Rivista Italiana di Antitrust
Italian Antitrust Review
N. 1 (2018)
THE NEW FRONTIERS OF INNOVATION AND COMPETITION - Vol. II
Disruptive technologies
Debate

IS ANTITRUST IN NEED OF DISRUPTION: WHAT IS DISRUPTIVE INNOVATION AND WHAT, IF ANYTHING, DOES COMPETITION POLICY NEED TO DO TO REACT TO IT?

Cristina Caffarra, Oliver Latham[1]

Keywords: disruptive innovation; merger policy; technological change; innovation

Abstract: *This article discusses the concept of disruptive innovation and its implications for competition policy. Given "disruption" is not a formal term of art in the economic literature we provide a working definition which focuses on those technologies which both have drastic implications for existing business models and leverage new technologies rather than building upon existing investments. We then discuss implications for antitrust policy of such innovations. First, we discuss the challenges facing policy makers when policing mergers between dominant firms and smaller players and the evidence that might be used to distinguish between transactions harnessing pro-competitive synergies and those involving anticompetitive purchase of "tomorrow's disruptor". Second, we discuss antitrust enforcement and explain why we think it is unnecessarily constrained by a desire to fit within existing paradigms based on tying and leveraging; and why some standard presumptions in conduct cases (e.g. that dominant firms must necessarily be operating "at scale" when applying tests for predation) need to be revisited when looking at disrupted industries.*

1. INTRODUCTION

"Disruptive innovation" is one of the latest buzzwords to enter the competition policy lexicon. Antitrust enforcers face the dilemma of whether to act as cheerleaders for the disruptors and serve as a bulwark against knee-jerk regulation that might act to undermine new sources of competition; or to succumb to the nagging concern that so-called "disruptors" are in fact able to evade antitrust scrutiny and may, once established, generate the antitrust cases of the future. In particular, authorities have to try to police mergers between differentiated firms which may represent the pro-competitive amalgamation of complementary assets or the purchase by today's incumbent of tomorrow's disruptor.

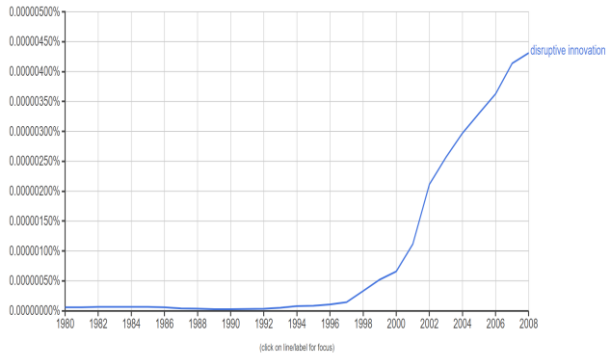
This paper seeks to contribute to this debate and provide some guidance for policy makers and firms seeking to navigate these issues. In particular, we try to provide a more concrete definition for disruptive innovation and discuss some of the trade-offs antitrust authorities will have to grapple with and alongside the evidence they might employ to strike an appropriate balance between complex and conflicting considerations.

[1] The authors are consulting economists on European Competition and in the Competition Practice. In the interest of transparency, the authors note that they have worked on cases involving several of the firms referred to in this report, in particular, on competition matters for Uber and Microsoft and in cases adverse to Google and Amazon including cases brought by online publishers. This paper represents the independent views the authors.

2. WHAT IS DISRUPTIVE INNOVATION?

Contrary to what one might expect, the term "disruptive innovation" does not have a clear economic definition. Indeed, while use of the term has exploded in recent years, particularly in the business press, (see chart below from Google Ngrams)[2] it is used much more sparingly in academic economic circles: we couldn't find a single article in the Quarterly Journal of Economics making use of the term.[3] So, before we can assess the antitrust implications of disruptive innovation, we first need to decide what it means.

Google Ngram score for "disruptive innovation"



Source: Google Ngrams

Economists do of course distinguish between different categories of innovation: most notably as between product innovations (those which bring new products to market) and process/incremental innovations (those which allow existing products to be refined or produced at lower cost). The term "drastic" innovation is sometimes used to define a product innovation that is sufficiently ahead of existing alternatives that its price is unconstrained by them (i.e. the innovator can set at or close to the monopoly price without regard to existing products).[4]

How might one place disruptive innovation within this paradigm? A useful working definition in our view is to distinguish cases of progressive innovation in which an innovation builds upon past investments and intellectual capital (e.g. the PlayStation 4 might have been a drastic improvement upon the PlayStation 3, but it was part of the same technical paradigm) from *disruptive* changes which make use of entirely new technical processes, do not build upon past success, and hence can be expected to be delivered by entirely new players without a "stake" in existing products. This definition would seem to us to capture many of the key examples put forward of disruptive innovation in practice: from ridesharing apps such as Uber, to innovations in targeted online advertising by tech platforms such as Facebook and Google, and e-tailers such as Amazon.[5]

[2] Google Ngrams covers data up until 2008. We suspect that the upward trend seen in the graph will have continued into the last decade.

[3] The QJE is one of the top 5 journals in economics with a history of publishing studies on innovation (e.g. the famous study of Aghion et al uncovering an "inverted U" relationship between measures of product market competition and innovation intensity). Aghion, P. Bloom. N. Blundell, R. Griffith, R. and Howitt, P. "Competition and Innovation: and inverted-U Relationship", Quarterly Journal of Economics.

[4] All of these terms, unlike "disruptive innovation", pass our "QJE test" in that there is at least one published article in this journal using the terminology.

[5] As an aside, we note that there is an apparent disconnect between the increased focus on disruptive

3. IS THERE A ROLE FOR ANTITRUST AND, IF SO, WHAT IS IT?

Our view is that the primary impact on all of the "disruptive" innovators listed above has been positive both for consumers and for society at large and this is something which should be borne in mind when deciding on whether to embark upon regulatory interventions that might stop innovation in its tracks. This is not to say that antitrust has no role to play, far from it, but that one should have a healthy dose of scepticism and should, within reason, allow some time for competitive forces to "play out" before intervening.

Indeed, the chart below puts forward one data point suggesting that a dose of humility on the part of the European antitrust community in particular is in order. This shows that, of the 2017 crop of "unicorns" (start-ups with implied valuations of over $1bn), 50 were from the USA or China, 4 from the United Kingdom and *none* from continental Europe. While this will partly reflect structural factors (e.g. linguistically fragmented markets) it is clear that antitrust policy will need to work hand in hand with other policy reforms (e.g. to promote VC funding) or even cultural changes if Europe's "unicorn gap" is to be bridged.[6]

The European "unicorn gap"

Source: http://www.visualcapitalist.com/57-startups-unicorns-in-2017/

With this backdrop in mind we consider two strands of antitrust issue in relation to firms involved (or potentially involved) in disruptive innovation. First, we discuss how one might police mergers in which a dominant firm is acquiring firms that, while not significant players today, could represent the "next big thing". Second, we discuss some examples of how existing antitrust theories of harm might need to be adapted in a context of disruptive innovation.

innovations and the parallel literature (typified by the work of Robert Gordon, but also that of John van Reenen and others) bemoaning a reduction in the pace of technological innovation. Only time will tell if we are indeed seeing the onset of "diminishing returns" as the fruits of fundamental advances made in the 19th and 20th century (from electricity to sanitation) are exhausted or are on the cusp of a "second machine age" as technologies such as AI disrupt the bulk of economic activity. Gordon, RJ. 2016. "The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War".

[6] To give a specific example, we note that Europe's first ridesharing unicorn (Taxify) achieved unicorn status in 2018, lagging behind ridesharing firms not just in North America (where Uber and Lyft achieved Unicorn status in 2013 and 2015 respectively) and China (where DiDi achieved the same in 2014), but also Indonesia (Go-Jek, 2016), India (Ola, 2014), Singapore (Grab, 2014) and the United Arab Emirates (Careem, 2017). While Europe has generated unicorns in comparable segments (e.g. BlaBlaCar in 2015) taking account of the size of the EU economy and its level of development, this observation seems to us to indicate a policy failure of one form or another.

4. How might one close a perceived "enforcement gap"? How to tell the good cases from the bad?

Suppose an established incumbent is seeking to buy, at great expense, a start-up (or at least a not yet well established) firm operating under a significantly-differentiated business model. Antitrust authorities face a dilemma. There are, on the one hand, strong pro-competitive reasons why an incumbent firm might want to act in this way (e.g. a firm like DeepMind might do basic research which complements the activities of a larger firm such as Google and which can be enhanced and accelerated as part of a larger entity). Similarly, acquisitions by larger firms might play a motivating role and support a broader ecosystem if start-ups' business models' are predicated on a future buy out.[7]

On the other hand, there are also reasons for potential worry. First, incumbent's willingness to outbid others for start-ups may not reflect the greater synergies they can harness, but rather the fact that a monopolist will always be willing to pay more for a potential competitor than anyone else.[8] Second, the fear of "innovating in a giant's shadow" might supress both the deal values start-ups can command and also their incentive to get going in the first place. Put another way, how confident would an investor be in a start-up with a novel, but replicable, idea that was reliant on search or social media traffic to sustain its business?

So what could one do to tackle these issues in practice? A starting point would be to take steps to ensure, at the very least, that such transactions are reviewed. We have sympathy for the suggestion that, as in the US and UK, the European regime should have some flexibility to sidestep strict turnover-based thresholds either by taking a more forward-looking approach to consider likely future revenues or the value of the transaction. The current regime, whereby the Commission obtains jurisdiction in specific cases upon reference from NCAs with tighter notification requirements, does not strike us as a particularly principled way to proceed.[9]

But this is the easy bit: the challenge will be getting the above trade-off right. Factors which we consider should be taken in board would include: the stage the firm is at in its lifecycle (there is likely to be far less competition risk in the acquisition of a firm with a potentially disruptive technology that has, so far, had limited success); an assessment of the other potential competitors in this space and how the acquisition ranks; and an assessment of the other potential acquirers and the amount they were willing to pay. While easier said than done we think it is essential that competition authorities properly engage with potential synergies.

[7] See, for example, Rasmusen, E. 1988. "Entry for buyout", Journal of Industrial Economics.

[8] See, for example, Gilbert. RJ. and Newbery, DMG., 1982. "Pre-emptive Patenting and the Persistence of Monopoly" *The American Economic Review*.

[9] Commission accepts Article 22 referral request in acquisition of Shazam by Apple.
https://uk.practicallaw.thomsonreuters.com/w-013-0527?transitionType=Default&contextData=(sc.Default)&firstPage=true

5. EXAMPLE: ATTENTION MARKETS

One of the reasons why transactions of this sort raise such challenges is that, in a world of ongoing innovation, it is not easy to see who is the closest (potential) competitor to whom. Facebook, WhatsApp and Instagram, might respectively be classified as a "social network"[10], a "consumer communications app"[11], and a "camera app"[12], but there is a growing sense of unease that these functional market definitions do not reflect competitive interaction between these differentiated services.

This is particularly so when a firm active in one space may be able to accumulate in one sphere assets (e.g. in terms of a volume of active users or of monetisable user data) that could, in the longer-term, be of use in another.

One suggested response has been to consider markets for "attention":[13] the logic would be that even services which are very differentiated on the user side might still be in competition for access to user "eyeballs" which will eventually be monetised in one way or another. Under this paradigm, there would be a degree of competition between platforms even if they serve quite different purposes from a consumer perspective (this is illustrated in the figure below).

Figure 1: Who competes with whom?

Such an approach would of course cut both ways: by moving beyond narrow market definitions based on functionality it would both cast doubt on findings of dominance based on narrow market definitions while also increasing the scrutiny applied to transactions involving differentiated players and we can see its appeal as a conceptual framework.

However, this approach can be taken only so far. A reductio ad absurdum of the approach put forward by Tim Wu would be to extrapolate and argue that all services, however differentiated, are in competition for consumers "money" and that it was appropriate to define a broad "money market". As such, some discipline is required: one needs to look at whether, notwithstanding apparent technical differences, consumers do indeed substitute between services in a way that is consistent with genuine competitive interaction.

6. WHAT ABOUT CONDUCT CASES?

It is beyond the scope of this paper to present anything like a full taxonomy of issues arising in conduct cases involving disruptive innovators, but we present two examples of areas where adjustment is required: one where existing approaches are likely to result in false negatives; and another where they will result in false positives.

[10] EC Decision, Case No COMP/M.7217 – Facebook/WhatsApp.

[11] Ibid.

[12] OFT Decision ME/5525/12 - Facebook/Instagram.

[13] Wu, Tim. 2015. *Attention Brokers*.

We need to think more holistically about theories of harm and break out of our existing "formulas" based on tying/leveraging. Conduct cases involving the technology sector have generally fallen into a tying/bundling framework à la Microsoft. From Android to Shopping, the desire has been to define a "home market", in which the accused firm is deemed to be dominant, and a "target" market, in which the dominant firm competes head-to-head with firms at risk of foreclosure as a result of the conduct.

This is of course a theory with an economic pedigree[14] and an established case law behind it. However, we fear that treating this as the one "go to" theory of harm in abuse cases involving tech companies will act to artificially limit the role of antitrust and exclude other issues deserving of scrutiny.

For example, online news content is one industry which has found itself the victim of disruptive innovation: a newspaper who could previously rely on football content to sell ads in relation to products of interest to football fans (e.g. beer, or subscriptions to premium sports content) has seen the value of its content greatly diminished by the ability of intermediaries to instead target advertising through more fine-grained approaches based on the use of data analytics. This, in turn, has led to news titles having to adapt to the new paradigm either by building new revenue streams (e.g. online subscriptions) or building their capabilities in data/analytics to match those of the "disruptors".

None of this is cause for antitrust concern in and of itself: this is how competition should pan out and is no different from the fact that, for example, radio stations and newspapers had to respond to the rise of television. But what if dominant tech companies were to use their market power to limit the ability of publishers to adapt: finding means to undermine the subscription model or limit publishers' access to the data they need to compete effectively? We think that such concerns are of potential interest to antitrust authorities, but seem difficult to fit within the existing paradigm: defining a "target market" in which Axel Springer, Le Monde and News Corp compete with Google, Facebook et al. is not a straightforward task.

One response would be to say that the very fact these difficulties arise means these issues aren't the purview of antitrust policy, but this strikes us as a rather artificial and procrustean definition of what antitrust policy should be about and, whatever the final conclusion, this is an issue that deserves to be debated.

Even "traditional" abuse categories (e.g. predation) need to be revisited. It is well known that standard price-cost tests for predation are inappropriate in a two-sided setting and, while disruptive innovation does not need to involve multi-sidedness, many of the key examples have this property. The intuition is simple: in circumstances where users can be monetised elsewhere (e.g. via advertising) it can be entirely pro-competitive to price at, or even below, cost on the user side in order to draw in "eyeballs" that can be monetised elsewhere. This does not

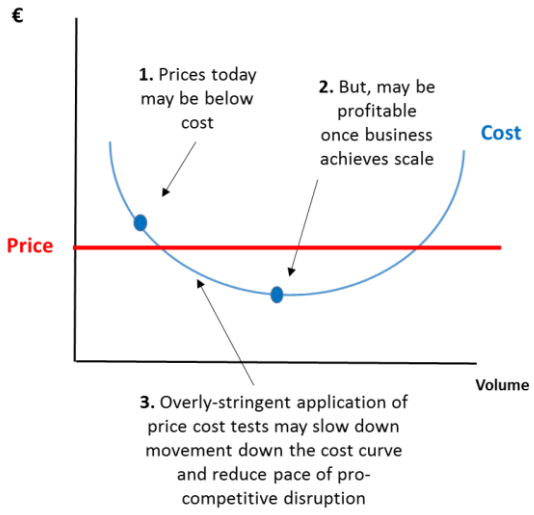
[14] Carlton, DW. Waldman, M. 2002. "The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries", *The RAND Journal of Economics*; Gaynor, DE. 2006. "Technological Tying", *Federal Trade Commission*.

of course mean that predation cannot occur in a multi-sided setting, but it does mean that one needs to proceed with care and adapt one's existing presumptions by ensuring that any assessment incorporates the indirect value that below cost pricing might play from the point of view of a platform as a whole.[15]

While this issue is well known, a more subtle question is how one should measure costs in industries undergoing disruption. While it is acknowledged that a new entrant will often want to engage in "promotional" or "penetration" pricing: pricing below cost in order to build scale and "move down the cost curve", an established "short cut" in predatory abuse cases is to assume that the accused firm is operating "at scale".[16] In mature markets this is, of course, a reasonable proposition: how could the dominant firm in an industry be operating at below the efficient scale of operation? In markets undergoing disruption, however, it seems highly likely that such assumptions will be ill-founded.

Amazon, for example, was able to operate for years without making a profit because it had convinced investors that building scale was a profitable strategy that would pay off in the longer run.[17] Similarly, ridesharing firms such as Uber continue to make significant losses.[18] Some might argue that this is indeed "predation in action", but this would overlook the "learning by doing" process by which experimentation and optimisation in the best way to deliver services could result in efficiency improvements that will act to reduce operating costs and justify these initial investments over the longer run. This is illustrated in the figure below.

Figure 2: Price-cost tests need to be adapted if firms are not operating at scale



[15] "Areeda-Turner in Two Sided Markets", S. Behringer, L. Filistrucchi, *Review of Industrial Organization,* May 2015; "Predatory Pricing in Two-Sided Markets: A Brief Comment, *Competition Policy International,* April 2017; "Is Exclusionary Pricing Anticompetitive in Two-Sided Markets?", H. Vasconcelos, *International Journal of Industrial Organization,* May 2015.

[16] See for example. Massimo Motta's popular text book on competition policy which, on page 444, states in the context of price-cost tests for predation that "presumably [a dominant firm] has already reached the minimum efficient scale of production and benefited from learning effects". Motta, M. 2004. "Competition Policy: Theory and Practice", Cambridge University Press.

[17] See "How Amazon Established Itself in the Retail and Technology Market", Market Realist, Jun 9, 2016; and "The best business advice from Jeff Bezos", *Business Insider* Apr 21, 2016.

[18] "Uber Quarterly Sales Rose 61% to $2 Billion Amid Heavy Loss", *Bloomberg*, Feb 13, 2018; "Why Can't Uber Make Money?", Forbes, Dec 14, 2017.

7. CONCLUSIONS

Overall, it is clear that there is no "how to guide" for antitrust enforcers seeking to understand and police "disruptive" innovators or indeed for the disruptors themselves when trying to gauge their exposure to antitrust risk. In mergers, enforcers face a difficult and unenviable task of navigating between the embarrassment of decisions that quickly start to appear myopic and ignorant of technological change (think Tom-Tom/Tele Atlas and its downplaying of Google Maps) and remorse about "the one that got away" (with Facebook's acquisitions of Instagram and WhatsApp being examples raised by many). Similarly, existing approaches to conduct cases raise significant challenges when applied to these new industries.

Still, "difficult" is not the same as "impossible" and we have confidence that the competition community can develop tools which will help strike the balance between promoting competition and allowing disrupters to do their thing.

8. REFERENCES

Aghion, P., Bloom, N., Blundell, R., Griffith, R., & Howitt, P. (2005). Competition and Innovation: An Inverted-U Relationship. *The Quarterly Journal of Economics*, 701-728.

Behringer, S., & Filistrucchi, L. (2015). Areeda-Turner in Two-Sided Markets. *Review of Industrial Organization*, 287-306.

Carlton, D. W., & Waldman, M. (2002). The Strategic use of tying to preserve and create market power in evolving industries. *The RAND Journal of Economics*, 194-220.

Competition, P. L. (2018, February 07). Commission accepts Article 22 referral request in acquisition ofShazam by Apple.

Desjardins, J. (2017, December 29). The 57 Startups That Became Unicorns in 2017. Retrieved from *Visual Capitalist*: http://www.visualcapitalist.com/57-startups-unicorns-in-2017/

Rasmusen, E. (1988). Entry for Buyout. *The Journal of Industrial Economics*, 281-299.

Facebook/Instagram, ME/5525 (OFT August 14, 2012).

Facebook/WhatsApp, COMP/M.7217 (EC October 03, 2014).

Fletcher, A. (2007). Predatory Pricing in Two-Sided Markets: A Brief Comment. *Competition Policy International.*

Gaynor, D. E. (2006, August). Technological Tying. Retrieved from *Federal Trade Commission*.

Gilbert, R. J., & M.G, N. D. (1982). Preemptive Patenting and the Persistence of Monopoly. *The American Economic Review*, 514-526.

Gordon, J. (2016). The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War.

Motta, M. (2004). Competition Policy: Theory and Practice. *Cambridge University Press.*

Newcomer, E. (2018, February 13). Uber Quarterly Sales Rose 61% to $2 Billion Amid Heavy Loss. *Bloomberg.*

Sherman, L. (2017, December 14). Why Can't Uber Make Money? *Forbes.*

Stevens, A. (2016, June 09). How Amazon Established Itself in the Retail and Technology Market. *Market Realist.*

Wu, T. (2015). Attention Brokers. Retrieved from NYU Law

Vasconcelos, H. (2015). Is exclusionary pricing anticompetitive in two-sided markets? *Industrial Journal of Industrial Organization*, 1-10.