standards facilitate the application of the essential facilities doctrine.

It is recommended to draw upon EU standards to clearly define the essential data to which the principle of essential facilities should apply. Assessments of irreplaceability and effective competition should be judged based on whether they constitute barriers to entry in the artificial intelligence market. Evaluations must comprehensively consider economic, legal, and policy factors within the AI market. Reasonable grounds may primarily address data privacy and security concerns, aligning with China's data sovereignty strategy [24]. Standards that impede innovation may be appropriately flexible, subject to case-by-case assessment.

5.2. Comply with the Data Privacy and Security Framework

Data access legislation and policies should take privacy and security considerations into account. The European Union's General Data Protection Regulation (GDPR) requires all data access policies to safeguard privacy and security [25]. Section 6(10) of the Digital Markets Act explicitly stipulates that commercial users' access to data must comply with privacy regulations [26].

China's data access laws and policies shall comply with the Personal Information Protection Law and the Data Security Law. Article 21 of the Data Security Law stipulates that special protection shall be afforded to national core data and important data [27]. Even where such data constitutes essential facilities, refusal of access may be justified on reasonable grounds.

6. Conclusion

This paper examines the applicability of the Essential Facilities Doctrine (EFD) to data monopolies in the field of artificial intelligence. EU case law has progressively extended this principle to intangible assets, providing a structured framework for assessing when dominant enterprises must share data. In contrast, while China's legal framework increasingly incorporates EFD elements at the policy level, judicial practice remains cautious, as demonstrated in the Qihoo v. Tencent case.

To address market dominance based on data, China could draw upon EU experience by: establishing clear criteria for defining critical data; incorporating privacy and security safeguards; and aligning enforcement practices with data sovereignty objectives. Prudent and forward-looking application of the EFD principle would help balance innovation, competition, and privacy security when regulating data monopolies in the AI era.

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