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Innovation in EU competition law: The resource-based view and disruption

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Innovation in EU competition law: The resource-based view and disruption

Francisco Costa-Cabral*

Abstract

Innovation has so far been handled by competition law according to market structure, that is to say, assuming that market power allows undertakings to evade competitive pressure including those which spur innovation on. This structural approach has fitted innovation in a tried-and-tested analytical and normative framework. Its limits have nonetheless become apparent as competition law is increasingly hemmed by a static outlook and called to apply to harm to innovation unrelated to market power. As such, this paper proposes complementing a structural approach with two advances from strategic management studies.

The first advance is the ‘resource-based view’, which connects competitive advantage with undertaking heterogeneity. Since undertakings do not have the same innovation capabilities, competitive markets may not compensate the exclusion of innovators. Harm to innovation is thus centred on assets with innovation capabilities, as shown by cases of abusive refusal to licence and parallel research. Competing claims over these assets are to be resolved based on the differences in capabilities, and whether intervention affects competitive advantage and not just intellectual property rights.

The second advance is the theory of disruptive innovation, which explains major changes in consumer preferences and production methods. Strategic management has established that an inefficient start is an integral part of disruption, allowing disruptors to be ignored until their productive efficiency increases enough to shift the market. This contrasts with competition law’s assumption that the exclusion of less efficient competitors is beneficial for market structure. Competition law must therefore adapt to strategies against disruption which do not immediately degrade competitive parameters.

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1. Introduction

‘Prediction is very difficult, especially about the future’

Niels Bohr¹

It is an article of faith of European Union (EU) policy that almost any problem, from economic growth to climate change, can be solved by innovation.² Multiple legal regimes are being conceived or adapted to facilitate these benefits, from intellectual property (IP) law³ to the Digital Single Market.⁴ Contrary to this legislative activity, competition law still relies on pre-digital prohibitions of collusion and abuse of dominance, as well as a scarcely more recent system of merger control.⁵ Competition law is nonetheless rooted in economic theory, where it is uncontroversial that innovation is the main driver of economic growth. Underinvestment in innovation, insofar as innovators do not fully internalize the benefits they create for society, has led to massive EU funding in innovation. However, the competitive process is still recognised as the main driver for innovation.⁶ This suggests a central role for competition law.

It might therefore come as a surprise, to those unfamiliar with the discussion, that competition scholars are chiefly divided between those criticising competition law’s shortcomings in addressing innovation⁷ and those arguing for restraint in doing.⁸ The

¹ www.economist.com/blogs/theinbox/2007/07/the_perils_of_prediction_june

² One only has to look at the breadth of Horizon 2020, the EU Framework Programme for Research and Innovation: ec.europa.eu/programmes/horizon2020/en/what-work-programme

³ A Single Market for Intellectual Property Rights: Boosting creativity and innovation to provide economic growth, high quality jobs and first class products and services in Europe, COM(2011), 287.

⁴ Mid-Term Review on the implementation of the Digital Single Market Strategy: A Connected Digital Single Market for All, COM(2017), 228.

⁵ State aid control is also part of competition law, but these and other issues of public competition law – despite their undeniable impact on innovation – will not be covered by this paper.

⁶ Porter (2001) ‘Competition and Antitrust: A Productivity-Based Approach to Evaluating Mergers and Joint Ventures’, 46 *Antitrust Bulletin* 919 (Revised May 30, 2002) <http://www.isc.hbs.edu/Documents/pdf/053002antitrust.pdf> 4.

⁷ Sidak, Teece, and Wu have advocated a major shift but, as Lianos notes, most competition scholars would agree that innovation is not the focus of competition law and that a move in that direction is desirable. Sidak and Teece (2009) ‘Dynamic Competition in Antitrust Law’, 5 *Journal of Competition Law & Economics* 610, Wu (2012) ‘Taking Innovation Seriously: Antitrust Enforcement if Innovation Mattered Most’, 78 *Antitrust Law Journal* 328, and Jenny, Lianos, Hovenkamp, Marshall, and Thambisetty (2014) ‘Competition Law, Intellectual Property Rights and Dynamic Analysis: Towards a New Institutional “Equilibrium?”’, 42 *13 Concurrences* 13 2.

European Commission (Commission) and the Courts of the EU (the Court of Justice and the General Court)⁹ have proven less reluctant: in time-honoured fashion, broadly construed provisions have allowed the Commission to act vigorously in relation to innovation without being pinned down to a definite framework. This paper seeks to address this enforcement reality, giving due weight to doctrinal preoccupations but picking up the gauntlet of a theory justifying – indeed, demanding – the application of competition law to innovation.

Standing in the way is the market structure methodology usually employed in competition law. Roughly speaking, this methodology focuses on market power – the ability to ignore competitive constraints and raise prices – and requires the definition of relevant markets. Market power correlates with concentrated markets, justifying the normative preference for competitive markets. However, the relationship between market power and innovation is much more ambiguous. Whether innovation is better served by competitive markets in the traditional sense or by overlapping ‘creative destruction’ by monopolists is one of the classical discussions in economics.¹⁰ This paper will remain agnostic on this discussion, focusing instead on two consensual points: that the benefits expected from innovation drive the competitive process¹¹ and that innovation can be stifled by anti-competitive action.¹²

The problem of competition law, it seems, is that harm to innovation would only be tackled in connection with market power. The scholarly criticism, divided in purpose, converges on this limitation. One set of authors accuses competition law of privileging

⁸ Wright and Petit question whether competition law has (yet) the toolset for handling innovation and emphasise casuistic analysis. Wright (2011) ‘Antitrust, Multi-Dimensional Competition, and Innovation: Do We Have an Antitrust-Relevant Theory of Competition Now?’, Manne and Wright (eds.) *Regulating Innovation: Competition Policy and Patent Law Under Uncertainty* Cambridge University Press http://ssrn.com/abstract_id=1463732 32 and Petit (2017) ‘Significant Impediment to Industry Innovation: A Novel Theory of Harm in EU Merger Control?’, ICLE Antitrust & Consumer Protection Research Program White Paper 2017-1 21. However, few have argued expressly (and convincingly) against addressing innovation directly as Ibáñez, a position which will be discussed throughout this paper. Ibáñez Colomo (2016) ‘Restrictions on Innovation in EU Competition Law’, 41 *European Law Review* https://www.lse.ac.uk/collections/law/wps/WPS2015-22_Colomo.pdf 25.

⁹ Unless differentiated, ‘Court’ will refer to the Court of Justice.

¹⁰ For all, Shapiro (2012) ‘Competition and Innovation: Did Arrow Hit the Bull’s Eye?’, Lerner and Stern (eds.) *The Rate and Direction of Inventive Activity Revisited*, University of Chicago Press 362.

¹¹ Wright (cit. ft. 8) 20. Shapiro calls this ‘contestability’, a view which is compatible with any relationship between market structure and innovation. Shapiro (cit. ft. 10) 364.

¹² Hovenkamp (2011) ‘Antitrust and Innovation: Where We Are and Where We Should Be Going’, 77 *Antitrust Law Journal* 751 and de Streel and Larouche (2015) ‘Disruptive Innovation and Competition Policy Enforcement’, TILEC Discussion Paper 2015-21 5.

‘static’ over ‘dynamic’ efficiency, that is to say, simply keeping existing markets competitive.¹³ The gist of the criticism can be understood by considering that innovation may well occur outside, or create very different markets from, the market structure policed by competition law.¹⁴ This does not deter a second set of authors from defending that, to the extent of competition law’s competence, innovation would be protected by keeping markets competitive.¹⁵ What these authors criticise is departing from such enforcement logic, which in their view would leave no other to work with. Depending on the perspective, therefore, a market structure methodology would either hamper the ability to or imperil the legitimacy of addressing innovation.

The issue nevertheless goes far beyond mere doctrinal disagreement. Competition on innovation is real, and there has never been shortage of calls for regulators to intervene. Competition law has thus influenced salient discussions over innovation, from digital interoperability to pharmaceutical research and passing by every major tech firm acquisition. The Commission and national competition authorities hold a central role in determining the pace of innovation, as shown by the record fine of € 2.42 billion imposed on Google for privileging its own services in search engine results,¹⁶ and the forced divestiture of research and development (R&D) in the *Dow/Dupont* merger.¹⁷ The Commission has also started a public consultation on enlarging merger control to innovation related assets like data and IP, as mergers of free-service providers risk escaping turnover thresholds.¹⁸ By not advancing a parallel adaptation of its substantive guidance, the Commission seems confident that it can address innovation under the current *status quo* of competition law – so much is apparent from its Merger and Innovation Policy Brief.¹⁹

In view of the above, the present paper will attempt to bridge enforcement pragmatism and theoretical obstacles. Both the Commission and scholars are right, if partially. The Commission is right that – as the first set of authors argues – it ought to intervene if innovation is thwarted under competition law’s remit. It is nevertheless

¹³ For all, Wu (cit. ft. 7) 328.

¹⁴ This would affect the analytical framework but also competition authorities’ enforcement priorities.

¹⁵ For all, Ibáñez (cit. ft. 8) 8.

¹⁶ europa.eu/rapid/press-release_IP-17-1784_en.htm

¹⁷ europa.eu/rapid/press-release_IP-17-772_en.htm

¹⁸ europa.eu/rapid/press-release_IP-16-3337_en.htm

¹⁹ ec.europa.eu/competition/publications/cpb/2016/2016_001_en.pdf

wrong – as the second set of authors argues – in stretching a market structure approach to encompass unrelated harm to innovation. This paper holds that the legal framing of exclusion already provides the necessary room for harm to innovation. In other words, what matters is that incumbents exclude rivals in order to avoid competing on innovation, regardless of market power concerns.²⁰

The paper suggests that, when market structure cannot explain intervention, more promising economic grounds can be found in strategic management studies. These studies are the source of the concept of disruptive innovation,²¹ which has proven central for the understanding of innovation and which provides much of the thrust of this paper. This concept originates from the so-called ‘resource-based view’,²² the other explanatory device used by this paper. The resource-based view connects innovation with resources at the level of the firm, thereby improving on structural incentives. Even in open and competitive markets, the exclusion of innovators may not be compensated by new ones if certain resources are also taken away.²³ As this paper will show, this explains the importance already given in abuse of dominance and merger control to assets with innovation capabilities.

The paper makes three main claims. The first is that the dynamic assessment required by innovation can be dealt with by competition law’s existing framework. The paper will therefore start by clarifying the notion of efficiency under static and dynamic perspectives, and how the resource-based view relates to innovation (Section 1). The second claim is that harm to innovation can be framed by competing innovation claims. The resource-based view will be used to adjudicate those claims based on innovation capabilities, as already reflected in current enforcement, and to discuss how incentives to innovation condition intervention (Section 2). The third claim is that the current tests of competition law fail to protect disruptive innovation. It will be discussed how the

²⁰ As Shapiro comments in relation to the principles proposed for competition law to address innovation (mapping some of the issues covered in this paper): ‘[n]one of these principles relates directly to product market concentration’. Shapiro (cit. ft. 10) 365.

²¹ Christensen, Raynor, and McDonald (2015) ‘What is disruptive innovation’, *Harvard Business Review* <https://hbr.org/2015/12/what-is-disruptive-innovation> 4.

²² For all, Peteraf (1993) ‘The Cornerstones of Competitive Advantage: A Resource-Based View’, 14 *Strategic Management Journal* 179.

²³ Audretsch *et al.* make the interesting observation that the Chicago school assumes that the supply of entrepreneurs is infinite in the long run, while the Austrian school argues that there is ‘scarcity of entrepreneurial resources’. Audretsch, Baumol, and Burke (2001) ‘Competition Policy in Dynamic Markets’, 19 *International Journal of Industrial Organization* 619.

inefficient start of disruptive innovation is at odds with allocative and productive efficiency standards, and guidelines will be given on how to correct this (Section 3).

2. Static and dynamic perspectives

It must be made clear from the start that, by proposing that competition law should directly address innovation, this paper does not suggest a radical change. Competitive harm already includes innovation concerns. It is no sleight of hand that notions like exclusion provide this latitude, as competition law is designed to accommodate a variety of economic themes. A useful bridgehead is the notion of efficiency. Innovation has been connected with dynamic efficiency, as just described, and the failure to address it with an excessive concern for static efficiency. Efficiency has traditionally been used to link different aspects of competition law, and dynamic efficiency – or, its related notion, dynamic competition – can anchor the role of innovation in competition law.

Dynamic competition has been associated with the interface with between IP and competition law.²⁴ The starting premise is that the legal monopoly granted by IP rights embodies the incentives for innovation. Competition law should thus defer to IP rights, even though they may confer market power, under the risk of harming those incentives. Some object to this deference, as IP rights can also be used to block innovation,²⁵ while others take it as confirmation that competition law should stay away from innovation.²⁶ The case law on abuse of dominance would illustrate such deference by only considering the refusal to licence IP as abusive in ‘exceptional circumstances’.²⁷

The deference of competition law to IP rights is nonetheless overstated. No exceptionality has been raised regarding anti-competitive agreements or mergers involving IP rights. While several explanations can be summoned to link all these disparate applications,²⁸ in practice competition law applies to IP rights as seamlessly as it does to contractual freedom and property rights. It does not set out to undermine these rights but, if it must regulate economic activity, it must necessarily override those

²⁴ Hovenkamp (cit. ft. 12) 749 and Wu (cit. ft. 7) 314.

²⁵ Wu (cit. ft. 7) 325.

²⁶ Ibáñez (cit. ft. 8) 22.

²⁷ Joined Cases C-241-2/91 P, *Magill*, C:1995:89, 50.

²⁸ Petit (2016) ‘The Antitrust and Intellectual Property Intersection in European Union Law’, <http://ssrn.com/abstract=2796670> 1.

rights when necessary. Even the supposed deference in abuse of dominance is set aside, as will be discussed at length, for scarcely exceptional reasons as ‘technical development’ or allowing a ‘new product’. This paper therefore moves away from interpreting competition law’s role in innovation as the result of its interface with IP rights.

As innovation is identified with dynamic efficiency, it is contrasted with static efficiency – namely, with allocative and productive efficiency.²⁹ In essence, allocative efficiency relates to higher output at lower prices, while productive efficiency refers to cost savings. Dynamic and static efficiency thus appears to differ on their subject-matter: innovation for dynamic efficiency, productive factors like output, prices, and costs for static efficiency. However, economically significant innovation cannot but be reflected in productive factors. A better difference is the degree of change involved: static efficiency would be the best configuration of factors as they presently exist, dynamic efficiency the best combination considering how they might be improved.³⁰

If dynamic and static efficiency are different perspectives on change,³¹ they can both be applied to productive and allocative efficiency – and to innovation itself. All that is necessary is to consider the degree of change. Costs can be rationalised but also move radically with new production methods; output and price can adjust to existing market conditions as well as to new products and competitors; and even the dynamic improvements brought about by innovation have their origin in R&D and other static factors. This conceptual adjustment, discussed in this section, allows framing dynamic competition as a combination of innovation, allocative, and productive efficiency.

This section further proposes considering dynamic competition under a resource-based view. The basic idea, taken from strategic management studies, is to examine competitive advantage from the point of view of individual firms. Such competitive advantage goes beyond what is allowed by market structure, as it is said to be based on possessing certain resources.³² It is no coincidence that this is similar to productive

²⁹ Kathuria (2015) ‘A Conceptual Framework to Identify Dynamic Efficiency’, 11 *European Competition Journal* 321.

³⁰ Dynamism comes from not only from change but also from how market actors foresee and adapt to it. Sidak and Teece (cit. ft. 7) 603.

³¹ This is a ‘broad’ view of dynamic efficiency, as categorised by Kathuria, namely one which focuses on (existing versus changed) knowledge. Kathuria (cit. ft. 29) 330.

³² As Peteraf defines it, the resulting rents ‘cannot be attributed to an artificial restriction of output or to market power’. Peteraf (cit. ft. 22) 181.

efficiency – the resource-based view is intended to orientate managers on achieving it.³³ However, breaking away from a static perspective, the resource-based view applies to building ‘dynamic capabilities’³⁴ intended for innovation.

2.1. Allocative and productive efficiency

Competition scholars are well aware of the law’s concern for allocative efficiency. Producing as long as cost is met (and there is consumer demand) is what is supposed to happen in competitive markets, while lower output and higher prices are the hallmarks of market power. Competition law thus covers undertakings³⁵ pooling their market power by colluding (restrictions of competition under Article 101 TFEU), acting unilaterally from a position of significant market power (abuse of dominance under Article 102 TFEU), and growing their market power by acquiring other undertakings (merger control under the Merger Regulation).³⁶ Harm in those situations varies, but they indelibly connect competition law with market structure.

Productive efficiency is also associated by scholars with ‘efficiencies’. Although the emphasis is placed on cost savings (using fewer resources), efficiencies also include improving quality (more utility from the same resources). This bears no relation to market structure: productive efficiency is an advantage in competitive markets, but also increases margins in concentrated ones.³⁷ Harm to productive efficiency is thus not generally seen as an autonomous reason for competition law to intervene. The customary function of productive efficiency is to act as a shield, trading harm to allocative efficiency against gains in cost and quality: Article 101(3) TFEU exempts restrictions of competition that contribute to ‘improving the production or distribution of goods or to promoting technical or economic progress’, the case law on abuses of

³³ Peteraf (cit. ft. 22) 180.

³⁴ Teece (2015) ‘Intangible Assets and a Theory of Heterogeneous Firms’, Tusher Center for Intellectual Property Management Working Paper Series 4 19.

³⁵ The subjects of competition provisions in the TFEU, understood as entities engaged in economic activity regardless of their legal form (which sets economic activity as the object of competition law).

³⁶ Regulation 139/2004 on the control of concentrations between undertakings, OJ 2004, L 24/1 (Merger Regulation).

³⁷ Larger firms can even have greater incentives because of their larger volume of production. Shapiro (cit. ft. 10) 366. Even if the threat of exit in competitive markets would carry a more powerful incentive, it would still not enough to correlate productive efficiency and market structure.

dominance considers efficiencies as objective justifications,³⁸ and such efficiencies may quell structural concerns in merger control.³⁹

The notions of allocative and productive efficiency are coloured by the static perspective of the TFEU provisions and their enforcement.⁴⁰ The symptomatic competitive offence is collusive price-fixing and market sharing, so-called ‘cartels’. Although cartels are restrictive by object under Article 101 TFEU, dispensing proof of their effects, the Court has made clear that the concern is their immediate consequences for allocative efficiency.⁴¹ Cartels are prosecuted even if, as economists suggest, they eventually fail or their members defect.⁴² It is therefore no defence that, under a dynamic perspective, a particular cartel may ultimately prove harmless or even beneficial for allocative efficiency.⁴³ Because the concern is static, cartels are remedied by voiding the agreements and letting undertakings act independently again.

Despite cartels being the principal example of a static perspective,⁴⁴ the same can be said of exclusionary abuses under Article 102 TFEU.⁴⁵ Exclusion is assumed to happen concurrently with abusive behaviour, and it is irrelevant whether market power is gained or the exclusion manages to persist. Predatory prices notably ignore if the dominant undertaking is able to recoup below-cost sales by subsequently raising prices,⁴⁶ while margin squeeze and rebates are configured as inexorably harming ‘as efficient competitors’ – drawing such efficiency from static costs and price relationships.⁴⁷ By refusing to consider whether exclusionary abuses may endure

³⁸ Case C-209/10, *Post Danmark I*, C:2012:172, 41.

³⁹ Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, OJ 2004, C 31/3 (Horizontal Merger Guidelines), 76.

⁴⁰ Audretsch *et al.* comment that Article 101(1) TFEU is ‘a useful device for students seeking to memorise the list of possible anti-competitive acts of a static monopolist’. Audretsch, Baumol, and Burke (cit. ft. 23) 627.

⁴¹ Case C-67/13 P, *CB*, C:2014:2204, 51.

⁴² Whish and Bailey (2015) *Competition Law*, 8th ed. Oxford University Press 560.

⁴³ The latter claim could be made for cartels dealing with sector overproduction, but the Court rejected to examine the ulterior benefits of stabilizing the sector. Case C-209/07, *BIDS*, C:2008:643, 34.

⁴⁴ Wu (cit. ft. 7) 316.

⁴⁵ Exploitative abuses, whereby excessive prices or other conditions are imposed, are seldom enforced. The allocative efficiency explanation is that exploitation begets market entry which, as discussed below, is related to a dominant position not being prohibited in itself.

⁴⁶ Case C-202/07 P, *France Télécom*, C:2009:214, 110. Without recoupment the allocative inefficiency is merely temporary and to the benefit of consumers.

⁴⁷ Case C-52/09, *TeliaSonera*, C:2011:83, 32 and Case C-413/14 P, *Intel*, C:2011:83, 136. Abusive refusals to supply mix static and dynamic perspectives, and will be analysed in the next subsection.

changing conditions, the Court ends up blurring the distinction between static and dynamic competition.

Furthermore, efficiencies have been defined in a particularly static perspective. Incentives to productive improvements do have a dynamic dimension, as discussed below, but legal standards require proof that efficiencies will materialise in the short-term, including their quantification.⁴⁸ The purpose of such requirement is to compare productivity gains with allocative efficiency losses, as part of the proportionality assessment, thereby assuming that they are on the same static plane. If they are not, static allocative efficiency is given preference insofar as the Commission finds that restrictions like cartels cannot be considered proportional.⁴⁹

Despite this static outlook, the notion of dominance introduces an important dynamic element by considering potential competition.⁵⁰ Dominance starts from market definition, a static exercise insofar as it is assessed based on short-term reactions to small price increases.⁵¹ However, a dominant position further requires protecting market power against potential competition, that is to say, against longer termed expansion of capacity and market entry.⁵² Hence, allocative efficiency is ultimately determined by barriers to expansion and entry. Because potential competition demands thinking about the ability to overcome those barriers, and the changes that this might in turn set off,⁵³ it can open the door for innovation.

The impact of this dynamic turn is mixed. A dominant position is necessary for applying Article 102 TFEU, but it is also disconnected from the tests of abuse.⁵⁴ Furthermore, a claim of potential competition must overcome the presumption of dominance from (static) market shares above 50%.⁵⁵ The most important consequence

⁴⁸ Guidelines on the application of Article 81(3) of the Treaty, OJ 2004, C 101/97 (Article 101(3) TFEU Guidelines), 36 and Horizontal Merger Guidelines 86.

⁴⁹ Article 101(3) TFEU Guidelines 46.

⁵⁰ Sidak and Teece (cit. ft. 7) 614.

⁵¹ Notice on the definition of relevant market for the purposes of Community competition law, OJ 1997, C 372/03 (Notice on Market Definition), 15.

⁵² As well as from countervailing buying power. Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings, OJ 2009, C 45/2 (Article 102 TFEU Guidance), 12.

⁵³ Another instance of dynamic reasoning which incorporates potential competition is the theory of ancillary restraints under Article 101 TFEU, as discussed in Section 2.

⁵⁴ Case 85/76, *Hoffmann-La Roche*, C:1979:36, 91.

⁵⁵ Case C-62/86, *Akzo*, C:1991:286, 60.

has therefore been for merger control,⁵⁶ since creating or maintaining a dominant position is incorporated in its substantive test.⁵⁷ In the Horizontal Merger Guidelines, the Commission confirms it will consider unilateral and coordinated effects based on market barriers.⁵⁸

Another dynamic element is the (limited) use of harm to productive efficiency as the basis for a competitive offence. Productive efficiency is unrelated to market structure, and if it is directly addressed so too can innovation.⁵⁹ This is not obviously a question of second-guessing undertakings' decisions on cost and quality. Competition law may intervene when undertakings degrade quality,⁶⁰ for example to segment the market or avoid certain costs, and when undertakings impose 'naked' costs on their competitors, such as paying distributors not to carry or delay their products. Limiting quality may constitute a cartel,⁶¹ while 'naked restrictions' are considered abusive exclusion.⁶² None require consequences for allocative efficiency,⁶³ even if they have so far adopted the usual static approach of cartels and exclusionary abuses.

⁵⁶ Although *Continental Can*, the judgment which opened the way for merger control by considering the acquisition of an undertaking as a possible abuse under Article 102 TFEU, is typically static: the Court was concerned with avoiding a contradiction between allowing such acquisition and cartel enforcement under Articles 101 TFEU. Case 6/72, *Continental Can*, C:1973:22, 25.

⁵⁷ Concentrations are caught by the Merger Regulation according to turnover and jurisdictional thresholds which, although sizeable, are no guarantee of market power. The substantive test is whether the concentration significantly impedes competition, in particular by the 'creation or strengthening of a dominant position'. Merger Regulation Article 2(2).

⁵⁸ Horizontal Merger Guidelines 70.

⁵⁹ Competition law already lowers 'x-inefficiency': the costs of maintaining market barriers, for example policing a cartel or lobbying for market barriers, a productive inefficiency insofar as such costs are borne by undertakings (they may also involve negative externalities, such as corruption or excessive regulation). Competition law tackles x-inefficiency indirectly, by promoting competitive markets.

⁶⁰ It is assumed that, if the price does not move, quality degradation is consumer surplus which is (inefficiently) sacrificed.

⁶¹ Stucke and Ezrachi (2014) 'The Curious Case of Competition and Quality', University of Tennessee Legal Studies Research Paper 256 9.

⁶² Article 102 TFEU Guidance 22.

⁶³ The ability to do degrade quality or impose costs may depend on market power but, as already remarked, this is not linked with the tests of anti-competitive behaviour.

2.2. Innovation

An essential characteristic of innovation is its uncertainty.⁶⁴ Although it is reasonable to expect technology improvements, it cannot be anticipated exactly if, when, and how innovation will take place. Strategic management studies have provided an important insight by distinguishing between ‘sustaining’ and ‘disruptive’ innovation: sustaining innovation takes place within the value network of firms, giving customers more or better in the attributes they already value; disruptive innovation takes place outside that value network, generating new preferred attributes.⁶⁵

Productive efficiency is open to the improvements of both sustaining innovation and efficiencies. As legally defined, efficiencies reflect a static perspective: productivity gains have to be estimated to such a degree that they cannot be said to be truly innovative, only unimplemented. Thus, it is preferable to limit efficiencies to combining or reconfiguring existing resources⁶⁶ and use another term – ‘follow-on innovation’ – for dynamic productivity gains (both to cost and quality, and not only the attributes emphasised in sustaining innovation). In summary, productivity would be improved statically by efficiencies and dynamically by follow-on innovation,⁶⁷ while disruptive innovation would bring about new cost and quality relationships.⁶⁸

Innovation is typically used interchangeably with dynamic efficiency,⁶⁹ but it can also be seen under a static perspective. The next section will discuss how innovation can be protected once it has successfully materialised. Presently, the uncertainty of innovation can be contrasted with the certainty of R&D expenditure. R&D is usually lumped with efficiencies and subject to the same burden of proof.⁷⁰ R&D can nevertheless also provide a competitive parameter that can be affected by behaviour

⁶⁴ Schilling (2015) ‘Towards Dynamic Efficiency: Innovation and its Implications for Antitrust’, 60 *Antitrust Bulletin* 206.

⁶⁵ Streel and Larouche (cit. ft. 12) 2.

⁶⁶ Kathuria (cit. ft. 29) 338.

⁶⁷ Kathuria (cit. ft. 29) 325.

⁶⁸ This is similar to the definition of innovation adopted by Waller and Sag: ‘any change in the status quo that (i) allows one to do something one could not do before or (ii) allows one to do something already possible while using fewer resources than were required before’. Waller and Sag (2015) ‘Promoting Innovation’, 100 *Iowa Law Review* <https://ssrn.com/abstract=2479569> 3.

⁶⁹ The ‘narrow’ perspective of dynamic efficiency. See ft. 31.

⁷⁰ Article 101(3) TFEU Guidelines 54 and Horizontal Merger Guidelines 81.

falling within competition law's scope. This method fits particularly well industries where new products demand a substantial investment.⁷¹

Market structure logic can apply to R&D, and in this way indirectly to innovation, by assuming that market power is a reflection of R&D investment.⁷² If competitors are excluded by merger or anti-competitive behaviour, the competitive constraint of R&D is lessened;⁷³ if the market becomes more concentrated or coordinated, overall R&D diminishes.⁷⁴ These assumptions can be superimposed to existing product markets,⁷⁵ or lead to separate 'innovation markets' that identify sources of innovation.⁷⁶ Such analysis is appropriate for what it sets out to do: link structural exclusion with – all else staying the same – a decrease in R&D. However, this static perspective cannot apply to the changes brought about by innovation.

R&D should thus be seen together with other static contributions to innovation. Follow-on innovation might result from 'learning-by-doing' – the same process which leads to efficiencies⁷⁷ – as well as R&D.⁷⁸ Moreover, contrary to what its definition as new attributes might suggest, disruptive innovation also accords a role to efficiencies. It is central to the notion of disruptive innovation that new attributes are not immediately valued by consumers – in other words, they start out inefficient.⁷⁹ As will be discussed in a separate section below, those products require an increase in productive efficiency in order to fulfil their disruptive promise.

⁷¹ The Merger and Innovation Policy Brief gives the example of the pharmaceutical and medical device sectors, which allows identifying competitors at an early stage. Merger and Innovation Policy Brief 5.

⁷² Kern (2014) 'Innovation Markets, Future Markets, or Potential Competition: How Should Competition Authorities Account for Innovation Competition in Merger Reviews?', 37 *World Competition* 198. That is the gist of enunciating innovation along other competitive parameters, as part of the definition of market power. Article 102 TFEU Guidance 11 and Horizontal Merger Guidelines 8.

⁷³ Valletti *et al.* propose a model where total innovation decreases in mergers between close-competitors due to a reduction of R&D by the merging parties. This considers a possible positive incentive from higher coordination. Federico, Langus, and Valletti (2017) 'Horizontal Mergers and Product Innovation: An Economic Framework' <https://ssrn.com/abstract=2999178> 2.

⁷⁴ Haucap and Stiebale present a model where a merger as a negative effect on both the merged entity and non-merging parties' R&D in an industry with high R&D, backed up by data of pharmaceutical mergers. Haucap and Stiebale (2016) 'How Mergers Affect Innovation: Theory and Evidence from the Pharmaceutical Industry', DICE Discussion Paper 218-2016 3.

⁷⁵ Petit (cit. ft. 8) 8.

⁷⁶ Kern (cit. ft. 72) 178 and 180.

⁷⁷ Katuria (2016) 332.

⁷⁸ What Wu calls 'evolutionary rather than planned'. Wu (cit. ft. 7) 316.

⁷⁹ Streel and Larouche (cit. ft. 12) 3.

The picture that emerges is of multiple links between static and dynamic factors. Rather than a straight path from R&D, innovation is also linked with productive efficiency. In turn, productive efficiency results from both efficiencies and innovation. Finally, allocative efficiency is related to innovation insofar as potential competition considers whether market barriers can be overcome.

Productive Efficiency	Innovation	Allocative Efficiency
Efficiencies	R&D	Market definition
Follow-On Innovation – Disruptive Innovation – Potential Competition		

This table summarises the static and dynamic perspectives examined so far: efficiencies and follow-on innovation; R&D and innovation; market definition and potential competition. The grey area indicates that those links become fuzzy in a dynamic perspective: productive efficiency can also lead to market entry and disruption; R&D can set up entry and not only innovation; market structure can be changed by (any kind of) innovation.

The links might seem trivial, but it is nonetheless important to formalise them. There is a stark contrast between the confidence of competition law in its ability to deal with allocative efficiency, productive efficiency, and even R&D, and its hesitation regarding innovation. Moreover, these links underlie the Court's statement that a dominant position is not illegal in itself.⁸⁰ Dominance is supposed to result from higher efficiency, an idealised running of the market that the Court calls 'competition on the merits'.⁸¹ Nonetheless, a dominant position is defined by safeguards against competitor's productive efficiency (market power) and dynamic allocative efficiency (market barriers).⁸² The logical conclusion is that competition on the merits depends on

⁸⁰ Case 322/81, *Michelin*, C:1983:313, 10.

⁸¹ *Post Danmark I* 21.

⁸² As such, an allocative efficiency explanation of why dominant positions are allowed does not hold: the rents from market power do provide an incentive for entry, but market barriers prevent it.

innovation in order to contest dominant positions.⁸³ This puts innovation squarely within competition law's mandate.

2.3. The resource-based view

Strategic management studies offer several theories of competitive advantage, the resource-based view being only one of them. The most famous is Porter's 'five forces', which seeks to best position firms according to industry characteristics. This 'positional school' is assumedly inspired by industrial organisation economics.⁸⁴ However, despite this link,⁸⁵ strategic management has not greatly influenced competition law in academic circles. This has prevented competition law from benefiting from strategic management's wider economic and social sciences background.⁸⁶ The resource-based view sits on the economic side of that spectrum,⁸⁷ making it particularly easy to add to the competition law toolkit.

The resource-based view starts from the concept of Ricardian rents: some firms may be more efficient but, for some reason, not have the capacity to supply the whole market.⁸⁸ This capacity limitation allows the entry of marginally less efficient competitors until the market is full. Such entry affects market price, as normal for allocative efficiency, but the more efficient firms remain in a position to extract a rent due to lower costs or higher willingness to pay – higher productive efficiency.⁸⁹ Because the rent is ascertained by comparison with what structural competition allows,⁹⁰ the

⁸³ This is also the conclusion of the US Supreme Court: '[t]he opportunity to charge monopoly prices – at least for a short period – is what attracts "business acumen" in the first place; it induces risk taking that produces innovation and economic growth'. *Trinko*, 540 U.S. 398, 407 (2004).

⁸⁴ Porter (cit. ft. 6) 14 and Porter (2007) 'The Five Competitive Forces That Shape Strategy', *Harvard Business Review* reprint 1.

⁸⁵ Porter recognises the link but favours dynamic competition, as strategic management studies do, and criticises the static approach of US antitrust. Porter (cit. ft. 6) 15.

⁸⁶ Greene and Yao (2014) 'The Influences of Strategic Management on Antitrust Discourse', 59 *The Antitrust Bulletin* 790. Competition law does drink from a wider background, but the normative one of EU law. Costa-Cabral and Lynskey (2017) 'Family Ties: The Intersection of Data Protection and Competition Law in EU law', 54 *Common Market Law Review* 31.

⁸⁷ As does the positional school just mentioned. Greene and Yao (cit. ft. 86) 793. An evolutionary and behavioural approach can also be applied to resource capabilities. Sidak and Teece (cit. ft. 7) 697.

⁸⁸ Peteraf (cit. ft. 22) 180.

⁸⁹ Peteraf and Barney (2003) 'Unravelling the Resource-Based Tangle', 24 *Managerial and Decision Economics* 315.

⁹⁰ Peteraf and Barney (cit. ft. 89) 313.

resource-based view is complementary to positional schools.⁹¹ Its advance is in developing competitive advantage in relation to firm heterogeneity.

Starting from the premise that undertakings differ from one another due to their resources, the resource-based view improves on the assumption that they respond in the same way to market structure.⁹² It is a dynamic perspective, as befits a theory aimed at orientating management, since what matters is the potential to achieve a rent and not if it is actually realised.⁹³ Schumpeterian rents are explained by a resource-based view, the high efficiency disruptor being followed by marginally less efficiency imitators.⁹⁴ Resources are therefore used to estimate innovation capabilities,⁹⁵ similarly to how competition law links innovation with certain assets.

Two precisions about the resource-based view are nonetheless necessary. First, resources are considered in bundles and not as individual assets.⁹⁶ This means that, for fully assessing the innovation capabilities of assets like data and IP, they should be considered together with the other resources that make up the undertaking. Bundles may include intangible resources such as the undertaking's management, strategy, or company culture.⁹⁷ It is nevertheless better to approach a resource-based view starting from assets, since competition law is already familiar with their ability to influence allocative and productive efficiency.

Second, the resource-based view pays considerable attention to the resource characteristics which affect competitive advantage. The main characteristic is difference in resources, since that is the source of higher productive efficiency. However, the advantage will also depend on whether the resource is reproducible, mobile, and favourably acquired.⁹⁸ First, it is straightforward that whether the resource can be copied will influence the advantage it grants. Second, advantage can also be shifted when the resource moves between undertakings. Third, the conditions for acquiring or

⁹¹ Peteraf (cit. ft. 22) 186 and Peteraf and Barney (cit. ft. 89) 312.

⁹² Greene and Yao (cit. ft. 86) 796.

⁹³ Peteraf (cit. ft. 22) 98 and Peteraf and Barney (cit. ft. 89) 313.

⁹⁴ Peteraf and Barney (cit. ft. 89) 318.

⁹⁵ Peteraf (cit. ft. 22) 93 and Teece (cit. ft. 34) 22.

⁹⁶ Peteraf and Barney (cit. ft. 89) 317.

⁹⁷ Peteraf (cit. ft. 22) 94 and Teece (cit. ft. 34) 8.

⁹⁸ What Peteraf calls the cornerstones of competitive advantage: heterogeneity, imperfect mobility, *ex ante* limits to competition, and *ex post* limits to competition, adapted here (without a strict correspondence) to the conditions mentioned. Peteraf (cit. ft. 22) 185.

producing the resource can erode the rent extracted, including temporal arbitrage (trading costs against benefit at different points in time).

With these precisions in mind, the resource-based adds to the understanding of dominance.⁹⁹ A dominant position is defined by the Court as allowing an undertaking ‘to behave to an appreciable extent independently of its competitors, customers and ultimately of its consumers’.¹⁰⁰ According to a market structure explanation, this independence is from substitution. Yet, the advantage captured by the resource-based grants independence from demand on top of what market structure allows. Factors often considered market barriers – like IP, consumer goodwill, or cost advantages¹⁰¹ – can be seen in this perspective: not as necessary to enter the market, since limited production allows less efficient competitors, but necessary to compete with the dominant undertaking in equal footing. In other words, resource advantages do not prevent competitors from expanding output, but from taking market share.

The notion of dominance should therefore be open to a resource advantage. A dominant position based on or complemented by this advantage is more coherent with the robust rivals and medium market shares often found.¹⁰² Indeed, it is an overall better fit with the ‘special responsibility’ that sets dominant undertakings apart¹⁰³ – market barriers shelter all undertakings, not only those with high market shares. The Court has already attributed dominance to technical and commercial advantages alongside, and distinct, from market shares and market barriers.¹⁰⁴ In a dynamic perspective, a resource advantage can become a market barrier if less efficient competitors are pushed out by increased production or if the market contracts. More importantly, as this paper discusses, such advantage can be used to harm innovation.

The resource-based view can further help explaining abusive refusal to supply. As noted above, abuses usually do not go beyond static exclusion. In abusive refusal to

⁹⁹ Since the resource-based view is dedicated to productive efficiency, it can naturally add to the analysis of efficiencies. That is not covered by this paper, which focuses on harm.

¹⁰⁰ Case 27/76, *United Brands*, C:1978:22, 207.

¹⁰¹ Whish and Bailey (cit. ft. 42) 195.

¹⁰² Dominance has been found below the 50% market share, and even that presumption leaves ample room for non-short term capacity adjustments.

¹⁰³ *Michelin* 57.

¹⁰⁴ *Hoffman-La Roche* 48.

supply, however, the Court demands that refused input be ‘indispensable’.¹⁰⁵ Not only is the input an asset, but indispensability is characterised in the lines of the resource-based view. First, the input is different and immobile. Second, the Court examines whether the input can be replicated, considering the incentives for the dominant undertaking and its competitors to invest in its production.¹⁰⁶ In other words, the abuse examines whether the refusal can be effective in a dynamic environment.

3. Competing innovation claims

Having established that competition law can – and should – address innovation as part of dynamic competition, and having introduced the resource-based view for that purpose, this section will explore how to adjudicate cases of harm to innovation. It is however useful to deal beforehand with the argument that competition law should only address innovation indirectly via market structure. The discussion so far, despite painting a richer picture of dynamic competition, does not yet disprove this argument. The emphasis placed on potential competition might even embolden it – if market barriers take innovation into account, then a competitive market structure would reflect innovation. This could lead to the conclusion that competition law either refers to market structure or wrongly ignores it. Such dichotomy is nevertheless false.

Addressing innovation directly is not opposed, but complementary, to an indirect approach. The main focus of competition law is unquestionably market structure, so an indirect approach gets a lot right. First and foremost, preserving competitive markets ensures that successful innovation will not be for naught,¹⁰⁷ channelling undertakings’ efforts towards competition on the merits. Secondly, the criticism that innovation should not be used to relax structural requirements – if the concern is indeed allocative efficiency – is theoretically justified.¹⁰⁸ Overall, an indirect approach is correct that market structure provides a tried-and-tested framework protecting innovation against market power – but only that.

¹⁰⁵ Case C-7/97, *Bronner*, C:1998:569, 40. This is done separately from the condition of excluding all (static) competition.

¹⁰⁶ *Bronner* 46. This is connected with incentives for innovation regarding IP, as examined next.

¹⁰⁷ Kern (cit. ft. 72) 194.

¹⁰⁸ Ibáñez (cit. ft. 8) 15.

As will become apparent in this section, undertakings can harm innovation in other ways. Innovation capabilities can be snuffed out, regardless of market barriers, by control over certain assets. Moreover, static competition can thrive in the absence of innovation. Despite the merits of an indirect approach as a primary method of analysis, there is more to competition law. Competition provisions refer to the protection of innovation expressly, and they have been applied to innovation directly. The indirect approach subordinates competition law to market structure, when it is methodology that should adapt to normative ambition.

A structural approach to R&D, the off-shoot of an indirect approach, is useful but should not be confused with innovation itself. As a possible source of innovation, R&D is – in and of itself – worthy of being protected from anti-competitive action. However, innovation cannot be captured by stacking and comparing R&D: that investment is static, innovation is dynamic.¹⁰⁹ Neither does a dynamic perspective correspond to ‘future markets’ of hypothetical products.¹¹⁰ Like the innovation markets mentioned in the previous section, future markets are an anomaly of highly structured research environments which is difficult to generalise. Both ‘markets’ are a way to indirectly match innovation with market structure. Protecting R&D is a marginal advance, but still leaves the process of innovation relatively untouched.

This section will thus start by examining the cases where competition law has applied to harm to innovation proper. It will be seen, roughly speaking, that the innovation capabilities of certain assets give rise to competing claims: on the one side undertakings seeking access to the asset in order to compete on innovation, often called a ‘level playing field’, on the other undertakings wanting to retain control of the asset as a return for investing in the assets, the problem of ‘appropriability’. The question is how competition law can settle these claims. It will be seen that market structure methodology must conjure markets out of assets, and delegate appropriability to IP law; a resource-based view can focus on innovation capabilities without the intermediation of market power, and assess appropriability based on actual competitive circumstances.

¹⁰⁹ Petit comments that ‘[t]he widely-held belief that increasing productivity necessarily requires higher investments, including in R&D, is fundamentally unsound’. Petit (cit. ft. 8) 18.

¹¹⁰ Kern (cit. ft. 72) 178.

3.1. Cases of harm to innovation

The cases calling for a resource-based view are those where harm to innovation is not covered by market foreclosure. The two harms are caught together insofar as competition on innovation is negatively affected by market concentration. In those situations, competition rules only have to apply as normal. For example, an exclusivity obligation prohibited under Article 102 TFEU might deprive rivals of the income to invest in R&D and reduce overall market pressure to innovate.¹¹¹ This is the indirect approach discussed so far. It is clear that (market foreclosure) exclusion can harm innovation; a different question is whether harm to innovation can constitute (another sort of) exclusion.

The legal concept of exclusion, understood as hindering rivals in any manner other than competition on the merits,¹¹² provides enough room either way. It is designed to cover all competitive parameters, from price to innovation. These parameters are usually referred in the context of market power¹¹³ but apply equally to productive efficiency. Therefore, exclusion has a place for innovation alongside structural and productive concerns. What matters is that innovation is part of rivalry – understood beyond structural bounds – and that such rivalry is negatively affected by exclusion.¹¹⁴

So much is confirmed by a number of cases finding harm to innovation without delving on (the absence of) structural concerns, namely on low market barriers and strong residual competition. Competition authorities might obscure this, particularly if they equate higher productive efficiency with market barriers – as commented, both grant the independence characteristic of dominance – or if they confuse static and dynamic competition. This obfuscation is only natural, as competition authorities will try to justify their actions according to the prevailing structural outlook. Such pretences

¹¹¹ The decision leading to *Intel* therefore found that an exclusivity obligation had ‘a negative impact on AMD’s ability to recover its investments in research and development and thus on its incentive to engage in similar activities in the future’. Ibáñez (cit. ft. 8) 22. Rivals not directly excluded might also reduce innovation simply because the market becomes more concentrated. See ft. 74.

¹¹² From market foreclosure to acquiring rivals and raising their costs, exclusionary abuses under Article 102 TFEU and restrictions of competition under Article 101 TFEU cover a wide range of competitive disadvantages. This is mostly due to competition law’s static outlook, for which such disadvantages are enough to negatively impact competitive parameters.

¹¹³ See ft. 72.

¹¹⁴ Shapiro (cit. ft. 10) 383.

have nonetheless been dropped, and innovation taken centre stage, on several notable occasions. There are three groups of cases which mix all these elements.

The first group is the case law on abusive refusal to licence IP which is indispensable. As discussed in relation to the resource-based view, this involves a dynamic analysis. *Magill*, and later *IMS*, further demand that the refusal eliminates all competition in a given market and prevent a new product for which there is consumer demand.¹¹⁵ The condition of eliminating all competition is static, since exclusion operates along market definition. The condition of preventing a new product brings indispensability and exclusion to bear on harm to innovation.

This case law took an important turn when the General Court relaxed the conditions set by the Court of Justice in *Microsoft*. Exclusion was lowered to the usual standard of competitive disadvantage, and preventing a new product was effectively substituted by an impediment to technical development.¹¹⁶ As such, the General Court did not check whether the refusal of interoperability data would do more than prevent competitors from continuing to develop innovative features.¹¹⁷ Although *Microsoft* was not appealed to the Court of Justice, the Commission has taken it as an accurate statement of the law.¹¹⁸

The second group of cases is based on Commission merger decisions involving parallel R&D. The Commission's guidance touches on this issue. The Horizontal Merger Guidelines start by associating market power and harm to innovation,¹¹⁹ but then depart from market structure by ignoring concentration levels if the merger involves 'important innovators'.¹²⁰ The guidelines also make the reverse shift, acknowledging that some undertakings influence dynamic competition beyond their market shares, only to add 'in

¹¹⁵ Case C-418/01, *IMS*, C:2004:257, 38. There is also a third condition: that the refusal is unjustified. The next sub-section will discuss objective justification.

¹¹⁶ Case T-201/04, *Microsoft*, T:2007:289, 563 and 647. In *Clearstream* the General Court also lowered the exclusion required in *Bronner* for abusive refusal to supply an input, and confirmed its indirect effect on innovation. Case T-301/04, *Clearstream*, T:2009:317, 149.

¹¹⁷ *Microsoft* 656.

¹¹⁸ Article 102 TFEU Guidance 78 and 81. The Commission follows *Microsoft's* loose interpretation by analysing (all) refusals to supply under the lower level of exclusion and 'consumer harm'.

¹¹⁹ Horizontal Merger Guidelines 8.

¹²⁰ Horizontal Merger Guidelines 20(b). In general, the guidelines advise interpreting market shares according to the dynamics of innovation and growth. Horizontal Merger Guidelines 15.

particular when the market is already concentrated'.¹²¹ After this candid demonstration of the lack of relationship between innovation and market structure,¹²² the guidelines get to the innovation issue: 'pipeline products'.¹²³

The concern (unstated in the guidelines) is that pipeline products might be abandoned post-merger,¹²⁴ notably if there is a duplication of R&D efforts or the merged entity already commercialises a successful competing product.¹²⁵ In order to avoid such harm to innovation, the Commission has forced the divestiture of the pipeline products on several occasions.¹²⁶ It did so most recently in *Dow/Dupont* where, according to the available information, the Commission distinguished the possible discontinuation of parallel innovation efforts from harm to innovation due to an increase in market concentration.¹²⁷

The third group of cases relates to Commission practice on vertical relationships. In the Non-Horizontal Merger Guidelines, the Commission repeats both the structural association of innovation and market power¹²⁸ and the disregard of concentration levels if the merger involves innovators.¹²⁹ The guidelines go on to state that vertical mergers¹³⁰ can lead to concerns over 'input foreclosure'. The reasoning is the same as in abusive refusal: denying rival access to an input in order to gain a competitive advantage downstream. However, contrary to abuse, the guidelines do not require indispensability.

¹²¹ Horizontal Merger Guidelines 37. To make matters more complicated, the guidelines then state that greater concentration from a merger might result in a better ability to innovate by the parties and an incentive for competitors to do the same. Horizontal Merger Guidelines 38.

¹²² The Merger and Innovation Policy Brief tries to solve this ambiguity by leaning on market structure, adding requirements of competitive constraint and market barriers, but these are neither explicit in the guidelines nor in the cases. Merger and Innovation Policy Brief 3.

¹²³ Again emphasising that this is unrelated to market shares. Horizontal Merger Guidelines 38. Pipeline products are supposed to be 'related to a specific product market'.

¹²⁴ Merger and Innovation Policy Brief 4.

¹²⁵ A different example of harm through the 'acquisition' of parallel R&D would be the Commission's ongoing investigation of Google's copying of rivals' web content – known as 'scraping' – which might lead those rivals to abandon further efforts to innovate that content. However, it remains to be seen if this novel abuse will be found. http://europa.eu/rapid/press-release_IP-16-2532_en.htm

¹²⁶ The Merger and Innovation Policy Brief points to *Medtronic/Covidien*, *Novartis/GSK oncology*, and *Pfizer/Hospira*, where several drugs undergoing clinical trials were divested. The brief also mentions *General/Electric Alston*, where in addition to a pipeline product there was also the divestment of assets for improving an existing product. Merger and Innovation Policy Brief 4 and 5.

¹²⁷ http://europa.eu/rapid/press-release_IP-17-772_en.htm

¹²⁸ Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings, OJ 2008, C 265/7 (Non-Horizontal Merger Guidelines), 10.

¹²⁹ Namely, if one of the parties will likely expand in the near future due to 'recent innovation' (which can also be read as interpreting mergers in dynamic markets). Non-Horizontal Merger Guidelines 26.

¹³⁰ Mergers in related markets (conglomerate mergers) will be analysed in the section 3. on disruption.

Instead, the Commission examines the ability, incentives, and likely impact of the foreclosure.¹³¹ A related concern in the guidelines is ‘customer foreclosure’, where it is access to customers which is denied.

Although the guidelines do not mention innovation in relation to vertical foreclosure, some Commission decisions have made this connection. Notably, *Intel/McAfee* guaranteed that downstream competitors (in security solutions) would innovate in the same terms as the merged entity (when using Intel’s chips).¹³² Decisions such as *Intel/McAfee* aim to set a level playing field for innovation. This also seemed to be a concern regarding Google: in the initial stages of the investigation, the Commission stated that rivals’ incentives to innovation would be harmed if they could not get the same prominence in Google’s search engine as Google’s own products.¹³³ That is nevertheless close to the argument, broadly accepted, that (any sort of) exclusion prevents undertakings from reaping the rewards of successful innovation. Perhaps this is why innovation is no longer referred in the final Google decision.¹³⁴

These three groups of cases have in common assets with innovation capabilities: the refused IP in abusive refusal to licence; the pipeline products in parallel R&D; and the inputs (or customers) in vertical relationships. The consultation on changes to the Merger Regulation also refers to assets that have innovation capabilities, namely IP and data sets.¹³⁵ Assets are only valuable in bundles that allow exploiting them, as the resource-based view holds and divestment remedies confirm;¹³⁶ however, it can be generally concluded that competition law has tied harm to innovation to specific assets.

¹³¹ Non-Horizontal Merger Guidelines 11. This is described as creating market barriers, but the guidelines define foreclosure as competitive disadvantage. Non-Horizontal Merger Guidelines 29.

¹³² Case M.5984, *Intel/McAfee* 342. In addition to *Intel/McAfee*, the Merger and Innovation Policy Brief refers to *ARM et al. JV*, *Telefonica UK et al. JV*, and *Intel/Altera*. Merger and Innovation Policy Brief 6-7.

¹³³ http://europa.eu/rapid/press-release_IP-15-4780_en.htm

¹³⁴ See ft. 16.

¹³⁵ The Commission does not mention innovation expressly, but refers to ‘high market potential’ and ‘products under development’. See ft. 18.

¹³⁶ For example, divestment of pipeline drugs has included manufacturing equipment, IP and other rights, technology, scientific and regulatory material, and staff. Merger and Innovation Policy Brief 4 and 5.

3.2. Adjudicating innovation claims

Intervention has not been just about assets, but about competing claims over them. These claims are split along keeping control over the asset and having it (forcibly) shared. In abusive refusal and vertical relationships, the asset is controlled by a dominant undertaking or a merged entity while competitors seek access to it. In parallel R&D, the asset is bound to be controlled by the merged entity unless competition authorities intervene to divest it. These claims are argued and settled over which alternative is better for innovation.¹³⁷ Therefore, they are claims of innovation.

Innovation claims require a dynamic assessment, often putting competition authorities in the position of having to act *ex ante*.¹³⁸ This is so in merger control, where effects have to be anticipated. Conversely, abuse usually treats exclusion *ex post* – *Magill* and *IMS* were about innovative products already being commercialised. Thus, although the new product condition is dynamic, the Court could handle it like static exclusion. In *Microsoft*, however, interoperability data was claimed to be necessary for future innovation. This may be why the General Court abandoned the new product condition in favour (a more generic) impediment to technical development – taken from the letter of Article 102 TFEU and, not coincidentally, also appearing in the Merger Regulation.¹³⁹ Innovation yet to occur is one of those difficult predictions about the future which, as quoted in the introduction, Bohr jested about.

So far, competition law has anticipated innovation by way of incentives. *Microsoft* stated that not sharing interoperability data ‘discouraged’ competitors from offering innovative features.¹⁴⁰ *Dow/Dupont* framed harm to innovation as ‘[r]emoving the parties’ incentives’ to both pursue parallel R&D and bring new products to the market.¹⁴¹ *Intel/McAfee*, following the Non-Horizontal Merger Guidelines, examined the incentive to foreclose the downstream market.¹⁴² The investigation of Google also

¹³⁷ Framed like this, the fate of the asset is a question of allocative efficiency; as discussed in Section 1., the different types of efficiency and innovation are joined in a dynamic context.

¹³⁸ Kern (rightly) links ‘specialised assets’ with the discoverability of innovation sources, but still considers those assets as market barriers and not resources granting a competitive advantage. Kern (cit. ft. 72) 197.

¹³⁹ As ‘technical [...] progress’, regarding the appraisal of concentrations, Merger Regulation Art. 2(1)(b).

¹⁴⁰ *Microsoft* 653.

¹⁴¹ See ft. 17.

¹⁴² *Intel/McAfee* 126.

advanced that competitors had lower incentives to innovate. Incentives therefore seem like the main – if not only – analytical tool employed. It is nevertheless argued that incentives might be misleading, and in any event the wrong focus, when dealing with harm to innovation.

Incentives mislead by veering towards market structure. When innovation is analysed using the same apparatus as structure, results cannot but resemble: exclusion lowers the incentive to innovate, incentives are harmed by market concentration, and market power provides an incentive to lower innovation – the conclusion in *Microsoft*, (the second part of) *Dow/Dupont*, and *Intel/McAfee*, respectively. In short, market power is bad for innovation. This may very well be the case, as commented regarding an indirect approach. Structural concerns over innovation were enough to block the merger in *Deutsche Börse/NYSE Euronext*, confirmed on appeal to the General Court.¹⁴³ Furthermore, market structure analysis has achieved a high degree of sophistication, so it is not a foregone conclusion that incentives will always go with market power.

However, repeated success in finding and solving innovation problems related to market structure should give reason to pause. Competition law remains predominantly static.¹⁴⁴ As such, technical development may be interpreted in the static manner of harm to productive efficiency,¹⁴⁵ merger control has relied on static investment in R&D,¹⁴⁶ and vertical foreclosure is based on a static concept of exclusion which does not require indispensability.¹⁴⁷ This facilitates intervention, but remains an inadequate framework for dynamic competition.

The point is that competition law should focus on capability to innovate, not incentives. If innovation is beneficial in both competitive and concentrated markets,¹⁴⁸ a reasonable starting assumption is that all undertakings have some incentive to innovate regardless of their market power.¹⁴⁹ This is, after all, what is desired by a level playing

¹⁴³ T-175/12, *Deutsche Börse*, EU:T:2015:148, 157-179.

¹⁴⁴ Sidak and Teece are sceptical that this can be averted. Sidak and Teece (cit. ft. 7) 585.

¹⁴⁵ See ft. 61 and 62.

¹⁴⁶ Petit (cit. ft. 8) 9.

¹⁴⁷ See ft. 131.

¹⁴⁸ Concentrated markets may (or not, depending on the facts) suppress price competition and therefore increase incentives to innovate. Federico, Langus, and Valletti (cit. ft. 73) 2.

¹⁴⁹ The contestability of a market may vary, as Shapiro examines, and it should not be assumed that the incentive is the same for every undertaking – it may, as a structural approach holds, diminish with market

field to compete on innovation. In contrast with the similarity of incentives, however, not all undertakings have the capability to innovate. This difference in capability, not structure, is what ends up determining the reasons to exclude as well as the exclusionary strategies pursued.

As it happens, difference in innovation capabilities is what the resource-based view aims to capture. Applying the assumption of firm heterogeneity, the question can quickly progress from whether innovation is at stake – if the asset is found to have innovation capabilities, by definition it is – to examining which undertaking has a better innovation claim. Since the claims concern the same asset, the legal standard should be whether undertakings can do something different *from each other*. This requires examining, according to the onus of the legal test at issue and backed up by economic expertise as necessary, how the asset integrates with the resources that make up the undertakings in question.¹⁵⁰

This legal standard – difference – is the answer to the problem of anticipating innovation. It is no static assessment, therefore does not require predicting exactly how innovation will shape out, only how differently it will according to the undertakings concerned. Difference thus integrates the counterclaim that keeping control of the asset might be better for innovation. As discussed in more detail in the next sub-section, the innovative efforts of dominant or merging undertakings cannot be examined separately from their competitors (as they would under a justification). This is coherent with the standard of technical development in Articles 101 and 102 TFEU and in the Merger Regulation, which necessarily points towards a gain for the whole industry.

The breakthrough of the resource-based view is that undertakings can be differentiated other than by their market power incentives. Competition law already does this in practice, through assets, but this has been distorted by the need to run those assets by market structure. The outcome has been to consider assets as markets in themselves: an individual monopolist was found for each of the schedules in *Magill*,¹⁵¹

power. In any event, Shapiro also differentiates between incentives (contestability and appropriability) and ability (synergies) to innovate. Shapiro (cit. ft. 10) 365.

¹⁵⁰ The bundles of resources object of the resource-based view, as referred above. This is also close to the ‘synergies’ analysed by Shapiro, which relates to the ability to innovate. Shapiro (cit. ft. 10) 365.

¹⁵¹ The ‘market represented by [the broadcaster’s] weekly listing’. *Magill* 24. This multiplied the cases of abuse, one for each broadcaster (*Magill* joined the appeals of two of them).

the same happening with the data format used internally in *IMS*.¹⁵² This kind of market definition does not consider dynamic substitution of inputs, making innovation appear at the mercy of ‘asset monopolists’.¹⁵³

This supposed monopoly power ends up not influencing the tests of anti-competitive behaviour, as illustrated by abusive refusal to license. Indispensability brings in the dynamic assessment that is lacking, and the new product or technical development conditions consider the market where innovation takes place. Market power incentives play little role, as innovation capabilities must be demonstrated. Thus, mere reproduction is precluded¹⁵⁴ and a show of previous innovation is valued. In the absence of a new product to latch on, the General Court stated in *Microsoft* that previous novel features ‘spoke volumes’¹⁵⁵ – this would not be the case if these were the expected results of market structure.

A legal standard of difference nonetheless casts doubts over some Commission practice. The Commission seems to believe that preventing a competing product from emerging always harms innovation.¹⁵⁶ However, a product may be new but not different. Parallel R&D and compulsory access may address a need already being served,¹⁵⁷ that is to say, compete on price or another parameter besides innovation.¹⁵⁸ Addressing structural concerns remains fully within the Commission’s competences, of course, but is best kept separated from harm to innovation.¹⁵⁹ In this regard, the splitting in

¹⁵² The Court stating that ‘[i]t is sufficient that a potential market or even hypothetical market can be identified’. *IMS* 44.

¹⁵³ This was of course useful to establish dominance, as discussed in the next sub-section.

¹⁵⁴ *IMS* 49 and *Microsoft* 657.

¹⁵⁵ *Microsoft* 654.

¹⁵⁶ Thus, the Merger and Innovation Policy Brief bundles ‘pipeline products that would likely have entered existing markets or that would have created entirely new product markets’, considering that there is loss of innovation in both cases. Merger and Innovation Policy Brief 4.

¹⁵⁷ Kern argues, against the seminal research by Sah and Stiglitz on the wastefulness of parallel research – and in line with this paper but not linked with the resource-based view – that firm heterogeneity may lead to different outcomes in pharmaceutical research even if the therapeutically goal is the same. Kern (cit. ft. 72) 200. If sufficiently proved, this could counter claims of lack of difference.

¹⁵⁸ *Novartis/GSK oncology* examined ‘new products that will be developed for the same product market’, raising concerns for both price and variety. Case M.7275, *Novartis/GSK Oncology business* 110. *Pfizer/Hospira* stated that reduced incentives to innovate would ‘lessen price competition’. Case M.7559, *Pfizer/Hospira* 58. In contrast, *Medtronic/Covidien* concerned a product that would become ‘a strong contender for the market, including for indications for which [the acquirer’s] device is not currently approved’. Case M.7326, *Medtronic/Covidien* 249.

¹⁵⁹ Vertical relationships are problematic in this regard: if the Commission follows the Non-Horizontal Guidelines to the letter, it will apply a (structural) test of foreclosure which, as already remarked, does not even mention innovation. Hence, *Intel/McAfee* remarked ‘rapid innovation’ at the level of market

Dow/Dupont of concerns over discontinuing parallel R&D and over lowering incentives due to market concentration is an encouraging sign.¹⁶⁰

3.3. Appropriability

Grounding harm to innovation on difference, *tout court*, may seem like a policy prescription to share assets whenever rivals are able to improve on their use. This is bound to raise a concern for appropriability, that is to say, how investment in assets is incentivised by the ability to appropriate their returns. Some have argued that the current level of intervention already chills innovation,¹⁶¹ since it would interfere with the calibration of incentives set by IP rights. This goes to the supposed deference of competition law to IP rights, signalled at the outset, which would only allow intervention in case of significant market structure concerns.

While IP rights have been widely associated with appropriability,¹⁶² this does not follow from the market power incentives which feature so prominently in competition law discourse.¹⁶³ Rather than competitive markets, the incentive to innovate would lie in legally-protected expectations.¹⁶⁴ It is argued that, while appropriability explains a more limited intervention than the definition of harm to innovation would suggest, competition law does not outsource this function to IP law. The legal expectations of competition law are as much of an incentive as IP rights, since they protect the value of innovation from being emptied by anti-competitive action.¹⁶⁵

definition but, as regards the anti-competitive behaviour, did not show the concern for innovation capabilities which is evident in the case law on abuse. *Intel/McAfee* 109.

¹⁶⁰ The Commission identifies pipeline products which might be discontinued post-merger as a separate concern from the lower incentives that would result from a limited number of undertakings active in a global market with very high barriers to entry. See ft. 17.

¹⁶¹ As Baker notes, appropriability can be argued as a defence against an offence, as a reason to interpret competition rules narrowly, and in relation to remedies. Baker (2016) 'Evaluating Appropriability Defenses for the Exclusionary Conduct of Dominant Firms in Innovative Industries', 80 *Antitrust Law Journal* 431.

¹⁶² Appropriability is highlighted by Shapiro as an incentive for innovation, and connected to IP rights. Shapiro (cit. ft. 10) 364.

¹⁶³ Sidak and Teece (cit. ft. 7) 592.

¹⁶⁴ Sidak and Teece (cit. ft. 7) 593.

¹⁶⁵ Baker argues that the harm to appropriability from intervention can be surpassed by the added incentive for rivals to innovate due to the protection against exclusion. Baker (cit. ft. 161) 437. This applies both to an indirect approach and the harm to innovation argued in this paper.

Concerns over appropriability are often raised when refusals to supply are found abusive.¹⁶⁶ However, such concerns should be dwarfed by the consequences of defining markets based on assets. As noted in the previous sub-section, this came about by the need to differentiate undertakings according to market power.¹⁶⁷ However, such intra-undertaking ‘dominance’ increases the risk of intervention exponentially, since it opens the way for the market structure concerns which are central to competition law.¹⁶⁸ This would damage appropriability enormously, were it ever explored in practice: the moment a product protected by IP is commercialised there would be leveraging from the IP ‘market’ to the product market.¹⁶⁹

This paper proposes that dominance should be shifted to the market where harm takes place, leaving assets to be examined under a resource-based view. If dominance were based on the product using the IP, a dominant position would only occur upon that product’s success – a more reasonable buffer for intervention. Regardless, if the concern is innovation what matters is the market where it plays out, not the ‘asset monopoly’. Had this option been explored, the offending undertakings in *Magill* and *IMS* could have equally been considered dominant in the market of the abuse.¹⁷⁰

Regardless (or in spite) of asset-based markets, the question remains of how appropriability keeps intervention in check. Appropriability does seem behind the statement, already referred to, that a refusal to licence IP is only abusive in exceptional circumstances. However, the conditions of abuse are not strikingly exceptional: the IP of one product can be used to create a competing product, that IP thereby becomes indispensable, and exercising the IP right is enough to completely remove such

¹⁶⁶ Article 102 TFEU Guidance 75.

¹⁶⁷ *Magill*, and then *IMS*, were based on theories of leveraging developed for the tying of products in different markets, hence they had to start from an (asset-based) market. *Microsoft* moved away from this, since the Commission could easily find dominance in the operating system market, but in doing so left true leveraging behind: there is no use of market power, since the competitors being refused access to interoperability data are not the consumers of operating systems.

¹⁶⁸ In addition to abuse, the analysis of every asset of an undertaking would consume merger control, with the risk of having to divest internal assets that have a significant market value.

¹⁶⁹ Considerable effort has been spent in dismissing ‘internal’ tying of product components, but not for other abuses – an internal asset could be accused of *de facto* exclusivity, for example.

¹⁷⁰ The exclusion of competition would thus reinforce dominance, issues which *IMS* left to the national courts. *IMS* 47. In *Magill* the dominant undertakings ‘reserved to themselves’ the market of television magazines, even though each one only controlled their own schedules – thus, they could have also been considered collectively dominant. *Magill* 56. Even in *Microsoft*, which did not define an asset-based market, the share in the affected server market was 60%. *Microsoft* 33.

competition. This is the story of every unauthorised IP adaption. Furthermore, exceptionality is not available for other interventions affecting IP rights.

Appropriability came to the fore in *Microsoft*, where it was argued that because IP rights protected incentives they should be treated as an objective justification.¹⁷¹ Although it was not spelled out, this would make abuse truly exceptional: only when the exercise of the IP right would be disproportionate.¹⁷² The General Court did not perceive this, stating that such justification would prevent the abuse from ever occurring.¹⁷³ It nonetheless examined another justification: whether access would have a ‘negative impact on [Microsoft’s] incentives to innovate’.¹⁷⁴ Not only did Microsoft fail to prove so, the General Court pointed to two factors against such negative impact: there was no cloning or copying, and it was industry practice to share interoperability data.¹⁷⁵

There is much to take from the General Court’s analysis of incentives in *Microsoft*. Appropriability does not stop at the doorstep of IP:¹⁷⁶ cloning or copying, as well as industry practice, have an obvious impact on incentives. For good reason this was also examined regarding preventing technical development.¹⁷⁷ This double role – for finding a restriction as well as objectively justifying it – lines up incentives to innovate with ancillary restraints under Article 101 TFEU.¹⁷⁸ As such, rather than a justification up to the dominant undertaking to prove, appropriability should be part of establishing harm to innovation to begin with¹⁷⁹ – as it already was in *Microsoft*.¹⁸⁰

¹⁷¹ *Microsoft* 669.

¹⁷² This would explain why the abuse was seldom pursued, but still leave significant room – namely where IP protection is extended beyond its duration or the products covered, as was indeed later found abusive. Case C-567/14, *Genentech*, C:2016:526 and Case C-385/07, *Grüne Punkt*, C:2009:456.

¹⁷³ *Microsoft* 690. An objective justification can also be based on preserving the integrity of the IP, as it is generally accepted for the refusal of physical inputs like infrastructure. This issue will likely be developed in the ongoing investigation of Google in relation to the ‘anti-fragmentation agreement’ preventing changes to Android. http://europa.eu/rapid/press-release_IP-16-1492_en.htm

¹⁷⁴ *Microsoft* 696-98. This negative impact on incentives is examined in itself, not in a balance with industry incentives to innovate, as the General Court rightly rejected. *Microsoft* 710.

¹⁷⁵ *Microsoft* 700-02.

¹⁷⁶ This was highlighted incidentally when the General Court discussed that the protection of secret information – another way to secure appropriability – was on par with public IP. *Microsoft* 693.

¹⁷⁷ *Microsoft* 654 and 657.

¹⁷⁸ Whish and Bailey (cit. ft. 42) 135. Some restrictions of competition, like exclusivity or non-compete obligations, have been found necessary for market entry or business acquisitions – in other words, for the appropriability of those investments. The Court has stated this quite clearly in relation to investments in IP. Case 258/78 *Nungesser*, C:1982:211 and Case 262/81, *Coditel II*, C:1982:334.

¹⁷⁹ If the ongoing investigation of Google results in finding scraping abusive this would be perfectly illustrated, as the issue is denying Google’s rivals the appropriability of their investment in content.

Once appropriability is freed from IP rights to focus on incentives, the resource-based view can connect it with competitive advantage.¹⁸¹ Market structure suggests that intervention does not harm incentives, since the advantage of market barriers remains.¹⁸² The resource-based goes further by examining the resource characteristics which, regardless of market structure, can create a competitive advantage. A resource-based view moves from competition on the merits, which merely registers productive improvements, to whether a rent is created from investing in those improvements. It is precisely this incentive that appropriability aims to capture.

The resource-based view thus explains why intervention is limited: it would affect the rent drawn from competitive advantage. This is not a question of preserving market power since, as already commented, that makes for poor appropriability. More simply, innovation involves risk¹⁸³ so that it is hard to determine the adequate rent.¹⁸⁴ The resource-based view is well aware of the causal ambiguity surrounding this rent,¹⁸⁵ so instead it concentrates on competitive advantage. The resource characteristics affecting competitive advantage are, as already referred: difference, replicability, mobility, and favourable acquisition. Difference was found to be the legal standard for harm to innovation. Replicability and mobility are how legal regimes condition the expectation of appropriability.¹⁸⁶

Favourable acquisition may thus be, of all the characteristics, the one that links intervention with appropriability. This characteristic examines whether, in a dynamic context, the rent is nullified by the cost of acquiring or producing the resource. If the rent is preserved, the incentive will hold. Those situations are quite limited insofar as ex

¹⁸⁰ The distinction is quite fine since ancillary restraints also require objective necessity. Whish and Bailey (cit. ft. 42) 135 and 136. The conceptual difference is that objective justification assumes there is harm, ancillary restraints conclude there is not. In any event, it should not be up to the dominant undertaking to prove that there will be copying or cloning, since they are not responsible for rivals' behaviour.

¹⁸¹ Lianos calls for to internalizing IP values, notably the promotion of incentives to innovate, in competition law enforcement. Lianos (cit. ft. 7) 3.

¹⁸² Baker (cit. ft. 161) 437.

¹⁸³ Schilling (cit. ft. 64) 193.

¹⁸⁴ The valuation of risk has traditionally been a problem for finding exploitation in competition law. Whish and Bailey (cit. ft. 42) 760.

¹⁸⁵ Peteraf (cit. ft. 22) 182.

¹⁸⁶ As such, IP law is mostly about replicating and transferring the IP. This does not mean there is no appropriability problem if copying or taking the asset is free – competition law can itself step in to secure an incentive, as could be the case for scraping.

ante and *ex post* competition for the asset will erode the rent.¹⁸⁷ Abusive refusal to licence, however, shows this might not always be the case. In *Magill* the schedules were a by-product of broadcasting activity, *IMS* involved a *de facto* standard to which the whole industry contributed,¹⁸⁸ and *Microsoft* referred to industry practice of sharing interoperability information. In principle, the rent from controlling these assets was not reflected in their cost.¹⁸⁹

Moreover, intervention seems to privilege market returns and discount other kinds of appropriability – even if these other kinds are equally, if not more, effective at rewarding investment. The benefits of vertical integration are set aside for creating a level playing field for all undertakings to innovate in the market. Divestment that guarantees market presence is also favoured, even if innovators are amply compensated by acquisition and duplication negates the returns from the (sometimes only) innovative product. This preference for market returns may explain the lopsided number of abuse and mergers cases: a dominant undertaking will stay on the market, advising against intervention, while an acquired undertaking trades this option away.

The role of appropriability remains largely unstated, and a resource-based view is but a first approach. Privileging market returns is normatively coherent with competition law's emphasis on competition on the merits. In addition, the circumstances behind favourable acquisition are as varied as dynamic competition.¹⁹⁰ The absence of formalised rules and scattered Commission practice suggest that incentives to innovate are evaluated on a case-by-case basis. Considering the burdens of (inadequately) framing appropriability as an objective justification, incentives are indeed currently better left to enforcement priorities.

¹⁸⁷ *Ex ante* competition can take the form of bidding for the asset, and *ex post* competition may lead to an increase in its supply. Peteraf (cit. ft. 22) 182 and 185. As such, favourable acquisition is not so much about allocative inefficiency as of preventing markets for the resource from appearing.

¹⁸⁸ *IMS* 29.

¹⁸⁹ Wu argues, in relation to standard setting and platforms, that '[t]he platform that declares itself closed from the outset does not gain the advantages of inviting development on an open platform. The problem is with platforms that gain dominance based on a practice of serving as the entire industry's basis for innovation and then later use that position to destroy any threats to their dominance'. Wu (cit. ft. 7) 324.

¹⁹⁰ Former public monopolies have long been associated with the willingness to mandate access in the EU. Whish and Bailey (cit. ft. 42) 747. The Court states that legal monopolies should be taken into account in dominance and the Commission considers these monopolies, as well as the use of State resources, as indications that incentives will not be harmed by intervention in abusive refusal to supply. *Post Danmark I* 23 and Article 102 TFEU Guidance 82.

4. Disruptive innovation

Competing innovation claims, as examined so far, have not differentiated between follow-on and disruptive innovation. Neither has competition law in general. Follow-on innovation runs along the lines of productive efficiency, hence harm can be reasonably captured by cost and quality. This falls in line with competition law's concern for consumer welfare.¹⁹¹ Attempting to reverse the market changes brought about by disruption will appear equally detrimental to consumers. However, there is no visible loss if disruption is frustrated before those changes occur – markets continue to operate as competitively as before. Thus, although disruption is the most emblematic form of innovation, it is much harder to capture.

The root of the problem is that – as the theory of disruption emphasises – disruptors start off as less efficient. Although disruption brings to mind superior products that make whole markets obsolete, this is only after disruption has succeeded. In reality, strategic management studies have found that disruptive products emerge in the fringes of the market, or related markets, which are neglected by incumbents.¹⁹² Because disruptive attributes are not valued initially, disruptors start by competing through low prices.¹⁹³ This 'disruption from below' can be contrasted with 'disruption from above': expensive products which start by serving only a minority of consumers.¹⁹⁴

It has additionally been argued that the firm itself can support disruption, shifting the emphasis from demand to supply.¹⁹⁵ Like disruptive products, production methods can depart from, and eventually overtake, the preferred ways of doing things. However, also like products, disruptive methods start off inefficiently in comparison with the incremental improvement that established methods have benefited from. Demand and supply can be analysed in isolation but are often related, as the business model of disruptors also differs from incumbents.¹⁹⁶

¹⁹¹ Whish and Bailey (cit. ft. 42) 19.

¹⁹² Christensen, Raynor, and McDonald (cit. ft. 21) 5.

¹⁹³ Owings (2013) 'Identifying a Maverick: When Antitrust Law Should Protect a Low-Cost Competitor', 66 *Vanderbilt Law Review* 344.

¹⁹⁴ Streel and Larouche (cit. ft. 12) 3.

¹⁹⁵ Gans (2016) 'The Other Disruption', *Harvard Business Review* <https://hbr.org/2016/03/the-other-disruption> 2.

¹⁹⁶ Christensen, Raynor, and McDonald (cit. ft. 21) 7.

In any case, the theory of disruption requires an increase in productive efficiency. The unpromising start is what allows disruptors to go on unscathed, as incumbents are naturally occupied with getting the most out of preferred attributes and production methods.¹⁹⁷ If an undertaking comes to the market and immediately beats incumbents on their terms, this is a particularly successful case of follow-on innovation.¹⁹⁸ Yet, if disruptors are to fulfil their promise, they must grow out of their starting inefficiency.¹⁹⁹ Disruption from below must increase utility in order to challenge preferred attributes,²⁰⁰ disruption from above must decrease price to be mass-marketed, and disruptive methods must be assimilated by the undertaking to achieve a cost advantage.²⁰¹

This increase in productive efficiency is a necessary, but not sufficient condition. Whether new attributes become more valued by consumers, or any other kind of disruption comes through, is shrouded by the uncertainty of innovation. As such, tests of harm must be satisfied with the potential for disruption and focus on strategies that frustrate it. Market power gains are moot for those strategies. Disruptive innovation is very different from preserving a competitive market structure, or even the conditions for follow-on innovation, and should be given priority over them.

This section will discuss whether exclusion can incorporate the above elements particular to disruptive innovation. A first difficulty comes from strategic management studies' scepticism on whether disruption can be sufficiently anticipated so as to be stopped. The application of competition law to disruptive innovation will be examined after, namely whether existing tests based on allocative and productive efficiency do not prove counterproductive. The section concludes with guidelines for adapting those tests to harm to disruptive innovation.

¹⁹⁷ Streeck and Larouche comment that disruptive innovation 'comes from the blind side of incumbent firms'. Streeck and Larouche (cit. ft. 12) 3.

¹⁹⁸ Christensen (who coined the theory of disruption) *et al.* argue that Uber, often given as an example of disruption, is one such case: 'Uber's service has rarely been described as inferior to existing taxis; in fact, many would say it is better'. Christensen, Raynor, and MacDonald (cit. ft. 21) 6.

¹⁹⁹ The so-called 'second phase', becoming mainstream (after the 'first phase', the inefficient start). Streeck and Larouche (cit. ft. 12) 4.

²⁰⁰ Christensen, Raynor, and MacDonald (cit. ft. 21) 5.

²⁰¹ The many instances of disruption also exemplify an increase in productive efficiency: streaming and private rentals needed to become as convenient as DVDs and hotels, and cars and mobile phones as affordable as horses and land lines. This goes to show that the border with disruption through the firm is fluid, since production methods play an important role in increasing the utility or lowering the cost.

4.1. The inevitability of disruption?

Strategic management studies are doubtful of incumbents being able to ward off disruptive innovation. Disruption seems inevitable *ex post* and, more importantly, impossible to predict *ex ante*. Disruptive products can come from anywhere, and knowing that they will have new attributes not currently valued is of little help. This is so even if strategic management avoids market definition:²⁰² disruptive products end up defining their own market,²⁰³ but they might start in the same one which they will eventually disrupt or in a separate, related market.²⁰⁴ The scope of potential disruption is therefore enormous, as practically any firm will have less efficient rivals and imperfect substitutes.

Incumbents are said to be caught unaware by disruption, as already remarked, because they offer what the market wants and use the most productive methods. Not only that, it makes sense for incumbents to concentrate on the real and present danger posed by rivalry and substitution. Many potential disruptors – if not all – will fail to make the necessary increase in productive efficiency.²⁰⁵ It has been suggested that incumbents can create separate internal units, so as to force them away from the currently favoured attributes and production methods.²⁰⁶ Incumbents with a large R&D budget can also spread research from incremental improvements to market-changing technologies.²⁰⁷ However, none of these tactics has changed the generalised view that disruption will arrive unexpectedly and irresistibly.²⁰⁸

²⁰² See ft. 85.

²⁰³ Streel and Larouche (cit. ft. 12) 6.

²⁰⁴ See ft. 192. In market definition terms, disruptive products start in the same market if they substitute incumbent products by compensating lower value with lower price, and in a different market if the value or price gap does not allow substitution. After disruption the market is redefined to the marginalisation of incumbents, either within the same market or in a reduced separate market.

²⁰⁵ Christensen, Raynor, and MacDonald (cit. ft. 21) 8.

²⁰⁶ Christensen, Raynor, and MacDonald (cit. ft. 21) 11.

²⁰⁷ Schilling (cit. ft. 64) 194.

²⁰⁸ It is however also accepted that public power can be used to prevent disruption, notably regulation protecting incumbents. OECD (2015) Key Points of the Hearing on Disruptive Innovation, DAF/COMP/M(2015)1/ANN8/FINAL 3. This could fall under the scope of Article 106 TFEU, which extends competition rules to undertakings with special or exclusive rights. This paper does not discuss the case law on Article 106 TFEU, which has indeed covered the prevention of technical progress.

This fatalistic view contrasts with the narrative of competition law. Market power would both rob the incentive to innovate – the ‘lazy monopolist’²⁰⁹ – and grant the means to prevent disruption: acquiring or foreclosing disruptive innovators.²¹⁰ Harm to innovation would thus be identifiable *ex ante*, or at least sufficiently *ex post* for competition authorities to act timely.²¹¹ The main obstacles would be focusing enforcement on static concerns like price-fixing²¹² and, as raised recently, the acquisition of low business volume innovators falling below merger thresholds.²¹³

The enforcement record is somewhat mixed. Microsoft does not seem to have been disrupted despite the decisions against it, and by the time *Magill* was decided *Magill* itself had gone broke. However, the deterrent effect of these cases is hard to gauge. Merger intervention can more easily be painted as success, as the Commission’s account of its innovation policy does,²¹⁴ but no particular claim is made there regarding disruption. Strategic management could point to the survival of Microsoft’s products and the disappearance of the single-broadcaster guides of *Magill* as proof that disruption breaks through, or not, regardless of intervention. In any event, there is dearth of cases where intervention is credited with safeguarding disruption.²¹⁵

The view of strategic management changes, but does not nullify, the need for intervention. A tempting conciliation is to say that, even if disruptive innovation is inevitable, consumers should not suffer in the interim. This is certainly valid from a static perspective, where innovation is a given and the only aim is to maximise its benefits. However, competition law does have a word to say about securing dynamic competition. Disruption appears inevitable after the fact, but its inefficient start gives credence to the belief that it can indeed be frustrated.

²⁰⁹ Curiously, management studies speak of ‘organisational slack’ as enhancing the experimentation and risk taking necessary for innovation – another example of the lack of relationship with market structure. Schilling (cit. ft. 64) 198.

²¹⁰ Wu remarks that ‘innovation and exclusion are alternative responses to an external challenge’. Wu (cit. ft. 7) 319.

²¹¹ Waller and Sag (cit. ft. 68) 5 and Streel and Larouche (cit. ft. 12) 7.

²¹² Waller and Sag (cit. ft. 68) 19.

²¹³ Streel and Larouche (cit. ft. 12) 9.

²¹⁴ The acceptance of remedies means that the Commission’s claim of harm to innovation, as well as the adequacy of the remedies, goes unchallenged. The only exception was *Deutsche Börse/NYSE* but, as already said, the General Court confirmed the decision on appeal. Merger and Innovation Policy Brief 6.

²¹⁵ The main (and sometimes only) example is Microsoft’s tying of Windows with Internet Explorer, which led to a judicial decision in the United States and commitments in the EU. Waller and Sag (cit. ft. 68) 8 and Streel and Larouche (cit. ft. 12) 8. The claim is that browsers could have disrupted operating systems by shifting processing from the personal computer to the internet (which also did not happen).

To begin with, incumbents can devise a rational policy against potential disruptors. It is true that disruption can come from an unknown number of sources, but that does not prevent incumbents from trying to anticipate them.²¹⁶ Incumbents can project which new attributes and production methods have disruptive potential and, rather than trying to nip them all in the bud, stay on the lookout for those that show signs of accelerating productive efficiency. Even if these turn out not be disruptive, as most will, a prophylactic policy might be cost-effective considering the dire consequences of successful disruption.²¹⁷

Such a policy is also relatively easy to set in place. Many undertakings engage in constant acquisitions which can accommodate (and hide) measures against potential disruptors.²¹⁸ Moreover, the inefficient start of potential disruptors makes them vulnerable to competitive pressure. The incumbent does not have to suppress the disruptive technology but, as will be discussed, only limit markets so as to prevent potential disruptors from gaining enough productive efficiency.²¹⁹ The failure of a potential disruptor will be taken as another inefficient undertaking exiting the market, deterring others from engaging in similar investments.

The ability of competition authorities to identify the exclusion of potential disruptors has thus been overestimated. Innovators are assumed to fit neatly in structural competition, their smothering by market power for all to see, when this is only the case for disruption which has already been successful.²²⁰ Nevertheless, if incumbents can attempt to anticipate potential disruption so can competition authorities. Acquisitions of parallel R&D are a natural place to start, followed by the targeting of potential disruptors or disruptive markets. All that is necessary is to fine-tune tests away from market structure, as will be seen next.

²¹⁶ Waller and Sag (cit. ft. 68) 2.

²¹⁷ Highly priced mergers might still be loss-making but for the premium of preventing disruption. Streel and Larouche (cit. ft. 12) 9. As disruption is uncertain and the potential disruptor is inefficient, the premium may not be fully valued in the acquisition price.

²¹⁸ Streel and Larouche (cit. ft. 12) 6.

²¹⁹ Audretsch *et al.* comment how 'excessive innovation' may be used to prevent resource-constrained competitors from evolving. Audretsch, Baumol and Burke (cit. ft. 23) 627.

²²⁰ If a disruptive product is as efficient as incumbents it will have already surpassed them, making acquisition or exclusion much more difficult. There is good argument there for competition law not to intervene to safeguard innovation but remain vigilant on market structure.

4.2. Lack of specific tests

Disruptive innovation sabotages many of the tests used by competition law, as the exclusion of potential disruptors can be reflected in market structure just as well as slip by unnoticed. Sometimes an increase of market power will be made at the expense of a potential disruptor and this will be enough to find an infringement. Other times the loss of the disruptor will leave plenty of residual competition and low market barriers, or incumbents will point towards their higher productive efficiency, and disruptive innovation will be successfully frustrated.

The same happens regarding follow-on innovation. Sometimes it will allow potential disruptors to increase their productive efficiency, but other times these will simply be different types of innovation. Follow-on innovation, despite not reflecting market structure, is a closer fit with competition law's drive for technical development. In contrast, disruptive innovation requires countenance for inefficiency, as potential disruptors do not offer productive improvements and may not even fulfil their potential. As such, in case of competing claims, follow-on innovation may end up being given priority over disruptive innovation.

Harm to disruptive innovation seems best caught by the test of abusive refusal to licence, namely the condition of preventing a new product for which there is consumer demand. *Magill* was historically a case of disruptive innovation: the new product, an all-broadcaster guide, shifted preferences away from single-broadcaster guides.²²¹ Framing the test as the Court did – and not as leveraging to a separate market created by disruption – turned out very appropriate. The new product condition catches novel attributes with some disruptive potential (the consumer demand) but without demanding successful disruption (a fully separate market).²²²

²²¹ *Magill* might appear as disruption without an inefficient start: as *Magill*'s multi-schedule guide would be immediately preferable to the broadcasters' single-schedule. However, broadcaster magazines offered entertainment content which *Magill* did not – it only combined schedules. Hence, *Magill*'s guide would have to improve its content in order to be successfully disruptive (as television guides have since done).

²²² This condition is enough for disruption, and does not require reading the Court's reference to 'the development of the secondary market to the detriment of consumers' as the market for the disruptive product. *IMS* 48. The primary market in the Court's reasoning is not the incumbent's product but, as discussed earlier, the market for the asset.

The problem with abusive refusal to license is that follow-on innovation can also be considered a new product. This is what happened in *IMS*: the sales data format was sought because it had become the *de facto* industry standard,²²³ so by definition the new product was an incremental advance. The same reasoning applied in *Microsoft*, even as the new product condition was dropped: interoperability data was necessary for improving certain ‘parameters which consumers consider important’,²²⁴ the very definition of sustaining innovation. As a result of *IMS* and *Microsoft*, abusive refusal to licence was no longer about disruptive innovation.

This move has had implications for how innovation has been understood in competition law. The emphasis is currently placed on eliminating competition in a market on which the dominant undertaking is already active. This is the case not only with *IMS* and *Microsoft* but also with vertical foreclosure in general. However, preventing disruptive innovation does not mean competition is eliminated. On the contrary, it is disruption which is liable to do so by overtaking existing markets, together with any healthy competition on follow-on innovation that exists there.²²⁵

Merger control reinforces the lack of a specific concern for disruptive innovation. The Non-Horizontal Merger Guidelines characterise vertical foreclosure in structural terms, namely by the ability to affect a downstream market by denying access to inputs or customers.²²⁶ Foreclosure may thus be adapted to catch whole market impediments to follow-on innovation, but not exclusion circumscribed to potential disruptors. Furthermore, the guidelines cover mergers where there is no market overlap – ‘conglomerate mergers’ – and where the acquisition of disruptors in related markets

²²³ See ft. 188.

²²⁴ *Microsoft* 656.

²²⁵ Therefore, there is a strong incentive to collude not to disrupt a (still) competitive market. This is what happened in *Wouters*, where a bar association prohibited lawyers from practicing together with accountants, as these ‘one-stop-shops’ would have a disruptive advantage over traditional lawyers. The Court duly found a restriction of technical development under Article 101 TFEU but, instead of becoming a leading case on disruption, *Wouters* also considered such restriction necessary for ‘proper practice of the legal profession’ (not coincidentally, similar to the kind of public regulation that keeps disruption at bay). Case C-309/99, *Wouters*, C:2002:98, 90 and 107.

²²⁶ For example: ‘[t]he higher the proportion of rivals which would be foreclosed on the downstream market, the more likely the merger can be expected to result in a significant price increase in the downstream market and, therefore, to significantly impede effective competition therein’. Non-Horizontal Merger Guidelines 48.

should rank the highest. Nonetheless, the only concern shown regarding conglomerate mergers is static tying arrangements.²²⁷

Disruption could in theory fall under the Horizontal Merger Guidelines' reference to 'important innovators in ways not reflected in market shares'.²²⁸ However, contrary to the detail dedicated to foreclosure, the guidelines do not specify what constitutes an important innovator beyond recent entry and evading coordination.²²⁹ These characteristics have been associated with so-called 'mavericks',²³⁰ and so too has disruptive innovation.²³¹ The latter is nevertheless still to be confirmed in practice. The Commission appears not to distinguish between innovative and non-innovative advances in parallel R&D, as already remarked,²³² let alone disruption.

The General Court's judgment in *Cisco*, an appeal of the Commission's approval of Microsoft's acquisition of Skype,²³³ provides an illustration. At issue was the possible integration of Skype's eponymous software with Lync, Microsoft's software for company communications. They were considered to be in different markets, so the General Court started by reaffirming the case law of the Court of Justice that:

'The assessment of a conglomerate-type concentration is based on a prospective analysis in which, first, the consideration of a lengthy period of time in the future and, second, the leveraging necessary to give rise to a significant impediment to effective competition mean that the chains of cause and effect are dimly discernible, uncertain and difficult to establish'.²³⁴

The Court of Justice waived at dynamic competition by referring to a 'prospective analysis' and 'uncertain and difficult' causality. The General Court nonetheless chooses to ignore this, adding its own case law that 'the significant impediment to competition [must be] the direct and immediate effect of the concentration'.²³⁵ Such certainties are

²²⁷ Non-Horizontal Merger Guidelines 93.

²²⁸ Horizontal Merger Guidelines 20.

²²⁹ Horizontal Merger Guidelines 37 and 42. Entry and non-coordination are however only the expectations of a competitive market, so that they add little to a market structure approach. Indeed, the concept of maverick – an undertaking which ignores market incentives – is paradoxical to such approach.

²³⁰ Owings (cit. ft. 193) 328.

²³¹ Waller and Sag (cit. ft. 68) 17 and Streel and Larouche (cit. ft. 12) 10.

²³² See ft. 156.

²³³ Case T-79/12, *Cisco*, T:2013:635.

²³⁴ *Cisco* 117, citing Case C-12/03 P, *Tetra Laval*, C:2005:87, 44.

²³⁵ *Cisco* 118. The General Court further connects this to future decisions 'made possible and economically rational by the alteration of the characteristics and the structure of the market'.

only appropriate for static competition. Even though the merger in *Cisco* did not involve an impediment to disruptive innovation, demanding a direct and immediate effect is bound to nullify any such claim.

Curiously, *Cisco* did examine disruption, but from the side of the merged entity. The General Court rejected the argument that Microsoft could foreclose its competitors by integrating Lync with Skype²³⁶ as uncertain and in the future.²³⁷ The General Court also found that the prospective advantage was vague, lacked ‘real and significant demand’, and would not become a ‘must have’ since alternatives were available.²³⁸ This is precisely how disruptive innovation looks *ex ante*. The General Court even considered that Lync’s low market shares denied it the power to exclude.²³⁹ Of course, a merger should not be objected to because it might lead to disruption.²⁴⁰ However, *Cisco* might very well be used against the reverse claim.

In conclusion, tests which could catch harm to disruptive innovation suffer from a lack of distinction with follow-on innovation and an excessive connection with market structure. These tests can still work if competition authorities use their discretion to prioritise investigations or raise merger concerns involving potential disruptors. Exclusion does not need to be grounded on preventing disruption, even if that is its purpose. For instance, leveraging market power into a potentially disruptive market is a typical defensive strategy, which can be caught by the leveraging alone.²⁴¹ However, this can only go so far. Not all leveraging is anti-competitive,²⁴² and not all exclusion will raise a structural or follow-on innovation concern to grab hold of.

²³⁶ *Microsoft* 119.

²³⁷ *Microsoft* 121.

²³⁸ *Microsoft* 125-127. The reference to ‘traditional telephone communication’ is particularly telling.

²³⁹ *Microsoft* 134.

²⁴⁰ As Hovenkamp observes, the claim that innovation is exclusionary is one ‘that antitrust wisely either rejects or else limits to situations where the innovation at issue is no innovation at all, but only an attempt to contrive incompatibility with the complementary products of rivals’. Hovenkamp (cit. ft. 12) 751.

²⁴¹ As confirmed in *Microsoft* regarding the tying of Windows with media players. *Microsoft* 1088. This may have however influenced Microsoft’s decision not to bundle a search engine with the next version of Windows, which according to Streel and Larouche allowed disruption of operating systems by Google making the search engine ‘the central stage in the ecosystem’. Streel and Larouche (cit. ft. 12) ft. 12.

²⁴² A product may be designed from the ground up to be integrated. Thus, in order to find tying, *Microsoft* referred to several instances of separate commercialisation. *Microsoft* 917 and 925.

4.3. Guidelines for disruption

The remainder of this section will propose guidelines for adjusting tests to preventing disruptive innovation, namely in relation to disruptive potential, exclusionary strategies, and limiting principles. The first, disruptive potential, relates to the capability to shift preferred attributes or production methods. Assets with such capability can again be identified using a resource-based view. Emphasis should not be put on a novelty since, as abusive refusal to licence shows, this is as likely to catch incremental improvement. Disruption is not really ‘new’: it is already favoured by some consumers or undertakings, but not yet enough to shift the market.

Since market shifts are surrounded by the uncertainty of innovation, disruptive potential has to be defined in the negative. Tests should start by excluding competition on preferred attributes and production methods. This adapts the legal standard of difference to the particularity of disruption. If undifferentiated innovation claims are made based on the same asset, as in *Microsoft* and *Intel/McAfee*, they are unlikely to be disruptive. Unlike follow-on innovation, a disruptive product may as plausibly emerge from sharing an asset as from innovating to no longer need it.²⁴³

In addition, disruption will appear unlikely to succeed because it does not focus on current market trends. That disruptive potential hinges on its shortcomings is, as one author remarked, ‘incredibly counterintuitive’.²⁴⁴ It is not surprising that *Cisco* failed to appreciate that lack of demand, speculated from existing preferences, allows for disruptive potential rather than disproves it. There must nevertheless be some positive indication of this potential. Strategic management points to niche consumers which are not served by incumbents.²⁴⁵ However, potential can also be inferred from incumbents’ reaction, namely paying high prices for low turnover acquisitions²⁴⁶ and adopting other defensive strategies.

Those strategies will necessarily involve exclusion, but will only be related to market structure by coincidence. Their purpose is not to gain or preserve market power,

²⁴³ Ibáñez (cit. ft. 8) 21.

²⁴⁴ Owings (cit. ft. 193) 344.

²⁴⁵ Owings (cit. ft. 193) 349.

²⁴⁶ Streel and Larouche (cit. ft. 12) 9. Hence, adjusting merger thresholds to innovative assets may pass by complementing turnover with the value of the transaction. Streel and Larouche (cit. ft. 12) 10.

and competitive markets do not mean that they will be unsuccessful. The strategies are aimed at suppressing disruptive potential, even if the incumbent performs worse or loses market power. They fall under three basic categories: denying assets with disruptive potential, preventing potential disruptors from increasing productive efficiency, and pre-empting markets with disruptive potential.

First, similarly to follow-on innovation, incumbents can prevent disruption by the control over assets with disruptive potential. This can take the form, as seen for competing innovation claims, of refusing to supply the asset or acquiring parallel R&D. Competing innovation claims have tended to measure technical development in comparable improvements in cost and quality. Thus, the prospects of follow-on innovation will always outweigh the starting inefficiency of potential disruption.²⁴⁷ Since disruption should be given priority in terms of competition policy,²⁴⁸ counterclaims of follow-on innovation by the dominant undertaking or the merged entity should only be allowed subject to strict proportionality.

Secondly, incumbents can prevent potential disruptors from achieving the productive efficiency necessary for disruption. This can be done by playing with incumbents' positional advantage: (regular) inputs can be refused, customers pried away, and operating margins reduced to the point of lasting inefficiency. More simply, potential disruptors can be acquired by merger and subsequently 'mothballed'.²⁴⁹ The defining trait of all these strategies is that they target undertakings for exclusion based on their disruptive potential.²⁵⁰

If disruptive innovation is to receive any meaningful protection from competition law, the notion of maverick must be defined to include – or, for the benefit of clarity, be limited to – potential disruptors.²⁵¹ This would add to the limited protection already

²⁴⁷ Even though the tying of Windows with Internet Explorer has been understood as a defence against disruption, only the practices which Microsoft could not show to be 'innovation for the benefit of its customers' were prohibited. Waller and Sag (cit. ft. 68) 10.

²⁴⁸ Streel and Larouche (cit. ft. 12) 6.

²⁴⁹ Streel and Larouche (cit. ft. 12) 5.

²⁵⁰ This may be spelled out by incumbents but does not have to, as purpose can be inferred from contextual factors. Case C-549/10 P, *Tomra*, C:2012:221, 20.

²⁵¹ Owings argues that constraints on price and coordination are not merger specific. Owings (cit. ft. 193) 343. In any event, these constraints are sufficiently represented in tests of structural harm.

granted against abusive discriminatory tactics,²⁵² such as selective pricing²⁵³ and naked restrictions.²⁵⁴ Furthermore, any tactic known to be anti-competitive should be considered abusive if it targets potential disruptors. This includes situations where, even though the tactic is potentially or nominally applicable to all other undertakings, only potential disruptors are significantly affected. That could be the case with predatory pricing²⁵⁵ and refusal to supply.²⁵⁶

Thirdly, a market showing signs of disruption can be subject to containing measures which do not individualise particular undertakings. The objective would be to stunt the growth of the market and thereby lower its productive efficiency. Because they operate at market level, such strategies may be caught by abuses like exclusivity, rebates, and margin squeeze. However, the trend of limiting those tests to the foreclosure of an ‘as efficient competitor’ is very problematic.²⁵⁷ Potential disruptors are less efficient by definition. Even though they may eventually prevail,²⁵⁸ in the interim they are left without protection from tactics that lean on static advantages.

Further problems are raised by incumbents’ ability to seemingly compete for a related market while, in reality, acting to keep it in check. By occupying as much of the market as possibly, incumbents can ‘crowd out’ potential disruptors. The most straightforward way is to introduce a product aimed, explicitly or implicitly, at matching potential disruptors.²⁵⁹ Another way is to limit the market by promoting product

²⁵² This includes the obligation, in merger control, not to create conditions ‘in which abusive conduct is possible and economically rational’ (found in relation to discrimination). *Tetra Laval* 79.

²⁵³ Although granting (above cost) favourable prices to rivals’ customers is not objectionable in itself, this can be abusive if part of strategy to ‘drive that competitor from the market’. *Post Danmark I* 29.

²⁵⁴ Paying to delay, cancel or restrict the marketing of rival’s products. Case T-286/09, T:2014:547, *Intel*, 212. The presence of IP can conceal or complicate this. Hovenkamp (cit. ft. 12) 753.

²⁵⁵ First, prices below average variable costs are presumed to have an exclusionary intent, and second, such intent will also make prices below average total costs abusive. *France Télécom* 109. Therefore, targeting potential disruptors would prevent rebutting the presumption and establish abuse, respectively. Selective predatory practices are in any event easier to implement. Article 102 TFEU Guidance 72.

²⁵⁶ The Commission states that it will examine refusals ‘to punish customers for dealing with competitors’ according to the market foreclosure demanded for exclusivity. Article 102 TFEU Guidance 77. However, this is barely different from paying customers to raise obstacles to competitors, for which the Commission does not require foreclosure. Article 102 TFEU Guidance 22.

²⁵⁷ *Post Danmark I* 25.

²⁵⁸ Therefore, the Court’s definition of competition on the merits as ‘the departure from the market or the marginalisation of competitors that are less efficient and so less attractive to consumers’ should not be read literally in relation to potential disruptors. *Post Danmark I* 22.

²⁵⁹ This would be similar to the ‘fighting ships’ in *CMB*, which operated in competitive routes in order to protect those not subject to competition – only without the blunt purpose of completely eliminating a rival. Joined Cases C-395-96/96 P, C:2000:132, *CMB*, 117.

differentiation and proprietary technology.²⁶⁰ Finally, it is possible to acquire potential disruptors and, instead of mothballing them, feed them just the amount of resources to fend off rivals, even prosper – but not disrupt.

The *Facebook/WhatsApp* merger provides a case in point. WhatsApp offered communication services with an innovative privacy and data protection policy which, were it to evolve into social networking, could disrupt Facebook's business model based on monetising personal data.²⁶¹ WhatsApp's acquisition was deemed not to raise any competitive issues since there was no static overlap between online communication and social networking markets.²⁶² Post-merger, Facebook revised WhatsApp's policy,²⁶³ while providing it with the resources to remain the leading communications service. As a result, no disruptive competition on data protection developed, nor did WhatsApp challenged Facebook in social networking.²⁶⁴

Current tests therefore do little if the incumbent proposes to be, and acts as, an allocative and productively efficient player in the disruptive market. The Google investigation might have advanced this kind of harm²⁶⁵ but, as referred above, innovation was dropped from the final decision. This does not mean that competition law is powerless. Limiting potentially disruptive markets fits, however it is shaped, the letter and purpose of competition provisions. If enforcement assumes that incumbents can identify potential disruption, then competition authorities can rely on their word, intent, and behaviour²⁶⁶ for identifying containing measures.

²⁶⁰ Audretsch *et al.* refer to pre-emptive patenting, excessive advertising, innovative rent seeking, excessive product differentiation, and other strategies aimed at weakening the capability of resource constrained competitors. Audretsch, Baumol and Burke (cit. ft. 23) 627.

²⁶¹ Many users left on the news of Facebook's acquisition, showing that it served niche consumers on privacy – an indication of disruptive potential. Case M.7217, *Facebook/WhatsApp* ft. 79 and 174.

²⁶² *Facebook/WhatsApp* 107, 158, and 165.

²⁶³ As Facebook stated that it would not do so during merger control, the Commission fined it for providing misleading information. http://europa.eu/rapid/press-release_IP-17-1369_en.htm This was the only option available, since the Commission did not consider WhatsApp's innovative competition on data protection and Facebook's move to scupper it. Costa-Cabral and Lynskey (cit. ft. 86) 38.

²⁶⁴ Communication services can evolve into social networking, as it has happened with the leading social network in China (WeChat). Facebook also paid a high price for Instagram, hinting that it perceived a similar opportunity for disruption from image sharing services. Waller and Sag (cit. ft. 68) 18.

²⁶⁵ Google's strategy of spinning off dedicated services (supported by its search engine) might be intended to crowd out these markets, averting the risk that they disruption the search engine market by robbing it piecemeal of every economically significant search (as has arguably happened for hotels, online auctions, flights, etc.). Google's acquisition of the leading technology for airline pricing and comparison, in order to launch its own service, thus received attention in the US. Waller and Sag (cit. ft. 68) 18.

²⁶⁶ Streel and Larouche (cit. ft. 12) 11.

With tests so broadly defined to protect potential disruptors, the question naturally arises of limiting principles. Appropriability remains available, as discussed in the previous section,²⁶⁷ and competing innovation claims also. As already commented, a counterclaim of follow-on innovation should only be admitted if its likelihood and benefit manifestly outweighs the possibility of disruption. However, harm to disruptive innovation is not always tied to an asset – incumbents may recognise the disruptive potential of assets but move to exclude disruptors in other ways.

The two main limiting principles come from the negative definition of potential disruption, examined above, and from questioning the needed increase in productive efficiency. A defence could be raised that, regardless of the exclusion of potential disruptors, they would not be able to increase their productive efficiency.²⁶⁸ Since this increase is necessary for disruption, the onus is on competition authorities to show it as part of harm to innovation. However, this must be adapted to the tests in question. Some require likely effects, most notably merger control, while others are content with harm in abstract, such as abusive discrimination.

A related issue is whether the acquisition of potential disruptors (or their assets) would actually favour the increase in productive efficiency. It is well accepted that acquisitions might provide the means to develop disruptive advances.²⁶⁹ Although this may appear as a justification, it is in effect a case of competing disruptive innovation claims about the acquirer and the acquired. It should therefore be adjudicated under the usual condition of proportionality, that is to say, that the acquisition is both necessary and adequate (not going beyond what is necessary) for disruption to succeed.

5. Conclusion

This paper attempted to answer the question of what can competition law do for innovation. First and foremost, by keeping markets open and competitive, it ensures that competition on innovation will not be floundered by market power. Whenever

²⁶⁷ Ibáñez argues that the ‘exceptionality’ of refusal to supply applies to discrimination. Ibáñez Colomo (2014) ‘Exclusionary Discrimination Under Article 102 TFEU’, 51 *Common Market Law Review* 154.

²⁶⁸ The increase in productive efficiency can again be projected based on a resource-based view, in particular by the mobility and replicability of resources.

²⁶⁹ Streel and Larouche (cit. ft. 12) 4.

innovation is listed alongside price, quality, and choice – although, analytically, it consists of novel improvements to those parameters – a powerful signal is sent that undertakings can innovate their way to success. The benefits of this indirect approach have for a long time overshadowed that, if competition law is to truly regulate dynamic competition, it must also address harm to innovation directly on occasion.

Those occasions have been justified, predictably, as safeguarding competitive markets as usual. Such pretences have nonetheless become harder to sustain as intervention increasingly departs from market structure: the need for market power is watered down, dominance is conjured from internal assets, enforcement is oddly declared exceptional, market foreclosure is turned into competitive disadvantage, and appropriability is delegated to IP law. A point has been reached where market structure alone can hardly explain intervention. The reluctance to admit so is not surprising – this is, fittingly for the topic, disruptive to competition law's methods.

This paper has proposed tapping strategic management studies for an approach complementary to market structure, the resource-based view. This approach formalises firm heterogeneity as part of the competitive discussion, and allows two significant advances in relation to mere structural incentives. First, it explains why certain practices are subject to enforcement: those which limit the use of assets with innovation capabilities. Second, it provides a first stab at why enforcement does not harm appropriability: because, in certain circumstances, the rent from the competitive advantaged gained is preserved. Competition law already ties innovation with assets, notably in abusive refusal to licence and merger divestment of parallel R&D. The paper sketched a legal framework to evaluate competing claims over such assets, based on how undertakings might use them to innovate differently.

The paper further examined the implications of the theory of disruptive innovation. Despite its importance being generally recognised, disruptive innovation has so far received almost no attention in competition law. This is perhaps because the most striking aspect of the theory of disruptive innovation is that disruptors start off as less efficient than the incumbents they will displace. This means that the exclusion of potential disruptors may go unnoticed by competition law, mistaken for the efficient functioning of a market which remains competitively open – but only for undertakings that play by the same terms. The paper proposed guidelines to adjust for this, focusing

tests on the targeting of potential disruptors and on measures aimed at containing potentially disruptive markets.

The framework suggested in this paper may allow innovation to be fully addressed by competition law, both directly and indirectly, but one must tread carefully. Strategic management is characterised by a multitude of sources, ranging the spectrum of social sciences, and an assumed lack of consensus on many issues. The resource-based view has been presented in such a way that purposely complements industrial economics. This was enough for the present purposes, as was the consensual view on the theory of disruptive innovation. Further steps should aim for equally well-established theoretical ground. Concrete cases must be solved based on intelligible criteria that can be translated into normative guidance and reviewed in a judicial context, as all technical contributions to competition law should.

