ALGORITHMIC MARKET ARCHITECTURE AND THE LIMITS OF MALAYSIA'S COMPETITION ACT 2010

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Abstract: Pricing algorithms can improve market efficiency by processing information, reducing search costs and enabling businesses to respond to changing demand. However, shared algorithmic pricing systems may also facilitate price convergence, discourage discounting and weaken competitive pressure. This paper examines whether Malaysia's Competition Act 2010, particularly following the 2026 legislative reforms, adequately addresses competitive harm arising from algorithmic market architecture. Adopting a doctrinal legal methodology, supplemented by comparative analysis of the US RealPage and Gibson litigation, the paper examines the boundaries of sections 4 and 10 in regulating algorithm-driven market outcomes. It argues that although businesses remain accountable for their pricing systems, parallel pricing and adverse market outcomes do not automatically establish an agreement or concerted practice under section 4. Similarly, section 10 applies only where dominance and abuse can be established. The analysis identifies a regulatory gap where shared pricing architecture may persistently weaken competition without satisfying either prohibition. Although Malaysia's market-review framework provides mechanisms for investigating structural competition concerns, its capacity to impose remedies independently of established infringements remains limited. The paper proposes a narrowly defined, forward-looking intervention mechanism addressing demonstrable structural harm arising from algorithmic pricing. Such intervention should require evidence of causation, persistent adverse competitive effects, consideration of efficiency benefits and proportionate remedies. It concludes that effective competition regulation must address not only unlawful coordination but also market structures that systematically undermine independent competitive decision-making. (Competition Act 2010, ss. 4, 10).

Keywords: Algorithmic Market Architecture; Algorithmic Pricing; Competition Law; Structural Competition Harm; Regulatory Intervention.

1. Introduction

The commercial value of algorithms now comes not only from their capacity to calculate faster. They also organise choices, determine what will be seen, forecast how much customers will pay, recommend prices, match supply with demand and decide the commercial impact of divergence. Where there are thousands of suppliers on a market, being on the first page of a search result can have more impact than the theoretical legal freedom to set a different price. It can be important for an enterprise to be free to make a choice, but be commercially invisible if its choice is not favoured by the way it reaches the market (Competition and Markets Authority [CMA], 2021).

This should not lead to an assumption that all algorithms are naturally anti-competitive. For example in a stock exchange, the match of independent bids and offers will often find one observable price. The convergence usually reflects efficient price discovery. A booking platform that ranks hotels in the order of choice by a user could lower search costs by putting the most suitable accommodation for a traveller's needs at the top of the search results. Competition law does not seek to ensure that all suppliers have equal visibility or that an inefficient business is protected from customer choice (Organisation for Economic Co-operation and Development [OECD], 2017; Schwalbe, 2018).

The challenge arises when the architecture does more than reflect competition and begins to shape it. A platform determines which factors matter, how much weight to give commission, historical conversion, price, reviews or participation in a preferred programme, and how prominently lower-ranked suppliers appear to consumers. Visibility can then become self-reinforcing: greater exposure generates more bookings, data and reviews, which may in turn improve future rankings. The platform need not select a winning hotel by hand. Yet its design influences how consumer choices translate into future opportunities for competing suppliers (Ezrachi & Stucke, 2017).

Against this background, this paper examines whether Malaysia's Competition Act 2010, considered alongside the proposed reforms in the Competition (Amendment) Bill 2026, adequately addresses competitive harm arising from algorithmic market architecture. The inquiry focuses on the distinction between algorithm-enabled conduct that can be assessed under existing prohibitions and harmful market features that may fall outside them. Unless otherwise indicated, statutory section references are to the Competition Act 2010.

The central argument is that the Act can address algorithmic systems used to implement a prohibited agreement or concerted practice under section 4, or conduct amounting to abuse by a dominant enterprise under section 10. The difficulty is not that an algorithm lacks legal personality. Rather, a residual problem may arise where an identifiable algorithmic market feature causes significant and persistent competitive harm, but the evidence establishes neither prohibited coordination nor dominance and abuse.

Sections 11 and 12 allow the Malaysia Competition Commission to examine market features and publish findings and recommendations. Proposed section 11A would strengthen information-gathering for market reviews if brought into force. These provisions do not, however, clearly confer a general power to impose binding corrective measures solely because a market review identifies harmful structural effects. The paper therefore considers whether a narrowly defined, prospective market-remedy mechanism could address that remedial gap without diluting the existing requirements for infringement liability.

2. Research Methodology

This study adopts a doctrinal legal research design, supplemented by comparative case analysis. It examines the statutory language and regulatory functions of sections 3, 4, 10, 11 and 12 of the Malaysian Competition Act 2010, alongside the Competition (Amendment) Bill 2026 as described in the legislative materials available to the authors. The doctrinal inquiry distinguishes the elements required for infringement liability from the powers available to investigate and address market-wide features. It does not assume that the Bill is operative without confirmation of its commencement.

The comparative component analyses the pleaded mechanisms and judicial treatment of algorithmic pricing in United States v RealPage Inc and Gibson v Cendyn Group LLC. These materials are used as legal illustrations, not as empirical evidence that comparable harm has occurred in Malaysia. Selected European authorities, Eturas (Case C-74/14) and VM Remonts (Case C-542/14), are considered for the narrower issues of concerted practice, awareness and attribution. The study also examines regulatory literature and Malaysian market-review materials. The analysis tests whether identifiable and persistent structural effects could remain outside sections 4 and 10, and develops prospective remedial criteria in response. No primary interviews, econometric tests or original market dataset are claimed.

3. Algorithmic Systems and Malaysian Statutory Architecture

3.1 Working taxonomy of algorithms

In this paper, 'algorithm' refers to a defined set of computational steps that converts inputs into outputs using given rules, statistical relationships or learned parameters. This is deliberately broader than artificial intelligence. A fixed formula that changes a room rate once occupancy exceeds a certain level is an algorithm (it does not learn). A machine-learning model that predicts demand based on past bookings is an algorithmic model and also a form of artificial intelligence. In legal analysis, 'algorithm' and 'AI' should not be used interchangeably (OECD, 2017).

For the purposes of discussion in this paper, we adopt the division of algorithms into four functional types. A rules-based algorithm uses predefined instructions, such as matching bids and offers or applying a stated pricing formula. A predictive algorithm estimates demand, willingness to pay, cancellation risk or likely conversion from data. An adaptive or learning algorithm updates its parameters or recommendations based on observed results. An architectural algorithm ranks, recommends, allocates visibility, selects defaults or determines access to a market. A commercial system may perform all four functions: prediction provides a demand estimate, optimisation recommends a price, ranking allocates visibility and automation delivers the result (CMA, 2021; Ezrachi & Stucke, 2017; OECD, 2017).

In most cases, the object of competition analysis will be the algorithmic system rather than the underlying source code. The structure of this system is its commercial purpose, input data, model or rules, constraints, feedback loops, output, way of implementation, overrides and the contractual or technical implications of deviation. The same code can have different competitive effects if it learns from different data or is used in different contracts. Different algorithms can lead to the same market structure if they use the same signals and incentivise the same behaviour (CMA, 2021).

This classification distinguishes three legal questions that often blend together. Attribution asks which enterprise deploys, controls or benefits from the system. Coordination asks whether two or more enterprises have substituted cooperation for independent rivalry. Does market effect significantly affect prices, output, quality, entry or meaningful commercial independence? Not all proofs apply to all three. The attribution of an algorithm to a platform may not prove an agreement between its customers. Similar algorithmic results can show efficient price discovery, not coordination. A market impact cannot always determine the offending legal person or meet section 4 or section 10 (Ezrachi & Stucke, 2017).

3.2 Section 4: agreements and concerted practices

Under the presently operative wording of section 4(1), a horizontal or vertical agreement between enterprises is prohibited where it has the object or effect of significantly preventing, restricting or distorting competition in a market for goods or services. Section 4(3) makes an enterprise that is a party to a prohibited agreement liable for the infringement. The expression 'object or effect' qualifies how the agreement is assessed; it does not dispense with the agreement requirement (Mehra, 2016).

Nevertheless, it is submitted that the threshold is low. According to Section 2, an agreement can include a contract, arrangement or understanding (whether or not legally enforceable), a decision by an association and concerted practices. Concerted practices are coordination which knowingly replaces practical cooperation for the risks of competition and includes direct or indirect contact or communication of the specified kind. There must be some evidence of a coordinating relationship (not necessarily a signed cartel contract). Common technology, similar prices and parallel conduct are insufficient.

3.3 The 2026 reform and commencement caveat

It is to be noted that the legislative status as at the time this paper is written is that the Competition (Amendment) Bill 2026 has passed both Houses of Parliament. Clause 1(2) provides for commencement on a date appointed by the Minister by notification in the Gazette. A commencement notification has not been verified for this paper. As Parliamentary passage does not itself establish commencement, accordingly, the amendments are analysed prospectively, and the paper does not treat them as operative law. This status should be checked again before presentation or publication.

Clause 4 of the 2026 Bill would replace references to horizontal and vertical agreements with 'any agreement'. According to the Explanatory Statement and the Minister's explanation on the second reading on 2 July 2026, this change broadens the scope of section 4 to any type of agreement. Its function is to prevent a platform agreement from escaping scrutiny due to not being a horizontal competitor or a traditional supplier operating at a different level in the distribution chain of the product.

The reform, if brought into force, would broaden the categories of agreement without displacing the agreement requirement. The change has nothing to do with abolishing the agreement requirement, amending the basis of the parties to an agreement for section 4(3) or creating a standalone offence of having adverse market effects. The deletion of 'atau kesan' from the Bahasa Malaysia version of section 4(2) confirms that the category of serious cartels is treated as object-based and not as a change to effects-based liability in section 4.

3.4 Sections 10–12 and proposed section 11A

Section 10 does not permit an enterprise (acting individually or collectively) to engage in behaviour that constitutes abuse of dominance in any market for goods or services. Dominance means significant power to adjust prices, outputs or trading terms without effective constraint from competitors or potential competitors. The allegedly abusive enterprise need not be selling the relevant product. For example, a booking platform may be operating in a market for online accommodation-intermediation services. A pricing vendor may be operating in a market for revenue-management software. Abuse may be occurring in a related upstream or downstream market.

Dominance is lawful. MyCC must still prove abuse and address reasonable commercial justification. Section 11 authorises examination of any feature or combination of features that prevents, restricts or distorts competition, including market structure and the conduct of enterprises, suppliers and consumers. Proposed section 11A, introduced by the 2026 Bill, would empower MyCC to require relevant information, particulars and documents for market reviews if brought into force. Section 12 provides for publication of findings and recommendations.

Table 1. Statutory gateways for examining algorithmic conduct

Provision	Primary question	Limitation relevant to this paper
Section 4	Is there a prohibited agreement or concerted practice?	Adverse outcomes alone do not establish coordination.
Section 10	Is there dominance and abuse?	Structural harm without dominance and abuse is insufficient.
Sections 11–12	Can MyCC review market features and publish findings?	Review and recommendations do not themselves create a general binding market-remedy power.

Source: Authors' analysis of the Competition Act 2010 (Act 712), sections 4, 10–12.

3.5 Attribution, legal personality and enterprise responsibility

An algorithm is not a person, a party to a contract, company or responsible entity. Companies frequently outsource activities by automated means. The issue is who chose the system, what was its commercial purpose, who authorised the data, what were the limitations, how were outputs enacted, who can change or stop it and who gains the commercial advantage?

It is submitted that ownership of the code is not determinative of legal personality to an algorithm. Software can be licensed, outsourced, built from open-source elements or stored overseas. An enterprise using a third-party model as an essential part of its commercial offering does not stop acting when the model produces individual results without specific prior human consent. For

instance, the business decision may be to use a revenue-maximising system subject to certain inputs and rules, rather than to set the price of Room 412 at RM437 on a given night.

The two issues should be kept apart. Attribution is about whose behaviour the result reflects. Concertation is about whether that enterprise liaised with others. Finding that Algorithm A belongs to Enterprise A and Algorithm B belongs to Enterprise B is not enough to imply that there is an agreement between A and B. This approach stops the non-existence of legal personality becoming a shorthand to cartel liability, or a special plea of 'artificiality'.

Truly decentralised systems run by effectively ownerless entities might raise problems if nobody owns them, is in charge of updating, inputting or implementing. This is not the normal case of a platform. Platforms have identities, contracts with users, rules of engagement, interfaces and they profit from transactions. They are likely to be adaptive, but theirs is the system running the commercial organisation. The real potential lacuna is therefore a problem of control and characterisation at the edges, rather than an empty personality gap (Harrington, 2018).

4. From Pricing Algorithms to Market Architecture

4.1 Price discovery and matching

An algorithm could be designed to process public information, to match independent orders or to predict demand. In any of these cases, competition will be intensified. Common costs, scarcity, homogeneous products and quickly published public information are all capable of producing similar prices. The simplest way to have a measure of control is a stock exchange, where the participants are free to make orders and free to better or to withdraw them. They assume the risks of their decisions. The matching engine is there to help competitors, not to replace them (Calvano et al., 2020; OECD, 2017).

What matters is meaningful decisional independence. Price dispersion does not mean competition, nor does price uniformity mean collusion. The inquiry must examine how the price was formed, whether suppliers can depart from the result, the cost of doing so, what information entered the system and whether deviations provoke contractual, ranking or technical penalties (Mehra, 2016; OECD, 2017; Schwalbe, 2018).

4.2 Ranking as private market governance

Competitive structure matters in digital intermediation even if price does not. Consumers cannot evaluate thousands of hotels. By default, attention and therefore access to demand are distributed. The platform decides what data is gathered, how it is weighted, whether it cares about whether the hotel is paid, how it treats historical conversion, and how much of an opportunity it gives to a new or low-ranked hotel (CMA, 2021).

User choice is not irrelevant. Consumers click, rate and book; the platform uses that to determine visibility going forward. There is a potential feedback loop here: the more visible something is, the more bookings and reviews it will attract, which reinforces its ranking. This can be positive when it surfaces real quality. It can be negative when incumbency is self-reinforcing, when new entrants cannot gain minimal exposure, or when commission and conformity with platform-preferred terms are offered as evidence of consumer relevance (CMA, 2021).

However, the capacity of ranking systems to influence market outcomes does not, by itself, justify competition law intervention. A disciplined threshold is therefore necessary to distinguish ordinary competitive effects from significant and sustained harm to the competitive process.

It should not be enough that a platform is influential, that a ranking is unequal or that prices are high. Intervention should require an identifiable feature that goes beyond mere matching and leads to significant and sustained impairment of the competitive process; a causal link between that feature and the loss of competition; a credible counterfactual; and an assessment of net harm that takes into account lower search costs, quality signals, innovation and other efficiencies. The purpose is to protect contestability, not to equalise commercial outcomes (Calvano et al., 2020).

4.3 Existing law and platform agreements

The discussion of algorithmic effects should begin with the reach of existing law. Many concerns on digital platforms can be examined through familiar competition principles. The starting point is whether the platform's contractual arrangement restrict competition. The second is whether it is a conduct that can be said as an abuse of dominance. Examining these routes help to identify the circumstances in which existing prohibitions apply and the structural problem that may remain unaddressed beyond them.

A platform usually operates through a network of agreements with businesses that use them. These agreements establish the terms of participation and may influence pricing access, visibility and use of data. They therefore provide a convenient starting point for examining whether algorithmic system gives effect to a restriction of competition.

An agreement by which a hotel contracts with a platform is an agreement between enterprises. Under the 2026 Bill, such a contract would no longer need to be classified as horizontal or vertical. The presence of the contract is but one step. MyCC needs to link the contract (or other coordinating mechanism) to the claimed restriction.

An agreement under which a seller has agreed to enable bookings via a third party, say, through a neutral hosting or booking agreement, does not become anticompetitive when the platform later makes use of that data unilaterally in a manner deemed objectionable. Enablement is not necessarily the required cause-effect chain. A seller's agreement might merit attention if it provides for equal prices, provides non-public competitive information to a joint optimisation process, enables price control in a hands-off way, sanctions deviations from recommendation acceptance, or limits access based on following certain pricing policies.

The analysis becomes complicated where many suppliers enter similar agreements with the same platform. Although each contract is concluded separately, the arrangements need to be examined together to understand how the system operates. The relevant distinction is between independent participation in a common service and a shared commitment that replaces competitive independence.

Care must be taken in the case of networks of similar platform-seller agreements. Each agreement may have a combined restrictive impact irrespective of any horizontal agreement among the sellers. A hub-and-spoke cartel is more likely to be present, which usually demands that there was some facilitation of coordination on the part of the hub and that the spoke knew and used the common

scheme. The mere use of standard terms in contracts is no evidence of consciousness among the sellers.

Section 4 is intended to protect competition from restrictions resulting from agreements between enterprises. It begins with an agreement, defined in section 2 as including contracts, arrangements, understandings, association decisions and concerted practices. The agreement must have the object or effect of significantly preventing, restricting or distorting competition. Some types of horizontal agreement, namely, price fixing, market sharing, specified limitations and bid rigging, are taken to have that restrictive object. Enterprises involved in the prohibited agreement will be liable for that conduct, unless subject to any relief or exemptions (Mehra, 2016).

If these tests were applied to algorithmic platforms, they would ask whether there was an agreement or concerted practice using the algorithm to restrict competition. A pricing system might implement a cartel, share competitively sensitive information through coordinated arrangements or apply contractual restrictions to prevent independent pricing. Common software, similar prices or adverse market outcomes are not sufficient to prove the existence of an agreement or concerted practice within the meaning of section 4. The effects test only looks at the effect of the agreement. It does not provide a substitute for that gateway. The analytical distinction relevant to the paper.

4.4 Dominant-platform conduct under section 10

Section 10 relates to the abuse of substantial market power. Section 10 does not make dominance illegal. Rather, it imposes an enquiry about dominance as well as abusive behaviour. Section 2 states that dominance means having significant power to affect prices, outputs or trading terms with no effective constraint from competitors or potential competitors. Section 10(2) lists certain practices, which may be considered abusive, but this is not exhaustive. Section 10(3) exempts behaviour with reasonable commercial justification or a reasonable response to a competitor.

Section 10(4) clarifies that dominance cannot be established solely by market share. mycc.gov.my section 10 focuses on the market power of the algorithmic platform and the way it exercises that power in relation to ranking, pricing, data and access rules. The platform might not itself sell the underlying hotel room or product; it might instead offer intermediation or software services that are part of the market. There may be grounds to investigate algorithmic discrimination or limitations on access, but they will only become unlawful if they constitute an abuse of a dominant position. This means that a case proving harm caused by the combined effect of non-dominant platforms would not, in itself, qualify under section 10.

Section 10 is not limited to platforms buying or selling hotel rooms. It covers any platform engaged in commercial activities involving providing accommodation-search, booking and intermediation services to travellers and hotels. So long as it has dominance in this market, abuse could occur if it algorithmically demotes, ranks, ties, imposes exclusivity clauses, restricts multi-homing, enforces unfair parity conditions or suppresses lower-priced channels, depending on the evidence and justification.

The algorithm is part of its conduct. This is not about a machine deciding the ranking. It is about whether the platform has dominance and whether the design of the platform is abusive or a legitimate way of matching users to appropriate accommodation. Evidence of user choice is relevant

to both causation and efficiency, but it is not enough to prevent a system being abusive if its design constrains which choices are realistically available.

Contractual coordination is only one possible route into the existing prohibitions. A platform may also shape competition through its own decisions about ranking, access and the use of data. Where the concern arises from the platform's unilateral conduct, the inquiry turns to its market power and whether the way it exercises that power constitutes an abuse.

The link between the two sections is easy to understand: one section investigates restrictive agreements or coordination (section 4), and the other examines abusive conduct by a dominant enterprise (section 10). This forms the basis for the subsequent paper discussion of structural effects that might qualify under neither gateway. (Competition Act 2010, ss. 4, 10).

These two routes show why algorithmic conduct cannot be assumed to escape the existing law. They also reveal the limits of the inquiry: section 4 requires a prohibited agreement or concerted practice, while section 10 requires dominance and abuse. The next question is whether the cumulative design and operation of a virtual marketplace can materially impair competition even where neither gateway is established (Harrington, 2018).

4.5 Virtual marketplaces and structural feedback loops

Digital platforms bring about a new type of competition that transcends the traditional divide between antitrust litigation brought for breach of agreement to restrict competition and litigation brought for abuse of dominant position. A platform, whether operated by an algorithm or otherwise, allows for interactions between individual buyers and sellers. However, it can also offer a virtual marketplace where business opportunities arise, where competition occurs and sales take place. The algorithm becomes part of the marketplace (CMA, 2021).

In a traditional marketplace, there is competition amongst suppliers based on price, quality, availability, location and consumer preferences. In a virtual marketplace, the same factors apply; however, the influence of these factors upon competition is dictated by the algorithm that operates the platform. The algorithm dictates how the products and services are displayed, how competing offers are compared, which suppliers are promoted and what options are presented to consumers. The algorithm might dictate what information is provided to suppliers and when they are allowed to gain access to potential customers. It follows that an enterprise's ability to compete might not only depend on its commercial choices, but also on how those choices are handled and presented by the algorithm.

This is important because consumer choice does not equate to a competitive marketplace. Consumers might be completely free to make a choice between the options available to them. The nature, visibility and order of the options might already be dictated by an algorithm. If a consumer makes a choice for the first option out of a list of thousands of suppliers, then this is indeed a real choice. Yet, the choice is made within an environment where the algorithm has determined who else is shown. This is not to say that the algorithm dictates what the consumer purchases. The algorithm might not determine the choice made. It will influence the environment in which the choice is made.

An algorithm could create a vicious circle of competition. The more visible a supplier is, the more transactions it receives. The transactions produce more data, reviews and proof of conversions.

Where this influences future ranking, the more visible suppliers can end up being even more visible. This may mean that suppliers who were less visible at the outset will become less visible over time. The suppliers may still offer competitive prices or high-quality service, but they may no longer be able to compete effectively. Such outcomes might feed back on themselves and establish a self-reinforcing dynamic, making it difficult for new entrants to break into the market. The outcomes might not be the result of any collusion between rivals, nor necessarily of the conscious choices of the platform to block specific competitors. They could be the consequence of the natural functioning of the algorithms deployed to ensure maximum relevance, engagement, conversion or transactional efficiency. Even where individual suppliers act independently, and consumers exercise their own preferences, the cumulative operation of the algorithm may produce a market structure in which effective competitive opportunities become progressively concentrated (CMA, 2021).

The competitive issue here is not solely about whether specific businesses are engaging in anti-competitive contracts, or whether the platform has a dominant position that it is exploiting. It could be about whether the design of the virtual marketplace plays a significant role in shaping market access, competition and the distribution of commercial opportunities.

This is not to say that ranking or greater visibility is inherently anti-competitive. Algorithmic rankings have legitimate roles to play in an economy by minimising search costs, improving information and connecting consumers with products and services that match their interests. Visibility might legitimately be tied to better quality, more efficient operations or greater consumer demand. Competition law should not aim to equalise business results or to shield less efficient providers from the impact of consumer choices (CMA, 2021; Schwalbe, 2018).

Problems may arise, however, if the architecture of the algorithms used creates a persistent and significant distortion in the competitive process. If this means that more visibility in the past leads to more visibility in the future, then it could well be much more difficult for a new entrant to attract customers, even if their offer is more attractive. The marketplace can become less and less open to competition, not because competitors are limiting competition, but because competition on the platform works in favour of incumbents. It is important to note that for competition law purposes, there needs to be a distinction made between a platform being considered as a virtual marketplace and identifying a relevant market in the legal sense. It will rarely be sufficient to say that there was a transaction within the platform to conclude that it was a separate relevant product market. As always, competition will be defined based on considerations of substitutability, competitive constraints and alternative channels. It might be possible to identify a feature of the relevant market associated with the platform's architecture, which warrants separate scrutiny for its impact on competition.

Under the Competition Act 2010 in Malaysia, section 4 might apply if the algorithm implements or enables a prohibited agreement or concerted practice. Section 10 might apply if a dominant enterprise ranks, provides access to or otherwise affects algorithms in a way that amounts to an abuse of its dominant position. This is not to say, however, that each scenario involving a virtual marketplace developing an anticompetitive structure as a result of its algorithmic architecture will fall neatly into one of these two categories.

There remains a question about the structural effects of such a marketplace. An algorithm-driven market might have important and lasting impacts on contestability, despite there being no evidence

of a prohibited agreement or concerted practice and no firm showing of an abuse of a dominant position (Calvano et al., 2020).

5. Comparative Case Analysis

5.1 RealPage: pooled rival data and constrained deviation

The case began as a civil enforcement action filed by the United States and several states against RealPage Inc in August 2024. In January 2025, the complaint was amended to add six large landlords. For purposes of this paper, the claims are important because they allege an integrated mechanism, not as a final adjudication in court of all facts pleaded. After filing the complaint, RealPage and several landlord defendants entered or proposed consent arrangements, but litigation and remedial proceedings proceeded.

The amended complaint alleged a mechanism substantially more integrated than ordinary market research. As described in the amended complaint, YieldStar and AI Revenue Management landlords provided nightly, lease-level information about effective rents net of discounts, concessions, lease terms, lease status, applications, renewal offers and forward-looking occupancy. They also received information about competing properties and used it to make recommendations to those competitors. The complaint alleges that participating landlords knew that this was the arrangement and thus valued the system more if other properties in the same submarket were also participating.

RealPage supplied revenue-management software that recommended apartment rents and leasing terms to competing landlords. The United States enforcement authorities alleged that participating landlords knowingly supplied non-public, competitively sensitive information, including executed lease transactions, renewal offers and acceptances, rental applications and forward-looking occupancy. That information was used to generate recommendations for the contributing landlords and their competitors.

The complaint does not describe an array of public asking rents. It describes RealPage's process of creating peer sets, calculating a smoothed market minimum and maximum based on competitors' executed leases, taking the minimum as a hard floor below which the software will not recommend a rent, forecasting vacancies and applications, and recommending changes based on competitors' non-public data showing that the market is moving. RealPage also reportedly captured data from other property-management tools and tens of thousands of monthly market-survey calls.

The complaint outlined various factors that limited real freedom of choice. It claimed licensees had a daily obligation to check and follow recommendations via the software to establish scheduled rents. Automatic acceptance, limited override privileges, friction in overriding a recommendation, tying employee compensation to software goals, minimising concessions and user-group discussions regarding pricing and revenue-management practices were some of the additional pleadings. This is what made the difference in the September 2026 decision on motions to dismiss in Gibson. In this context, the court stated that the plaintiff's allegations include the pricing mechanism enabled by the software backed up by exclusivity commitments to quote only within the software, friction to override a recommendation and changing compensation structures.

There was a second monopolisation claim involving allegations of control over at least 80 per cent of the market for commercial revenue-management software for conventional multifamily housing.

RealPage was able to collect and store valuable data from multiple landlords, which was difficult for competitors to match with their own software. To summarise, this United States case contained both types of allegations discussed above, namely (1) coordination between landlords with one central actor, and (2) one party alone preserving its dominance in the software market.

5.2 Applying Malaysian law to the RealPage allegations

If Malaysia was able to prove equivalent facts, most of this conduct would fit within its current legal framework. Firstly, the agreements to share data and use the pricing system are agreements between businesses. Secondly, if the 2026 reform is brought into force, section 4 would no longer require a horizontal-or-vertical classification. Thirdly, knowledge that each landlord's data would be pooled for rival recommendations, reciprocal participation, pricing using the common system and practical obstacles to divergence might underpin an agreement, understanding or concerted practice. Fourthly, the platform may even be a party to the relevant agreements, although it does not own or rent the apartments.

Fifthly, Section 10 could operate separately where the software provider is dominant in a properly defined Malaysian market, and the data-pooling or exclusionary behaviour constitutes abuse. Dominance in revenue-management software (not in rentals of apartments) is possible. Sixthly, harm in the downstream rental market is still possible, and the claimed data moat may be explored as a barrier to protect the software-market position of the provider.

Seventhly, some facts outside the reach of the Malaysian Act occur on the periphery of these allegations. Section 4 If the customer does not know (or does not care) that their data will be shared with competitors, or if the contract does not bind prices, or if recommendations are truly voluntary, or if the next step in combining data by the provider is unilateral, then Section 4 becomes uncertain. If this is true, the second gateway is also triggered because Section 10 requires the provider to have been already dominant and be abusing that dominance. Unlike section 2 of the Sherman Act, the Malaysian Act has no separate provision for attempted monopolisation. Thus, a non-dominant provider creating an exclusionary data advantage may avoid section 10 unless the provider establishes dominance. If neither of the first two gateways applies, then section 11 permits review of the market feature, while proposed section 11A would strengthen the power to obtain relevant information. But section 12 fails to give a clear directive remedy.

RealPage provides a useful illustration of how algorithmic pricing may engage established competition principles. Its significance lies in the arrangements surrounding the software: the information participating businesses contribute, their understanding of how that information will be used, and the extent to which the resulting recommendations preserve or constrain independent pricing.

The case is useful to demonstrate the residual problem, which is illustrated by a hypothetical variation on RealPage if applied under the Malaysian competition law framework.

Suppose suppliers independently adopt the same pricing system, its recommendations remain genuinely optional, and the evidence establishes neither a prohibited agreement or concerted practice nor abuse by a dominant provider. Suppose, nevertheless, that reliable evidence demonstrates that widespread use of the system persistently weakens competitive pressure.

Discounts are detected and matched so rapidly that suppliers gain little advantage from reducing prices. Recommendations repeatedly favour maintaining margins over competing for additional customers. The cumulative outcome is sustained impairment of contestability that cannot adequately be explained by costs, scarcity, quality or efficient price discovery.

This variation is an analytical illustration, not a finding about RealPage. It identifies the point at which the legal concern shifts from proven restrictive conduct to the operation of a market feature. Adverse outcomes alone cannot supply a missing agreement under section 4 or missing dominance and abuse under section 10. Section 11 permits examination of market features, but section 12 provides for publication of findings and recommendations rather than an express general power to impose binding corrective measures solely on the basis of harmful market architecture. www.mycc.gov.my (Competition Act 2010, ss. 4, 10).

There is a reason to address that remedial gap. Significant competitive harm may persist even though the evidence does not satisfy either infringement gateway. Preserving those gateways remains essential: independently adopting useful software should not become cartel conduct merely because competitors adopt similar tools. Equally, the absence of an infringement should not necessarily prevent a prospective intervention where a demonstrably harmful market mechanism can be corrected.

The appropriate response is a confined market-remedy jurisdiction requiring proof of significant and sustained harm, a causal connection to an identifiable market feature, a credible competitive counterfactual and consideration of efficiencies and consumer benefits. Any measure should be proportionate, appealable and subject to review. Depending on the demonstrated mechanism, it might address sensitive data inputs, obstacles to effective pricing overrides, switching barriers or restrictions on market access. Its purpose would be to restore competitive pressure, while retaining the existing requirements for findings of infringement and financial penalties.

5.3 Gibson: common software without common commitment

In Gibson v Cendyn Group LLC involved room rentals on the Las Vegas Strip. Two consumers filed a proposed class action against the operators of many casino hotels and Cendyn. This had purchased the Rainmaker revenue-management business in 2019. The hotel operators included properties affiliated with Caesars, Treasure Island, Wynn, the Cosmopolitan and the former Hard Rock. The plaintiffs claimed that the use of a common revenue-management system contributed to room rates above competitive levels. The plaintiffs' relevant market pleading was the rental of hotel rooms on the Las Vegas Strip, not the market for revenue-management software itself.

The alleged revenue-management system was not a single price list. GuestRev made recommendations about individual rooms at least daily, and was directly integrated into each hotel's property-management system. Each hotel provided its own detailed pricing and occupancy data to GuestRev, and that data was updated constantly. The software could put recommendations on 'autopilot', which caused them to be automatically uploaded. The complaint did not plead that hotels were under any contractual obligation to use this feature or accept the recommended prices. A user would need the correct permission to override a recommendation, but the complaint did not plead who held such permission or whether there were any contractual restrictions on granting the permission. GroupRev offered a similar service for creating custom group-travel quotes. RevCaster

was a rate-shopping tool that pulled publicly available competitors' prices, and let observed competitors' prices feed into GuestRev's recommendations.

The allegations, however, also refer to significant real-world use. Cendyn promoted a recommendation-acceptance rate of about 90 per cent. Each defendant hotel submitted non-public information to its implementation of the system. The defendants began adopting GuestRev between 2004 and roughly 2014. By 2015, all defendants had adopted GuestRev, including its public competitor-rate functionality, RevCaster. The defendants continued to use GuestRev until at least 2021. The case presented a broadly implemented system, strong presumptions of acceptance and ability to automate adoption. The allegations fell short of showing pooling, sharing or using confidential information from one hotel to make a recommendation for another.

The plaintiffs bifurcated these facts into two distinct legal agreements. Count 1 of the complaint alleged a hub-and-spoke scheme where the hotels committed among themselves to adopt the common system and follow its recommendations. The district court concluded that the facts alleged did not plausibly suggest such horizontal commitment. On appeal, the plaintiffs voluntarily dropped Count 1. The Ninth Circuit presumed there was no agreement among the hotels and did not reach whether a validly pled common commitment to follow non-binding recommendations would be unlawful.

The second count remaining on appeal (Count 2) alleged a set of licences with Cendyn entered individually by each hotel. The plaintiffs treated the licence set as a 'set' and alleged that together they created artificially raised prices. The Ninth Circuit agreed that each licence was an agreement for Sherman Act purposes. But the court noted that the alleged restraint must stem from these agreements. Paying for access to pricing guidance does not necessarily limit what a hotel can charge for its rooms or how much incentive it has to undercut competitors without more. The court said that the licenses on the pleaded facts were simple contracts to provide a back-office advisory service. They were not horizontal or vertical level agreements for the hotel-room market.

It is all about common assistance versus common commitment. Common knowledge that competitors independently chose the same vendor was not agreement. If competitors accepted the recommendations highly, it may be due to confidence in the recommendations or their ease of use rather than a contractual delegation of their ability to set prices. Common knowledge of the prices of competitors using public information was like common market observation. A change in strategy from trying to maximise occupancy to trying to maximise profits was not a restraint. Charging a profit-maximising price is not uncompetitive unless there is some agreement that removes the threat of being undercut.

The court was careful to leave three issues undecided. First, it noted that the analysis may be different if the vendor shared or included each hotel's confidential information in its recommendations for its competitors. Second, the non-binding nature of the recommendations would not be a defence if competitors agreed to accept the recommendations. Finally, the court explicitly left open whether a hotel which made a binding decision to delegate its pricing decisions to a third party would restrain trade. The reservations are important for the Malaysian comparison, in particular in relation to the continuum between independent advice, contractual delegation and coordinated pricing.

5.4 The Malaysian enforcement boundary

Applying Gibson to Malaysia will likely reach the same outcome for section 4 on the actual determined facts of the Ninth Circuit. The 2026 Bill would remove the requirement to classify each licence as horizontal or vertical, but would not remove the need to link the agreement to the alleged restriction. A neutral licence is an 'agreement'. Whether this agreement has the object or significant effect of restraining competition is difficult. High prices, common software, high acceptance rates and even automated uploading do not suffice to show that the licences cause hotels to abandon competitive independence. Where the hotels can freely decline the advice, where they do not share confidential rival data, and where there is no proof of a coordinating commitment, section 4 should not be stretched to convert conscious parallelism into an agreement.

In the case of Malaysia, the issue is not that the software is complex. The absence of the legally connecting facts does not alone explain why the lacuna applies to the Malaysian context. The lacuna emerges when there is sufficient evidence to prove a significant anticompetitive market impact but lacks the legally connecting facts. The software could respond to public prices so swiftly that any discount is promptly detected and neutralised across the market. Common objectives in optimising capacity could routinely recommend not competing for bookings. The high acceptance rate and automation might mean that price deviations do not last long. And the vendor's algorithm might learn from aggregated or anonymous results but not disclose one customer's confidential information to another. Such facts could affect the ability of hotels to set meaningful prices independently, yet still be difficult to show as knowing collaboration between them.

To invoke Section 4, it is submitted that MyCC must find the agreement or concerted practice which leads to this result. It would not be enough to merely highlight the licence entered by each hotel and aggregate the effects of those licences in the market. MyCC must show that the licence gives price control, requires or de facto obliges compliance, permits sharing of competitively sensitive information, or was part of a common understanding. The negative impact alone will not create the missing agreement where the contracts merely offered optional advice that was freely adopted by each hotel.

Section 10 will not necessarily fill the gap. There was no claim that Cendyn was dominant in the revenue-management software market. Abuse requires dominance to offer similar advice to multiple profit-maximising customers under section 10. Had Cendyn been dominant and abused its position through discriminatory access, tying, exclusivity or penalties to control hotel pricing, this would have made a difference. These were not the facts upon which the appellate court ruled on the case.

Gibson does point out the type of facts that could expose the Malaysian remedial gap. Let there be conclusive evidence that widespread uptake of the same adaptive system consistently suppressed discounts, limited the length of price reductions and created supracompetitive prices. Let there be no proof that the licences were biased, the recommendations were compulsory, only public or sufficiently aggregated data were used, the communications did not coordinate anything and the provider was not dominant. That would still mean the negative impact alone would not create the missing agreement under section 4 or the missing dominance under section 10. Section 11 allows MyCC to examine the common architecture as a market feature, and proposed section 11A would strengthen information gathering, but the question then is whether section 12 clearly allows MyCC

to make a binding order to fix the model, force significant and sustainable overrides or exclude specific inputs because the market review finds the adverse effects. (Competition Act 2010, ss. 4, 10).

This is a remedial gap rather than the creation of retroactive cartel liability. Finding that converging outcomes is an agreement penalises legitimate use of common information and risks finding unlawful efficient price discovery. The better approach is to retain the need for coordination under section 4 and add a prospective power subject to proof of significant and sustained adverse effects, causation, counterfactual analysis, efficiencies and proportionality to rectify a market architecture that neither section 4 nor section 10 can reach. (Competition Act 2010, ss. 4, 10).

These two cases, then, do not show that algorithms in general cannot be covered by Malaysian competition law. RealPage provides data that could meet current criteria for conduct-based tests. Gibson tests the boundary: independent adoption of a common tool is not coordination, even if it leads to higher prices. Beyond these points, where one can prove substantial harm (but neither agreement nor dominance) remains a policy question.

5.5 European jurisprudence on digital coordination and attribution

European competition jurisprudence illustrates both the adaptability and the limits of conventional agreement-based prohibitions in technologically mediated markets. In Eturas (Case C-74/14), the Court of Justice of the European Union considered the circumstances in which awareness of an anti-competitive restriction communicated through a shared electronic booking system could support an inference of concerted practice, subject to evidential safeguards and rebuttal. In VM Remonts (Case C-542/14), the Court addressed the conditions for attributing the anti-competitive conduct of an independent service provider to an undertaking. Neither decision makes common technology, or the mere engagement of a third-party provider, automatically sufficient for liability. These authorities support a distinction between algorithm-enabled coordination, which may be assessed under conventional infringement rules, and independently generated structural effects for which the required elements of infringement are not established. [Editorial verification required: insert precise judgment paragraph pinpoints before submission.] (Court of Justice of the European Union [CJEU], 2016a, 2016b).

6. Findings and Discussion

The doctrinal and comparative analysis produces four principal findings. First, algorithmic pricing and ranking are not intrinsically anti-competitive; matching, forecasting and responsive pricing may improve market efficiency. Second, sections 4 and 10 can reach substantial categories of algorithm-enabled conduct, but each retains its statutory threshold. Third, the RealPage allegations and the Gibson decision illustrate the importance of distinguishing a common technological tool from a provable common commitment, while the European authorities reinforce the need for evidence of awareness, coordination and attribution. Fourth, a residual case remains conceptually possible where an identifiable market feature causes material and persistent competitive harm but neither prohibited coordination nor dominance and abuse can be established (CMA, 2021; OECD, 2017).

The finding is deliberately limited. The paper does not establish empirically that a particular Malaysian platform has caused such harm, nor does it propose treating parallel pricing as presumptive collusion. The legal question is whether market-review findings can be followed by

binding, prospective correction when the statutory infringement gateways remain unsatisfied. Any such jurisdiction would require careful proof of causation, assessment of efficiencies, a credible counterfactual, procedural fairness and proportionate measures.

6.1 The residual algorithmic-architecture gap

The residual case is more circumscribed than an 'AI loophole'. It turns on (i) absence of agreement or concerted practice; (ii) no enterprise abusing a dominant position; (iii) some discernible algorithmic or structural market feature that impedes competition; (iv) a material and enduring impairment; and (v) this cannot be explained by costs, scarcity, quality, consumer preference or efficient price discovery.

One example might be a competitive field with multiple non-dominant platforms with similar approaches for maximising engagement. Each platform independently processes clicks and historic conversions into its own rankings. Suppliers do not communicate with each other, and individual shoppers make their immediate decisions. No platform has a rule which expressly disadvantages discounts. But new entrants may be drowned out from the main points of access due to cumulative feedback loops. Section 4 may not coordinate, but section 10 may not be dominant or obvious misuse. Empirical evidence would be needed to prove that such circumstances are not driven by consumer preferences.

Contemporary Malaysian regulatory practice provides an additional illustration. MyCC's Market Review on the Digital Economy Ecosystem, published on 10 February 2026, examined mobile operating and payment systems, e-commerce marketplaces, digital advertising and online travel agencies. It identified 34 competition, market and regulatory issues and proposed 18 recommendations (MyCC, 2026). This confirms the availability and practical use of market-review powers, while leaving the distinct question of binding remedies for non-infringement market features to be addressed.

Section 11 is broad enough to ask that question. The language permits examination of consumers, as well as enterprises and suppliers. Choice does not remove the opportunity for MyCC to consider aspects like ranking factors and weights, allocation of exposure for new suppliers, sponsored results, commission, switching and multi-homing, data advantages, acceptance and override rates, and what the market performance would have been under alternative ranking methodologies (Malaysia Competition Commission [MyCC], 2026).

Section 11 does not, however, 'bite' in itself and generate infringement liability. Section 12 leads to a report being made publicly available about the conclusions and recommendations. Absent sections 4 and 10, it is also arguable that the Act does not have the same level of general jurisdiction as the United Kingdom's market-investigation regime to issue mandatory orders to address an undesirable market feature. The deficiency is in remedy, rather than failing to recognise algorithms, consumers or foreign platforms (MyCC, 2026).

7. Proposed Two-Track Malaysian Response

7.1 Preserve conduct-based punitive liability

The need for proof of an agreement or concerted practice by enterprises in respect of financial penalties and findings of cartel infringement is required. The need for dominance and abuse in respect of abuse findings is required. The absence of any reversal of the burden or presumption of intent that all outputs are due to an enterprise, on account of complexity, opacity and machine autonomy, is required. Technological neutrality in existing law in terms of applying algorithms as evidence and mechanisms rather than artificial offenders is required.

7.2 Add an effects-based market-remedy jurisdiction

The market review process could allow MyCC to order prospective and proportionate measures if it can establish (i) an identifiable market feature; (ii) significant and sustained negative impact on competition; (iii) a causal link; (iv) a credible competitive counterfactual; (v) net harm considering efficiencies and consumer benefits; and (vi) the need for and proportionality of the measure ordered. The order would be against the enterprise that has the power to change the remediable platform, data practice or access rule, not the algorithm as a legal person (CMA, 2021; OECD, 2017).

The jurisdiction should not be a penalty in disguise. It should be prospective, evidence-based and appealable. It should involve consultation, disclosure of the theory of harm, access to relevant methodology, protection of confidential information, periodic review and sunset clauses. The threshold should be high, going beyond mere dissatisfaction with prices or market concentration.

7.3 Remedy the mechanism before controlling the price

Remedies in order of priority should be: Transparency of material ranking criteria Clear identification of sponsored placement Restrictions to specified non-public competitor inputs Separation or aggregation of datasets Minimum exposure or testing opportunities for new suppliers (where justified) Realistic supplier override Removal of ranking penalties for discounting Audit logs Switching and data-portability Interoperability Proportionate access obligations Direct price controls are a rare and short-term last resort in an essential or captive market when there is serious harm, a reliable benchmark and less restrictive measures cannot offer timely protection.

It may reduce supply, quality and innovation, and risk turning MyCC into a permanent price regulator. Any direct price control must involve KPDN and the relevant sector regulator, be subject to regular review and automatically lapse without renewal unless proven.

7.4 Extraterritorial and institutional considerations

Section 3 extends to activities taking place outside Malaysia if they have an impact on competition in a Malaysian market. The presence of Malaysian sellers who trade via a foreign platform, and consumers who view the rankings on a foreign platform, which impacts on competition in Malaysia, could bring a foreign platform within the scope of the Act. Substantive requirements remain despite territorial links. To prove infringement under section 4 or section 10, MyCC will need to show these gateways. (Competition Act 2010, ss. 4, 10).

Legal jurisdiction does not guarantee effective prosecution. Challenges for investigation and redress include access to source information and personnel, services rendered overseas, foreign courts recognising orders, lack of local assets and the practical enforceability overseas of information demands contemplated by proposed section 11A. Information exchange with foreign regulators and focus on domestic subsidiaries, payment providers, counterparties and domestic data archives are necessary.

Platform business models can impact consumers' experience, information control, tourism permits or specific sectors' regulation. Cooperation among national regulators, rather than forcing all matters under competition law, is beneficial. Consumer law might address deceptive ranking and non-disclosure; data law might address improper access; sector law might address disclosure or service conditions.

8. Conclusion

The Competition Act 2010 provides for reaching many kinds of algorithmic behaviour. Section 4 covers agreements or concerted practices executed or assisted by algorithms. Section 10 applies to algorithmic behaviour, which amounts to abuse of a dominant position. In either case, the absence of legal personality of the algorithm does not disqualify it from consideration. Although the algorithm's conduct can be attributed to the enterprise that selected, deployed or controlled it, it will need to be shown that the other requirements of the infringement are met.

A more challenging issue concerns where an adaptive system develops behaviours that considerably injure competition without any specific human intervention. Consider an algorithm optimised to increase revenue, engagement or conversions. Suppose the system learns that offering rapid discounts, hiding competing deals, encouraging customer loyalty or discouraging price comparisons generates higher revenues. This might arise through training and interactions with other systems, rather than from being instructed to suppress competition. This cannot justify a void in accountability. An entity that enables an algorithm to impact the market must exercise control appropriate to the algorithm's potential and the likely risk. Capacity to adapt independently should also carry the responsibility to observe, restrain and correct as required. Responsibility ought to flow from the enterprise's input into setting objectives, choosing data sources, setting boundaries and assessing impacts on the market (Harrington, 2018).

Identifying the "enabler" is a matter of function, not of name. It might be the enterprise deploying the algorithm, the vendor controlling the software and updates, or both. Supplying or developing software should not per se lead to blameworthiness. Relevant factors include direct participation in the design or perpetuation of the damaging process, ability or reasonable need to control it, knowledge of the risk and effectiveness of the response. A company should not be able to escape liability by contracting out the system whilst retaining the ability to set safety standards, insist on modifications or halt its use. The term "algorithmic market manipulation" needs careful use. It should identify clear perversion of the competitive process without ascribing intent or legal personality to the algorithm. Merely observing similar prices, effective optimisation and concentration of results is not evidence of manipulation. Is the working of the system itself causing serious and persistent damage to competitive pressures, access or meaningful commercial freedom?

The harm could point to a gap in the current prohibitions. Merely attributing this to an enterprise does not prove an agreement or concerted practice (section 4) or dominance and abuse (section 10). Merely lacking a human command to generate the specific outcome is not conclusive to exonerate responsibility; likewise, proving harm is not conclusive as to filling gaps in the requirements of the law. Between showed market harm and conditions needed for infringement liability, there could be a gap. Section 11 enables analysis of these market aspects. If Proposed section 11A is enacted, it will make stronger information gathering. Recommendations and publications under section 12 can lack impact if they are unable to secure necessary changes to inputs, incentives, feedback and conditions of access which are legally binding. (Competition Act 2010, ss. 4, 10).

This paper proposes two changes, each of which should supplement the other. First, Malaysia should consider a narrow scope for liability for future remedies for harmful algorithmic market features. First, that intervention requires evidence of a mechanism, substantial and enduring detrimental effect, causation, a plausible non-infringing alternative and recognition of any efficiencies and consumer gains. This includes appropriate remedies being proportionate, appeals and regular review (Calvano et al., 2020).

Second, that jurisdiction depends on a clear duty on relevant enablers to provide reasonable oversight and effective control measures. This may involve testing for competitive harm, auditing, tracking evolving conduct and keeping in place practical means to disable, amend or pause function. It should be proportionate to the role and ability of each business. It should not entail requiring assurances that every adjustment result is foreseeable.

Under this model, culpability depends on proving that the responsible enabler has failed. It should not create a fiction that the AI itself is at fault. Separate penalties require a clear duty and evidence of its breach (eg culpably failing to implement necessary safeguards or follow a corrective order). Proposed duties cannot duplicate existing infringement liabilities. They should not allow the imposition of an after-the-fact criminalisation of an autonomous result as proof of a forbidden agreement or abuse of dominance.

That autonomous activity does not mean that there is no effective supervision. Enterprises enabling algorithmic impacts on competition should have adequate means to manage their use and to respond to established harms. Linking that responsibility to a specific market-remedy jurisdiction will both address the potential gap while respecting the factual standard in sections 4 and 10.

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