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HEARING ON DIGITAL ECONOMY

-- Paper by Professor Tim Wu --

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HEARING ON DIGITAL ECONOMY
OVERSIGHT OF INNOVATION CATALYSTS

-- Paper by Tim Wu† --

Introduction

1. In a healthy, innovative economy, certain instrumentalities act as catalysts for innovation. This paper focuses on three types of these catalysts: platforms, standard setting bodies, and patents. These catalytic instrumentalities tend to be strongly influenced by network effects, and are central to any discussion of “open” or “closed” systems, whether in computing, wired, or wireless networks. Often discussions of topics like platforms or network effects are simply a different way of speaking about the same problem.
2. The basic question is whether competition policy ought to deal with innovation catalysts in special ways. I suggest it should.

1. Background

3. Outside of competition law, the question of catalyzing innovation is a topic of great scholarly and quasi-scholarly interest. There is a large body of literature on questions like what makes Silicon Valley special and how to create “innovation clusters.”¹ To be sure, competition law, even widely construed, can’t hope to influence the full spectrum of innovation catalysts. This spectrum includes matters as diverse as a national or regional culture of invention, good engineering programs, venture capital firms, and so on. But there are important instrumentalities within the domain of competition law, and here I focus on three: Standard Setting, Platforms and Patents.
4. Why do these topics merit special attention? They matter if we agree that competition law and its enforcement should focus on protecting and promoting innovation. For decades now, experts and scholars have agreed that if maximizing consumer welfare is the point of competition law, then the protection and promotion of innovation should be an important and perhaps paramount goal of the law’s enforcement. It has been more than 60 years since Joseph Schumpeter argued that innovation and economic growth are

† Professor, Columbia University. The views expressed in this paper are my own, and do not represent those of any Governmental entity.

¹ E.g., Stephen Johnson, *Where Good Ideas Come From: The Natural History of Innovation* (2010); *see also* Innovation Clusters and Interregional Competition (Johannes Bröcker, Dirk Dohse & Rüdiger Soltwedel eds., 2003); *Innovation Networks and Clusters: The Knowledge Backbone* (Blandine Laperche, Paul Sommers & Dimitri Uzunitis eds., 2010); *Knowledge Externalities, Innovation Clusters and Regional Development* (Jordi Suriñach, Rosina Moreno, Esther Vayá eds., 2007); Stefano Breschi & Franco Malebra, *Innovation Networks and Clusters: The Knowledge Backbone*, 10 *Indus. & Corp. Change* 817 (2001).

essentially the same thing.² There is, I believe, very little continuing debate between economists as to whether static or dynamic efficiency is more important over the long run. “Innovation efficiency or technological progress” wrote Joe Brodley back in 1987, summarizing economic research, “is the single most important factor in the growth of real output in ... the industrialized world.”³

5. Before turning to the catalysts of innovation, however, it is important give a sense what I mean by innovation in this context. I am discussing not innovation in the abstract sense of important scientific research, but rather in terms of product innovation: improved products reaching the marketplace. We can understand product innovation as occurring in two major ways: internal and external. The first refers to an established firm introducing an improved product, like R.J. Reynolds Tobacco introducing a new flavor of cigarette, or Canon adding a new feature to a camera. The second consists of the market entry of a new product developed by a firm outside the market or a startup. Examples of the latter include Apple entering the mobile telephone market in 2008 with the iPhone, or the Bell company, in the 1870s, selling a telephone that would come to compete with the telegraph.

6. Both internal and external forms of innovation are important, to be sure. But, as the innovation and business literatures suggest, external innovation is more important for two reasons. First, external innovation is more likely to be of the disruptive nature that yields economic growth.⁴ An incumbent firm is less likely to want to endanger its investments in existing technologies that are a source of revenue. It may also suffer cognitive challenges, like the demands of existing consumers for incremental improvement, or an inability to abandon its approach to the problem at hand. The contrast between internal and external innovation is only amplified if the market is monopolized.

7. Second, although internal innovation can also be disruptive (consider, for example, IBM’s development of the Personal Computer in the early 1980s), the pace of internal innovation can depend on the existence of an external challenge. That is to say, incumbent firms tend to innovate when they face a challenge from a startup or an outsider. This is demonstrated by the IBM example: it is unclear that IBM would have developed its personal computer in the early 1980s if the firm weren’t facing a serious challenge from startups like Apple and Texas Instruments. As Kenneth Arrow pointed out long ago, a monopolist often has less to gain from innovation, because it already controls the market.⁵ This isn’t to say that an incumbent monopolist will never innovate. It might want to cut its own costs, for example, or produce a marginally better product to encourage customers to “upgrade.” However, free from any serious external pressure to do so, the incentives to innovative can be reduced to a form of altruism, as opposed to a necessity.⁶ All this suggests that the ability of an external innovator to enter the market or threaten to do so is a crucial factor in both internal and external innovation.

8. To these very basic ideas I would add a further point: that the price of exclusion plays a major role in determining the rate of both internal and external innovation. That is true not only because

² See Joseph A. Schumpeter, *Capitalism, Socialism, and Democracy* 63–120 (1942).

³ Joseph F. Brodley, *The Economic Goals of Antitrust: Efficiency, Consumer Welfare, and Technological Progress*, 62 N.Y.U. L. Rev. 1020, 1026 (1987).

⁴ Clay Christensen, *The Innovator’s Dilemma* xviii-xx (1997).

⁵ Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, in *The Rate and Direction of Economic Activities: Economic and Social Factors* 609 (Richard Nelson ed., 1962).

⁶ What I am describing as altruistic innovation ought not be underestimated. Some of the research conducted at Bell Labs during its golden years might be considered altruistic, in the sense that it conveyed no clear competitive advantage to AT&T over its (non-existent) competitors, yet at the same time ultimately proved to be of great importance. Today, large firms like Google and Microsoft also maintain research programs whose connection to a competitive advantage might be considered unclear.

exclusion, if cheap, keeps out external innovation, but also because innovative and exclusion are alternative responses to actual or potential competition. We can state the point simply: the cheaper exclusion is, the less reason a dominant firm has to invest in improving its products. That suggests that increasing the costs of exclusion is a means to promote innovation. This is one place that competition law comes in, as a tool for making exclusion more expensive.⁷

9. However, I return now to the main point, which is: an examination of the main innovation catalysts.

2. Platforms & Standard Setting

10. Platforms and standard setting processes are two conceptually very similar instrumentalities of innovation. (In some cases, in fact, there is no real difference between a platform and a standard.) These two catalysts have this in common: they both reduce the costs of entry for new products or new firms, and therefore increase the rate at which product innovation can happen. Each lowers the price a firm incurs to introduce a new product and potentially reach an enormous number of customers.

11. In the platform context this happens because a platform allows firms *single-market* as opposed to multiple-market entry. For example, the Windows platform, which became dominant in the 1990s, made it far easier for a new firm (like Netscape) to reach millions of customers with a single product, without having to write its own operating system. The developers who write Apps today for smartphones may have to do some separate coding for Android, Apple and Windows, but they don't have to write their own operating system or manufacture a physical phone.

12. Successful standards play a similar function. The manufacturer of a standalone USB hard drive who writes to the standard knows that his product can be sold without selling a computer to go with it – the standard makes that possible. It is standards that make possible product ecosystems possible, and it all depends on the critical matter of low-cost single-market entry.

13. This is the positive side. On the other hand, it is clear, both as an empirical and theoretical matter, that both standard setting and platforms tend toward a winner-take all outcome, as a consequence of network effects. The more popular or important a standard or a platform becomes, the more valuable it becomes, and the harder it becomes to start a rival. These effects are very well known, but crucial to our understanding of what the role of competition law should be.

14. Given the importance of platforms and standard setting to innovation, I think it is very important to make a central and important goal of enforcement the protection of the integrity of these instrumentalities. We can begin with standard-setting, where competition law in general and the Federal Trade Commission in particular have a good, if still relatively short, track record of trying to prevent abuse and corruption of standard-setting processes.⁸ Summarizing a broad literature, there are several ways the

⁷ Cf. Susan A. Creighton, D. Bruce Hoffman, Thomas G. Krattenmaker & Ernest A. Nagata, *Cheap Exclusion*, 72 ANTITRUST L.J. 975 (2005).

⁸ Relevant cases include *Matter of Dell Computer Corp.*, 121 F.T.C. 616 (1996) (entering consent order prohibiting Dell from enforcing its patents rights after Dell promoted a proprietary standard without disclosure), *In the Matter of Negotiated Data Solutions LLC*, Docket No. C-4234, 2008 WL 258308 (F.T.C. Jan. 22, 2008) (entering consent order binding patent holder to its predecessor-in-interest's commitment to SSO), *Rambus Inc. v. Infineon Technologies AG*, 318 F.3d 1081 (Fed. Cir. 2003) (finding no breach of duty to disclose pending patent applications), and *In re Matter of Intel Corp.* 128 F.T.C. 213 (1999) (entering consent order prohibiting Intel from withholding advanced technical information based upon intellectual property dispute). *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492 (1988)

process may be corrupted.⁹ Those involved in standard setting can game the system by hiding patents over a standard and then asserting them later. Alternatively, parties to the process may promise to license a relevant patent, and later breach the contract.

15. The preeminent interest goal in protecting standard setting is not preventing harm to any individual firm, but preventing the corruption of an instrumentality that is critical to innovation. Aside from the individual harm that may come from an instance of standard-setting abuse, the real blow would be the loss of trust in the standard-setting process as a whole, and, consequently, higher costs of entry across the board for innovators, at a collective social loss.

16. Oversight of platforms is conceptually similar, though it has a few twists, because while standards are usually public, platforms are usually private. Indeed, it would not be entirely wrong to describe many platforms as just private implementations of a standard.

17. Let's consider the paradigmatic case of a platform owner who broadly represents to the world that he maintains an open and transparent innovation platform, based on open standards. Based on those representations, the owner attracts an enormous amount of investment and gains a monopoly position in the market in question. Having achieved his platform monopoly, the platform owner then begins to take measures that include granting his own applications access to secret APIs, taking efforts to exclude applications that might themselves serve as platforms, selectively disabling certain functions on applications gather for his own competitive advantage, and other tactics.

18. This conduct will be harmful to competition in many cases. Unlike standard-setting, the argument has more to do with the harm caused by the platform owner, which can be considerable by itself, for this is a case of monopolistic exclusion, as discussed above.

19. However, beyond the harm to any individual developer, we have here a serious concern about corruption of the entire system of platform-based innovation that has been so central to technological progress. That process can be corrupted when the industry and individual firms commit enormous resources to developing on the platform, only to later be subject to arbitrary exclusionary practices. It is bad for innovation if being an application developer becomes a fool's game, and everyone wants to be the platform.

20. If this sounds a bit like the American Microsoft case, that's right, but it is also a more general phenomenon. That particular litigation can be seen as the foundation of contemporary platform oversight. One way to understand that case is as sending this message: once the entire industry has committed to a private platform, and invested heavily in that platform, and granted the owner a profitable monopoly, the platform owner earns oversight of its practices from that point onward. To be sure, the Microsoft litigation took the form of a monopoly maintenance case, premised on the fact that Netscape was itself a platform, and a potential threat to Microsoft's Windows operating system. But the case should be taken read more broadly to suggest that, in a purely innovation-centered competition law, the treatment of applications by platform owners would be the subject of continuing oversight.

(holding that efforts to influence private SSO are not immunized under Noerr-Pennington doctrine) is a foundational case in this area.

⁹ An overview of standard setting can be found in Philip J. Weiser, *Making the World Safe for Standard-Setting*, in 2 *The Impact of Globalization on the United States* 171, 171–202 (Beverly Crawford ed., 2008).

21. All of this bears very naturally on the question of what approach the law should take toward open and closed platforms. I am not suggesting that competition law should somehow declare closed platforms illegal, or make every successful platform a utility. There must be important allowances for both non-arbitrary exclusion, and for platforms that are closed or semi-closed to begin with, and stay that way.

22. My point is different – it is about the shift from open to closed. The fact is that there are well-recognized advantages to openness, or at least to declaring a platform open at the outset. The platform that declares itself closed from the outset does not gain the advantages of obtain from inviting development on an open platform. If you look at the last several decades, most of the dominant platforms (Windows, Netscape, Facebook) have all tended to be those that declared themselves open or at least quasi-open. Those that have succeeded by being closed tend to have a very close link to copyrighted works, where a closed system is a prerequisite to doing business.

23. So the problem is not with closed platforms. It is with platforms that gain dominance based on policies of openness, and a practice of serving serve as the entire industry's basis for innovation, and then later use that position to influence the path of innovation, and commonly, to block or destroy any threats to their dominance. It is the once open platform that begins to exercise discrimination that should attract the attention of the competition law enforcer.

3. Patents

24. The Patent system and its relationship with competition law is a topic that is far too large to be considered in full here. However, competition enforcement that takes innovation as a paramount concern must engage much more closely with the patent system, which is, in effect a sister regime. By now it goes without saying that patents are a mixed bag when it comes to the promotion of innovation. On the one hand, the regime provides some incentive to invest in invention and innovative products. On the other hand, the exclusionary power of patents means, particularly when collected en masse, they can also be used to as an exclusionary tool.¹⁰ (This is why some economists have suggested replacing patents exclusionary side with a monetary grant, leaving the incentive to invent while removing its exclusionary effect).¹¹

25. The degree to which the Patent Offices and courts can prevent the anticompetitive use of accumulated patents is necessarily limited. The Patents Office's task is to make sure patents are granted only when deserved, and courts can, on a case-by-case basis, decline to allow the enforcement of a patent. But neither institution is in a position to examine the bigger picture, namely, the strategic use of patent as an exclusionary tool. Neither can examine, for example, a campaign of patent accumulation and threatened enforcement designed to, say, preserve the market position of an oligopoly or monopoly.

26. Enforcers whose primary concern was innovation would have no choice but to see constant oversight of the patent system as their job. This is necessarily difficult, because the patent system is designed to create market power as the reward for invention. The line between legitimate and illegitimate use of the patent power can be indistinct. However, that doesn't mean it doesn't exist. For there are clearly instances when the power created by patent is used in strategic ways that no reasonable patent system could have intended, such as using huge collections of potentially invalid patents as an litigation threat. So, as a general rule, enforcers should be constantly examining the strategic use of the patent power for excluding competitors or maintaining or gaining monopoly in ways that exceed the rewards reasonably intended by the patent system itself.

¹⁰ See, e.g., Carl Shapiro, Navigating the Patent Thicket: Cross License, Patent Pools, and Standard Setting, 1 Innovation Pol'y & Econ. 199, 120 (2001).

¹¹ Steven Shavell & Tanguy Van Ypersele, Rewards Versus Intellectual Property Rights, 44 J. Law & Econ. 525 (2001).

4. Conclusion

27. The challenges faced by competition enforcers who focus on innovation instrumentalities are many. The merits of the conduct challenged in such cases can often be debated, and the effects of a successful challenge are felt over the long term and are hard, if not impossible, to measure. The truth is that protecting innovation is a murky and vague goal. But it also happens to be very important. Even if seemingly exclusionary conduct can sometimes be justified, it is actually the job of the enforcement agencies and our economists to exercise judgment — to make the effort to sort the wheat from the chaff, not just retreat out of fear of making mistakes.