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Impediments to Innovation in Legal Infrastructure

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I. INTRODUCTION

Gillian Hadfield's article describes how legal services do not provide cost-effective solutions to an increasing proportion of the legal problems that high-tech corporate clients face. The essence of Professor Hadfield's argument is that accelerated technological progress and globalization of economic relationships have made standard-form solutions to legal problems increasingly inefficient, and that the legal profession has been slow to adapt its services to these changed circumstances.[1]

According to Professor Hadfield, the failure of legal services to adapt to changing customer demands has two causes: a "near monopoly" of the public sector in producing legal rules, and self-regulation of entry and practice in the legal profession. Professor Hadfield's "near monopoly" in public law is not really a monopoly because it is the product of many independent actors, some of whom actively compete with each other. Instead, the near monopoly is a manifestation of self-regulation. Her near monopoly refers to limits on the extent to which private parties can escape the precedents, rules and procedures of public legal institutions in forging business

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[1] Gillian K. Hadfield, *Legal Infrastructure and the New Economy*, 8 ISJLP 1 (2012). Professor Hadfield also agrees with the older argument that restricting non-lawyers from providing simple legal services causes fees for these services to be too high and, in so doing, inefficiently limits access to these services. I do not discuss this argument here. For an analysis of this issue that supports Professor Hadfield's analysis, see generally CLIFFORD WINSTON ET AL., FIRST THING WE DO, LET'S DEREGULATE ALL THE LAWYERS (2011).

relationships and, especially, resolving disputes arising from these relationships.

The other undesirable effect of self-regulation is determining the skills and modes of thought that must be acquired to become a lawyer through accrediting law schools and designing bar exams. The ossification of legal practice that is the theme of Professor Hadfield's article arises from two characteristics of legal education: an orientation towards effective advocacy and an emphasis on basing analysis on parallels with precedent. These features of legal education create a backwards-looking focus on winning disputes rather than a forward-looking focus on innovative solutions to new problems.

Regulation—substantially influenced, if not controlled, by national and state bar associations—specifies the services that only lawyers are allowed to provide and the organizations through which lawyers can supply these services. Professor Hadfield's critique of these restrictions is not just that only lawyers are allowed to provide a variety of legal services that others could do as well at lower cost. The novel part of her critique is that the separation of the legal profession from other areas of expertise (engineering, finance, etc.) inhibits multidisciplinary approaches to solving new problems that arise in contemporary business relationships. Whereas experts in other fields may be involved as consultants, they must act in a subsidiary role because regulation restricts the practice of law and the employment relationship between lawyers and non-lawyers.

Professor Hadfield's conclusion is that if clients could opt out of these rules, innovation would lead to improvements in the cost-effectiveness of legal services. She bases this conclusion on the observations that technological progress and globalization have caused the obsolescence of many pro forma approaches to solving legal problems, and that people other than American-trained lawyers have knowledge and skills that are relevant to solving these problems. In brief, if smart, appropriately-trained people are thrown at problems arising in contemporary business relationships, good things will happen.

My comment focuses on this last step of Professor Hadfield's argument. Because innovation is impossible to predict, expecting Professor Hadfield to specify the types of innovations that will arise from a more flexible system for supplying legal services clearly is asking too much. Nevertheless, the assumption that innovation will follow if impediments to more flexible methods of supplying legal services are removed could be an example of "technological

optimism"—the belief that innovation can be relied upon to overcome any significant impediment to continued economic growth.[2]

To address the plausibility of innovative solutions to new legal problems, I identify impediments to innovation in legal services, other than legal rules and institutions, and examine the likelihood that they could be overcome if the obstacles discussed by Professor Hadfield were removed. Whereas there is no obstacle that definitively cannot be overcome, the problematic issues are whether the current state of knowledge can support innovations in legal services and whether new organizations are likely to emerge that can effectively deliver the multidisciplinary services Professor Hadfield envisions.

II. CONDITIONS FAVORABLE TO INNOVATION

Research on the innovative process has identified four necessary conditions for successful innovation.[3] The first is the presence of market demand that provides the financial incentive for innovation. The other three conditions relate to the supply side of the innovation process: appropriability, knowledge base, and organizational readiness.

Professor Hadfield's argument that legal services are both too expensive and ill-suited to solve contemporary legal problems is about the demand for legal services among corporate clients. Technological optimism consists of believing that the presence of demand normally is sufficient for innovation to occur. Innovators will respond to demand by figuring out a way to profit from satisfying it, overcoming the other conditions for innovation and creating whatever new knowledge and organizational arrangements are necessary to solve the problem.

A. APPROPRIABILITY

Appropriability refers to the extent to which an innovator can keep the social benefits of innovation. Innovation inevitably requires a sunk investment in producing new knowledge that makes a new product or production process feasible. A profit-oriented innovator must be able

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[2] James E. Krier & Clayton P. Gillette, *The Un-Easy Case for Technological Optimism*, 84 MICH. L. REV. 405, 407–09 (1985).

[3] For a summary of these factors, see David J. Teece, *Profiting from Technological Innovation Implications for Integration, Collaboration, Licensing and Public Policy*, 15 RES. POL'Y 285, 285–88 (1986).

to sustain a price for the product in excess of its long-run average cost for a long enough period to recoup this sunk investment. Thus, successful innovation requires that the innovator be sufficiently protected from competition to make innovation financially attractive.

The problem facing an entrepreneur who seeks to profit from new knowledge is that the act of using this information to produce a product runs the risk of enabling others to acquire this knowledge and use it to produce a competitive product without compensating the innovator. If copying an innovation is easy and inexpensive, innovation has low appropriability and a profit-seeking entrepreneur will not innovate.

The difficulty of copying an innovation differs substantially among products. For example, the formula for Coca-Cola was invented in 1886,[4] but still has not been successfully copied, while generic copies of brand-name pharmaceuticals are common and account for a large majority of drug sales.[5]

For innovations that otherwise could be profitably copied, appropriability can be increased by intellectual property rights, but again the extent to which intellectual property rights protect an innovation against competition varies substantially among products.[6] For example, pharmaceutical patents are very strong for three reasons.[7] First, even if a variant of a patented chemical would be as effective in treating the same medical condition, "inventing around" a drug is expensive and time-consuming due to the requirements for obtaining approval of a new drug by the Food and Drug

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[4] For the history of Coca Cola, see *The Coca-Cola Company Heritage Timeline: 1886–1892*, THE COCA-COLA COMPANY, http://heritage.coca-cola.com (last visited Feb. 17, 2012).

[5] *About GPhA: Facts at a Glance*, GENERIC PHARMACEUTICAL ASSOCIATION, http://www.gphaonline.org/about-gpha/about-generics/facts (last visited Feb. 17, 2012). Nearly eighty percent of all brand-name pharmaceuticals face generic competition, and generics account for nearly seventy percent of all prescriptions; however, as an indication of the significance of competition for appropriability, generics account for only about sixteen percent of total revenues from drug sales.

[6] For an examination of differences in appropriability and the importance of intellectual property rights among industries, see Richard Levin et al., *Appropriating the Returns from Industrial Research and Development*, 19 BROOKINGS PAPERS ON ECON. ACTIVITY 783, 783–88 (1987).

[7] For a thorough analysis of impediments to competition in drugs, see generally C. Scott Hemphill, *Paying for Delay: Pharmaceutical Patent Settlement as a Regulatory Design Problem*, 81 N.Y.U. L. REV. 1553, 1563–67 (2006).

Administration (FDA).[8] Second, even if the patent for an approved new drug is so weak that a non-infringing generic copy is likely to be feasible, regulatory rules regarding challenges to drug patents virtually guarantee that generic entry cannot occur for at least six and a half years after the original drug is approved.[9] Third, pharmaceuticals almost always have an economic life—that is, a period when the product can be profitably sold—that exceeds the duration of patent protection (twenty years plus an adjustment for delay in obtaining FDA approval). Many innovations have much shorter economic lives due to rapid obsolescence. Examples of the latter are patented software and, especially, the vast majority of copyrighted cultural works. Popular cultural products typically are withdrawn from the market within a few years after their creation. As a result, the duration of copyright protection vastly exceeds the economic life of most works.[10]

One issue with respect to innovation in legal services is the extent to which creative solutions to new legal problems are appropriable. At first blush, the prospects seem dim because the essence of creative solutions to legal problems is not likely to be eligible for either a patent or copyright. But the same can be said for traditional legal services, and highly skilled lawyers remain highly rewarded for their practice. The reason, apparently, is that the crucial input to the production of legal services is highly-skilled lawyers, and highly-skilled lawyers apparently constitute a small fraction of all graduates of law school. The same circumstance arises in other professions that require substantial training and in which earnings vary substantially among practitioners with essentially the same formal credentials, such as architects, financial analysts, software creators, management consultants and surgeons.

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[8] *Id.* at 1564–67.

[9] *Id.* at 1564–1610. Depending on the nature of the patent for a brand-name drug, a generic manufacturer must wait either four or five years before filing an application with the FDA to market a generic drug. If the brand-name firm then files an infringement suit against the generic applicant, the generic drug cannot enter until the infringement suit is litigated to conclusion or thirty months expire, whichever is sooner. Because infringement litigation rarely can be concluded within thirty months, the generic entry rules almost always give a brand-name firm at least six and a half years of protection against entry by generics that do not infringe the patent.

[10] For an example of the tenuous connection between the economic life of copyrighted works and the duration of copyright protection, see Linda R. Cohen & Roger G. Noll, *Intellectual Property, Antitrust and the New Economy*, 62 U. PITT. L. REV. 453, 471 (2001).

The financial rewards to the best practitioners in skilled professions do not arise from market power, which is the result of intellectual property rights in unique and highly-valued innovative products. The seven-figure incomes of top lawyers, consultants, movie stars and professional athletes do not arise from monopoly power, but from scarcity in highly-skilled professions. Formal barriers to entry into the legal profession probably do cause higher earnings among "ordinary" lawyers because people other than those who attend law school could perform these services and would be willing to do so at a lesser wage. But the best lawyers do not have close substitutes, not even among other lawyers. As a result, an increase in the demand for the most demanding legal services leads primarily to an increase in price, not an increase in supply.

If restrictions on the practice of law were removed, and as a result new multidisciplinary professional services firms emerged that could offer better solutions to contemporary legal problems in the new globalized economy, the nature of their innovation does not seem likely to be a product easily copied by a large number of people. Instead, these innovative, new providers of legal services will develop and apply a new set of skills that are beyond the reach of most professionals and hence will be richly rewarded.

The other appropriability issue applies to the problem of collaboration among firms, supported by legal agreements, to produce an innovation. The question here is whether an agreement can be created that provides adequate protection against opportunistic behavior by one of the collaborators. This issue is at the heart of the organizational readiness condition for innovation, and so will be discussed in that section.

B. KNOWLEDGE BASE

In order for innovation to occur, relevant knowledge must be available to permit a successful attack on the problems that must be solved to produce the new product. The knowledge base consists of the information and know-how that is available for creating innovations.[11] The concept of knowledge base is broader than just technical information and analytic methods. Innovation differs from invention (creating the first prototype) because innovation involves creating the production and distribution system that supports success

[11] For more details about the concept of knowledge base, see Franco Malerba, *Sectoral Systems of Innovation: A Framework for Linking Innovation to the Knowledge Base, Structure and Dynamics of Sectors*, 14 ECON. INNOV. NEW TECHN. 63, 66–70 (2005).

in the market.[12] For example, an essential element of Henry Ford's innovation in automobiles was replacing a handicraft production process with an assembly line.[13]

The innovation that Professor Hadfield envisions for legal services is the product of multidisciplinary teams (lawyers, engineers, economists and other professionals) that understand the underlying technology and business environment of the firm and will use that information to craft more effective solutions to legal problems. The team need not invent new products and production technology, methods of financial analysis or other new knowledge. Instead, the team must combine these knowledge bases to enable two organizations to undertake another innovation (the product that emanates from their collaboration). The unstated core assumption is that one who fully understands the technology, business environment and relevant law has a sufficient knowledge base to create innovative legal services.

Professor Hadfield's presumption obviously is not universally applicable to all multidisciplinary problems. Producing genetically-engineered products requires more than a team of chemists, biologists and engineers. Such a combination was necessary to make tomatoes with built-in pest resistance, but both the invention and the innovation required the creation of a broader knowledge base and depended on the feasibility of creating a biologically-viable, pest-resistant tomato.

Most likely, a group of talented people with different but relevant skills are likely to come up with better solutions to the legal problems that are faced by globalized firms in the new economy. But the marriage of these skills into new legal products may not be an easy task, and the resulting products, while better, still may fall short of the desires of the business executives that Professor Hadfield interviewed. The underlying question is whether relationships among organizations in the globalized new economy can ever be solved without merging the organizations and substituting internal governance for inter-organizational agreements, which brings us to the final condition for innovation.

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[12] Vernon W. Ruttan, *Usher and Schumpeter on Invention, Innovation and Technological Change*, 73 Q. J. ECON. 596, 597–98 (1959).

[13] CHRIS FREEMAN & LUC SOETE, THE ECONOMICS OF INDUSTRIAL INNOVATION 141–43 (3d ed. 1997).

C. ORGANIZATIONAL READINESS

Oliver Williamson won the Nobel Prize in Economic Sciences for his path-breaking work on the properties of different ways to manage cooperative economic activities.[14] His insight was that certain kinds of economic relationships are better managed within the same organization than through contracts between separate organizations. Among the reasons why integration can work better than collaboration across organizations are that integration to some degree harmonizes incentives of different production units and that internal rules can be more effective than contracts in protecting against opportunistic behavior if uncertainty makes complete contracts unlikely.

Inter-organizational, collaborative innovation is especially prone to problems of incomplete contracting because uncertainty is a defining characteristic of the innovative process. Moreover, the appropriability issue makes opportunistic behavior especially likely in innovative collaboration. Because not all possible outcomes of collaborative innovation can be foreseen, not all opportunistic behavior can be anticipated and protected against in a collaboration agreement.

A simple example illustrates the problem. Suppose two firms each possess secret information that, when combined, can be used to create a highly profitable innovation. To negotiate a collaboration agreement, each firm must reveal enough of its secret information so that its prospective partner recognizes the value of collaboration, but in so doing each firm may create an opportunity for its potential partner simply to steal its secret, rather than collaborate and share the reward.[15]

Professor Hadfield has posed an interesting question in organizational design. The underlying problem is whether research collaboration or vertical contracting for innovative inputs (that is, one firm contracts with another to perform research and development

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[14] *See generally* OLIVER E. WILLIAMSON, MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS: A STUDY IN THE ECONOMICS OF INTERNAL ORGANIZATION (1975).

[15] *See* Jack Hirshleifer, *The Private and Social Value of Information and the Reward to Inventive Activity*, 61 AM. ECON. REV. 561, 566–68 (1971). Each firm can protect against such opportunism by buying the stock of the other, or shorting the stock of the other firm's competitors; however, this strategy works only if a firm has access to enough financial capital to engage in the necessary transactions and if the amount of stock that must be transacted to compensate the firm for the loss of its secret is small enough that the transaction does not substantially affect the prices of the transacted stocks.

[R&D] to support some element of its new product or production process) is feasible, given the possibility for opportunistic behavior. Collaborative research creates a relation-specific asset, that is, an asset that has value only when used in collaboration with the other party. If contracts are incomplete or imperfectly enforced, one partner may attempt to hold up the other by failing to uphold the agreement (at least in spirit) for the purpose of increasing its share of the rewards from collaboration, especially if one firm's assets are more closely tied to the collaboration than the assets of the other firm.[16] This fundamental contracting problem has led most economists to conclude that R&D leading to product innovation is difficult to accomplish through contracts. Instead, it is better undertaken within the same firm (a hierarchy) in which innovators need not fear that the production and distribution components, or even a complementary R&D component, will steal their ideas or otherwise take opportunistic advantage of them.

The complaints of high-tech CEOs that are reported by Professor Hadfield are consistent with this traditional problem of using markets to produce innovations among collaborating firms with independent and, to some degree, conflicting objectives. The implication of the extensive research on the boundaries of the firm, beginning with Coase's seminal paper,[17] is that firms generally will prefer to integrate into R&D rather than to contract for it with other firms. The exception is firms that undertake R&D to invent products, obtain enforceable intellectual property rights, and then license or sell those rights to other firms that will take responsibility for product innovation (bringing the invention to the market).

Professor Hadfield is correct that, in recent years, high-tech firms have been more prone to engage in collaborative R&D than in the past, perhaps as a result of the strengthening of patent rights over the last two decades. But the conclusion that the mismatch between legal services and the legal services requirements to make innovation collaboration successful can be cured by removing some of the restrictions on legal practice is only one possibility. The other possibility is that innovation in legal services cannot overcome the inherent tendency for opportunistic behavior in these relationships, in which case the cure for these complaints is either a merger or a joint venture.

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[16] *See* Benjamin Klein et al., *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, 21 J. L. & ECON. 297, 300–01 (1978).

[17] *See* R. H. Coase, *The Nature of the Firm*, 4 ECONOMICA 386, 390–92 (1937).

A similar organizational issue arises in forecasting the likely outcome if restrictions on legal practice are removed. At present, the only alternatives to the multidisciplinary legal services practices envisioned by Professor Hadfield are contractual relationships (between law firms and other types of consultants or between clients and both law firms and consulting firms) or vertical integration by the client (whereby the general counsel's office employs people from other disciplines and is managed by a person who is experienced in the business, rather than a lawyer). The former is likely to be susceptible to opportunistic behavior arising from the difficulty that a client would have in assigning responsibility for under-performance, and the latter is poorly suited for capturing economies of scale arising from intermittency in the need for these types of legal services. These arguments support Professor Hadfield's view that restrictions on legal practice are potentially important because removing them would provide a solution to both the contracting problem and the scale economies problem.

III. CONCLUSION

I am grateful to Professor Hadfield for writing such a thought-provoking paper. Her article raises important new questions about facilitating technical progress among innovative firms in a globalized economy. Everything she says about the potential costs of self-regulation of the practice of law is well reasoned and compelling. The only loose end is whether a multidisciplinary team of smart people can solve the problems that she identifies. Surely they should be given the chance, and in some cases—circumstances in which opportunistic behavior is unlikely or can be circumvented by contract—they are likely to succeed. But one should not be surprised if, a decade after the reform, Silicon Valley CEOs still complain about the quality of legal services when in fact the problem is trying to solve an impossible contracting problem.