The Systems Approach to Antitrust Analysis

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The law inexorably lags developments in wider society. For decades, governmental policies toward business have followed the Chicago School of economics view that free markets unfettered by governmental interference almost universally deliver outcomes that are preferable to governmental regulation or judicial intervention.[1] Recently, however, calamities in finance, banking, insurance, automobile manufacturing, ocean oil drilling, mining and other sectors of the economy have shown that leaving markets to their own "self-correcting" devises is inadequate as a policy of governmental oversight. To be sure, policies based on "empirically unsupported theory or, worse yet, poorly supported ideology"[2] eventually will be supplanted. Indeed, recent regulatory initiatives to restore a more sensible relationship between government and private enterprise may be signaling that the deregulatory zeal and blind faith in the efficiency of markets urged by Chicago school adherents has already begun to abate.[3]

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[1] *See* F.M. Scherer, *Some Principles for Post-Chicago Antitrust Analysis*, 52 Case. W. Res. L. Rev. 5 (2001) (attributing the "finance school" of economics to Thorstein Veblen, Henry Simons, George Stigler, Ronald Coase, and Aaron Director and citing sources).

[2] *Id.*, at 7.

[3] *See, e.g.*, "Dodd-Frank Wall Street Reform and Consumer Protection Act," P. L. No.: 111-203 (July 21, 2010) (regulation to improve "accountability and transparency in the financial system"

Markets fail to self-correct when they are not efficient, which occurs when they are not competitive and transparent. Contrary to the postulates of Chicago,[4] markets ought not be expected to become competitive and transparent entirely on their own accord, any more than greed or dishonesty should disappear because transactions occur in a "market." Accordingly, alternatives to excessively laissez faire policies should focus on fostering conditions that encourage markets to self-correct, that is, conditions that encourage competition and transparency. A key component of a post-Chicago approach to market regulation, therefore, is an emphasis on the public and private enforcement of competition and consumer protection laws that detect, deter, and remedy competitive restraints and informational asymmetries.

Nonetheless, meaningful adjustments in conventional competition analysis have yet to emerge. The Antitrust Division and the Federal Trade Commission published revised merger guidelines in August 2010 that seemed more occupied with describing current administrative practice than incorporating new insights or exploring new approaches to analyzing competitive

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and "to protect consumers from abusive financial services practices") and the "Credit Card Accountability Responsibility and Disclosure Act of 2009," P.L. No.: 111-24 (May 22, 2009) (regulating "fair and transparent practices" in the extension of consumer credit).

[4] See Scherer, *supra* note 1, at 8 (describing two postulates of Chicago antitrust and one empirical inconsistency: "(1) Chiseling erodes cartels, and entry erodes monopoly, quickly unless the government intervenes to create barriers to entry and the expansion of fringe firms[, and] (2) What exists in the marketplace exists because it is efficient unless it has been put there by government fiat," and the inconsistency is that the historical record does not show that mergers result in significant efficiencies, counseling greater skepticism).

conditions in markets.[5] Similarly, the judiciary, having absorbed the case load-lightening lessons of Chicago into antitrust jurisprudence, are understandably reluctant to introduce analytical subtleties that could enlarge the range of conduct reached by the antitrust laws.

Meanwhile, modern market conditions—near zero marginal costs, two- or three-sided markets, platforms and services that create network effects, to name a few—are exposing the inadequacies of conventional competition analysis and the need to bring forth new analytical tools. A difficult challenge arises, for example, when network effects tip entire markets to large scale proprietary technology platforms. When platform operators possess market power, strategies can be deployed to control complementary markets. This paper describes a "systems" approach to analyzing such effects.

The discussion begins with a review of the vocabulary of systems analysis and the identification of the key attributes of system architecture and system access. The gains from modularity are seen to exhibit a powerful force for openness. The second section considers some systems competition issues in light of conventional antitrust analysis. The final section looks at the application of tying law principles to reach system competition problems. Current approaches are illustrated by a U.S. court decision and a recent European Commission case.

I. System Architecture and System Access

A *system* exists whenever discrete *components* work together to create utility for end-users. The means by which the components communicate and interoperate is provided by the system *platform* or *backbone*. The principal function of a platform is to achieve *interoperability*

[5] U.S. Dep't of Justice & Fed. Trade Comm'n, Horizontal Merger Guidelines (Aug. 19, 2010), available at http://www.justice.gov/atr/public/guidelines/hmg-2010.pdf.

among system components. A platform is *modular* if it is designed to facilitate the substitution of components. The degree of interoperability between components and the platform is determined by the nature of the *interface*. Interfaces to platform services that are made available in the market are frequently governed by specifications embodied in *de jure* or *de facto standards*.

In general, system architecture is determined by modularity, which depends on the presence and design of interfaces, and openness, determined by the system operator's access policies. Platforms are modular if their components are easy to replace or substitute. Components that are *integrated*, or hard wired, are costly to replace or substitute. In a fully *closed* system all the components are hard wired and no platform interface is available. In fully *open* systems, open interfaces are made available for modular components. Rather than being completely closed or completely open, real-world systems exhibit an intermediate degree of modularity and openness.[6]

It is tempting to conclude that higher profits can be earned by keeping platforms closed to capture all component sales and that profits suffer when systems are open and markets for substitutable components are allowed to develop. But it is now recognized that firms that maintain overly closed systems forego the gains from internalizing the efficiencies of modularity.[7] Clearly, once a system reaches a critical level of openness the platform-component

[6] Note that third-party components may be competing or complimentary and equivalent or differentiated.

[7] See Joseph Farrell and Philip J. Weiser, "Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age," 17 Harv. J. L.

distinction begins to evaporate and value can migrate from the platform to the components.[8] So, modularity and openness is a two-edged sword. System operators benefit from modularity at all of the system nodes, but would prefer that competition occur in component markets only to the extent consistent with their perceived proprietary interests.

The principal feature of systems analysis is the distinction between *component competition*, which depends on the modularity of the system architecture and interoperability policies of the system operator, and *system competition*, which involves two or more competing systems. Economically, the two types of competition cannot be expected to be perfect, or perhaps even close, substitutes.[9] As between the two types of competition, component competition presents by far the more subtle and difficult issues for competition law.

& Tech. 85 (2003) (itemizing various reasons that firms fail to adopt open system policies despite unambiguous gains from doing so).

[8] The specter of too much modularity and a too-open system is what motivated Bill Gates' well-publicized fear that the Windows® operating system could become "commoditized." Microsoft's response to Java's "platform threat" focused on Microsoft's efforts to ensure that the operating system would continue to be "hard wired" to the PC, so as to better resist displacement by Netscape's Java-based operating system.

[9] Joseph Farrell, Hunter K. Monroe, and Garth Saloner, "The Vertical Organization of Industry: Systems Competition versus Component Competition," 7(2) J. Econ. & Mgm't Strategy 143 (1998).

A *network* is a particular type of system where the platform provides a conduit for a physical flow between components. By virtue of being capacity constrained, network flow management policies can significantly affect the costs and limits of component competition.

It is useful to note that gains from systemization are realizable both in downstream markets where the firm sells as well as in upstream markets where it purchases. Modular production networks, what Timothy Sturgeon has called the "new American model of industrial organization," are characterized by a global network of turn-key suppliers that provide outsourcing of any industrial activity not considered part of a firm's "core competence."[10] This trend is illustrated by the fact that the largest single employer in the U.S. is not an industrial corporation, but Manpower, Inc., a supplier of temporary employment. Similarly, the largest private owner of jet aircraft is not an airline, but General Electric's leasing unit. In the mid-1990's, after announcing its largest quarterly loss in its history, Apple Computer sold one of its largest production facilities to SCI Systems. Apple's problems stemmed not from poor demand but from its inability to meet demand it had underestimated. Outsourcing its production to contract manufacturers gave Apple a modular production network that provided a level of production flexibility not attainable as a vertically-integrated producer. Since then, the operator of the manufacturing facility has become one of only a handful of firms that actually manufacture computers, and they do it more efficiently and with a superior ability to adapt production to changes in demand than Apple ever could by itself.

[10] Timothy J. Sturgeon, "Modular production networks: a new American model of industrial organization," 11 *Industrial and Corporate Change* 451 (2002).

Apple's production outsourcing illustrates the ongoing self-transformation of the vertically-integrated, Anglo-Saxon version of the industrial corporation into more of an Asian- or Scandinavian-inspired network of production facilities with the ability to internalize the efficiencies of modularity. Modular production networks are efficient because they conserve human effort through the re-use of system elements, promote the development of automated production facilities, foster firms with generic rather than idiosyncratic capabilities, and separate product innovation from manufacturing, warehousing, distributing, retailing, promotion, and the other stages of the value chain. Moreover, the efficiencies of modularity may be internalized at any point in the supply chain by any number of parties with almost any kind of capability. Thus, modularity and interoperability create opportunities for a range of third-party participants. Between the idealized polar cases of closed and open systems lies an infinite range of potential market organizations determined by the degree of system modularity and component interoperability.

Obviously, the competitive regime in component markets rests largely under the control of the system operator, which can decide to self-supply hard wired components, allow a highly competitive market to develop in which modular components trade in a transparent market, or something in between.

II. Antitrust Policy and Systems Analysis

In the case of horizontal competition between systems, it is standard to assume loss of consumer welfare when the competitors agree jointly to maximize profits or enter into other anticompetitive arrangements. On the other hand, there is no equivalent basis for suspicion of undertakings between firms and their suppliers or their customers, parties loosely engaged in a joint enterprise to begin with. Analyzing the competitive effect of agreements reached between

firms in different markets, and between firms and customers, is more difficult for antitrust analysis because the arrangements may have beneficial, neutral, or anticompetitive net effects on consumer welfare. Antitrust courts have no such impediment condemning collusion between operators of competing systems, but firms interacting with suppliers to complimentary markets and customers are presumed to be engaged in a "bargaining" process into which antitrust ought not intervene. Unfortunately, by starting from the proposition the conduct of system operators *vis-à-vis* third-party suppliers of modular components is appropriately analyzed as "vertical" bargaining rather than horizontal rivalry, traditional antitrust doctrine ends up falling short of embracing issues of anticompetitive conduct that arise in markets for modular components.

A similar impediment obtains in applying principles of monopolization law, which usually fails to reach component competition by virtue of a high-tech version of the *Colgate* doctrine,[11] enunciating the default position for U.S. antitrust law that a given firm ordinarily has "no duty to deal." If modularity and interoperability policies are akin to choosing with whom one desires to deal, the high-tech *Colgate* rule is, "No duty to interface."

Even though antitrust authorities have been biased against intervention in modular component markets, non-liability for system policies is not always the outcome. The immediate challenge is the need for a coherent set of rules to determine when a court or enforcer ought to intervene to promote or protect component competition.

Although the notion of "vertical competition" has been championed by Robert L. Steiner for many years, a theory of harm to vertical competition has yet to be accepted by the courts,

[11] United States v. Colgate & Co., 250 U.S. 300 (1919) (permitting a supplier freely to determine the parties with which it will deal).

even though it now is well accepted that market power in downstream distribution in relation to market power in manufacturing determines the relative profit margins earned at the different stages, as Bob's theorem holds.[12] To cover platform operators and the effect of system modularity, these notions need generalizing beyond distribution networks. In any case, Steiner's work suggests that in setting policies regarding component markets the relative market power of firms at various different stages of supply is likely to be important. For the moment, component competition remains an awkward task for conventional antitrust analysis.

III. Component Competition Issues in Tying Law

Tying law frequently provides an antitrust theory that reaches toward issues of component market competition.[13] Despite its initial efficacy, however, modern tying doctrine has lost its applicability to most component competition problems.

A. Brief Background of U.S. Tying Law

The Supreme Court was sanguine about tying in its first case, *U.S. v. United Shoe Mach. of N.J.*,[14] decided in 1918, where it let stand lease provisions for shoe-making machinery that

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[12] *See generally* The contributions to the special edition dedicated to the work of Robert L. Steiner, 49 Antitrust Bull. (2003).

[13] Another legal theory often attempted is a Section 2 claim for "monopoly leveraging." However, in Verizon v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398 (2004), the Supreme Court held that a monopoly leveraging claim is legally equivalent to a claim for attempted monopolization, which requires *prima facie* conditions that rarely occur in component markets, and often make no sense at all.

[14] 247 U.S. 32 (1918).

prohibited use of the machines with any machine not manufactured by United Shoe, observing that "leases are simply bargains." But, in 1922, the Court condemned the same lease terms under the Clayton Act, and was thereafter consistently hostile toward tying arrangements. By 1949, the Court had declared that tying served "hardly any purpose beyond the suppression of competition."[15]

Characteristic of that era was *IBM v. U.S.*,[16] decided under the Section 3 anti-tying provision of the Clayton Act, in which the Court condemned IBM's lease conditions prohibiting the use of non-IBM punch cards in IBM machines. The company's objections that the protection of its goodwill justified the clause (because other manufacturers would not meet the manufacturing tolerances required for the cards to work properly in IBM machines) was contradicted by evidence that both Remington Rand and the U.S. government manufactured millions of suitable cards annually (in fact, the government paid a 15% lease premium to IBM for the right to self-supply punch cards). Implicitly, the Court assumed that the relevant tied market was punch cards, that a competitive market in punch cards could develop and would be a superior form of industrial organization than OEM-supplied-only punch cards, and that the principal effect of IBM's policy was to vest it with a monopoly over what, but for the tie, would and should be an otherwise competitive market.

Influenced by the emergence of Chicago school economics, Justice O'Connor in 1984 famously suggested in her concurrence in *Jefferson Parish* that *per se* condemnation of tying

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[15] Standard Oil Co. of Cal. v. U.S., 337 U.S. 293, 305-06 (1949).

[16] 298 U.S. 131 (1936).

ought to be abandoned.[17] Most recently, in 2006, the Court in *Illinois Tool Works Inc. v. Independent Ink, Inc*.[18] explicitly rejected the anticompetitive suspicions of tying it expressed fifty years earlier in *Standard Oil*, noted the ubiquity and the economic benefits of tied and bundled product offerings, and held that market power in the tying product market must be proven as a condition of liability; merely showing that the defendant is the patentee of the tying product does not suffice. The Court engaged in little analysis of the relationship between the systems market for printing presses and the component market for ink, where the competitive problem actually arose. The other elephant in the room chosen to be ignored by the Court was, in addition to selling enough patented printing machines to make it worth Independent Ink's while to supply ink for them, how much market power in the printing press market did the case require before the competition problem in the ink market could be addressed? And, more importantly, why?

The closest the Court has ever come to taking a systems competition perspective was in *Eastman Kodak Co. v. Image Technical Services, Inc*.,[19] in which it held that a jury should be permitted to decide the lawfulness of Kodak's policy of closing off the sale of copier parts to independent copier repair and maintenance shops. The policy locked-in end-users to Kodak-supplied service. The case illustrates the general principal that changes by a system operator in how a component market is organized deserve serious antitrust scrutiny. The case also

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[17] Jefferson Parish Hospital Dist. No. 2 v. Hyde, 466 U.S. 2, 35 (1984) (O'Connor, J., concurring).

[18] 547 U.S. 28 (2006).

[19] 504 U.S. 451 (1992).

demonstrates considerable (and, in my view, justified) faith in a jury to sort it all out. For the most part, however, U.S. tying doctrine prevents this. While juries are possessed of remarkable intuition, courts often lack the means to provide them with a coherent means by which to understand the evidence.

Another impediment for tying law is the broadly accepted notion that firms bundle and tie because it is efficient, and thereby 'pro-competitive.' The recently withdrawn[20] DOJ Report on Section 2 concludes that "[t]ying typically benefits consumers."[21] Although the Report acknowledges that sometimes "a monopolist may have an incentive to use tying to obtain a monopoly in a second market,"[22] the conditions under which this can be shown using conventional antitrust analysis are rare. Critics of tying frequently cite the ubiquity of tying and bundling as exculpatory evidence, but rarely do they recognize the tremendous product and process efficiencies of modularity, or acknowledge the dispositive role of the industry context for the reasonableness analysis. Consumers are often said to demand tied and bundled products, but their desire for differentiated modular components to customize and tinker with their systems is rarely ever mentioned.

B. Two Recent Examples

[20] Christine A. Varney, "Vigorous Antitrust Enforcement in this Challenging Era," Remarks of the Assistant Attorney General, Antitrust Division, U.S. Dep't of Justice before the Center for American Progress (May 11, 2009) (*Varney Remarks*).

[21] *Competition and Monopoly: Single-Firm Conduct Under Section 2 of the Sherman Act*, U.S. Dep't. of Justice (2008), at 90.

[22] *Id*. at 83.

Antitrust authorities continue to adjudicate tying cases without reference to the systems framework, and, therefore, cases are decided without acknowledging the implicit judgments arrived at about the industrial organization of the component market.

1. *RLH v. SBC Communications*

The first example is a 2005 California state appellate court case, in which a summary judgment for the defendant in a tying claim against the telephone company Ameritech was reversed, while a summary judgment granted to the co-defendant, Pacific Bell was affirmed.[23] The two defendants differed solely in their policies with respect to high voltage protection (HVP) devices required on large installations of telephone equipment. The plaintiff, a manufacturer of HVP devices, faced competition from three other suppliers. PacBell's policies gave its subscribers a choice of leasing an HVP device or buying one from two of the plaintiff's rivals, a policy the court concluded "does not risk harming competition." SBC, by contrast, "forbids its customers from buying and installing their own HVP devices," whether plaintiff's or anyone else's, and could, therefore, be found liable for tying. Driving the court's reasoning is the notion that the system in which the operator agreed to interoperate with two of the four HVP suppliers, in addition to offering a lease option directly, by some measure, created an adequately competitive component market, while the other system's policy did not. The case illustrates the nature of the industrial organization issues that face courts confronted with component market disputes.

[23] RLH Industries, Inc. v. SBC Communications, Inc., 133 Cal.App.4th 1277 (4th Dist. 2005).

2. EC's Announcement of a Statement of Objections re: Internet Explorer

The second example involves the European Commission's announcement on January 17, 2009 that it had sent a Statement of Objections to Microsoft regarding its policy of tying its Internet Explorer internet browser to the Windows® operating system. In March 2004, the Commission found that Microsoft abused its dominance by tying Windows® Media Player to the Windows® operating system,[24] which was affirmed by the Court of First Instance in 2007.[25]

The new Statement of Objections addresses a similar alleged distortion in the market for internet browsers, purportedly caused by the "artificial distribution advantage [created by the tie] which other web browsers are unable to match."[26] As the Commission explained, by including the browser component with the operating system, "Microsoft shields Internet Explorer from head to head competition with other browsers which is detrimental to the pace of product innovation and to the quality of products which consumers ultimately obtain."[27]

Microsoft's response was to announce that it planned to ship the new Windows® 7 operating system to manufacturers without any browser installed at all.[28] Presumably, this would free the browser component market from most conditions imposed by the system operator and create an environment conducive to the development of a competitive equilibrium. It also demonstrates that, for the same reason that modular production networks and outsourcing are

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[24] IP/04/382.

[25] CFI Case T-201-04 (Sept. 17, 2007).

[26] E.C. Memo/09/15 (Jan. 17, 2009).

[27] *Id.*

[28] "E.U. criticizes Microsoft Plan to Remove Browser," New York Times (June 12, 2009).

feasible and profitable, remedies mandating conditions for modular component competition are feasible and administrable.[29]

Interestingly, this seems to have left the Commission in something of a quandary, which issued a rebuttal that "[r]ather than more choice, Microsoft seems to have chosen to provide less."[30] The Commission explained,

> The [Statement of Objections] sets out the preliminary view that, should the Commission conclude that Microsoft's conduct was abusive, any remedy would need to restore a level-playing field and enable genuine consumer choice between Internet Explorer and third-party web browsers ...[31]

One standout of this development is the Commission's freedom from the formalistic doctrine of U.S. tying law by virtue of the cognizability of an abuse of dominance under Article 82, an offense not cognizable under Section 2. But, more interesting, is that by choosing *not* to bundle the component with its systems, the system operator has signaled its intention to relinquish control over the industrial organization of the component market, leveling the field considerably. Without IE preinstalled, who knows how the browser market will develop? Microsoft, no doubt, believes it can compete on the merits, and while it is likely to wield

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[29] *Contra Section 2 Report*, at 88 ("Finally, the Department agrees that remedying anticompetitive technological ties appropriately can often be difficult, requiring courts to make judgments about unusually complicated, forward-looking business issues and thereby heightening the risk that a remedy will hurt, rather than help, consumers.").

[30] MEMO/09/272 (June 12, 2009).

[31] *Id.*

considerable influence, the market should also be driven by free enterprise fueled by the promise of profit, and, to the extent this is achieved, antitrust policy has succeeded.

The Commission, however, appears to have a particular market equilibrium in mind, which involves a "ballot screen" that would allow purchasers of Windows-PCs easily to choose which browser to install. As the Commission put it, "it is particularly important to ensure consumer choice through the computer manufacturer channel."[32] This proposed remedy suggests *sub rosa* economic conclusions about the organization of the component market that surpass the the assumptions implicit in the U.S. cases. In *U.S. v. IBM* and *RLH v. SBC*, for example, the punch card and telephone HVP component markets were assumed to be relevant antitrust markets in which competition deserved to be protected by eliminating a specific offensive restraint. Once the unlawful system policy was extinguished, competition, as it happened then to exist or as it might develop in a future without the offensive restraint, was sufficient. Further market intervention beyond what was needed to resolve the specific violation remained unexercised. By contrast, the EC in the browser case seems to be going beyond the specific instance of abusive conduct.

IV. Conclusion

In her recent remarks, the Obama administration's Assistant Attorney General for Antitrust, Christine A. Varney, sounded a call for the Antitrust Division to "consider the overall state of competition in the industries in which [they] are reviewing potentially anticompetitive conduct or mergers" and to "consider market trends and dynamics, and not lose sight of the

[32] *Id*.

broader impacts of antitrust enforcement."[33] One way to promote that goal is to develop criteria for when antitrust ought to intervene against system policies that determine the state of competition in component markets. Where private business decisions by the system operator have significant implications for entry into sizable markets, the wider state of competition, or the availability of broad economic opportunity, the policies set up by a system operator should yield to less-restrictive governmentally-imposed system policies. When this kind of governmental action would significantly enhance competition, check incumbent market power, or increase consumer welfare through increased choice, variety and innovation, it should fall within the traditional purview of antitrust. A systems competition approach can help frame the questions that will need to be asked as the issues created by modular production processes and consumer demand for interoperable products continue to arise with increasing frequency.

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[33] *Varney Remarks*, at *17.