

# Digital Markets in the EU

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## Chapter 5:

# Predatory Innovation: The Time Has Come Today!

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### 1. Introduction

It is widely recognized that the process of competition generally encourages companies to lower their prices, which benefits consumers.<sup>1</sup> And yet, in certain specific cases, antitrust rules intend to sanction predatory prices because they eliminate the competitive process itself.<sup>2</sup> A similar situation applies to innovation. Innovation is one of the main bases for competition between companies and it is beneficial to consumers who may enjoy new products that are also better suited to their needs.<sup>3</sup> But certain 'innovative' behaviour is considered predatory and is punished accordingly,<sup>4</sup> despite the fact that no legal concept specifically addresses this issue.

This absence of a legal category specifically dedicated to anti-competitive practices disguised as 'innovation' leads judges to create numerous type I and II errors. As a matter of fact, the jurisprudence has not yet generalized the etiquette of 'predatory innovation' and the apparent lack of interest in that notion by courts has led legal doctrine to devote few studies to the subject, which has accentuated judges' reluctance to use it.<sup>5</sup>

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1 European Commission, 'Why Is Competition Policy Important for Consumers?', available at: [http://ec.europa.eu/competition/consumers/why\\_en.html](http://ec.europa.eu/competition/consumers/why_en.html) (last accessed: 30 November 2017).

2 P. Areeda and D. Turner, 'Predatory Pricing and Related Practices under Section 2 of the Sherman Act', (1975) 88 *Harvard Law Review*, 697.

3 J.G. Sidak and D.J. Teece, 'Dynamic Competition in Antitrust Law', in D.J. Teece, *Competing Through Innovation: Technology Strategy and Antitrust Policies*, (Edward Elgar, 2013).

4 J.G. Sidak, 'Debunking Predatory Innovation', (1983) 83 *Columbia Law Review*, 1121.

5 T. Schrepel, 'Predatory Innovation: Start Lawsuits!', (2017) *Harvard Business Review*.

Yet, predatory innovation, which we define as the alteration of one or more technical elements of a product to limit or eliminate competition,<sup>6</sup> is one of today's main issues. In fact, predatory innovation encompasses all practices that, under the guise of real innovation, are anti-competitive strategies aimed at eliminating competition without benefiting consumers. Identifying predatory innovation makes it possible to distinguish between real innovation and anti-competitive strategies which take on the appearance of innovation. In a world economy where innovation has become central, it is imperative to know how to distinguish it from practices hurting the consumer. But despite the importance of the subject, antitrust law provides no satisfactory answer to these strategies. Accordingly, this chapter seeks to substantiate the value of the notion of 'predatory innovation', which covers a wide range of practices, many of which are not reached by actual antitrust rules. It portrays the practices that may and should be condemned as predatory innovation, it exposes the multiplicity of these practices, and justifies the need to create a legal regime dedicated to them.

## 2. The Practices of Predatory Innovation

Different classifications have been conceived over the years in order to address predatory innovation. An appropriate categorisation makes it possible to define which practices must be condemned and thus can be used by judges and authorities to concentrate their efforts on practices that actually require sanctions.<sup>7</sup> We introduce here a new classification distinguishing the alteration of a product's platform from the modification of a product's technical design, whether it concerns software or hardware.<sup>8</sup> Separating the two helps to identify all practices of predatory innovation and the differences in how they should be assessed by the courts.

6 T. Schrepele, 'Predatory Innovation: The Definite Need for Legal Recognition', *SMU Science and Technology Law Review* (forthcoming 2018).

7 In 1982, Hurwitz and Kovacic stressed that the notion of innovation was ill-defined. For reasons that we ignore, this statement has lost none of its veracity, more than 30 years later. See J.D. Hurwitz and W.E. Kovacic, 'Judicial Analysis of Predation: The Emerging Trends', (1982) 35 *Vanderbilt Law Review*, 63, 66.

8 Software allows the execution of a specific task while platforms allow the management of a set of elements – in which software is included, each having a specific task. In some rare cases, these two products can be confused. See the description of D.S. Evans, A. Hagiu and R. Schmalensee, *Invisible Engines: How Software Platforms Drive Innovation and Transform Industries*, (MIT Press, 2006), 12. It is therefore necessary to consider which functions are the subject of predatory practices.

### 2.1. Proposal for a New Dichotomy

#### 2.1.1. Modification of the Platform

The first type of predatory innovation concerns technological platforms<sup>9</sup> / interfaces<sup>10</sup>. We mean the term 'platform'<sup>11</sup> in the sense of a digital environment allowing the management and / or the use of application services.<sup>12</sup> Windows operating system, for instance, is a technological interface on which many developers create compatible software, such as those performing video or photographic processing.<sup>13</sup>

*From a theoretical perspective*, considering platform modifications implies taking into account the two-sided nature of high-tech markets, also referred to as dual markets,<sup>14</sup> which allow interconnecting of at least two distinct operators.<sup>15</sup> Google is a prime example. On the one hand, the company offers a 'free' service to its users, and on the other, it charges advertisers for better visibility.<sup>16</sup> The modification of a platform implies therefore considering the effects on both

9 We use platforms on a daily basis. See D.S. Evans, A. Hagiu and R. Schmalensee, note 8, 223. Studies on the subject of the modification of platforms are very rare.

10 See OECD Policy Roundtables, *Two-Sided Markets*, (2009), DAF/COMP(2009)20, 27.

11 On the distinction between platform and application see B. Abramson, 'Promoting Innovation in The Software Industry: A First Principles Approach to Intellectual Property Reform', (2002) 8 *Boston University Journal of Science and Technology Law*, 75, 113. The distinction suffers from alleviations, especially when the applications serve as a 'quasi-platform'. And yet, it remains absolutely crucial for any market analysis related to high-tech. See on the subject B. Abramson, cited above.

12 This is also the meaning adopted by Judge Posner, stressing that platforms have no value in themselves. Compatible software and applications provide value, see R. Posner, 'Antitrust in the New Economy', (2001) 68 *Antitrust Law Journal*, 925, 928. It should be noted that a doctrinal debate exists on how to define this concept. See A. Lamadrid, 'Regulating Platforms? A Competition Law Perspective', *Chillin' Competition*, 24 November 2015, available at: [www.project-disco.org/competition/112415-regulating-platforms-a-competition-law-perspective](http://www.project-disco.org/competition/112415-regulating-platforms-a-competition-law-perspective) (last accessed: 30 November 2017).

13 For instance, CyberLink PowerDirector, Corel VideoStudio, Pinnacle Studio, Photoshop, Gimp & Lightroom.

14 OECD Policy Roundtables, note 10, 23. The OECD notes that this notion was first used by Professors Rochet and Tirole.

15 J.-C. Rochet and J. Tirole, 'Two-Sided Markets: A Progress Report', (2006) 37 *Rand Journal of Economics*, 645.

16 D. Auer and N. Petit, 'Two-Sided Markets and the Challenge of Turning Economic Theory into Antitrust Policy', (2015) 60 *Antitrust Bull.*, 426.

markets,<sup>17</sup> which the doctrine rarely does adequately.<sup>18</sup> Such markets generally involve high fixed costs and relatively low variable costs.<sup>19</sup>

*From a practical perspective*, all strategies relating to the physical characteristics of a product are necessarily excluded from this category. Conversely, any changes made to operating systems, web or application servers, and finally web or software applications in the sense of multimedia libraries (e.g. online stores) and other digital workspaces are included.<sup>20</sup> One must also incorporate some changes made on internet browsers which, with the development of applications directly operable on them, can serve as a platform.<sup>21</sup>

In short, modifying a platform is straightforward. It aims not at altering a competitor's product directly, but rather at preventing access and / or reducing the overall compatibility of a product with the rest of a platform.<sup>22</sup> This strategy may have two purposes: (i) to prevent the product of a competing firm from being fully integrated within the dominant company's platform, or (ii) to prevent the competing platform from interacting efficiently with that of the dominant company. This strategy thus targets two types of competition, *between* platforms and *within* a platform.<sup>23</sup>

### 2.1.2. Modification of an Independent Product

From a theoretical perspective, the second type of predatory innovation takes place when a dominant company alters the functioning of a system software

17 Measuring these effects requires antitrust law to take into account the fact that goods or services are offered for free to users, see M.S. Gal and D.L. Rubinfeld, 'The Hidden Costs of Free Goods: Implications for Antitrust Enforcement', (2016) 80 Antitrust Law Journal, 521, 562.

18 F. Jenny, 'L'application du droit de la concurrence aux innovations de rupture aux États-Unis et dans l'Union européenne', in *Innovation de rupture, droit et concurrence*, (2016) Concurrences: Competition Law Journal.

19 J. Haucap and U. Heimeshoff, 'Google, Facebook, Amazon, eBay – Is the Internet Driving Competition or Market Monopolization?', (2014) 11 International Economics and Economic Policy, 49, 55.

20 H.F. Kaiser, 'Are "Closed Systems" an Antitrust Problem?', (2011) 7 Competition Policy International, 91, 96. For an up-to-date overview of all multimedia layers in 2006 see D.S. Evans, A. Hagiu and R. Schmalensee, note 8.

21 See M.L. Katz and W.P. Rogerson, 'The Applications Barrier to Entry and Its Implications for the Microsoft Remedies: Comment on Lansiti and Richards', (2009) 75 Antitrust Law Journal, 723, 728. Also, see D. O'Connor, 'Understanding Online Platform Competition: Common Misunderstandings', in *Competition and Regulation of Online Platforms*, (CPI, 2016): "Netflix, for example, uses Amazon Web Services (AWS) as its cloud infrastructure". See also the Google Chrome Web Store.

22 One author notes that predatory innovation can, in fact, aim at creating a period during which no compatible product is available, see R.S. Markovits, 'An Ideal Antitrust Law Regime', (1985) 64 Texas Law Review, 251, 293. On the inexorable tension between platforms and applications see P.J. Weiser, 'Regulating Interoperability: Lessons from AT&T, Microsoft, and Beyond', (2009) 76 Antitrust Law Journal, 271, 287.

23 H.F. Kaiser, note 20, 96.

program, an application software program,<sup>24</sup> an application,<sup>25</sup> a driver,<sup>26</sup> or a physical product.<sup>27</sup> Such a strategy aims at eliminating the compatibility of a product, at changing the way it operates, or at adding a (perhaps frivolous) functionality to it so as to affect competition between 'contributors', which include software developers, content and service providers,<sup>28</sup> as well as companies producing compatible hardware.<sup>29</sup>

*From a practical perspective*, by employing the second type of predatory innovation, a dominant company seeks to directly affect the product of its competitors.<sup>30</sup> The goal can be achieved by (i) implementing modifications on the technical aspects of a product (e.g. by altering coding or programming) or (ii) by modifying the external characteristic of a product (e.g. by revising an external design or physical functionalities). A modification of the internal *and* external technical characteristics<sup>31</sup> may occur at the same time, for instance, when a company miniaturises its connectors.

## 2.2. Different Implementations of Predatory Innovation

### 2.2.1. Practices That Fall Outside the Scope of Predatory Innovation

Studying practices that fall within the scope of predatory innovation requires particular caution.<sup>32</sup> While many practices seem to fall within the scope of predatory innovation, several of them should be excluded from it. First, the design of digital platforms cannot, in itself, be considered an anti-competitive strategy. The same applies to the integration of content within platforms,<sup>33</sup>

24 Software is "that part of a computer system that consists of encoded information or computer instructions, in contrast to the physical hardware from which the system is built." See Software, Wikipedia, available at: <https://en.wikipedia.org/wiki/Software> (last accessed: 23 February 2017).

25 Applications are used to perform a specific task.

26 A driver is software that allows the use of computer hardware.

27 It may be hardware, phones, camera, or any technological object.

28 H.F. Kaiser, note 20, 96. See also R.E. Bartkus, 'Innovation Competition Beyond Telex v. IBM', (1976) 28 Stanford Law Review, 285, 296.

29 It can be a charger or a device that physically interacts with another.

30 The OECD notes that such strategies are intimately linked to network effects. See OECD Policy Roundtables, note 10, 34.

31 They are called *hardware*, which is "the collection of physical components that constitute a computer system." See Computer Hardware, Wikipedia, available at: [https://en.wikipedia.org/wiki/Computer\\_hardware](https://en.wikipedia.org/wiki/Computer_hardware) (last accessed: 23 February 2017).

32 OECD Policy Roundtables, note 10, 34: "Evaluating the impact on social welfare of policy measures in markets where two-sided platforms operate can be very challenging."

33 On the need not to presume the existence of an anti-competitive strategy when a dominant firm operate on a second market, see P. Rey, P. Seabright and J. Tirole, 'The Activities of a Monopoly Firm in Adjacent Competitive Markets: Economic Consequences and Implications for Competition Policy', (2001), unpublished manuscript, 45.

which, although stigmatised by some<sup>34</sup> as being anti-competitive, should not be sanctioned, at least not as predatory innovation.<sup>35</sup>

### 2.2.1.1. *The Design of Digital Platforms*

The European Commission defines platforms as products using “the internet to allow interactions between at least two distinct but interdependent groups of users so as to create value for at least one of the groups; certain platforms [being] considered to be intermediary service providers.”<sup>36</sup> A company may decide to design an open, a free, or a proprietary platform. And most of the doctrine advocates the pro-competitive aspect of open platforms,<sup>37</sup> underlining that they allow a greater diversity of products.<sup>38</sup> This point of view would be hard to challenge, although different anti-competitive strategies may emerge, including fragmentation,<sup>39</sup> that can be used for anti-competitive purposes.<sup>40</sup>

34 J. Zittrain, *The Future of the Internet and How to Stop It*, (Yale University Press, 2009).

35 We set aside the issues related to exclusivity agreements, for instance.

36 Definition from the questionnaire on platforms launched by the European Commission, see European Commission Press Release IP/15/5704, ‘Have Your Say on Geo-Blocking and the Role of Platforms in the Online Economy’, (24 September 2015), available at: [http://europa.eu/rapid/press-release\\_IP-15-5704\\_en.htm](http://europa.eu/rapid/press-release_IP-15-5704_en.htm) (last accessed: 23 February 2017).

37 See M.A. Lemley and D. McGowan, ‘Could Java Change Everything? The Competitive Propriety of a Proprietary Standard,’ (1998) 43 *Antitrust*, 715. Nevertheless, open platforms seem less likely to be the subject of anti-competitive strategies, see J. Baskin, ‘Competitive Regulation of Mobile Software Systems: Promoting Innovation Through Reform of Antitrust and Patent Laws’, (2013) 64 *Hastings Law Journal*, 1727, 1738. See also W. Seltzer, ‘The Imperfect Is the Enemy of the Good: Anticircumvention Versus Open User Innovation,’ (2010) 25 *Berkeley Technology Law Journal*, 909, 932. One writer notes the two advantages of open source: social and utilitarian, see M.J. Schallop, ‘The IPR Paradox: Leveraging Intellectual Property Rights to Encourage Interoperability in the Network Computing Age,’ (2000) 28 *Aipla Quarterly Journal*, 195, 241.

38 Jonathan Rosenberg, one of Google’s executives, also said: “At Google we believe that open systems win. They lead to more innovation, value, freedom of choice for consumers, and a vibrant, profitable, and competitive ecosystem for business.” See J. Rosenberg, ‘The Meaning of Open’, *Official Google Blog*, (21 December 2009), available at: <http://googleblog.blogspot.com/2009/12/meaning-of-open.html> (last accessed: 23 February 2017).

39 The term ‘fragmentation’ refers to the fact that open source software is modified by an operator so that several versions of the software, potentially incompatible with each other, are in circulation. On the existence of anti-competitive strategies on open source systems see M.S. Gal, ‘Viral Open Source: Competition vs. Synergy’, (2012) 8 *Journal of Competition Law and Economics*, 469, 485. More generally, a company may want to help develop an open source system on a market A in order to deprive its competitors of monopoly profits so as to better compete with them in a market B.

40 Predatory innovation strategies may take place on open platform, see Mark A. Lemley, ‘Intellectual Property Rights and Standard-Setting Organizations’, (2002) 90 *California Law Review*, 1889, 1963. A dominant company may fragment a competing open source software in order to make it less efficient, for the benefit of its proprietary software.

The doctrine is more divided on evaluating whether closed systems are pro- or anti-competitive by nature.<sup>41</sup> In a distinguished article, Hanno F. Kaiser discussed many competitive advantages created by closed platforms.<sup>42</sup> This article, which goes against part of the doctrine, features arguments which deserve to be considered.

First, a closed platform may allow the *pro-competitive limitation of the number of users*.<sup>43</sup> A company may indeed have an interest in limiting the presence of users on its platform.<sup>44</sup> For instance, social networks may want to limit the number of enrolees based on the population targeted, as a restaurant may want to control the number of its customers. The same logic applies to platforms which may want to limit the number of applications and software programs to reduce search costs associated with identifying the best ones.<sup>45</sup> In addition, paying for a poor-quality software program may discourage the purchase of another software program on the same platform.<sup>46</sup>

Second, closed platforms may allow *ensuring their safety*.<sup>47</sup> Limiting competition within a platform – so-called ‘intra-platform’ competition – may indeed be justified for security reasons.<sup>48</sup> Lastly, limiting cross-platform competition can be justified by the need to create software programs, or applications, specifically designed to *ensure their efficiency* within a platform. The simultaneous development of applications for several platforms,<sup>49</sup> facilitated by the existence

41 H.F. Kaiser, note 20, 96. See also J. Zittrain, note 34. For more see T. Wu, ‘How Apple’s Closed Ways Could Land It into Antitrust Trouble’, *Techcrunch*, 20 November 2010, available at: <http://techcrunch.com/2010/11/20/apple-antitrust/> (last accessed: 30 November 2017).

42 H.F. Kaiser, note 20, 96.

43 F. Thépot, ‘Market Power in Online Search and Social Networking: A Matter of Two-Sided Markets’, (2013) 36 *World Competition*, 195, 200.

44 *Ibid.*

45 This is what two authors point out, see N. Smyrniotis and F. Rebillard, ‘Entre coopération et concurrence: Les relations entre infomédiaires et éditeurs de contenus d’actualité’, (2011) 3 *Concurrences: Competition Law Journal*, 14.

46 One author is also evoking the ‘lemon problem’. See D.S. Evans, ‘The Antitrust Analysis of Rules and Standards for Software Platforms’, (2014) *Coase-Sandor Working Paper Series in Law and Economics* 14.

47 H.F. Kaiser, note 20, 96.

48 The safety objective in itself does not appear to be part of antitrust law objectives. This is, however, a matter for day-to-day management.

49 French Competition Authority and Competition and Markets Authority, *The Economics of Open and Closed Systems*, (16 December 2014), available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/387718/The\\_economics\\_of\\_open\\_and\\_closed\\_systems.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/387718/The_economics_of_open_and_closed_systems.pdf) (last accessed: 30 November 2017).

of technical intermediaries,<sup>50</sup> is not necessarily beneficial to consumers in terms of how the final product will be designed.<sup>51</sup>

In short, closed platforms should not be condemned *per se*,<sup>52</sup> nor can it be assumed that open platforms only produce pro-competitive effects. It is necessary to study all practices taking place on these platforms and not to condemn them wholesale – or even to postulate their anti-competitive effect. An in-depth market analysis is in fact needed in this respect.

### 2.2.1.2. Content Integration within Platforms

The integration of content – being understood as any information or software – is sometimes described as being predatory.<sup>53</sup> This type of practice, illustrated by the European Microsoft case,<sup>54</sup> is said to have the effect of *foreclosing* competitors because the dominant company enjoys an essential facility with its platform.<sup>55</sup>

Several authors<sup>56</sup> have stressed, however, that it may be in a company's and consumers' best interest to integrate a product into another because it allows (i) saving labour for the user, (ii) generating economies of scale, and (iii) anticipating the occurrence of technical problems.<sup>57</sup> Moreover, unlike the traditional foreclosure effect, the integration of one software program within a platform does not have the systemic effect of eliminating competitors.<sup>58</sup> And

50 Technical intermediation is provided by middleware, which serves as a communication intermediary between several applications.

51 M.L. Katz and C. Shapiro, 'Systems Competition and Network Effects', (1994) 8 *Journal of Economic Papers*, 93, 95; see also J. Farrell and P.J. Weiser, 'Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age', (2013) 17 *Harvard Journal of Law and Technology*, 85, 99.

52 Several authors underline that the closed nature of a network *cannot* be challenged, in particular, because of the presence of intellectual property rights which confer the right to maintain it. See H. Hovenkamp, M.D. Janis, M.A. Lemley, C.R. Leslie and M.A. Carrier, *IP and Antitrust: An Analysis of Antitrust Principles Applied to Intellectual Property Law*, (3<sup>rd</sup> ed., Wolters Kluwer Law & Business, 2016).

53 H.F. Kaiser, note 20, 96.

54 *Microsoft Decision*, Case COMP/C-3/37.792, (2004), available at: [http://ec.europa.eu/competition/antitrust/cases/dec\\_docs/37792/37792\\_4178\\_1.pdf](http://ec.europa.eu/competition/antitrust/cases/dec_docs/37792/37792_4178_1.pdf) (last accessed: 30 November 2017).

55 R. Pardolesi and A. Renda, 'The European Commission's Case Against Microsoft: Kill Bill?', (2004) 27 *World Competition*, 513.

56 K.M. Murphy, 'Economic Perspectives on Software Design: PC Operating Systems and Platforms', in D.S. Evans (ed), *Microsoft, Antitrust and the New Economy: Selected Essays*, (Kluwer, 2002).

57 See P. Rey, P. Seabright and J. Tirole, note 33.

58 It can be used for a subsequent increase in prices, as Jean Tirole stressed in one of his contributions to economic literature. Such an increase cannot, however, be sanctioned under predatory innovation as it intervenes in a second phase and on issues that are outside the definition of predatory innovation.

even if foreclosure does arise, it results ineluctably from a natural competition process by which the company holding the platform has won the approval of its users. In fact, if an embedded software program has a poorer performance than a competing product, it is not established that consumers would keep the first software program available to them – just look at how many users actually use QuickTime on their Mac computers.<sup>59</sup> Transfer costs almost never prove to be strong enough to lock a user into an inferior technology.<sup>60</sup> Platform owners must then be free to alter their platform, according to ownership principles. In short, software integration within a platform is not, and should not be recognized as, anti-competitive *per se*.<sup>61</sup>

### 2.2.2. Practices Falling within the Scope of Predatory Innovation

#### 2.2.2.1. Changing Platform Type

Changing the type of platforms<sup>62</sup> may create a window for implementing an anti-competitive strategy.<sup>63</sup> Accordingly, studying the strategies of platforms alteration – which effects can be pro- and / or anti-competitive – is necessary. In more detail, the alteration of a closed platform into an open platform seems *a priori* pro-competitive,<sup>64</sup> but the transformation of an open platform into a closed one is more contentious, the effects of such strategies being composite.<sup>65</sup>

*From a Closed Platform to an Open Platform.* While the European and North American doctrines seem, at the moment, to attach little significance to the anti-competitive strategies which may be nested<sup>66</sup> in such transformation of the platform type, real problems may arise in terms of antitrust law.<sup>67</sup> Professors

59 One May Wonder, After 20 Years, Is QuickTime Still Relevant for the Web?, <http://royal.pingdom.com/2012/01/03/after-20-years-is-quicktime-still-relevant-for-the-web/>, (3 January 2012) (last accessed: 30 November 2017).

60 See, in general, W.H. Page and J.E. Lopatka, *The Microsoft Case: Antitrust, High Technology, And Consumer Welfare*, (The University of Chicago Press, 2007).

61 This also implies that any sanctioning *by object* should be rejected.

62 For an examination of all possible way to open or close a platform see T.R. Eisenmann, G. Parker and M. Van Alstyne, 'Opening Platforms: How, When and Why?', in A. Gawer (ed), *Platforms, Markets and Innovation*, (Edward Elgar, 2009).

63 H. Hovenkamp, M.D. Janis, M.A. Lemley, C.R. Leslie and M.A. Carrier, note 52, at 'Altering Existing Interfaces'.

64 J. Baskin, note 37, 1738. See also M.S. Gal, note 39, 478.

65 *Ibid.*

66 Some authors even argue that an open platform cannot feature *any* competitive risk, see G. Massarotto, 'Open Source Paradigm: Beyond the Solution to the Software Patentability Debate,' (2016) 15 *John Marshall Review of Intellectual Property Law*, 647, 675.

67 M. Asay, 'Open Source as An Antitrust Strategy', CNet.com, (2 November 2009), available at: [www.cnet.com/news/open-source-as-an-antitrust-strategy](http://www.cnet.com/news/open-source-as-an-antitrust-strategy) (last accessed: 30 November 2017).

Katz and Shapiro have stressed that opening a platform could have the effect of harming competing platforms.<sup>68</sup> The existence of network effects may imply a strong competition between closed systems.<sup>69</sup> Opening a platform may then reduce the incentive to innovate, precisely because creating network effects will be harder. Moving a closed to an open platform seems, as a result, to lessen consumers' welfare in certain cases, but it is necessary to have a closer look.

In fact, the opening of a platform may be total or partial.<sup>70</sup> When it is *total*, a company may want to set off competitive damage at several levels.<sup>71</sup> Suppose that a dominant company, named A, decides to entirely open its platform. Also assume that this platform was partially closed until then, meaning that company A controlled what software was available on it. Suppose further that the platform is popular and that one of the direct effects of opening is a drastic increase in the number of applications and software programs available on the platform.

Several consequences should be discerned. First, network effects will be ineluctably increased, to the detriment of competing platforms.<sup>72</sup> Second, the opening of the platform may have the effect of reducing the market shares of a competing company, called B, which is selling compatible software. Company B may suddenly face increased competition on its core market, forcing it to reduce its selling price. If B is also selling a competing operating system, the opening of the platform may then create a foreclosure effect<sup>73</sup> beneficial to A on its core market. Meanwhile, in such a situation, consumer welfare will nevertheless be increased. The programming of more software, to the detriment of B, is a salutary competitive process that should not be condemned. Some of the effects created by this practice are thus pro-competitive, which is typically true when a company entirely opens its platforms because the company is changing its business model for the benefit of certain consumers. As a result, the total opening of a platform should not be considered as a violation of antitrust law.

The case of a platform's *partial* opening may be more problematic. Imagine that a dominant company chooses to move from a closed platform, in which it controls the content, to a semi-open platform, in which it reserves the right to accept third-party content, or to reject it. One understands here that the

68 See M.L. Katz and C. Shapiro, 'Technology Adoption in the Presence of Network Externalities', (1986) 94 *Journal of Political Economy*, 822. They note that the choice to create a closed platform is the fruit of hard thinking.

69 *Ibid.*

70 T.R. Eisenmann, G. Parker and M. Van Alstyne, note 62.

71 See M.S. Gal, note 39, 485.

72 M. Czajkowski and M. Sobolewski, 'Switching Costs and Network Effects – How Much Do They Really Matter in Mobile Telecommunications?', (2013) WNE Working Papers No. 29, 114.

73 A variant of this strategy has been described by M.S. Gal, note 39, 485.

dominant company may want to accept the software / applications of small companies, in order to increase the overall utility of its platform, and to refuse the software / applications of bigger companies that may compete with it in other markets. Consequently, if the dominant company designs its platform to create technical incompatibility with the products of strong competitors for unjustified reasons, the partial opening of the platform *may* have an anti-competitive effect which should be condemned under the label of predatory innovation.

*From an Open Platform to a Closed Platform.* A company owning an open platform may decide to shift it into a closed system, whether it is for pro-competitive reasons, to raise the security of the platform, for instance, or simply to lock the market.<sup>74</sup> The probability that anti-competitive effects will be created is, in fact, more serious than when the opposite change is made. Judges must then assess whether such a change is justified by an economic reason,<sup>75</sup> other than the anti-competitive effects to eliminate competition.

The recent joint Report of the French Competition Authority and the Competition and Markets Authority, sets out six reasons why a company might want to close its platform.<sup>76</sup> But in fact, the transition from an open platform to a closed platform may also cause heavy losses to the company implementing it, for instance, if third-parties' content becomes available, which reduces the platform value and causes a decrease in market shares. Accordingly, if a company is taking the risk of closing its platform, knowing the anti-competitive effects may not compensate for the losses incurred, it is then essential for judges to analyse if a valid economic reason justifies it as well, which is likely to explain the choice made by the company. And such reasons are in fact numerous. They can be found, for instance, in the need to increase security, or to allow a more fluid use of the platform, or even to control the content in order to avoid negative externalities.

Moving from an open to a closed platform can affect all software and applications operable on it, but it can also affect other platforms. There are, in fact, different ways for a company to close its platform, which create different effects. In the first hypothesis, a dominant firm may affect compatible software

74 French Competition Authority and Competition and Markets Authority, note 49. See also J. Baskin, note 37, 1738.

75 T. Schrepel, 'The "Enhanced No Economic Sense Test": Experimenting with Predatory Innovation', *NYU Journal of Intellectual Property and Entertainment Law* (forthcoming 2018).

76 French Competition Authority and Competition and Markets Authority, note 49. The six anti-competitive reasons are the following: to protect its core business, to lock one face of the market, to reduce competition on the market of compatible products, to make additional profits, to avoid monopoly profits loss and to price discriminate.

and applications by intentionally seeking, by technical means, to forbid its competitors from accessing it. But, the platform closure may also result from the regular introduction of a product's new versions creating indirect incompatibility with competing products. In the second hypothesis, closing the platform may affect other platforms whenever users of the third-party's platform can no longer interact with those of the dominant company. The removal of a competing platform's portability may also cause anti-competitive damage. The closing of the platform can finally result from incompatibility with other platform components.

Several examples corroborate how numerous the ways to close a platform are. Among the major cases dealing with predatory innovation is the *IBM* case, in which a company had decided to change the type of interface between its computers and hard disks.<sup>77</sup> *Berkey Photo v Eastman Kodak* and *C.R. Bard v M3 Systems* also exposes a similar strategy.<sup>78</sup> It should be noted, however, to the best of my knowledge, that no European case falls under this type of predatory innovation. And yet, some recent examples illustrate that such strategies are increasingly common, which proves that antitrust law suffers from not having the necessary tools.

For instance, in 2016, Instagram blocked an application called Being which allowed its content to be read without having to use Instagram.<sup>79</sup> Instagram intended to prevent its users from accessing its service through a third-party application that would allow accessing its content for obvious reasons linked to advertising revenues.<sup>80</sup> A case-by-case analysis would have been necessary in order to assess whether or not a technical justification was provided, and thus, whether the company should have been sanctioned or not. Irrespective of whether that practice is anti-competitive or not, it shows that many practices meet the criteria for predatory innovation.

#### 2.2.2.2. Product Modification to (Partially) Remove Compatibilities

Product interoperability is often described as the ability to (i) exchange information and (ii) to use this information.<sup>81</sup> The modification of software

<sup>77</sup> *Computer Prods. v IBM Corp.*, 613 F.2d 727 (9th Cir. 1979).

<sup>78</sup> These judgments did not directly concern high-tech markets.

<sup>79</sup> S. Perez, 'Instagram Kills Newly Launched 'Being' App, Which Saw 50K Downloads Its First Week', Techcrunch, 9 March 2016, available at: <https://techcrunch.com/2016/03/09/instagram-kills-newly-launched-being-app-which-saw-50k-downloads-its-first-week> (last accessed: 30 November 2017).

<sup>80</sup> Ibid.

<sup>81</sup> See Interoperability, Wikipedia, available at: <https://en.wikipedia.org/wiki/Interoperability> (last accessed: 23 September 2017).

or application can fulfil similar objectives to those exposed to the change of platform type. Amending product interoperability may affect a competitor in the same market – this would be the case if PCs were suddenly incompatible with Macs – or a competitor in a downstream market – for instance when Macs are suddenly incompatible with some audio speakers.

There is, however, a specific characteristic of this type of predatory innovation: the potential changes to the product are less a matter of an overall philosophy than it is the case for the choice of an open or proprietary platform. Many companies justify their choice to offer an open platform because this encourages sharing and a 'free' world in which the concept of computer ownership is forsaken for the benefit of the community, which is free to develop various software programs or applications. Such motivation is much less common regarding software development insofar as software is not intended to allow other applications to operate on it.

On the contrary, such a modification aims at changing a product's functioning so that its interaction with other products is improved, or deteriorated in the case of a strictly anti-competitive practice. The possible economic justification for this type of predatory innovation is related to short-term efficiency.

This type of predatory innovation also involves cheaper and faster changes than for mutations in the platform type. Removing wireless technology from an electronic device may result, for instance, from the elimination of a single line of computer code, unlike the change of platform type that requires entirely new global settings. In other words, this type of practice implies a lower cost than altering a platform, which tends to escalate its implementations.

*The Various Implementations of Such Strategy.* Such a predatory innovation may aim at removing a product function. It could be, for instance, when files generated by one product cannot be opened on another product. Predatory innovation can also result from changing the functionality of a product. For instance, a phone manufacturer may decide to change the wireless communication mode of its devices, from Bluetooth to Wi-Fi. The wireless communication functionality is maintained, but the latter is modified so that the compatibility with a competitor product is eliminated. As a result, wireless speakers using Bluetooth technology will be incompatible for the benefit of a dominant company, which will be able to increase the sales of its own Wi-Fi speakers. Such a strategy of predatory innovation can finally result from adding a frivolous function to a product. A company may decide to allow its users to execute an abandoned programming language. It can, as a result, require all compatible products to

allow the execution of that language, because some compatible software may then require its use. In such a situation, compatibility with competing products could be eliminated on the grounds that they do not allow the execution of an additional programming language which is obsolete.

These different strategies of removing, changing or adding functionalities have recent manifestations. The *Intel*<sup>82</sup> and *iPod iTunes Litigation*<sup>83</sup> cases are two examples illustrating the antitrust issue of removing direct interoperability with competitors' products.<sup>84</sup> And many other examples also testify to the regular occurrence of such practices. For instance, Apple has recently limited tracking in its Safari browser, making it harder for ad buyers to target niche audiences.<sup>85</sup> To assess whether these changes are anti-competitive or not, it should be examined whether Apple can demonstrate an actual economic justification.

### 3. An Autonomous Legal Regime

Now that we have shown the diversity of practices related to predatory innovation, the question of which rules are applied necessarily emerges and we argue that assessing predatory innovation requires a dedicated legal regime. This stems, in particular, from the inappropriateness of the rules of tying, as well as the traditional mechanisms in terms of predation.

#### 3.1. *Predatory Innovation Is Not (Technological) Tying*

Legal categories are tools that reflect the objectives assigned to antitrust law.<sup>86</sup> This is the reason why the legal qualification given to predatory innovation is essential. In numerous legal decisions, from the United States and Europe, predatory innovation practices are addressed by using the legal rules of

82 Federal Trade Commission, Statement in the Matter of Intel Corporation, FTC Docket No. 9341, (16 December 2009).

83 *The Apple iPod iTunes Antitrust Litigation*, case number 5:2005cv00037.

84 Some less well-known cases concern the same issues. See *In re Keurig Green Mountain Single-Serve Coffee Antitrust Litigation*, 24 F.Supp.3d 1361 (J.P.M.L. 2014), in which the dispute was defined as such. See also *Arminak & Associates, Inc. v Saint-Gobain Calmar, Inc.*, 789 F.Supp.2d 1201 (C.D. Cal. 2011).

85 A. Hern, 'Apple Blocking Ads That Follow Users Around the Web Is 'Sabotage', Says Industry', *The Guardian*, (18 September 2017), available at: <https://www.theguardian.com/technology/2017/sep/18/apple-stopping-ads-follow-you-around-internet-sabotage-advertising-industry-ios-11-and-macos-high-sierra-safari-internet> (last accessed: 30 November 2017).

86 N. Economides and I. Lianos, 'The Elusive Antitrust Standard on Bundling in Europe and in the United States in the Aftermath of the Microsoft Cases', (2009) 76 *Antitrust Law Journal*, 483, 486. D.A. Crane, in his article titled 'Antitrust and Wealth Inequality', (2016) 101 *Cornell Law Review*, 1171, 1228, underlines that "antitrust law is generally ill positioned to describe how the pie is allocated or to prescribe how it should be allocated", to which I subscribe.

tying.<sup>87</sup> More precisely, the concept of 'technological tying', which involves the simultaneous purchase of two products<sup>88</sup> forced by technical design, or, in other words, the modification of a product so that another one will be tied to it, is often used to analyse predatory innovation. And yet, the legal regime surrounding it remains very unclear.<sup>89</sup> The concept of general tying has been the subject of extensive case law,<sup>90</sup> but the same cannot be said regarding the concept of 'technological tying'.

In any case, the fact of the matter is that (technological) tying and predatory innovation must be separated from one another. Unlike tying, predatory innovation practices do not require the existence of two distinct products. In fact, the necessity to prove the existence of two distinct products may lead judges not to condemn some predatory innovation practices that should be condemned.<sup>91</sup> Some anti-competitive practices may indeed be subject to antitrust law under predatory innovation while they are not under tying: these are all strategies in which a dominant firm modifies an existing product without imposing (directly) the purchase of a separate product. For instance, moving from an open platform into a closed platform,<sup>92</sup> or removing functionality from a product, raises issues that tying actually ignores. The dominant firm's goal may be to eliminate a competitor on market B, for compatible products, without offering any alternative, so as to reduce the competitor's profits and thus the competitive pressure it may exercise on market A. Moreover, the concept of technological tying is unfit to cover all of the predatory innovation practices in which, for technical reasons, two distinct products have become one. This is a *de facto* incoherence of the legal regime for technological ties.

Moreover, a practice can be condemned under the legal regime of technological tying *only if* it creates an anti-competitive effect on the tying product market (market A), or the market of the tied product (market B). Yet, deleting the compatibility between two products may have no meaningful anti-competitive

87 J. Tirole, 'The Analysis of Tying Cases: A Primer', (2005) 1 *Competition Policy International*, 1.

88 This may be the case, for instance, when a company decides to change the connections of its devices in order to force the consumer to buy its product, such as the charger, the video cable. See Y. Bakos and E. Brynjolfsson, 'Bundling Information Goods: Pricing, Profits, and Efficiency', (1999) 45 *Management Science*, 1613, 1638.

89 T. Schrepel, 'Antitrust Conversations with Some of the World's Most Distinguished Experts', (2017) *Revue Concurrentialiste*.

90 Tying is the trendiest of Article 102 TFEU / Section 2 Sherman Act anti-competitive categories. See our study realized on Google Books Ngram, available at: <https://perma.cc/WV7V-6YBU> (last accessed: 30 November 2017).

91 S. Frattaroli, 'Dodging the Bullet Again: Microsoft III's Reformulation of the Foremost Technological Tying Doctrine', (2010) 90 *Boston University Law Review*, 1909, 1920.

92 A closed platform implies that its creator maintains a more or less absolute control over the content which is available. He can control which software is distributed and compatible with its platform.

effect in these two markets. This is the case when, despite the compatibility removal, some other competing products are available to the consumer whose welfare is maintained at the same level. The anti-competitive effect may then occur in another market – market C, an issue which tying cannot address. Only the creation of a legal regime for predatory innovation will allow grasping this strategy.

And it is not clear, based on case law, if a tie implemented with the aim of obtaining a competitive advantage, and not monopoly power, on the tied market can be sanctioned under Article 102 TFEU or Section 2 of the Sherman Act.<sup>93</sup> In general, obtaining dominance is not problematic. But some practices are condemned by the courts if they constitute an abuse of a dominant position, and this, even though they do not lead to a monopoly power.<sup>94</sup> In a similar fashion, practices of predatory innovation may aim at eliminating only one competitor, without eliminating all of them. For instance, the interoperability of a product can be removed with one competing product only, a practice which would be covered by predatory innovation, unlike tying. But in order to be sanctioned, it is generally required that the company which engages in tying on a second market must threaten to monopolise it.<sup>95</sup> But what if that company threatens the survival of one competitor only?

Also, it should be noted that the North American concept of tying simply covers the practices which create a leverage effect,<sup>96</sup> and the concept of ties then only authorises to deal with the strategies implying two distinct markets. Predatory innovation practices *may* create such a leverage effect<sup>97</sup>, but it is not typically the case.<sup>98</sup> The mechanism of tying is thus too limited by nature, which is why judges have had to contort it to be able to apply it to practices falling under another mechanism.

93 Getting the Deal Through, *Abuse of Dominance*, United States, 2016, available at: <https://gettingthedealthrough.com/area/10/jurisdiction/23/dominance-united-states/> (last accessed 30 November 2017.) We can assume that this legal regime follows from the influence of the Chicago school which advocated the impossibility of using monopoly power in a market in order to obtain another monopoly on a second market without sacrificing its profits, see on the subject R.H. Bork and J.G. Sidak, 'What Does the Chicago School Teach About Internet Search and the Antitrust Treatment of Google?', (2012) 8 *Journal of Competition Law and Economics*, 663.

94 The only fact of 'strengthening (a) dominant position' is to be sanctioned if it is not made on the merits. Reaffirming this principle, see case C-413/14 *P Intel v Commission* [2017] ECLI:EU:C:2017:632, para 136.

95 Getting the Deal Through, note 93.

96 The term 'leverage' is used to describe the strategy by which a firm uses its dominant position on a market with the goal to extend it in on other markets. See J.M. Newman, 'Anticompetitive Product Design in the New Economy', (2012) 39 *Florida State University Law Review*, 681, 683.

97 Ibid.

98 A strategy of predatory innovation may aim at eliminating competitors in one market by removing compatibility between software.

The same goes for all of the existing concepts of antitrust law. For instance, the jurisprudence on refusal to supply, which could possibly seem adaptable, makes it clear that "the refusal by an undertaking occupying a dominant position on the market of a given product to meet the orders of an existing customer constitutes abuse of that dominant position."<sup>99</sup> But predatory innovation is not about orders or contractual agreements, it is about technical issues, and the way technologies interfere with each other. As for the Microsoft case, it concerned a "refusal to supply and authorise the use of interoperability information."<sup>100</sup> Once again, technical issues are not at the very centre of the case, the reason being that the court missed on the opportunity to identify the proper legal regime to address the case.

### 3.2. *Predatory Innovation Is a Very Singular Kind of Predation*

Predatory innovation could lead to three different foreclosure effects: (i) foreclosure on the main market, (ii) foreclosure on related markets, and (iii) vertical exclusion. Only the first two are generally analysed, but vertical exclusion is a real issue regarding predatory innovation. Integrating software programs within a platform, for instance, is perceived by some authors as a predatory strategy that must be condemned.<sup>101</sup> The analysis of predatory innovation is also complex as it relies only in part on traditional patterns of predation practices.<sup>102</sup> The latter traditionally implies that a dominant firm incurs initial losses in the hope of recovering them subsequently. While predatory practices may imply a similar strategy, these losses are far from being systematic. In fact, a dominant firm may reduce the quality of its products without having to bear short-term losses. This happens, for instance, when a company creates incompatibility between its product and a new technology that is yet little used, although very promising.<sup>103</sup> The traditional mechanism of predation is reversed as short-term

99 Joined cases C 468/06 to C-478/06 *Sot. Lelos kai Sia EE v GlaxoSmithKline AEVE Farmakeftikon Proionton*, [2008] ECLI:EU:C:2008:504, para 34.

100 Case T-201/04 *Microsoft Corp v Commission* [2007] ECLI:EU:T:2007:289.

101 Ibid.

102 Predatory innovation is therefore more difficult to detect than predation based on pricing, see T. Calvani and N.W. Averitt, 'Non-Price Predation: An Introduction', (1986) 16 *Journal for Antitrust Law and Economics* (2), 683.

103 In this example, the consumer may not suffer from a direct harm if a product becomes incompatible with a new technology that is not very popular yet. Nevertheless, the utility of the product is not increased. It may be necessary to wait until the new technology allowing data transfer is popularized so that sales of the incompatible product may actually start to decline.

losses will rarely occur,<sup>104</sup> contrary to long-term ones which could appear if there is a decrease in sales.<sup>105</sup>

Predatory innovation also has patterns different from most predatory practices. Several authors have stressed that all predatory strategies aim at increasing rivals' costs, or, in other words, allow the dominant firm to sell its goods at a lower price than one of its competitors.<sup>106</sup> This is not necessarily the case for predatory innovation that can aim at purely and simply foreclose competitors. Predatory innovation thus deserves a legal regime tailored to these different specificities.

#### 4. Conclusion

As I have illustrated in this Chapter, predatory innovation practices are numerous,<sup>107</sup> protean, and ever-changing. One of high-tech markets' specificities is the ability for companies to continually improve their products that already are on the market, creating, in fact, a multitude of opportunities to reduce competition.<sup>108</sup> The system of digital updates (sometimes automatic), for instance, allows dominant firms to impose a predatory strategy on their users, depriving them of any possibility of rejecting the product's new version in the short term.<sup>109</sup> A company can thus create as many predatory strategies as it updates one of its products.

The damage caused by predatory innovation on the economy must lead antitrust law specialists to develop a legal regime that addresses predatory innovation. The need to recognize a specific regime for these practices seems to be indisputable in so far as current antitrust rules do not make it possible to analyse these practices without creating judicial errors. The implementation of a specific regime will thus increase firms' legal certainty while giving judges the ability to impose clear-cut decisions. As a consequence, such a regime will not

<sup>104</sup> On the challenge imposed by predatory strategies that incur low costs in the short term. See J. Tirole, note 87, 21.

<sup>105</sup> Ibid.

<sup>106</sup> T. Calvani and N.W. Averitt, note 102, 683. Another author also makes the mistake of assimilating non-tariff predatory practices with those aimed at increasing its competitor costs. See P.F. de Ravel d'Esclapon, 'Non-Price Predation and the Improper Use of US Unfair Trade Laws', (1987) 56 Antitrust Law Journal, 543.

<sup>107</sup> S. Van Arsdale and C. Venzk, 'Predatory Innovation in Software Markets', (2015) 29 Harvard Journal of Law and Technology, 243, 247. For a reaction to this article see T. Schrepel, 'Predatory Innovation: A Response to Suzanne Van Arsdale & Cody Venzke', (2017) Harvard Journal of Law and Technology, Digest Note.

<sup>108</sup> R.C. Picker, 'Rewinding Sony: The Evolving Product, Phoning Home and the Duty of Ongoing Design', (2005) 55 Case Western Reserve Law Review, 749, 751.

<sup>109</sup> This is also emphasised by J.M. Newman, note 96, 708.

lead to *more* sanctions, but to *better* ones. It will strengthen 'free markets', by allowing companies to compete on non-frivolous innovations, which is the only driving force not impeding innovation - as opposed to interventionism.

In fact, only the creation of an independent legal regime for predatory innovation will ensure (i) not to suffer the consequences from legal uncertainty surrounding the notion of technological ties; (ii) not to experience the differentiated appreciation of technological ties depending on which continent is concerned; (iii) to cover many practices that cannot be reached under the legal regime of technological ties; (iv) to grant judges the opportunity to complete a comprehensive analysis of the practices that are today wrongfully analysed under technological tying; and (v) to create a legal regime that will avoid legal errors, thereby benefiting innovation.

Designing the legal regime to be applied to predatory innovation will be a subject for tomorrow,<sup>110</sup> but it implies for courts and competition authorities to first recognize the notion of predatory innovation. The time has come!

<sup>110</sup> T. Schrepel, note 75.