



Algorithmic Monopoly: New Challenges for Indonesian Business Competition Law Enforcement in the Face of Digital Platform Dominance

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Abstract

Background: The digital economy has transformed business competition by positioning algorithms, data, artificial intelligence, and network effects as key sources of market power. This development has enabled algorithmic monopolies, in which digital platforms exert substantial control over market access and interactions, posing challenges to Indonesia's conventional competition law framework.

Objective: This study examines the characteristics of algorithmic monopolies, identifies limitations in dominant-position regulation under Law Number 5 of 1999, compares regulatory approaches in the European Union, the United States, and the OECD, and proposes a reconstructed concept of algorithm-based market dominance for Indonesian competition law.

Methods: This normative legal research applies statutory, conceptual, comparative, and case approaches. Legal materials comprising regulations, scholarly literature, policy documents, and digital competition law developments were qualitatively examined using a prescriptive-analytical method.

Results: The findings reveal that the existing dominant-position framework inadequately addresses market power derived from algorithms, data control, and network effects, creating a normative gap. Comparative analysis demonstrates more adaptive approaches through the European Union's Digital Markets Act, modernized U.S. antitrust policies, and OECD algorithmic governance initiatives. Accordingly, this study proposes *algorithmic market dominance* as an assessment framework encompassing control over data and algorithms, network effects, user dependence, self-preferencing, and digital barriers to entry.

Conclusion: This reconstruction provides a conceptual basis for regulatory reform and KPPU enforcement guidelines responsive to digital-market dynamics while strengthening competition, innovation, fairness, legal certainty, and accountability in Indonesia's digital economy.

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INTRODUCTION

The development of the digital economy has brought fundamental changes to market structures and patterns of global business competition. In traditional economics, market power is generally measured based on indicators such as market share, production capacity, and control over economic resources. However, in a digital platform-based economy, the sources of market power are shifting toward control over data, user networks, and algorithmic technologies (Damame, 2025; Stark & Pais, 2021). Data is no longer merely a by-product of economic activity but has become a strategic asset capable of creating competitive advantages and strengthening a company's dominant position (Zuboff, 2020).

Digital platforms such as marketplaces, search engines, social media, and app-based

services have characteristics that differ from those of conventional market structures because they depend on network effects, economies of scale, and the ability to process large amounts of data. According to Evans & Gawer (2016), the primary strength of platform companies lies in their ability to build ecosystems that bring together various groups of users while creating economic interdependence. This condition enables platform companies to maintain market dominance not only through the products they offer but also through control over digital infrastructure, which serves as a primary point of access for businesses and consumers.

One aspect of particular concern in the development of the digital economy is the use of algorithms as instruments for business decision-making. Algorithms are used to determine search rankings, generate product recommendations, adjust prices, and implement personalized marketing strategies. In the context of business competition law, algorithms are no longer viewed solely as technologies that support efficiency but also have the potential to serve as instruments for reinforcing anticompetitive behavior. Stucke (2016) explain that algorithms can create new forms of market power because they enable companies to control information, influence consumer behavior, and optimize business strategies with a level of precision that is difficult to achieve in conventional markets.

This phenomenon gives rise to a new concept in the study of business competition law, namely, algorithmic monopoly. In contrast to traditional monopolies, which are characterized by direct market dominance, algorithm-driven monopolistic conditions can arise through control over digital mechanisms that influence how markets operate. Companies that control sophisticated algorithms may be able to determine product visibility, shape consumer preferences, or provide differential treatment to certain business actors. According to Pasquale (2015), algorithmic systems have the capacity to create hidden power structures because their decision-making processes operate through mechanisms that are difficult for external parties to understand and supervise.

From the perspective of Indonesian business competition law, these developments pose challenges to the effectiveness of the applicable regulatory framework. The principal regulation governing the prohibition of monopolistic practices and unfair business competition remains Law Number 5 of 1999. The law is grounded primarily in a conventional economic paradigm that assesses anticompetitive behavior through indicators such as market dominance, certain types of agreements, and the abuse of a dominant position. However, the characteristics of digital markets suggest that economic dominance can emerge without necessarily satisfying these traditional indicators because companies can acquire market power through control over data and technology (Fast et al., 2023; Knapstad, 2024; Nuccio & Guerzoni, 2019).

The main problem lies in the limitations of the concept of dominant position in Indonesian competition law when applied to digital companies. A market-share-based approach has become less effective in digital markets because a company's economic value is not always reflected in transactions or direct revenue. Digital companies may offer free services to users while gaining strategic advantages through the accumulation of data and control over user networks, thereby generating data-driven market power (Cr  mer et al., 2019). Thus, there is a need to broaden the understanding of the sources of market power to capture new forms of technology-based dominance.

Previous studies on digital business competition law have primarily focused on issues of data protection, privacy, and the regulation of digital platforms. Meanwhile, studies specifically analyzing algorithms as instruments in the formation or maintenance of monopolistic power from the perspective of business competition law remain limited. Research on algorithms and business competition has developed more extensively in the international literature, whereas, in the Indonesian context, there remains a lack of comprehensive research formulating how algorithmic control can be categorized as a source of dominant power with the potential to facilitate monopolistic practices.

Recent digital competition scholarship (2022–2026) examines algorithmic governance on digital platforms Zuboff (2020), yet existing studies do not comprehensively address how traditional indicators of dominant position apply to algorithm-driven markets under Indonesian Law No. 5/1999, as amended by Law No. 11/2020. The core enforcement provisions in Articles 17–19 remained substantively applicable as of 2024. International frameworks, including the EU

Digital Markets Act (DMA), which entered into force on November 1, 2022, and became applicable on May 2, 2023, and the United Kingdom's Online Safety Act 2023, propose regulatory approaches addressing the power of major digital platforms and gatekeeper-like entities. However, their operational application to enforcement by the Indonesian Competition Commission (*Komisi Pengawas Persaingan Usaha* or KPPU), particularly in the context of a developing digital market, remains underexplored.

The research *gap* shows that Indonesia's business competition law requires a new approach to addressing changes in the characteristics of digital markets. The traditional approach, which focuses primarily on market structure and business conduct, is insufficient to explain the dominance of companies whose market power derives from control over algorithms. Therefore, it is necessary to reconsider and potentially reconstruct the concept of dominant position by incorporating new elements, including control over algorithms, data, and digital networks, as indicators of market power.

This research offers *novelty* through the development of the concept of algorithmic monopoly as an analytical framework for understanding new forms of market dominance in the digital economy. This concept is based on the argument that modern forms of monopoly power are established not only through control over products or market share but also through companies' ability to control algorithmic systems that determine market access and shape the economic behavior of users. Accordingly, this study aims to analyze the challenges faced by Indonesian business competition law enforcement in addressing the dominance of digital platforms and to propose a more responsive legal approach to technological developments.

METHOD

This research was normative legal research (doctrinal legal research) that aimed to analyze the adequacy of Indonesian business competition law regulations in addressing the phenomenon of algorithmic monopoly on digital platforms. Normative legal research was chosen because it focuses on the study of legal norms through the analysis of laws and regulations, decisions, doctrines, and legal principles to produce prescriptive legal arguments (Bhat, 2019; Hutchinson & Duncan, 2012).

The research approach comprised several approaches. First, the statute approach was used to examine Law Number 5 of 1999 concerning the Prohibition of Monopolistic Practices and Unfair Business Competition, together with its implementing regulations, guidelines issued by the Business Competition Supervisory Commission (*Komisi Pengawas Persaingan Usaha* or KPPU), and other regulations related to the digital economy. Second, the conceptual approach was used to examine the concepts of algorithmic monopoly, market power, platform dominance, network effects, self-preferencing, and data-driven market power as developed in the business competition law literature (Bhat, 2019). Third, a comparative approach was employed to compare Indonesia's competition law framework with the competition law regime of the European Union through the Digital Markets Act, the antitrust approach in the United States, and OECD recommendations on business competition in digital markets, with the OECD positioned as a policy source and international best-practice forum rather than as a national legal jurisdiction (Cr  mer et al., 2019). Fourth, the case approach was used to analyze KPPU decisions and selected decisions of international competition authorities concerning the abuse of dominant positions by digital platforms.

The legal materials used consisted of primary legal materials, secondary legal materials, and tertiary legal materials. Primary legal materials included laws and regulations, KPPU decisions, court decisions, and international legal instruments related to business competition law. Secondary legal materials consisted of scholarly books, articles published in reputable national and international journals, OECD reports, European Commission publications, and various academic publications on competition law, the digital economy, and algorithmic governance. Tertiary legal materials consisted of legal dictionaries, legal encyclopedias, and other reference sources that supported the research analysis (Taekema, 2018).

The collection of legal materials was conducted through library research by tracing various laws and regulations, decisions, scholarly articles, books, and reports published by international institutions that were relevant to the object of the research. All legal materials were

selected based on the principles of relevance, scholarly authority, and currency, with priority given to journal articles published within the previous ten years (Majeed et al., 2023).

The analysis of legal materials was conducted qualitatively using a prescriptive-analytical method. The analysis began by identifying legal issues, interpreting applicable legal norms, evaluating the adequacy of Indonesia's competition law regulations, and comparing them with developments in competition law across various jurisdictions. Furthermore, the research formulated a legal argument regarding the need to reconstruct the concept of dominant position in the digital economy by incorporating control over algorithms and data as additional indicators of market power in the enforcement of Indonesian business competition law (Bhat, 2019; Hutchinson & Duncan, 2012).

RESULTS AND DISCUSSION

Results

Characteristics of Algorithmic Monopoly in the Digital Economy

The phenomenon of algorithmic monopoly in the digital economy reflects a fundamental change in the sources of market power. Whereas, in a conventional economy, market dominance is generally determined by control over physical assets, production capacity, and market share, in the digital economy, market power is increasingly shifting toward control over data, algorithms, and user networks. This shift indicates that digital platform companies compete not only through products or services but also through their ability to control the architecture of digital marketplaces, which determines access, visibility, and economic interactions among market participants. Thus, algorithmic monopoly can be understood as a form of market dominance built through control over algorithmic mechanisms that govern the behavior of digital markets.

The main characteristic of algorithmic monopoly lies in the use of algorithms as instruments for economic decision-making. Algorithms allow platform companies to process large amounts of user data, predict consumer behavior, determine product recommendations, and automatically establish search rankings and prices. In this context, algorithms no longer function simply as technological tools for improving business efficiency but also as mechanisms that can shape consumer preferences and influence the structure of market competition. Stucke (2016) explain that algorithms can create a new form of economic power because they are capable of coordinating market behavior automatically and reducing transparency in the process of business competition.

The second characteristic is data-driven market power. Digital platform companies derive market power from their ability to collect, store, and analyze user data. Such data are used to improve service quality, develop business models, and strengthen a company's position in the digital market. The more data a platform possesses, the greater its ability to understand user behavior and optimize its business strategies. This condition creates a cycle of dominance in which control over data produces a competitive advantage that is difficult for new business actors to match. Crémer et al. (2019) Schweitzer assert that data can be a significant source of market power in the digital economy because they provide strategic advantages to companies that are able to process them effectively.

In addition to data, algorithmic monopoly is characterized by strong network effects. A network effect occurs when the value of a platform increases as the number of its users increases. On digital platforms, the more users who join, the more attractive the platform becomes to new users and other business actors. This network effect creates barriers to entry for competitors, as new companies must overcome difficulties in attracting users away from platforms that already have a large user base. Thus, the dominance of digital platforms derives not only from product quality but also from their ability to maintain and expand user networks through algorithmic mechanisms.

Another important characteristic is the practice of self-preferencing, in which a digital platform gives preferential treatment to its own products, services, or affiliated businesses. This practice can occur through algorithms that govern search rankings, product recommendations, or service visibility within the platform. Under such conditions, platforms no longer act solely as neutral intermediaries but also as business actors capable of influencing competition within their own ecosystems. The practice of self-preferencing may constitute an abuse of a dominant position

when it is used to disadvantage competitors, and it can be difficult to detect because it operates through algorithmic mechanisms that are not always transparent to users or regulators.

The next characteristic is the potential for algorithmic collusion. Algorithms used in pricing or market strategies can potentially facilitate the coordination of anticompetitive behavior without an explicit agreement among business actors. In certain situations, algorithms can learn from market behavior and automatically adjust business strategies, resulting in price patterns or market behavior that resemble collusion. The OECD highlights that the development of algorithms and artificial intelligence can pose new challenges for competition law because anticompetitive behavior can occur through automated mechanisms that are difficult to prove using conventional legal approaches (OECD, 2017).

The final characteristic is the lack of algorithmic transparency. The algorithms used by digital platforms are generally proprietary and complex, making them difficult for users, other business actors, and competition authorities to understand. This lack of transparency makes it difficult to determine whether an algorithm is being used to increase market efficiency or to strengthen market dominance. Pasquale refers to this condition as a black box society, in which economic decision-making processes are controlled by algorithmic systems that cannot be adequately scrutinized by the public (Pasquale, 2015).

Based on these characteristics, algorithmic monopoly suggests that market dominance in the digital economy can no longer be understood solely through traditional indicators such as market share or transaction value. Control over algorithms, data, and user networks has become a new source of market power that enables digital platform companies to maintain their dominant positions in increasingly concealed and complex ways. Therefore, Indonesian competition law needs to develop a more adaptive approach by recognizing control over algorithms and data as relevant factors in assessing dominant positions and potential monopolistic practices in the digital economy.

Thus, the characteristics of algorithmic monopoly provide a conceptual basis for this study to analyze the challenges of enforcing Indonesian competition law. Understanding these characteristics is important because it provides a basis for evaluating whether the current competition-law framework is capable of addressing new forms of market dominance based on technology, data, and algorithms.

Limitations of Law Number 5 of 1999 in Addressing the Dominance of Digital Platforms

The development of the digital economy has changed the way business actors acquire and maintain market power. When Law Number 5 of 1999 was drafted, the market structure was still dominated by the manufacturing industry, conventional trade, and traditional service sectors. Today, however, market power is increasingly formed through control over data, algorithms, artificial intelligence, and network effects. These changes pose challenges to the effectiveness of Indonesia's competition-law framework because many of the norms in Law Number 5 of 1999 were developed within a conventional market paradigm that assumes market dominance can be assessed through traditional economic indicators, such as market share, production control, and pricing ability. As a result, the existing regulatory framework has not yet fully addressed new forms of dominance developing within the digital platform ecosystem (Cr  mer et al., 2019).

One of the fundamental limitations lies in the concept of dominant position as stipulated in Article 25 of Law Number 5 of 1999. This provision essentially prohibits business actors from using their dominant position to limit the market, restrict technological development, or hinder potential competitors from entering the market. However, the assessment of dominant position under the law remains substantially influenced by quantitative measures, particularly market share. Although such an approach is relatively effective for assessing conventional market structures, it becomes less adequate when applied to digital platform companies that derive market power from control over data and algorithms.

In the digital economy, companies do not necessarily acquire a dominant position because they have the largest market share in the traditional sense. Many platforms provide services at no monetary cost to users while deriving economic benefits from data collection, digital advertising, or the integration of multiple services within a single ecosystem. Therefore, market share does not always reflect the actual extent of market power. Calvano & Polo (2021) explains that antitrust

approaches focused primarily on price and market share are no longer adequate for evaluating the dominance of digital firms because significant economic value may derive from control over digital infrastructure and user data.

The next limitation concerns the absence of explicit regulation addressing algorithms as instruments for the abuse of dominant positions. Law Number 5 of 1999 regulates various forms of anticompetitive behavior, including pricing practices, allocation of marketing areas, cartels, and abuse of dominant positions. However, the law does not provide a specific normative framework governing the use of algorithms to determine search rankings, product recommendations, automated bidding systems, or dynamic pricing mechanisms. In practice, such mechanisms can affect consumer behavior and the ability of other business actors to compete fairly.

For example, a digital platform may use algorithms to place its own products or certain partner products at the top of search results while placing competitors' products in less visible positions. This practice is known as self-preferencing. Economically, such conduct can reduce competitors' ability to obtain equal access to consumers, even in the absence of a formal exclusive agreement or an explicit refusal to deal prohibited under Law Number 5 of 1999. Thus, market power may be exercised through algorithmic design rather than through the conventional business conduct that has traditionally been the focus of competition law.

Another limitation concerns the lack of an adequate regulatory framework addressing control over data as a source of market power. In the digital economy, data constitute a strategic asset that enables companies to improve algorithmic performance, understand consumer preferences, and develop service innovations. The greater the volume and quality of data a platform possesses, the more difficult it may be for new competitors to enter the market. This phenomenon creates barriers to entry that differ from those found in conventional markets. However, Law Number 5 of 1999 has not expressly identified control over data as a relevant factor in assessing dominant positions and the potential abuse of market power. Various studies have shown that data have developed into an economically valuable factor of production alongside capital, labor, and technology (OECD, 2022).

In addition, the concept of network effects has not received adequate attention in Indonesian competition law. Digital platforms gain competitive advantages as increasing numbers of users join their ecosystems. The growing number of users increases the value of the platform to other users, thereby strengthening the company's dominant position without requiring expansion through the acquisition of physical assets. This creates a *winner-takes-most* phenomenon, in which one or more platforms dominate a substantial portion of the market because of particularly strong network effects. This characteristic differs from the market structures that formed the basis of Law Number 5 of 1999, meaning that existing legal instruments may not fully anticipate the dynamics of platform-based digital competition (Furman et al., 2019).

Discussion

Comparative Analysis: The EU, the United States, and the OECD's Approach to the Dominance of Digital Platforms

The development of the digital economy has prompted various jurisdictions to reform their competition laws in response to the dominance of digital platforms, which can no longer be assessed solely through market share or price indicators. Unlike conventional business models, digital companies gain competitive advantages through control over data, algorithms, artificial intelligence, and network effects that create barriers to entry for new business actors. This condition makes competition-law approaches oriented toward conventional market structures increasingly inadequate for identifying abuses of market power carried out through algorithmic mechanisms. Therefore, various jurisdictions have begun developing new legal instruments that assess not only economic effects but also the characteristics of digital technologies as sources of market power (OECD, 2022).

The EU Approach: Ex Ante Regulation through the Digital Markets Act

The European Union is one of the most progressive jurisdictions in responding to the dominance of digital platforms. The approach to competition law no longer relies solely on the *ex post* enforcement mechanism, which requires proving violations after they occur, but also

incorporates an *ex ante* regulatory approach through the Digital Markets Act (DMA), which entered into force on November 1, 2022, and became applicable on May 2, 2023. The DMA introduced the concept of a gatekeeper, referring to an undertaking that provides a core platform service and satisfies specified criteria concerning its significant impact on the internal market, its role as an important gateway between business users and end users, and its entrenched and durable position (European Commission, 2022).

This approach represents a fundamental paradigm shift. Whereas market dominance under traditional competition law generally requires an assessment of market power and competitive effects, the DMA establishes specific obligations for undertakings that meet the statutory criteria for gatekeeper designation. For example, gatekeepers are prohibited from giving more favorable ranking to their own products or services than to similar products or services offered by third parties. In addition, gatekeepers are subject to obligations concerning interoperability, data access, and the processing and combination of personal data under specified conditions (Cabral et al., 2021).

The EU's approach demonstrates that algorithms may function as instruments through which gatekeepers can reinforce their market power or engage in practices that restrict contestability and fairness. Accordingly, regulation no longer focuses exclusively on market share but also considers a platform's ability to control digital and informational infrastructure. This approach is more adaptive than the traditional competition-law model because it recognizes that market power in the digital economy may derive from control over the digital ecosystem as a whole.

For Indonesia, this approach provides an important lesson: indicators of dominant position may be insufficient if they are based solely on market share, as currently reflected in Law Number 5 of 1999. The dominance of digital platforms can be formed through data control, algorithmic capabilities, and network effects that are not adequately captured by conventional indicators. Therefore, the concept of a gatekeeper may serve as a reference point in the development of Indonesian competition law.

The United States Approach: Modernizing Antitrust through Digital Platforms

Unlike the European Union, which has adopted a preventive regulatory approach through the DMA, the United States continues to rely primarily on its traditional antitrust framework, including the Sherman Act, the Clayton Act, and the Federal Trade Commission Act. However, in recent years, there has been a shift in perspectives concerning the dominance of digital platforms. Approaches that were previously strongly influenced by the consumer-welfare standard, which emphasizes effects on prices and consumer welfare, have increasingly been supplemented by broader assessments of market structure and the concentration of economic power (Posner, 2024).

These changes can be seen in various antitrust cases involving large technology companies. Competition authorities have increasingly examined practices such as service exclusivity, vertical integration, data control, and the use of algorithms that may restrict competitors' access to markets. Although the United States does not have a regulatory instrument equivalent to the DMA, developments in U.S. antitrust policy demonstrate a tendency toward broader interpretations of market power and anticompetitive conduct in digital markets.

This approach is supported by scholarship arguing that digital companies can acquire market power through mechanisms that are not reflected in price indicators. Control over large amounts of data allows companies to continuously improve the performance of their algorithms, thereby creating competitive advantages that are difficult for new business actors to match (Wu, 2018). Thus, competition analysis increasingly considers not only price effects but also reduced innovation, exclusion of competitors, and control over access to digital markets.

However, the U.S. approach continues to rely heavily on litigation and complex economic and evidentiary analyses. This differs from the European Union's emphasis on preventive regulation. These differences demonstrate that there is no single model for addressing the dominance of digital platforms; rather, each jurisdiction adapts its approach to its own legal system and institutional framework.

OECD Approach: Data-Driven and Algorithmic Competition

The OECD views the principal challenge for competition law in the digital era as arising from changes in the sources of market power. In its various reports, the OECD explains that data, algorithms, and artificial intelligence have become strategic assets that can create barriers to entry for competitors and strengthen the dominant positions of digital companies (OECD, 2022). Therefore, assessments of market power are no longer sufficient if they rely solely on market share or transaction value.

The OECD has also highlighted the risks associated with the use of algorithms for price coordination (algorithmic collusion), digital discrimination, and self-preferencing. Although algorithms can improve market efficiency and provide benefits to consumers, their use without adequate accountability mechanisms may facilitate anticompetitive behavior that is difficult to detect using conventional legal instruments (OECD, 2022). Therefore, the OECD encourages competition authorities to strengthen their digital investigative capabilities, enhance cross-border cooperation, and develop evidentiary methods that account for the characteristics of algorithms and data as sources of market power.

The OECD's approach emphasizes not only enforcement but also the importance of data governance, algorithmic transparency, and regulatory capacity building. This demonstrates that reforming competition law requires more than changes to legal norms alone; it must also be accompanied by strengthened institutional and technical capabilities among enforcement authorities.

Comparative Implications for Indonesia

Comparative analysis shows significant differences in approach among the European Union, the United States, and the OECD. The European Union prioritizes preventive regulation through gatekeeper designation and special obligations for digital platforms. The United States continues to rely on its traditional antitrust regime but has increasingly adopted broader interpretations of market power and anticompetitive conduct in digital markets. Meanwhile, the OECD provides a conceptual framework and policy recommendations that identify algorithms, data, and network effects as important elements in competition analysis.

Compared with these three approaches, Indonesian regulation remains relatively oriented toward the conventional competition-law paradigm. Law Number 5 of 1999 has not explicitly accommodated the concepts of gatekeepers, algorithmic market power, data-driven dominance, or specific obligations concerning algorithmic transparency. As a result, there is a normative gap between the development of digital business practices and the available legal instruments. This gap has the potential to reduce the effectiveness of competition-law enforcement when addressing the dominance of digital platforms built through control over algorithms and data.

These comparative findings also strengthen the novelty of this research. In contrast to previous research that has generally discussed the dominance of digital platforms from an economic or broader competition-policy perspective, this study proposes a reconstruction of the concept of algorithm-based dominant position as a new indicator in the enforcement of Indonesian competition law. By incorporating algorithms, data, and network effects into the analysis of dominant position, Indonesian competition law may be better equipped to respond to the dynamics of the digital economy in a more adaptive manner without disregarding the principles of legal certainty and healthy competition.

Reconstruction of the Concept of Algorithm-Based Dominant Position in Indonesian Competition Law

The development of the digital economy demonstrates that the concept of dominant position that has served as a basis for competition-law enforcement requires reconstruction to respond to changes in market structures that increasingly rely on data, algorithms, and artificial intelligence. Under Law Number 5 of 1999, dominant position is essentially understood in relation to the ability of business actors to control the market, with market share serving as a principal statutory indicator and with other factors relevant to the assessment of market power and abuse. This approach was relevant when the law was enacted because market characteristics were still dominated by conventional manufacturing and trading sectors. However, in the digital economy, sources of market power no longer derive solely from physical assets or production capacity but

also from the ability to control digital ecosystems through data, algorithms, and network effects (Crémer et al., 2019).

These changes in market characteristics demonstrate a normative gap between the development of digital business models and Indonesia's competition-law framework. Digital platforms can acquire substantial market power without necessarily dominating market share in the traditional sense because their competitive advantages may be built through the ability to collect data at scale, optimize machine-learning algorithms, and integrate multiple services within a single ecosystem. Consequently, an assessment of dominance based solely on market share may be inadequate for describing the actual extent of market power (OECD, 2022).

Based on these conditions, this study proposes a reconstruction of the concept of algorithmic market dominance. This concept holds that the assessment of dominant position should not be based solely on conventional economic indicators but should also consider a platform's ability to control market decision-making processes through algorithms. In other words, algorithms are positioned as strategic instruments capable of shaping consumer behavior, determining market access, affecting product visibility, and regulating interactions between business actors and users. If control over algorithms gives a platform the ability to unreasonably restrict competition, such conduct may constitute a new form of abuse of dominant position.

From a competition-law perspective, this reconstruction is not intended to hinder technological innovation. Instead, it aims to establish a balance between protecting innovation and preventing the abuse of market power. Not every algorithm that improves efficiency can be characterized as a violation of competition law. The assessment should focus on whether an algorithm is used to create barriers to entry, engage in self-preferencing, discriminate against other business actors, or exclude competitors from market access. Thus, the focus of analysis shifts from the mere existence of technology to the competitive effects resulting from its use (Cabral et al., 2021).

The six proposed operational indicators consist of Data Aggregation Control, defined as exclusive or substantially privileged access to large-scale data, with Article 25 and other relevant provisions of Law Number 5 of 1999 serving as potential legal bases depending on the conduct being examined. This indicator is evidenced by data volume, access restrictions, and interoperability limitations and may be applied by the KPPU to examine an algorithm's reliance on proprietary data. Algorithmic Self-Preferencing refers to the preferential ranking or treatment of a platform's own services, with the applicable legal basis depending on the specific conduct and its effects on competition; ranking metrics may serve as evidence in assessing whether algorithms provide preferential treatment. Lock-in Through Switching Costs refers to technical or contractual barriers that hinder users or business actors from adopting rival services; relevant evidence may include API restrictions and limitations on data portability and may be used to assess platform architecture. Exclusive Dealing via Algorithm refers to algorithmically imposed restrictions that disadvantage competitors' visibility or access, with the applicable legal basis depending on whether the conduct constitutes an exclusive dealing arrangement or another form of anticompetitive conduct. Predatory Pricing Through Automation refers to algorithmically implemented pricing below an appropriate cost benchmark with the purpose or effect of excluding competitors, with pricing data and transaction records examined to identify potential predatory pricing. Finally, Interoperability Denial refers to an unjustified refusal or restriction of technically feasible interoperability or access, where applicable, with API requests and denial records examined to assess restrictions on access and interoperability.

This reconstruction also requires updating the indicators used to assess dominant position. In addition to market share, this study proposes several additional indicators, namely: (1) the degree of control over user data; (2) the degree of dependence of business actors on the platform; (3) the strength of network effects; (4) the degree of algorithmic transparency; (5) the platform's capacity for self-preferencing or algorithmic discrimination; and (6) the platform's ability to create barriers to entry through the integration of digital services. These six indicators more closely reflect the characteristics of the digital economy than conventional indicators oriented primarily toward market structure.

From an institutional perspective, reconstructing the concept of dominant position also requires strengthening the capacity of the Business Competition Supervisory Commission

(KPPU). Enforcement of competition law in the digital era cannot rely solely on traditional economic analysis but requires expertise in algorithmic auditing, digital data analysis, and artificial intelligence systems. Therefore, human-resource development, collaboration with information-technology experts, and the adoption of digital investigation tools are essential components of modernizing competition-law enforcement and enabling the KPPU to address effectively the complexities of digital markets (OECD, 2022).

In addition to institutional strengthening, regulatory reform is also necessary. Although Law Number 5 of 1999 remains relevant as a legal basis for competition law, the development of the digital economy demonstrates the need to update its norms to accommodate the characteristics of platform-based markets. One alternative is to introduce provisions concerning algorithmic abuse, appropriate transparency obligations for platforms holding substantial market power, and recognition of data control as a relevant indicator of market power. This approach is consistent with regulatory developments in the European Union through the Digital Markets Act, which establishes a framework for designating digital undertakings as gatekeepers and imposes specific obligations designed to promote fair and contestable digital markets (European Commission, 2022).

Based on the comparative analysis, this study argues that Indonesia does not need to fully adopt either the European Union or the United States model. The reconstruction of competition law should be adapted to the characteristics of the national digital market, the level of development of the digital economy, and the institutional capacity available. Therefore, a more appropriate approach is to develop an adaptive competition-law model, namely a competition-law system capable of responding to technological developments without eliminating the principles of legal certainty, justice, and economic efficiency. This approach would allow regulators to respond flexibly to digital innovation while maintaining clear boundaries against algorithm-based anticompetitive conduct.

The principal contribution of this research lies in developing the concept of algorithmic market dominance as a new dimension in the analysis of dominant position. In contrast to previous research that has discussed algorithms primarily as tools that may facilitate anticompetitive practices, this study positions algorithms as objects of legal analysis that can constitute a source of market power. Thus, algorithms are understood not merely as technical instruments but also as factors that can influence the distribution of economic power in digital markets. This approach provides a new perspective for the development of Indonesian competition-law doctrine, which has traditionally been oriented toward conventional economic indicators.

Theoretically, this reconstruction expands the concept of market power by incorporating data dominance, algorithmic power, and network effects as elements that can shape market dominance. Practically, the results of the study provide recommendations to lawmakers and the KPPU to develop guidelines for assessing dominant positions that are more consistent with the characteristics of the digital economy. Thus, competition-law enforcement can provide legal certainty for digital business actors while also supporting the development of competitive, innovative, and fair markets.

CONCLUSION

The development of the digital economy has shifted the basis of business competition from control over physical assets and market share toward control over data, algorithms, artificial intelligence, and network effects. This transformation has created conditions of algorithmic monopoly in which digital platforms can influence market access, product visibility, consumer behavior, and barriers to entry through algorithmic mechanisms. The study finds that Indonesia's competition-law framework, particularly Law Number 5 of 1999, remains substantially oriented toward conventional indicators of dominance and does not yet adequately address algorithmic collusion, self-preferencing, algorithmic discrimination, and data-driven market power. Comparative developments in the European Union, the United States, and the OECD demonstrate the need for a multidimensional approach that recognizes the distinctive characteristics of digital markets.

Accordingly, this study proposes reconstructing the concept of dominant position by

incorporating data control, algorithmic power, network effects, platform dependency, self-preferencing, and digitally created barriers to entry into competition-law assessments. This reconstruction provides a more adaptive normative basis for addressing monopolistic practices and abuse of dominant position in Indonesia's digital economy. Its implementation requires updating relevant regulations and KPPU guidelines concerning algorithmic oversight, data governance, transparency, and evidentiary methods, together with stronger institutional expertise in data analytics, artificial intelligence, and algorithmic auditing. Further empirical research on KPPU decisions and Indonesian digital-platform cases is needed to test the practical effectiveness of these proposed indicators.

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AUTHOR CONTRIBUTION STATEMENT

Rahmat, Rachmawati, and Dina Khairunnisa jointly contributed to the conceptualization of the study, collection of legal materials, legal analysis, interpretation of the findings, and preparation of the manuscript. All authors contributed to and approved the final version of the manuscript and are accountable for its content.

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