

Predatory Innovation in the Digital Era

Amit Bansal¹, Shruti Gupta², Priyanshi Desai³, and Manasvi Aiyer⁴

Abstract

The current wave of the industrial revolution has altered humankind in all ways possible. With evolution comes the possibility of conflict, especially when the intent is to eliminate competition rather than revolutionise the product or service delivery. One such conduct is predatory innovation, which involves an incumbent altering one or more technical elements of a product to limit or eliminate competition under the guise of innovation. Discourse on the topic suggests that the jurisprudence has not yet generalised the etiquette of predatory innovation, which resonates with the challenges encountered by antitrust practitioners while assessing such conduct. Thus, in this paper, we aim to examine conduct that is construed as predatory innovation, given its increasing relevance and undiscovered potential harm. We present economic literature that discusses different types of predatory innovation and describe economic tests that are equipped to assess anti-competitive harm. Subsequently, we conduct an in-depth review of select cases that exhibit predatory innovation. We conclude by suggesting a way forward for competition assessment of predatory innovation.

Keywords: predatory innovation, digitisation, network effects, tying, economic tests

¹Partner, Forensic & Dispute Services, Deloitte Touche Tohmatsu India LLP; amitbansal@deloitte.com

²Director, Forensic & Dispute Services, Deloitte Touche Tohmatsu India LLP; shrutigupta@deloitte.com

³Senior Executive, Forensic & Dispute services, Deloitte Touche Tohmatsu India LLP; priyadesai@deloitte.com

⁴Senior Executive, Forensic & Dispute services, Deloitte Touche Tohmatsu India LLP; maaiyer@deloitte.com

1. Introduction

The current wave of the industrial revolution (Schwab, 2016) has altered humankind considerably. Digitisation accompanied by technological breakthroughs is the most notable manifestation of this revolution. Over time, consumers have become more receptive to technology and have increasingly greater expectations from service providers to build successful and sustainable digital customer experiences. The COVID-19 pandemic has accelerated this digital transformation and increased requirements such as data portability and interoperability.

Such innovation in digital markets is expected to bring numerous benefits to consumers. For the execution of such innovations, competitors may require access to certain components such as data, platforms, or integration aspects of high-tech/digital marketplaces, which could be viewed as essential infrastructure to provide services to consumers. This may give rise to conflicting situations wherein innovations may challenge the application of antitrust rules if they are found to be predatory.

Predation is defined as “conduct which has the purpose and the effect of advancing the actor’s competitive position, not by improving the actor’s market performance, but by threatening to injure or actually injuring potential competitors, as to drive and keep them out of the market or force them to compete less effectively” (Sullivan, 1977, p. 108). The modern definition of *predatory behaviour* as a strategy was articulated as one “that sacrifices part of the profit that could be earned under competitive circumstances were the rival to remain viable, in order to induce exit and gain consequent additional monopoly profit” (Ordover & Willig, 1981, pp. 9–10). Further, Bork (1978) defined predation “as a firm’s deliberate aggression against one or more rivals through the employment of business practices that would not be considered profit maximizing except for the expectation that (1) rivals will be driven out from the market, . . . or rivals will be chastened sufficiently to abandon competitive behavior” (p. 144).

In addition to extant literature on the definition of predation, legislation regarding predation from advanced jurisdictions such as the United States and the European Union are presented below. It can be observed that most legislations cover predatory conduct under “abuse of dominance”, which includes predatory pricing.

United States

Section 2 of the Sherman Act deals with “monopolisation”, “attempted monopolisation”, and “conspiracy to monopolise”. This includes “exclusionary” or “predatory” conduct that combines the possession of monopoly power with an element of anti-competitive conduct. Section 2 also proscribes “attempt[s] to monopolise”. Establishing attempted monopolisation requires proof “(1) that the defendant has engaged in predatory or anticompetitive conduct with (2) a specific intent to monopolize and (3) a dangerous probability of achieving monopoly power”.

European Union

Article 102 of the Treaty on the Functioning of the European Union Articles relevant to Competition Law deems that:

Any abuse by one or more undertakings of a dominant position within the internal market or in a substantial part of it shall be prohibited as incompatible with the internal market in so far as it may affect trade between Member States. Such abuse may, in particular, consist of: (a) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions; (b) limiting production, markets or technical development to the prejudice of consumers, among others.

India

Section 4 of the Competition Act, 2002 dictates that:

there shall be an abuse of dominant position [under sub-section (1), if an enterprise or a group] (a) directly or indirectly, imposes unfair or discriminatory (i) condition in purchase or sale of goods or service; or (ii) price in purchase or sale (including predatory price) of goods or service. (b) limits or restricts (i) production of goods or provision of services or market therefor; or (ii) technical or scientific development relating to goods or services to the prejudice of consumers.

Further, the Act defines predatory pricing as:

the sale of goods or provision of services, at a price which is below the cost, as may be determined by regulations, of production of the goods

or provision of services, with a view to reduce competition or eliminate the competitors.

The distinctions amongst the different jurisdictions can be made on the basis of the assessment of predatory pricing by regulators. US competition law punishes pricing below cost only when there is evidence of eventual recoupment of those expenditures, whereas the EU has a more stringent standard that punishes below-cost pricing without evidence of future recoupment. The EU's criteria for predation and the liability for predatory pricing fall into two categories. To begin with, any price lower than the average variable cost is prohibited. Predatory intent is assumed here because such an arrangement can only be made to stifle competition. Second, a price higher than the average variable cost but lower than the average total cost is prohibited if it can be demonstrated that the aim is to eliminate a rival. The cost benchmarks in the Indian legislation are akin to those in the EU. However, existing case laws in India are still in their nascent stages to comment on the requirement of intent from a jurisprudence perspective.

While it may be challenging to distinguish between predation and competition, the former generally falls into two categories—predatory pricing and non-price predation (Durand, 2005). While predatory pricing is the best-known form of predatory behaviour and defined in certain legislations, non-price predation merits introspection. Non-price predation often involves excessive investments intended to weaken or eliminate competitors. According to Durand (2005):

Predatory investments could be made, for example, in excessive capacity, product differentiation, or advertising. Furthermore, businesses may adopt costly strategies designed to raise their rivals' costs more than their own. Other forms of non-price predation involve technological tie-ins and exclusive contracting, whereby a firm may increase the value offered to certain customers to reduce the ability of rivals to serve such customers and ultimately drive them from the market.

Predatory innovation falls within the realm of non-price predation and involves an incumbent altering technical elements of a product to adversely impact competition (Schrepel, 2018). The cost of such conduct is borne by uninformed consumers. Opportunities to implement predatory

innovations are greater in high-tech markets compared to non-digital sectors (Schrepel, 2017a). For example, automated digital updates allow a dominating firm to impose a predatory strategy on its users. One such example is an update in the form of innovation through some upgrade in services. This strategy prevents users from rejecting the product's new version in the short term as it is set as a default option—users do not have a choice but to use the new version to gain access to the particular platform or service.

It is worth noting that competition law supports the ideology that efficiency derived from innovation may supersede the efficiency obtained by producing output at optimal levels or maximising utility derived from the effective allocation of resources. However, as indicated in the example above, predatory innovation can result in harm (Brodley, 1987) across different upstream/downstream markets: (a) foreclosure in the main market; (b) foreclosure in related markets; and (c) vertical exclusion. Foreclosure in the main market or related markets can be a result of the dominant company obstructing or preventing its actual or potential rivals from reaching customers or supply sources through its supposed innovations, acting to the consumers' disadvantage. As for the third case, if an entrant cannot establish itself without the support of the gatekeeper,¹ the vertical conduct may result in exclusion.

Given the exponential growth of technological markets and the fact that the existing antitrust rules do not entirely apprehend practices of predatory innovation, in this paper, we intend to research this subject from theory and case law standpoints. This paper aims to undertake thorough research on conduct that is construed as predatory innovation, especially in the current era of digitisation and digital platforms, describe economic tests that are equipped to assess anti-competitive harm from predatory innovation, refer case precedents, and finally, suggest a way forward for competition assessment of predatory innovation. The paper is structured as follows:

¹"The vertical structure allows an upstream supplier and a downstream retailer to share industry profits gained through the supplier's increased market power. As a result, the retailer has an incentive to protect these profits by serving as a "gatekeeper," potentially limiting market access by upstream rivals." (Asker & Seitz, 2013)

- First, we identify different types of predatory innovation by way of reference to select markets in which these types have been witnessed
- Second, we describe the economic tests that have been employed for the detection of predatory innovation kind of conduct
- Third, we conduct an in-depth review of select cases that exhibited properties of predatory innovation
- We conclude by discussing why predatory innovation is yet to be known, how it can be addressed, and what steps can lead the way for regulatory authorities.

2. Types of Predatory Innovation

Predatory innovation practices can take varied forms and continue to evolve with advancements in technology and the emergence of newer markets. Below, we describe certain practices in technology markets:

- The first classification focuses on modifications that are made to eliminate a product of a similar nature. The innovator modifies a product to convince consumers that the quality of a competitor's product is inferior. It also includes changes tailored to eliminate comparable products, which implies a product modification designed to restrict or eliminate competition by making slight improvements to enhance the existing product's qualities.
- Predatory redesign is another form of predatory innovation. It is one of the most common types of anti-competitive "innovation", and occurs when a company alters the nature of its product to exclude competitors. To make it more difficult for competitors to interoperate with the company's products, the company deliberately causes incompatibility, thereby gaining a competitive advantage in the market. For example, a surgical devicemaker might redesign its product to make third-party peripherals incompatible (Jacobson *et al.*, 2010).
- The third classification refers to the link between strategy and technical design, which includes all modifications in which the technical design of a product is affected. These tactics are aimed at

eliminating compatibility with competing products or integrating a standalone product into a larger system. It can be done, for example, by removing a file format's compatibility with a competing operating system.

- Tying is another broad classification that majorly dictates the course of predation. In this classification, a dominant company seeks to modify its product in a manner that makes it incompatible with those of its competitors. Technical ties—a kind of tying—is where a company integrates one of its products into another of its own, creating a niche in the market. This may be done, for instance, when a corporation decides to integrate a photo-editing software package into a much larger operating system. Traditional ties are where a company ties a product to another product bound by a contract. Tying is a practice that is heavily detected in the hardware and software markets and can ensure proper performance of a product system that benefits consumers but can also be an efficacious means to price discriminate (Sidak, 1983). It is to be noted, however, that price discrimination is not always a harmful strategy and can even lead to social welfare by letting low-income consumers partake in the product offering, which would be difficult in instances of uniform pricing.

Since the consequences of predatory innovation should hold a certain level of individuality, there exists a need to separate it from concepts such as technical (technological) tying. “Technological tying involves the simultaneous purchase of two products forced by technical design, or, in other words, the modification of a product so that another product will be tied to it” (Schrepel, 2018). There are similarities between the two concepts; however, the absence of distinction between these two notions would generate lot of confusion, which would lead to ineffective rulings. The concept of predatory innovation is broader and more complex. For this reason, amongst others, considering it under or as tying is erroneous.

In spite of innovation usually being considered a positive power and a driving force of competition in high technology markets, it can be a double-edged sword. On the one hand, it promotes competition

and deserves reward. On the other hand, it may be a means to prevent competition due to high-tech market-specific features, such as network effects (also called network externalities, which occur when demand for a product or service is influenced by the number of other consumers using the product or service), spillover, consumer lock-in, and winner-takes-all effects (Montagnani, 2006). This twofold nature of innovation suggests that innovation in network markets can be a means to predation and, as such, can be in violation of competition law.

The presence of the aforementioned network effects also worsen the impact of certain market strategies used by dominant firms to deter competition and create barriers to entry. One such strategy is vapourware preannouncements (Dranove & Gandal, 2000). Vapourware involves company preannouncements of its products that never materialise or arrive much later than the announced delivery date (Leventis & Appelrouth, 2001). According to Stucke (2010), “Monopolists can use vapourware to maintain their power. In knowingly and falsely announcing the introduction of new products or technology in the near future, a monopolist can prevent its sales from significantly shifting to an entrant or fringe firm.” However, as per the United States District Court, “product preannouncements do not violate antitrust laws, unless those preannouncements are knowingly false and contribute to the acquisition, maintenance, or exercise of market power” (United States Department of Justice, n.d.).

2.1. Markets Conducive to Predatory Innovation

We draw further attention to the consequences of the network effects mentioned above that characterise high technology markets. They occur in markets in which the utility yielded by a product is a function of the number of users within the product network. This suggests that customers are more likely to buy the product with the largest product network. From a predatory innovation standpoint, a leader product that is “supported” by network effects might become “standard” by increasing switching costs to alternative goods and causing incompatibility among connected secondary products. Consequently, innumerable consumers are locked into a technological generation as a result of a dominating firm’s decisions, and the network may form a barrier to entry for other enterprises seeking

to enter the market (Acuna-Quiroga, 2001). Such barriers to entry created through the incumbent innovator's position, referred to as the *technological frontier*, can easily impede (or significantly slow down) the innovation process in high-tech markets in general and in software markets in particular. Due to network effects, reaching the technological frontier allows the incumbent to obstruct subsequent innovation – not only that of competitors who are unable to overtake that edge but also, further along the line, innovation by the incumbent itself. Second, having crossed the technological threshold allows the incumbent to prohibit competitors from doing so. In general, competition can be kept at bay at all times. Although reduced social welfare is not immediately apparent and consumers are not disadvantaged in the short term, this mechanism prevents or slows down innovation in the long run since the incumbent does not face any pressure or motivation to innovate from competitors who are kept a step behind (Montagnani, 2006).

The impact of the aforementioned technological barriers and technology's susceptibility to predatory innovation is not limited to high-tech markets but is also applicable to industries such as healthcare, especially in the wake of COVID-19. The use of artificial intelligence (AI) in the healthcare space has helped doctors tackle challenges such as uneven doctor-patient ratios and performing complex medical procedures. AI use is expected to reach INR ~431.97 billion by 2021, expanding at a rate of ~40% alongside the healthcare analytics market, which was valued at INR 19.85 billion in 2020 and is expected to reach INR 87.26 billion by 2026, expanding at a CAGR of ~28.74% during the period (Netscribes Industry Reports, 2021). This includes applications that have the scope to innovate at every step through tools such as predictive modelling, thermal cameras, and COVID-19 screening. The significance of these industries, coupled with research and development (R&D) and integration with technology, hints at the possible use of predatory innovation.

3. Economic Tests to Detect Predatory Innovation

There are some economic tests that can be used for the detection of predatory innovation. Some of these tests, along with their advantages and shortcomings, are discussed below:

Ordovery Willig Model

In Ordovery and Willig (1981), “the redesign of system components to cause incompatibility with the components of rivals may be predatory even when the new design is a genuine technological improvement that consumers value” (Sidak, 1983). They outline a two-stage process for determining whether a dominant innovating firm has made a profit sacrifice. The first stage examines the firm’s post-innovation pricing and the second stage examines the firm’s R&D investment decision.

Profit Sacrifice Test

According to the profit sacrifice test, conduct is illegal “when it involves a profit sacrifice that would be irrational if the conduct did not tend to eliminate or reduce competition” (OECD, 2006). One version of this test appears to be useful for detecting predatory pricing behaviour. However, it is not useful in other types of cases “because it is both over-inclusive and under-inclusive. It is over-inclusive because it can capture certain types of behaviour that improve consumer welfare even though it may exclude competitors...On the other hand, some conduct may entail no short run profit sacrifice at all yet still be harmful to competition” (OECD, 2005).

Further, a sacrifice of short-run profit says nothing about whether innovation has predatory intent or effect, neither does the resulting exclusion of competition. For this reason, the profit sacrifice test is ill-suited to identify anti-competitive innovation, since investment in R&D demands the inherent sacrifice of profit in the short run. While jurisdiction in India states that predatory intent is a necessary condition for innovation to be anti-competitive, other jurisdictions, such as the US, argue that the finding of predatory intent is neither necessary nor sufficient for innovation to be anti-competitive and emphasise the recoupment of profits in the medium to long run.

Enhanced No Economic Sense (ENES) Test

The ENES test aims to assess the legality of practices under antitrust law (Schrepel, 2017b). Application of the ENES test will help simplify the law and avoid legal errors. The first step in the process is to determine whether the dominant company’s practice reduces or eliminates competition. If the answer is no, the practice is considered legal; if the answer is yes, the analysis proceeds to the next step. The second step inquires whether

the practice benefits the dominant firm solely because of its proclivity to reduce or eliminate competition. If the answer is yes, the practice must be condemned; if the answer is no, the analysis proceeds to the third step. In the third step, a judge must determine whether it is possible to distinguish between the original and modified product and the economic justifications for the modifications. If the answer is no, the practice is considered legal; if the answer is yes, the analysis proceeds to the final step. The final step examines the firm's modifications. Modifications that make economic sense for non-anti-competitive reasons must be permitted whereas those that only tend to reduce or eliminate competition must be condemned. The shortfall of this test is that it is inapplicable when predatory practices involve low costs. Additionally, courts are unable to evaluate hybrid practices that produce both positive and negative effects on competition. This could lead to the legalisation of practices that provide an immediate benefit to consumers, such as product improvement, but eliminate competition over the long term, such as by removing product compatibility.

Disproportionality Test

Under the disproportionality test, conduct that has the potential for both pro-competitive and anti-competitive effects is anti-competitive if its likely anti-competitive harm outweighs its likely pro-competitive benefits (Grimm, 2008). The test reduces the risk of sobering pro-competitive behaviour while outlawing behaviour that will significantly harm competition and consumer welfare. Since neither the harm nor the benefit is clearly predominant, the standard is likely to be easily applied in several cases. If the benefits and harms are comparable, or nearly so, the conduct should be legal under this test. In some cases, the disproportionality test may be difficult to apply. If a challenged conduct has a pro-competitive justification, the plaintiff must show that the harm to competition outweighs the benefits.

Given the evolving nature of markets that are prone to predatory innovation, and that each technique has its benefits and shortcomings, no single test may do justice, and therefore, the use of more than one test may be prudent depending on the specifics of the matter under consideration.

4. Reference to Case Laws for Detection of Predatory Innovation

A look at select cases that ruled on conduct with characteristics similar to predatory innovation offer guidance on the assessment of such conduct when viewed from a predatory innovation perspective.

Indian Jurisprudence

The Competition Commission of India (CCI) has not recognised the concept of predatory innovation as such in rulings made so far. However, developments in the technology space have brought under scrutiny various cases that exhibit abuse of dominance under Section 4 of the Competition Act, 2002. These cases involve big tech players operating in digital markets against whom CCI has observed a *prima facie* case. Some sub-judicial matters that are still under investigation bring to light the potential assessment of predatory innovation as anti-competitive conduct.

In one such scenario, CCI levied a penalty against a tech giant for abusing its dominance in the Android market to defend and safeguard its position in the online search market (*Umar Javeed v. Google LLC*, 2018). The conduct involved mandating smartphone and tablet manufacturers for preinstallation of applications; bundling applications and services with other applications, services, and/or application programming interfaces; and preventing smartphone and tablet manufacturers from developing and marketing modified and potentially competing versions of Android on other devices. Another such conduct by a big tech player that was investigated and penalised by CCI involved the modification of algorithms to display certain applications as the first result when searching for a payments app or a competitor's application and restricting the usage of rival payment options during the billing process (Competition Commission of India, 2020, 2021).

While CCI has followed a pro-business approach by being a proponent of constant innovation and novelty in an enterprise's products and services, it also places equal emphasis on the harm to consumers due to anti-competitive practices and abuse of dominance by considering the nature and extent of network effects of the innovation. This has been reflected in its decisions on cases that involve abuse of dominance by firms through activities that result in search bias, search manipulation, blocking access to competing search engines, refusing to license information to

competing search engines, and creating barriers to entry (*Matrimony.com Ltd. v. Google LLC*, 2018).

International Jurisprudence

The following case law precedents reflect predatory innovation and highlight conduct wherein innovation resulted in consumer and market harm.

- In 1972, Kodak, a market leader in cameras and related products, announced the launch of a new system, the 110 Instamatic, as well as a new device, the Kodacolor II Film. In an ancillary market, the new device was incompatible with the products of one of its competitors. Berkey sued Kodak for removing the interoperability of its products without permission (*Berkey Photo v. Eastman Kodak*, 1979). A reasonability test was used, and the analysis focused on the notion that a single enhancement might justify all of the product's modifications. Kodak's new camera had fewer high-quality features than its predecessor, but it had better grain and was smaller. Kodak was found not to be liable by the Court. The ENES test would ask if deleting the new camera's interoperability with Berkey's products was necessary to achieve the goal. Because Kodak failed to show a causal link between the altered design of its device and the necessity to remove it, it may have been held liable in this case. The Second Circuit's decision would have been different if the ENES test had been used.
- In the late-'70s and early-'80s, IBM used to manufacture central units and its peripherals. Gradually, it started to integrate these peripherals and change the interface design between the main frame machine and the peripherals. This made the competitors' accessories incompatible with its main frame machines. The interface design was changed innovation, but the same innovation was alleged to limit competition in the accessories markets by precluding the compatibility of competitors' peripherals, thereby forcing them to move to another product or seek compatibility with the new IBM interface. Several IBM cases reflected this behaviour, including *Transamerica Computer Company Inc. v. IBM* (1983) and *California Computer Products, Inc. v. IBM Corp* (1979). The Court's decisions concluded that, theoretically, innovation may

unjustly restrict competition and thereby be in violation of Sec. 2 of the Sherman Act. However, in practice, the court held that, in the case of California Computer Products, the District Court's directed verdict in favour of IBM on the product redesign issue was appropriate. Similarly, the Ninth Circuit affirmed the result, holding that the District Court's finding that Transamerica did not suffer any damages attributable to the design change, which was not clearly erroneous.

- Another example involves Microsoft and Caldera (*Caldera, Inc. v. Microsoft Corp.*, 1999), wherein Microsoft was accused of technological tying by integrating MS-DOS and Windows 3.0 (Windows 95 OS, an early version of the Windows operating system) in a new and innovative product. In doing so, Microsoft took two functions belonging to two different products and combined them, thus limiting competition in the DOS market. By integrating its operating system and internet browser, and by prohibiting its separation, Microsoft could harm competing browser and operating system manufacturers. The court relied on the reasoning that "technological innovation is an important defense in defending antitrust allegation" and rejected Caldera's antitrust claim. Despite its decision, it acknowledged that "product innovation can be stifled if companies are allowed to dampen competition by unlawfully tying products together and escape antitrust liability by simply claiming a plausible technological advance."
- In the case of *United States v. Microsoft Corp.* (2001), the State charged Microsoft with violations of various state antitrust laws. Given Microsoft's varied efforts to unseat Netscape Navigator as the preeminent internet browser, the plaintiffs charged four distinct violations of the Sherman Act: (a) unlawful exclusive dealing arrangements; (b) unlawful tying of Internet Explorer to Windows 95 and Windows 98; (c) unlawful maintenance of a monopoly in the PC operating system market; and (d) unlawful attempted monopolisation of the internet browser market. The case also offered the conclusion that dominance in high-tech markets

is dependent on the impact of network effects to Microsoft that existed in the operating system market.

- In 2011, Cisco Systems Inc., a leading network equipment maker, and Messagenet SpA challenged the European Commission's decision to approve Microsoft's acquisition of Skype (*Cisco Systems Inc. and Messagenet SpA*, 2013). Cisco was concerned that Microsoft would use Skype's consumer popularity to boost the market share of Lync, Microsoft's business server. Cisco claimed that, without access to Skype's 850 million customers, business customers may lose interest in its market-leading messaging and conferencing products. According to Cisco, Microsoft integrating Skype and Lync into its office software packages, including Windows, Outlook, and Office, would exacerbate the situation. In 2013, the General Court ruled against claims that the takeover would harm competition. Despite having an estimated 80% share of consumer video and voice calls, the Commission and Microsoft argued that Skype has very little market power.
- In March 2020, the French Competition Authority penalised Apple Inc. after identifying its exclusionary practices (Decision 20-D-04, 2020). The enterprise was found to be restricting the operability of its complementary products with competing devices and ensuring higher interoperability with its hardware. This was identified as a clear case of using innovations and modifications to lock consumers in a market by increasing costs of transfer and increasing dependency on network effects.

A look at international jurisprudence shows that predatory innovation claims have been historically dismissed by courts. Courts have deduced that the risk of monopolisation through technological innovation must be balanced against the necessity to safeguard the incentive to innovate in the first place. They have ruled against arguments that an innovating firm has a duty to protect its competitors from the adverse effects of predatory innovation. We reason that certain factors (Sidak, 1983), such as: (a) the effects of the design on competitors, (b) the effects of the design on consumers, (c) the degree to which the design was the product of desirable technological creativity, and (d) the monopolist's intent may need to be considered whilst investigating claims that fall under such

Table 1. Case Summaries

Case	Outcome	Was predatory innovation mentioned?
<i>Berkey Photo v. Eastman Kodak</i> (1972)	No conviction: Comparing the quality of two devices is not conclusive evidence.	No mention
1. <i>California Computer Products Inc. v. IBM</i> (1979) 2. <i>Transamerica Computer Company Inc. v. IBM</i> (1983)	1. No conviction: District Court directed verdict in favour of IBM on the product redesign issue. 2. No conviction: District Court found that Transamerica did not suffer any damages attributable to the design change, which was not clearly erroneous.	The Court stated that “theoretically, innovation may unjustly restrict competition and thereby be in violation of Sec. 2 of the Sherman Act.”
<i>Caldera Inc. v. Microsoft Corp.</i> (1999)	No conviction: The Court stated that “technological innovation is an important defense in defending antitrust allegation” and rejected Caldera’s antitrust claim.	The Court acknowledged that “product innovation can be stifled if companies are allowed to dampen competition by unlawfully tying products together and escape antitrust liability by simply claiming a plausible technological advance.”
<i>US v. Microsoft Corp.</i> (2001)	No conviction: Case was dismissed on appeal.	No mention
Apple case (2020)	Conviction: The French competition authority fined Apple EUR 1.1 billion.	No mention
<i>Cisco Systems Inc., and Messagenet SpA v. European Commission supported by Microsoft Corp.</i> (2013)	No conviction: According to the General Court, the takeover of Skype by Microsoft has no effect on competition in consumer video communications or business video communications markets.	No mention

antitrust scrutiny. To do so, it is imperative to understand why predatory innovation is underrepresented in global regimes and why its current relevance overshadows its historical precedence.

5. Discussion

In this paper, it is observed that predatory innovation is a strategy employed by firms in digital markets. It is further observed that antitrust principles across jurisdictions are not equipped to differentiate between an anti-competitive and beneficial innovation. While there is increased awareness about the concept of predatory innovation, from a judicial perspective, the concept is yet to be tested and ruled upon, as is evident from the case precedents referred above. One of the main reasons for this is lack of clarity as to what constitutes predatory innovation and how it is distinct from other conducts such as technological tying. The other important reason is the ever-evolving forms and means by which firms are going about the execution of these innovative practices.

Historically, legal concepts tend to evolve slowly. Given that the different schools of thought (such as the Chicago School, Harvard School, and Freiburg School)² never really focused on innovation, the influence of that thought is passed on through time and affected decision-making. This creates a vicious circle: The absence of doctrine leads to the absence of court rulings (or vice-versa), and so on. Moreover, in recent times, the focus has been on topics such as big data and algorithms. This invites a publication bias, which leads academicians to focus much of their attention on certain topics and under-explore others.

However, the possibility of prevalence of predatory innovation with the arrival of digital markets is more real now than ever before. There is widespread recognition of the fact that market dynamics are altering drastically and that the laws governing these markets need to adapt to the same. The digital sector has peculiar characteristics that need to be addressed by a specific economic regulation. It is acknowledged by scholars and the legal community that these markets have the potential to

²The Chicago School views competition policy through prices. The Harvard School is more interventionist and places a great deal of importance on market structures. The Freiburg School follows a similar pattern and concentrates on competition authorities' design.

be centres of uncontrolled and entrenched dominance. In response to this looming threat, various competition regulators are becoming cognizant of the need to address cases of predatory innovation, and legislative changes are being contemplated as nations across the world begin to recognise the harm to competition posed by businesses engaging in predatory innovation. For instance, in December 2017, the Italian parliament tabled proposed amendments to competition laws of the country to tackle predatory innovation (Camera dei Deputati, 2017). The legislation argues for the recognition of widespread existence of innovative practices that are predatory in nature and encourages the parliament to provide guidelines to courts on how to deal with them. It further states that the creation of a coherent legal regime dedicated to combating predatory innovation will be appreciated by entrepreneurs and consumers because avoiding judicial errors will lead to a wider and more competitive market, to the advantage of innovation.

In July 2018, the Belgian parliament also proposed a law amending the Code of Economic Law as regards subversive innovation (Proposition De Loi, 2018). The proposition states that:

Our House of Representatives must seize this opportunity and introduce a predatory innovation law. A law must thus allow the condemnation of all predatory innovation practices: those relating to the modification of a platform and those relating to the modification of the technical design of a product.

On a broader level, the EU announced its aims to create “digital traffic lights to stop certain practices and allow others to proceed better” (European Commission, 2020a). Together with the Digital Services Act (DSA), EU commissioners Breton and Vestager (2020) presented the Digital Markets Act (DMA). The DMA marks a watershed moment in the regulation of digital innovation and competition (Gerardin, 2020). “It represents a paradigm shift from ex-post analysis of antitrust liability, wherein arguments are debated in courts toward ex-ante regulatory obligations wherein the administration ensures compliance. The DMA exhibits the logic of the precautionary principle to competition rules at the expense of innovation” (EUR-LEX, 2020).

The realisation for a change is echoed in India as well, with CCI not far behind in terms of preparing itself. In a keynote address delivered

in July 2021, former chairperson of CCI, Ashok Kumar Gupta, addressed concerns around digital disruptions and stated that India has come of age as far as its consumer internet companies are concerned. Further, CCI has recognised the enormous demand-side efficiencies provided by network effects but also acknowledges that these network effects, when combined with anti-competitive activities by a platform, can exclude and marginalise competitors, with larger, economy-wide consequences.

While there is a reasonable argument in support of legal recognition of predatory innovation, it is essential to discuss the counter-arguments to recognising and defining predatory innovation as anti-competitive. Even if innovation is predatory, it is crucial that regulations do not suppress its benefits to consumers. Reduced market incentives for innovation may be another result of excessive regulation (BRICS Competition Law and Policy Centre, 2019). The market has more incentive to innovate when a regulatory body intervenes to control the market in favour of new entrants and against established companies (Bundeskartellamt, 2017). Since new entrants must anticipate similar interventions by the authority in the future, regulatory action would be considered over-regulation by them, as it ultimately reduces their incentives to innovate. Additionally, due to the aforementioned issues, new entrants or small players may only be able to make investments that complement the incumbent's offerings (Competition and Markets Authority, 2019). The problems mentioned above bring to light an imperative conclusion. Without a fair test, there is a chance that competition authorities will wind up penalising the same type of competitive behaviour that the laws are meant to encourage. Because of this, even the most innovative businesses may decide against making innovations that could benefit society. This demands the need for objective standards that ascertain whether predatory innovation is, as a matter of law, predatory. This would provide some basis for companies to know what they are allowed and not allowed to do.

6. Conclusion and Way Forward

The challenges presented by high-technology markets may require competition law to be adequately prepared. The regulator can start by analysing these markets and the unique characteristics that make them susceptible to anti-competitive conduct. Future anti-competitive concerns

can stem from current situations and regulators' ability to spot such situations and distinguish between illegal situations and those that arise from the structure of the market. Identifying threats such as predatory innovation will provide the opportunity to sharpen the existing regime, which would lead to better, albeit not more sanctions, by narrowing the implications of any anti-competitive practice that involves false innovation. It would strengthen "free markets" by allowing companies to compete on non-frivolous innovations.

Gilbert (2007) suggests that "welfare and the efficient use of judicial resources would be best served by a policy that presumes that innovation is pro-competitive and condemns innovation by a single firm in only the most extraordinary circumstances." Contrastingly, on conducting further analysis, a pressing challenge that arises is that antitrust analysis is likely to occur after innovation, but ex-post outcomes reveal little about whether the innovation was a good decision ex-ante, when the decision was made. If promoting socially desirable behaviour and discouraging undesirable behaviour are the objectives of antitrust regulation, the behaviour should be assessed in light of the knowledge that was accessible at the time it occurred. This entails an ex-ante study of anticipated costs and rewards for innovation.

We believe, however, that as digital markets are still at a nascent stage, it is difficult to conduct ex-ante analysis unless the many caveats of predatory innovation have been studied and examined. We therefore encourage a case-by-case analysis that follows an evidence- and need-based methodology. As cases arise in the digital markets space, the case laws will develop eventually and help frame a robust regulation.

Lastly, we emphasise that consumer sovereignty is one of the primary goals of any legislation, and innovation is beneficial only to the point that it does not cause consumer harm. With this vision in mind, competition authorities such as CCI can pave the way for robust rulings that are righteous and inspire progress that is not stunted.

This paper is a means to open the door to the concept of predatory innovation. We wish to highlight that it is a real concept which has been previously analysed under various strategies, such as tying. In the new age of digital transformations, it is more real than ever before, and hence, there arises a need to broaden scrutiny and put appropriate frameworks in

place to avoid Type I and Type II errors³ as well as various other adverse impacts that this paper has attempted to highlight.

References

- Acuna-Quiroga, C. (2001). Predatory innovation: A step beyond? (Understanding competition in high-technology markets). *International Review of Law, Computers and Technology*, 15(1), 7–34.
- Allied Orthopedic v. Tyco Health Care Group (2010), 592 F.3d at 1000.
- Asker, J., & Seitz, S. (2013). Vertical practices and the exclusion of rivals post Eaton. *Antitrust Chronicle*, 7.
- Berkey Photo v. Eastman Kodak, 603 (F.2d 263 2d Cir. 1979).
- Bork, R. (1978). *The Antitrust Paradox*. Basic Books.
- BRICS Competition Law and Policy Centre. (2019). *Digital era competition: A BRICS view*.
- Brodley, J. F. (1987). The economic goals of antitrust: Efficiency, consumer welfare, and technological progress. *N.Y.U.L. REV.*, 1020, 1042.
- Bundeskartellamt. (2017). *Innovations – Challenges for competition law practice*. https://www.bundeskartellamt.de/SharedDocs/Publikation/EN/Schriftenreihe_Digitales_II.pdf?__blob=publicationFile&v=3
- Caldera, Inc. v. Microsoft Corp (D. Utah 1999).
- California Computer Products Inc. v. IBM, 613 F.2d 727, 743-744 (9th Cir 1979).
- Camera Dei Deputati. (2017). N. 4792. https://documenti.camera.it/_dati/leg17/lavori/stampati/pdf/17PDL0060920.pdf
- Case nos. 7 of 2020; 14 of 2021; 35 of 2021 (Competition Commission of India 2020, 2021).

³For reference, Type I errors, also called “false positive”, reflect the fact that a judge or a competition authority condemns an undertaking for implementing one or more practices which, in reality, are not anti-competitive. Type II errors, also called “false negative”, reflect the fact that a judge or a competition authority does not condemn an undertaking for implementing one or more practices which are anti-competitive.

- Cisco Systems Inc. and Messagenet SpA, Case T-79/12 (Gen. Court [Fourth Chamber] December 11, 2013).
- Competition and Markets Authority. (2019). *Online Platforms and Digital Advertising: Market Study Interim Report*.
- Competition Act, 2002. <https://www.cci.gov.in/images/legalframework-act/en/the-competition-act-20021652103427.pdf>
- Decision 20-D-04 (Autorite de la Concurrence March 16, 2020).
- Dranove, D., & Gandal, N. (2000). *The DVD vs. DIVX Standard War: Empirical Evidence of Vaporware*. University Library of Munich, Germany.
- Durand, B. (2005). *A three-step structured rule of reason to assess predation under Article 82* [Discussion paper]. DG Competition, European Commission, Office of the Chief Economist.
- Elzinga, K. G. (2014). Antitrust predation and the antitrust paradox. *The Journal of Law and Economics*, 57(S3), S181–S200.
- EUR-LEX. (2020). *Proposal for a regulation of the European parliament and of the council on contestable and fair markets in the digital sector (Digital Markets Act)*. <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=COM%3A2020%3A842%3AFIN>
- European Commission. (n.d.). *Competition law treaty provisions for antitrust and cartels*. https://competition-policy.ec.europa.eu/antitrust/legislation/competition-law-treaty-articles_en
- European Commission. (2020a). *Speech by EVP Margrethe Vestager at the EU Council's High-level Presidency Conderence: "A Europe of Rights and Values in the Digital Decade."* https://ec.europa.eu/commission/commissioners/node/489945_mt
- European Commission. (2020b). *Speech by Executive Vice-President Margrethe Vestager: Building trust in technology*. https://ec.europa.eu/commission/commissioners/2019-2024/vestager/announcements/speech-executive-vice-president-margrethe-vestager-building-trust-technology_en
- Gerardin, D. (2020). *The EU Digital Markets Act in ten points*. Platform Law Blog. <https://theplatformlaw.blog/2020/12/16/the-eu-digital-markets-act-in-10-points>

- Gilbert, R. (2007). Holding innovation to an antitrust standard. *Competition Policy International*, 3.
- Grimm, K. L. (2008). General standards for exclusionary conduct. *US FTC*.
- Hovenkamp, H. (2010). *Intellectual Property and Antitrust: An Analysis of Antitrust Principles Applied to Intellectual Property Law*.
- Jacobson, J., Scott, S., & Holman, E. (2010). Predatory innovation: An analysis of *Allied Orthopedic v. Tyco* in the context of Section 2 jurisprudence. *Loy. Consumer L. Rev.*
- Leventis, A., & Appelrouth, M. (2001). Are Section 2 claims more than mere apparitions? The legal viability of Vaporware claims. *Antitrust, Spring*, 82.
- Matrimony.com Ltd. v. Google LLC, 7 and 30 (Competition Commission of India 2018).
- Montagnani, M. (2006). Predatory and exclusionary innovation: Which legal standard in the context of the competition versus intellectual property rights clash? *International Review of industry property and copyright law*, 304–335.
- Netscribes Industry Reports. (2021). *Healthcare Analytics Market in India 2021 Part II*.
- New Second Circuit decision addresses antitrust limits on innovation and related marketing activity*. (2015). Antitrust Watch. <https://blogs.orrick.com/antitrust/2015/06/19/product-hopping-new-second-circuit-decision-addresses-antitrust-limits-on-innovation-and-related-marketing-a>
- Ordover, J., & Willig, R. (1981). An economic definition of predation: Pricing and product innovation. *Yale Law Journal*, 91(1), 8–53.
- Organisation for Economic Co-operation and Development [OECD]. (2005). *Competition on the merits*. <https://www.oecd.org/competition/abuse/35911017.pdf>
- Organisation for Economic Co-operation and Development [OECD]. (2006). *What is competition on its merits?* <https://www.oecd.org/competition/mergers/37082099.pdf>

- Proposition De Loi, Doc 54 3246/001. (2018). La Chambre. <https://www.lachambre.be/flwb/pdf/54/3246/54K3246001.pdf>
- Schrepel, T. (2018). Predatory innovation: The definite need for legal recognition. *SMU Sci. & Tech. L. Rev.*, 21–72.
- Schrepel, T. (2017a). *Predatory innovation: A response to Suzanne Van Arsdale & Cody Venzke*. Jolt Digest. <http://jolt.law.harvard.edu/digest/digest-note-predatory-innovation>
- Schrepel, T. (2017b). The enhanced no economic sense test: Experimenting with predatory innovation. *NYU Journal Intell, Prop. & Ent. L.*, 7(30).
- Schwab, K. (2016). *The fourth industrial revolution: What it means, how to respond*. World Economic Forum. <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>
- Sidak, J. (1983). Debunking predatory innovation. *Columbia Law Review*, 83(5), 1121–1149.
- Stucke, M. (2010). How do (and should) competition authorities treat a dominant firm's deception. *SMU Law Review*, 63(3). <https://scholar.smu.edu/cgi/viewcontent.cgi?article=1273&context=smulr>
- Sullivan, L. A. (1977). *Handbook of the Law of Antitrust*.
- Transamerica Computer Company Inc. v. IBM, 698 F.2d 1377, 1382 (9th Cir. 1983).
- Umar Javeed v. Google LLC, 39 (Competition Commission of India 2018).
- United Food & Commercial Workers Local 1776 v. Takeda Pharmaceutical Co., No. 20-1994 (2d Cir. 2021).
- United States v. Microsoft Corp., 253 F.3d 34, 92 (D.C. Cir. 2001).
- United States Department of Justice. (n.d.). *Memorandum of the United States of America in response to the court's inquiries concerning Vaporware: US v Microsoft Corporation*. <https://www.justice.gov/atr/memorandum-united-states-america-response-courts-inquiries-concerning-vaporware-us-v-microsoft>
- United States Department of Justice Archives. (n.d.). *Competition and monopoly: Single-firm conduct under Section 2 of the Sherman Act:*

Chapter 1. <https://www.justice.gov/archives/atr/competition-and-monopoly-single-firm-conduct-under-section-2-sherman-act-chapter-1#:~:text=Section%202%20of%20the%20Sherman%20Act%20makes%20it%20unlawful%20for,foreign%20nations%20.%20.%20.%20.%22>