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The Role of Patent Law in the Innovation Cycle

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Abstract

The innovation cycle for inventive technologies contains four separate stages. The initial startup, the infusion of venture capital, the commercialization of patented products, and the protection of the underlying rights needed to gird up the first three stages. Patents play a relatively small role in the first stage of the cycle, but a far larger one thereafter. The effective movement from beginning to end thus depends on a willingness to offer strong protection under both contract and property regimes to create the right ex ante incentives for expanded output. The older legal rules worked strongly in that direction. Many proposed reforms, most notably those contained in the Goodlatte bill now before Congress, cut in the opposite direction.

Article

Property, Contract and Gains From Trade The purpose of this paper is to give some general account of the cycle of innovation in the broad inventive space, much of which is dominated by accounts of patent law and the role that it plays in innovation. My purpose here is not to denigrate that powerful connection between patent rights and innovation, but to explain how it works itself out in a variety of contexts. In writing this essay, I do not rely on empirical work that I have done—for I have never done any. But I do try to integrate the results of the empirical work done by others with my general intellectual orientation as a private lawyer who has extensive experience in both system design and litigation across a broad range of areas. In approaching this problem from that perspective, patent is not the first area of law to which one turns attention. Indeed, in general my conclusion is that for the most part explicit transactions, such as licensing patents, come relatively late in the innovation cycle.

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At the beginning of that cycle the dominant elements depend on a clear understanding of the general rules of property, contract, tort, and restitution, whose interaction was a major concern in my 1995 book *Simple Rules for a Complex World*, which shows how these various bodies of law fit together as part of a general theory that covers the entire waterfront. These principles will not solve all cases, but they will provide a conceptual framework that can make clear why, in some contexts, general rules work across the board, while in others, more specific rules have to be developed to deal with particular kinds of transactions. The law thus develops, for example, general principles of agreement. But to those it adds specific rules that are intended to deal with specific types of contracts, including sales, licenses, and partnerships, all of which are essential to the development of intellectual property.

To attack the general portions of the law of contract, abstractions actually help sharpen the inquiry. Thus, as an initial cut, the only people who live in contract-land are Mr. A, Ms. B, and their friends. A and B do not have pre-assigned identities of any sort, kind, or description of their transactional roles. The conceptual challenge is to understand how these anonymous souls manage to work cooperatively, leaving them, in their own private lives, to determine the exact term and conditions of the arrangements, both formal and informal, that govern their joint endeavors. Starting at this high level of abstraction has the advantage of introducing a level of theoretical generalization that cannot be achieved by first looking at discrete contracts independent of some explicit conceptual frame. Starting with contract as a category beats starting with a list of particular contracts, which, in term, will emerge as the determinants of cooperative behavior.

The same proposition holds true with respect to property. Successful analysis of real property law starts with Whiteacre and Blackacre. The use of those abstract names signals that your theoretical acquisition of property in land does not depend upon on small individual variation, but rests on a more general theory that initial occupation is the root of title. That same process works with patents, with more than an occasional nod to trade secrets, and sometimes to copyright. Ideally, an overarching theory of property law, coupled with a general theory of contract law, is needed to establish a basic legal framework that thereafter allows different individuals to voluntarily order their own relations for their joint advantage. It is not the law that makes technological innovators. It is for individual people to decide whether to become innovators. The law offers a set of background institutions of property and contract that allow individuals to increase the odds of their success. The basic cycle in innovation is the same that it is everywhere else. A strong system of contract and property law allows parties to achieve gains from trade. In some instances, the gains are done within the firm, under contracts that the firm makes with its employees. In other cases, the firm deals with outside entities under various kinds of licensing or sharing agreements that cover the use and transfer of intellectual property rights.

In a previous session of IP2, an [article](#) by Ashish Arora, Wesley M. Cohen, and John P. Walsh reached the conclusion that the acquisition and commercialization of invention in the American manufacturing center depended very heavily on these interfirm contracts in order to make their businesses work. The explanation is not hard to find out. Within the general model it is critical that there be opportunities for gains from trade between parties, and that is most likely to happen when the skills that the various parties possess are complements to each other, not substitutes. That condition often holds when two firms deal in interactive work. It is therefore not surprising that the complementarities are stronger between two (or more) firms engaged in technology than they are between a technology firm and a customer that may well be engaged in a very different business. But this high-level prediction is an aid to understanding. It is not meant to form a rigid regulatory shell that directs how firms interact. Customers that make intense use of products can easily suggest functionalities that a particular product should add or remove, and firms could take advantage of that information. In all these arrangements, the initial encounter may well be casual. But if it proves beneficial, then some long-term sharing arrangement for information can be developed so that licenses and sales are no longer naked transactions that accomplish only one task. Instead they become more exhaustive and multi-dimensional. In the end the hope is that the forms of contracting will become sufficiently supple that it can support everything from one-off transactions to long-term relational contracts among parties. The object in all cases is to develop a portfolio of assets, patents and trade secrets included, to go along with a dense contracting network in order to maximize the gains from trade.

To understand how this works, I shall divide innovation into three stages. The initial stage is the creation of the original paradigm, often by bottoms up innovation. The second stage involves the additional joint venture capital necessary to expand the operation. The third stage involves the commercialization of the new product, with an emphasis on the supply and distribution chains needed to bring new products to the market. Behind these lies the fourth stage, which is the construction of a set of contract and patent remedies that backstops each of the key steps in the innovation cycle.

The Cycle of Innovation—Top Down versus Bottom UP

In tackling this problem, one irony is that the cycle of invention does not begin with intellectual property devices. It is not that these protections are unrelated to successful innovation. It is rather that the initial stages of innovation often take place without, or at least prior to, explicit reliance on the protection afforded by the intellectual property laws. Many nascent inventors pay scant attention to patents; it would be too costly for them to get involved with these matters before they have their own inventive vision in place. So, over the larger landscape, there are innovators without property rights, just as parties who have property rights need not innovate. Putting the whole package together requires understanding how the innovation that starts with curiosity and

imagination comes to rely on patents and copyrights for their successful realization. Put otherwise, the challenge is to unite individual imagination with legal protections.

The word “unite” gets to the root of the problem, for it is not property, as such, that unites people. Rather, it is the contracts that they make with respect to their labor, or protected forms of property that unite people. Property rights are the subject of contract, but not the driving force in their preferred configurations. What, then, is the process that lets this unification take place? What are the institutions that are key to turning abstract ideas into usable commercial outputs? How does this life cycle work, and what is the role of property and contract in its successful completion?

Now, the first question to ask about innovation is which institutions should drive it. Generally speaking, there are two possibilities. The first is to drive it through some large firm that has the capital to see the project through to its completion, and is endowed with bureaucratic expertise that can help structure the initial creative search. In these large firms, innovation starts from the top, and, as noted, above, it often relies on extensive cooperation with other firms with whom the company does business. But those findings only apply to firms that are already in the business of making products, which necessarily require that they form some kind of supply and distribution chain. But these elements are far in the future for an invention that has yet to take form for a task that has yet to be precisely invented. In these situations, the expertise in capital formation and technology in that centralized authority can often prove to be its undoing at the early stage of invention. Even in the nimblest of large private firms, the number of steps needed to launch a project could easily evoke images of the bureaucratic control found in the Soviet Union at the peak of its institutional rigidity. Layers of centralized management can easily stifle the very creative impulses that the large firm is trying to foster. Rigid procedures do not mesh easily with flashes of inspiration and the formation of shifting alliances among individuals who are not quite sure of their collective direction. Inspiration is always in short supply. Too often, the procedures that govern them are not. Oversight can as easily smother invention as create it.

So, a close examination of the patterns of successful innovation reveals that many trees that start from acorns. Today’s firms began some years ago in somebody’s garage. Why? Because what are most critical for innovation are the freedom and space that allow a small group of key actors to revise their business plan, revise their capital requirements, and revise their objectives, all on very short notice, without any need to acquire approval from outside sources that may be less knowledgeable than the insiders. Many nascent firms will fail in this hothouse environment. But those losses are more than compensated for by the ones that succeed, especially if they succeed on a grand scale—a risk return profile that has profound influence on how the small start-up requires additional capital for developing its invention. Given the right environment, fresh invention may free itself of the established patterns of the prior generation. As in all forms of evolution, there are many situations in which small groups may have an enormous advantage over large

organizations. Starting small may foster the flexibility that larger organizations may not. But again “may” is the operative word. This proposition is a cautious empirical generalization. It is not a call to ban innovation by large firms or to subsidize it in small ones. It is only an empirical hypothesis that can be proved wrong by high rates of successes from large firms and high rates of failures from small ones. Making guesses about comparative advantages is always a tricky business. The one constant in this area is that no regulator should try to decide in advance which form of organization works best. That form of industrial policy is prone to failure.¹ Instead, the better government approach is to let all firms, new and old, large and small, compete in the market place. Not surprisingly, it is likely that both larger and smaller firms will succeed where they have a comparative advantage. A regime of open entry into innovation means that no government official has to guess where these advantages will lie. The market response will provide all the information we need.

Now, one implication of this story is that, in dealing with innovation, it is probably unwise to worry first about the creation of intellectual property. It may be critical at the initial stages to worry more about personnel, projects, and, as always, financing. How does an entrepreneur get a project off the ground? Initially, the only person who may have confidence in the project is the future innovator. Explaining the project to outsiders could be time-consuming or confusing. Or, it could let certain trade secrets out of the bag. So it is not uncommon for the first round of capital to come from self-financing.² People will max out their credit cards; they will take loans from their parents, or their aunts and uncles, because they are the only people willing to gamble on the future innovator or creator, in light of their own long-term personal knowledge and trust. And, if the innovators fail to pay them back, which is often the case, they may simply treat the loss as a gift gone bad to a family member.

So many businesses start in this slightly chaotic form. When there are two or more people involved, they may cooperate as part of an informal arrangement long before they form an explicit partnership. Indeed, they might not have any early awareness of what the ultimate division of the take will be. That indefiniteness could be a source of conflict later on. But, oftentimes, loose pooling arrangements amongst a select group of individuals may produce inventions or creations that are worthy of intellectual property protection, even if this primarily occurs at a much later point in time. The key challenge is to know when to

¹ COMPETITION POLICY AND PATENT LAW UNDER UNCERTAINTY: REGULATING INNOVATION 9-10 (Geoffrey A. Manne & Joshua D. Wright eds., 2011).

² Zoltan J. Acs, Brian Headd & Hezekiah Agwara, *Nonemployer Start-up Puzzle* 6-7 (U.S. Small Bus. Admin.), Working Paper No. SBAHQ-08-M-0195, 2009), available at <https://www.sba.gov/sites/default/files/advocacy/Nonemployer%20Start-up%20Puzzle.pdf>.

make the shift from informal to formal, both within the core group and in relationship to the outside world.

Now, at this particular point, the question is, then, what kind of contract do you choose to put people together for the initial round of development. The answer, I think, in many cases, is to utilize what the Romans called *bona fide* contracts. What they meant by *bona fide* was the innocuous but vital notion that each person does for the other what makes sense for their joint success.³ Stated in this loose fashion, the phrase reads like an open invitation for disaster. But, in practice, it is possible to put the same proposition in far more rigorous terms by thinking of it as a requirement that parties act as though they are in a perfect cooperative game with one another. The parties to a good faith contract form a miniature Marxist society. People expect that everyone will contribute their maximum abilities and only take their proportionate shares of the gains.⁴ So with every decision, each partner is supposed to worry, not only about his own interests, but also about the interests of everyone else, and must treat their benefits and harms exactly as he treats his own. In effect, the rule requires each person to attach equal weight to the position of all other partners on matters of both finance and governance.

Trying to achieve this end in large-scale organizational form with a group of anonymous strangers is an open invitation for failure, as their interests will quickly diverge. So the secret to success for small organizations lies in the ability of all members to choose their own partners, and to do so on the basis of natural affinity, affection, and respect. The choice of partners thus reduces the temptation and need for any given partner to cheat on the collective good by controlling the conflicts of interest within the group of preselected partners. That is one reason why these partnerships are siblings like the Wright Brothers or the Warner Brothers. The overlapping genetic and social interests—no need to distinguish sharply between them in this context—increase the zone of cooperation, and reduce the zone of potential conflicts, which in turn reduces both the cost of monitoring and the likelihood of breach. That simple change means that it is now possible to state the obligations of the parties in this general good faith form, as basic standards rather than fixed rules, offers the advantage of an enormous amount of flexibility to deal with every unanticipated bump down the road, without requiring lawyers to draft constant amendments to the initial agreement, which, like a bad state constitution, would contain far too much specific detail. The initial stage of these joint ventures may appear, from the outside, to be quite chaotic. But from the inside, in this particular context, joint ventures allow people to act in a highly cohesive fashion.

³ Martin Josef Schermaier, *Bona Fides in Roman Contract Law*, in *GOOD FAITH IN EUROPEAN CONTRACT LAW* 63, 63, 77-80 (Reinhard Zimmermann & Simon Whittaker eds., 2000).

⁴ KARL MAX, *WAGE-LABOR AND CAPITAL* 33-34 (Harriet E. Lothrop trans., New York Labor News Company 1902) (1891).

The Venture Capital Challenge The challenge is how to deal with the transition out of this initial phase. That turning point often arises for two reasons. First, as the project expands in ambition and scope, the members of the initial group have capital requirements greater than those that they can acquire by maxing out credit cards or borrowing from family members. Second, as the venture moves toward commercialization, the initial core group may well lack the necessary skills to take the venture to the next level of operation. At this point, new rounds of capital have to be raised from specialists in taking equity contributions or making loans, or doing complex venture capital deals that set specific goals and timetables, now that monitoring issues become much more salient. In this second phase, intellectual property starts to take on a far more important role than it previously did. The exclusivity that it offers could promise outside investors a supra competitive rate of return on investment.

At this point, let me take a leaf from American entrepreneur, venture capitalist, and hedge fund manager Peter Thiel's recent article, *Competition is for Losers*, touting his new book (with Blake Masters) "Zero to One"⁵ It is important to realize that a great salesman and investor like Peter Thiel knows that a catchy title will make a few extra dollars (about which Thiel cares little) and give the book an extra zing in the marketplace, about which he (rightly) cares a great deal. But forget the hype for a moment. Thiel is not for banning competition, or for banning losers.⁶ But he does mean that any mature organization of the type to which I referred above pays a price for its stability, insofar as it is likely to earn only a competitive rate of return on its invested capital.⁷ That may be all that is required for passive investors, including many trust fund beneficiaries. But that prospect does not represent the sweet spot for the budding entrepreneur, who is looking to occupy some new space in which he is the only "competitor," and can therefore earn far more than a competitive return. The only way that the fledgling inventor can achieve these high rates of return is to develop some new product, allowing him to keep the supra-competitive returns for himself even after he gives the venture capitalists their risk adjusted rate of return.⁸ That takes real imagination, cooperation, and perseverance—as well as a bit of salesmanship.

⁵ Peter Thiel, *Competition Is for Losers*, WALL ST. J., Sept. 12, 2014, <http://www.wsj.com/articles/peter-thiel-competition-is-for-losers-1410535536> (providing an adaptation of PETER THIEL WITH BLAKE MASTERS, ZERO TO ONE: NOTES ON STARTUPS, OR HOW TO BUILD THE FUTURE (2014)).

⁶ *Id.*

⁷ *See id.*

⁸ *Id.*

In making this observation, it is necessary to dispel a common confusion in this area, which assumes that the protection of the patent system creates the kinds of dubious monopolies that are often found in public utilities and common carriers, or the cartel arrangements that (with government support) still survive in agriculture for such fungible commodities as raisins, or the exclusive licenses for imports that were one of the early functions for patents. In those cases, the artificial monopoly is created by state power, which is then immunized from the ordinary antitrust law under the 1943 Supreme Court decision in *Parker v. Brown*,⁹ and now subject to a frontal assault in *Horne v. Department of Agriculture*¹⁰ which has just been argued in the Supreme Court. The so-called patent monopoly bears no resemblance to these state creations. The patent in question does not cover any given field but only a device within the field. The legal monopoly is thus subject to competition for new technologies cover by other technologies that serve the same end, so that its durability depends on the level of uniqueness that it introduces into the industry. The search for these exclusive rights to make and sell thus differs from standard monopolies in two ways. The inventor has to create something worth protecting, and the protection covers only the device and not the field.

The challenge of a solid venture capital regime is to create within the rules the strongest possible set of exclusive rights. But now that the size of the stakes and the number of parties have increased, affective ties will no longer dominate, so that the legal relationships necessarily become a good deal more formal than they were at the earlier stage. The venture capitalist will really care whether there is intellectual property, because that exclusive legal right to make or sell is the only, or at least the best, way to create the situational monopoly that generates those supra-competitive returns, which can only be obtained in the short run. The purpose of intellectual property protection is to develop these much needed monopoly returns for innovation. But it is critical to note that the high economic returns require more than exclusive title to a given technology. In and of themselves, legal “monopolies” over a particular technology or literary work confer no more pricing power than the exclusive ownership of a house or a car. The question that matters is the number of close substitutes for the patented technology. The venture capitalist has no more desire to fund a highly substitutable technology than it does the purchase of a house or a car.

It should therefore become clear that all intellectual property rights are not built alike. What is needed to keep the venture capitalist at the doorstep has to be a bit more muscular. Put otherwise, it has to be distinctive enough to create the prospect for at least

⁹ 317 U.S. 341 (1943).

¹⁰ 133 S.Ct. 2053 (2013). The case was just argued before the Supreme on the Merits. The full proceedings are available at <http://www.scotusblog.com/case-files/cases/horne-v-department-of-agriculture-2/>.

some short-term supra-competitive returns, which justifies the venture capitalist's investment in your project.¹¹ That requires showing more than a patentable device. The innovator has to show the distance of his new project from the current set of players in the market.

There is nothing that the law can do to guarantee that needed degree of separation. But what it can do is to provide a system of legal protections to ensure that the inventor and venture capitalist will not have to endure the extra costs associated with the uncertainty of these rights.¹² It will depress the rate of return if it takes a long time to patent a device. It will depress the rate of return if the patent is porous and subject to attack because the legal system cannot make up its mind about the protection that it will afford in the event of patent infringement. And it will not do to have a patent that offers only feeble remedial relief in the event of an infringement, which makes it difficult to sell interests in the patented technology or borrow money on the strength of the patent. Ersatz intellectual property is a real handicap at the venture capital stage, long before marketing efforts begin, and long before these sales or loans are made. At this point in the development cycle, the traditional view of property rights—that they must be known and certain—becomes critical to push development forward¹³ Commercialization requires that future suppliers, lenders, dealers, and customers need to value the potential worth of the invention, in terms of its intrinsic properties and market appeal, which is never easy given that such critical matters as claim definition, prior art, and non-obviousness will present many difficult borderline cases even in the best of legal regimes. Legal protection thus becomes relevant in the production stage, when the fledging inventor is seeking that first round of outside financing. Venture capitalists understand both the legal and business risks, and they will either beg off a deal or reduce their investments if the intellectual property rights are so indefinite in scope and protection that they scare away all potential partners and lenders.

With this rise in stakes, and with the concomitant expansion in the number of parties, the business organizations have to shift as well. It will no longer suffice for an outsider to advance huge sums of capital on the strength of the same good faith, informal arrangement that worked in small-number type situations. What the parties must do is develop formal metrics that allow large investments to be made in ways that permit the

¹¹ THIEL, *supra* note 5, at 83-84

¹² ORG. FOR ECON. CO-OPERATION & DEV., *supra* note **Error! Bookmark not defined.**, at 17-18.

¹³ See Depoorter, *supra* note **Error! Bookmark not defined.**, at 62-63; Devlyn Tedesco, An Overview of the Venture Capital Process for Entrepreneurs 4 (2013) (Entrepreneurship & Innovation White Paper Series), *available at* <http://www.albanylaw.edu/glc/about/expertise/renewable/Documents/An%20Overview%20of%20the%20Venture%20Capital%20Process%20for%20Entrepreneurs.pdf>.

new firm members and lenders to monitor the level of progress, and to have plans to orchestrate any future shifts in control should these become necessary.

The first challenge is to figure out the nature of the deal. In this regard, the usual mode is for the venture capitalist to take an equity stake in the venture, which gives some partial control over its operations, in ways that I shall discuss shortly. The initial impulse for this has to do with the riskiness of the underlying invention at an early stage. Unlike a restaurant or clothing store, intellectual property ventures are likely to have a small chance of success with an outsized rate of return, or to go bust. Assets of this sort make bad collateral for loans, because the standard rates of interest are too low to offset the high risk of failure in cases of this sort. A firm that has a 10 percent chance of success cannot borrow money at 10 or 20 percent if 90 percent of the time it will not be able to repay the debt. Using an equity instrument means that the venture capitalist gets a fraction of the upside in the good state of the world and goes down with the venture in the bad state of the world. The high side from a well-placed equity investment can cover the losses from the failures, at least if the deal is well constructed. The venture capital firm protects itself by investing in portfolios of startups so as to diversify its losses. It may even be able to improve the odds of success by encouraging sharing of information between various companies in order to develop synergies among them.

A somewhat contrary view to this position is taken by Yael Hochberg, Carlos Serrana and Rosemarie Ziedonis in their [article](#) Patent Collateral, Investor Commitment, and the Market for Venture Lending, which reports that the venture lending market has gained in strength in recent years, based on the number of recorded security interests that are based on patents. As a matter of first principle, there is of course no reason to prevent the emergence of venture lending for parties that choose to adopt that form of business. But it is important to note that this device is not likely to be used at an early stage of a venture, when the risks are highest. That is indeed consistent with the underlying study that reports that “The proportion of sample startups receiving debt each year climbs steadily over time, is lowest before a startup receives its first VC equity infusion (independent of age), and is highest when equity investment is made by top-tier investors.”

This conclusion is of course consistent with the view that lending becomes a viable option only after there is some stability in the relationships. It is also subject to a number of complications. Under a freedom of contract regime, it is quite possible that the recorded loans also contain a conversion feature, which allows the creditor to participate in the high side of the business perhaps by obtaining a junior preferred interest that raises its return when outcomes are favorable. In addition, it is not likely that the patents used to secure a loan are those that have proven market value independent of the startup venture. There is little reason to expose a stable patent to a bankruptcy risk when it has value in other licensing transactions. It is therefore much more likely that an established patent will be kept in a separate entity which enters into some licensing arrangement with the startup company. There is no iron law that says that only simple structures may be

used to start complex ventures. There are a host of tax and business reasons why a more complicated business structure involving multiple entities might make sense.

Once, however, the basic structure of the deal is set, the question is how the monitoring and control functions are organized. In dealing with this issue, there are still asymmetries in knowledge and information between the parties, so that it is unlikely that the deal will be a simple one that divides control between the two (or more) parties in proportion to the size of their investment. Instead it is possible to adopt a number of different strategies. Under one version, the new venture capital people say, “we’re going to become part owners in this particular venture,” at which point they will have to face the serious challenge of mixing two vastly different cultures—the garage culture, in which creations are born, and the more staid environment of the well-heeled venture capital firm. These often clash when it comes time to make key choices. So, generally speaking, parties tend to gravitate towards the second strategy, which is to organize the transaction so that the creative control remains with the initial group, subject to the caveat that they have to meet various milestones set out by contract in advance to prove to the venture capitalists that they have made the progress that allows them to remain in control.¹⁴

It turns out, I think, that most of the venture capital business is largely organized on this second model. There are objectives that have to be met by certain dates. The real creative work comes in setting the proper metrics for these output contracts, metrics that leave the original core creators free to choose the technique, but hold them responsible for mistakes when its outcomes are measured against these stipulated observables. The situation can, of course, get more complex if the venture capital group also gives some kind of advice on how to proceed, meaning that, with these compound forms of control, the capital structure might become still more complex. The deal also has to contain some explicit change-of-control provisions for instances in which the targets are not met, as well as further provisions that allow for a future recapitalization of the business that will reduce the stake, but usually not eliminate, all returns to the members of the initial inside group. Transitions are always awkward, and these difficult cases prove to be no exception.

What is evident is that these challenges are often firm specific, so that any such venture capital agreement has a mix of standard provisions, tailored to the occasion, and specialized provisions negotiated in light of the distinctive technology of the new firm. Timetables are part of the game, and so too are technical specifications that can only be established by knowledgeable parties. At this point, the new set of challenges could lead to a shift in control within the core group, because the people who are good at design may not be expert at negotiation. Even the task of hiring lawyers and marketing people slowly shifts control over the initial operations, a transition that is also fraught with risk. It is no surprise that the core group often underappreciates these transformational challenges at

¹⁴ Tedesco, *supra* note 13, at 2-3.

the outset of their venture. The temptation is to defer thinking about a business contingency that might never occur, only having to scramble for safety once some unanticipated complication arises.

It should be evident throughout this process that strong property rights are only part of the solution. They are what give the new venture its character and promise. But the only way to realize that potential is under a legal regime that prizes freedom of contract, which is the only way that the parties can tailor their agreements, if need be, to the peculiarities of the particular situation. Standard form provisions may help a deal to its successful conclusion, because they remove potential points of disagreement on recurring issues of joint ventures. But these terms cannot deal with the novel features of the business, for which explicit negotiations are required. In essence, parties try to learn as much as they can from previous deals and past experience. They also look at the public terms of other agreements similar to their own. These standard terms may help control the opportunism that is endemic to all deals. But the deal does not succeed solely because the parties guard against bad conduct. They also have to set up a distinctive affirmative business model that lets them go forward. This progression from standard background norms to distinctive contract provisions is common to almost every kind of business.

The issue of opportunism requires a brief bit of elaboration. In the initial stages, with small and intimate associations, the risk of opportunism will usually not loom as large as it does at subsequent stages.¹⁵ Early on, one partner has direct observation of the conduct of friends, so that the lower cost of monitoring generates a smaller incentive to cheat. As the size of the business grows, not only do milestones matter, but other factors also come into play: review of books and records, plant inspections, regulatory compliance, and the like.

Supply and Distribution Chains For our purposes, let us suppose that these steps bear fruit, so that the next challenge is how to get new products to the market. Now that the process has gone far beyond initial development, marketing is not just a simple set of bilateral relationships within a predetermined small group. At the development stage, the challenge is about [supply chain management](#) on one side, and an elaborate distribution network on the other. The expansion thus takes place both on the input side—what equipment and raw materials does the firm need—and on the output side—does the firm use salesmen or independent franchises? The make-or-buy decision takes place at every stage of product development. Do you contract out to other businesses? Do you create your own retail outlets? Do you share production or distribution with somebody else? And so forth.

¹⁵ Jochen Bigus, *Staging of Venture Financing, Investor Opportunism, and Patent Law*, 33 J. BUS. FIN. & ACCT. 939, 940 (2006).

These complex business chains also produce major problems, whether or not intellectual property is at the core of the business. In a simple bilateral arrangement, it is often unnecessary to make detailed legal arrangements. It often suffices to say, “if it doesn’t work out, we’ll just take over the business or we’ll stipulate some financial penalty.” But for long and complicated supply and distribution chains, “pay or perform” does not work. Now the set of expectations have to stress the imperative nature of timely performance, not the set of remedies in the event of breach.

One of the most dangerous doctrines in modern contract theory is the so-called theory of efficient breach.¹⁶ The term “efficient breach” is a profound oxymoron, because the term “breach” expresses some kind of a moral wrong or impropriety, so it is curious how such conduct could ever be regarded as efficient. The argument for efficient breach is that cutting out on certain contracts maximizes social welfare.¹⁷ The preexisting party gets its expectation in dollars, and the breaching party is better off, so it all counts as a Pareto improvement, because, it is said, at least one party is better off and no one is worse off. At a minimum, that conclusion runs into difficulty for at least two reasons. First, it ignores the administrative costs of suit, and second it presupposes that it can accurately calculate what those expectation damages are. Perhaps in the simplest two-party arrangements these assumptions are not too unrealistic; after all, so long as damages are available, the injured party will be left in a respectable position.

The logic of supply and distribution chains, however, is much less forgiving, for it is no longer permissible to reach each individual contract in isolation from all the others. The interdependence among contracts is an economic and business given, and in these cases, where one contract fails, the domino effect means that many others are likely to fail as well even if expensive rescue operations are adopted. To be more specific, if nonperformance at any given stage breaks the chain, it will necessarily cause major dislocation for all downstream players. To try, in these settings, to figure out expectation damages is a fool’s errand, given the difficulty of deciding how great the losses are for a party that cannot meet its further downstream obligations. Put in other terms, the doctrine of efficient breach does not “scale” as the number of parties increases.

The situation is still more complex for two reasons. First, there is always the possibility that any party will offer its inability to perform as a complete or partial excuse for nonperformance, with no clear way to determine its validity. Second, the same exercise may be relevant as the consequences of the breach ripple out further downstream, for the simple reason that the losses in question are not confined to those parties who are in

¹⁶ Gregory Klass, *Efficient Breach*, in PHILOSOPHICAL FOUNDATIONS OF CONTRACT LAW 362, 362 (Gregory Klass, George Letsas & Prince Saprai eds., 2014).

¹⁷ O.W. Holmes, *The Path of the Law*, 10 HARV. L. REV. 457, 458-59, 462 (1897).

privity with this initial defendant, but involve parties two or three links further away. Various kinds of accommodations can be made, but these are far more expensive and far less beneficial than the alternative strategy of avoiding breach so that these dislocations never happen in the first place. The new objective is to develop supply and distribution chain management that shows no toleration for any breaches at all. Actual performance becomes a far more important ideal in these chain settings than it is in any isolated two-party situation.

So how does any business organize these supply and distribution chains to make the business sustainable? At this point, there is yet another fork in the road on how to get that needed business reliability. One approach is to enter into a long-term contract with a single vendor or supplier at each particular stage, and make sure that party has the requisite level of compliance. The advantage of that strategy is that it reduces the complexity of running the operation and thus the costs of monitoring other parties. Similarly, it reduces the risk of collateral losses, such as the inadvertent or deliberate release of trade secret material. But that approach of putting all eggs in one basket carries with it this drawback: while the approach may work more than 99 percent of the time, in the few cases where a major break in the chain appears, the losses could be catastrophic because there are no close substitutes to fill the gap. The break at one point could lead to rupture at others, so that entire chains of supply and distribution can unravel before your eyes.

Faced with that risk, some firms decide that they have to create a back-up system for insurance so that there are two or more parties to whom the firm can turn to pick up the slack when the primary party fails. That insurance function is fine, but it comes at the cost of weakening accountability and imposing larger management and monitoring costs, including a higher risk of the loss of trade secrets and industrial know-how, now that they are shared by a larger number of parties. Once that information is lost, it is ever so difficult to get it back again. Indeed, in some cases, a given firm may never discover who has stolen its trade secrets, for the recipient has a strong incentive to keep that trade secret to itself, lest it lose any competitive advantage relative to other firms that do not possess it. Designing these chains in ways that protect intellectual property on the one hand, and promote durability on the other, is never simple. The duplication that gives insurance against certain breaks in the chain creates its own vulnerabilities. The correct trade-offs are always hard to make. My guess is that as organizations grow in complexity, the single source of supply becomes too risky, so that supply and distribution chains now begin to resemble complex networks with some, but not total, duplication.

As these supply and distribution relations become more complex, the parties must have complete freedom of contract to make sure that these arrangements are sustainable in the long run. In addition to output measures, the parties may seek various kinds of cooperation arrangements so that information that is learned at one stage of the supply and distribution process is integrated throughout the entire chain. In addition, some form

of on-site inspection may be required to nip delays in delivery or declines in quality control, which is, of course, not confined to safety issues, but extends to any product attribute, such as color or texture, which influences consumer decisions (i.e., virtually all product attributes all the time).

As a business matter, it is therefore imperative that no system of regulation requires inspection to go beyond the plants or product that is to be delivered. Thus, it is difficult to function well in an environment where a given party has to ensure that its suppliers have not used overseas child labor that does not comport with international standards. The point here is not that these standards are ill advised. That is a separate issue entirely. For these purposes, the central concern is that enforcement of these standards is better done through other means that are unrelated to supply chain management. The commercialization of intellectual property thus depends on a sound law of contract, and a sound system of regulation, for commercial and employment relationships as well.

Indeed the complexities of these arrangements often give rise to another challenge, which is whether to jettison a system of contracts for supply and distribution in favor of the vertical integration of separate firms, where one firm brings all or part of the supply and distribution chain in house.¹⁸ That maneuver avoids the need to negotiate contracts with strangers. But again, there is no dominant solution to this integration question because of difficulties with the problem of disproportionate utilization of various inputs. A given supply and distribution chain may go through many layers, each one of which has an efficient magnitude of scale. At some stages, it may well be that the most efficient equipment requires large production runs that are not sensible for other production stages. Taking in extra business from outside can easily detract from the core business operation, so that the best solution is often to sell off certain equipment to outsiders, who then specialize in one level of production. That party can utilize excess capacity by serving multiple independent parties at the same time.

In addition, it could well be that vertical integration within a given firm invites clashing operating styles, which may be manifest in the rather different ways that entrepreneurs and engineers go about their creative activities.¹⁹ Some people are systematic, and others depend on inspiration. The patterns of cooperative work may differ. Rather than fight these cultural divisions within the firm, it is far easier to separate governance so that the two groups interface by contractual means that allow each side to

¹⁸ Ronald J. Gilson, Charles F. Sabel & Robert E. Scott, *Contracting for Innovation: Vertical Disintegration and Interfirm Collaboration*, 109 COLUM. L. REV. 431, 433-34 (2009).

¹⁹ Oliver Williamson, *The Vertical Integration of Production: Market Failure Considerations*, 61 AM. ECON. REV. (PAPERS & PROC.) 112, 112-13 (1971).

preserve its distinctive culture. Academics like myself are often very bad at making these judgments, because scholarship is not an activity—at least in law—that requires complex forms of cooperation. Rather, it usually involves work that is best done by one or two persons. But big science, manufacturing, and entertainment may well be quite different.

This problem of vertical integration thus brings us quickly back to the work of the late economist Ronald Coase, who, in his 1937 article, *The Nature of the Firm*, first addressed the question of which transactions are run through a price system, and which are run through an integrated firm.²⁰ Indeed, his examples made the problem look almost simple because he did not systematically address the complicated cultures that are formed in the production and innovation industries.²¹ Instead Coase asked, very simply, “why are there firms instead of a complex set of bilateral contracts for sale and employment? Why are some things done internally and others contracted out?”²²

What Coase observed was that the price system for either goods or labor is not costless to set up, because it is costly to figure out how first to structure these transactions, then to value the goods or services provided, and finally to provide some suitable enforcement mechanism.²³ These tasks are not easy when done in discretely small transactions, so that sometimes the transaction costs are higher in an arm’s-length relationship than they are in some informal relational contract, with a single wage or other periodic payment, which gets us back again to the role of venture capital firms in organizing new businesses. One way to look at differences in work style and culture is to recognize that they increase the transaction costs needed for cooperation, and thus incline the balance back toward sales of the finished product, and away from partnership or employment relationships.

The same insight leads to differentiation of roles within a firm. Often some extremely gifted person is best able to manage the affairs of coworkers in ways that ease the inevitable tensions that arise among individuals with different priorities, sensibilities, and work styles. Generally speaking, it is fair to say, in any firm, that the higher positions depend less on knowledge of basic technical processes and more on having antenna to read and respond to the personal idiosyncrasies of creative people. Top management thus supplies not only direction for the business, but also functions as the de facto mediator between potential factions on key, quality control, technical and scientific issues. Conflicts

²⁰ R.H. Coase, *The Nature of the Firm*, 4 *ECONOMICA* 386, 387-88 (1937).

²¹ See, e.g., Armen A. Alchian & Harold Demsetz, *Production, Information Costs, and Economic Organization*, 62 *AM. ECON. REV.* 777, 783-84 (1972).

²² Coase, *supra* note 20, at 388, 400.

²³ *Id.* at 390-91.

on these matters, if left unchecked, could hamper or even halt the operation of the firm. These relationships are hard to describe from the outside, even if they are well understood from the inside, which is yet another way of saying that decentralized knowledge, Hayekian style, really matters.

The implication is clear. Once that point is grasped, it becomes clear that no external regulator has the localized knowledge to override private decisions on any of key issues relating to corporate formation or labor contracts. Thus, freedom of contract results because the operative legal norm is to preserve effective firm behavior. Now, this point has this philosophical implication: no matter where one looks in the law, it deals only with two basic kinds of arrangements—those that are voluntary and those that are coercive. For firms to work, the voluntary arrangements must dominate over the coerced ones imposed from the outside by people who do not and cannot know what they are talking about for a discrete firm.

Legal Remedies The discussion thus far has talked about rights. But it is equally important to talk about the set of remedies that should be adopted once the theory of efficient breach is rejected as a workable solution to the problem of interfirm connections. At this point, the pendulum starts to swing to the other direction so that a system of strong remedies, beginning with injunctions and specific performance is used to keep the various participants to the venture together so that no outsider can disrupt them. This dictum translates into the dominance of these forms of equitable relief over damages. Unfortunately, today, too often that form of relief is denied because courts treat the exceptional—indeed sometimes the pathological—hold-up situation as setting the implicit business norm.²⁴

This weak set of remedies poses special risks with complex forms of business practices, such patent pools, supply chains, and nonexclusive licenses of the same or similar technology to different parties, who expect to receive similar treatment, and of course patents (and trade secrets). The advantages of injunctive relief and specific performance are often not all that clear in two-party contexts. But in these three contexts and other multiplayer situations, the inability to gain injunctive relief aggravates the unraveling problem that I mentioned before: how can these cooperative arrangements be kept together if key players are allowed to depart at will, daring their trading parties to bring a damages suit that often comes too late and provides too little relief? “Come sue

²⁴ Douglas Ellis, John Jarosz, Michael Chapman & L. Scott Oliver, *The Economic Implications (and Uncertainties) of Obtaining Permanent Injunctive Relief after eBay v. MercExchange*, 17 FED. CIR. B.J. 437, 438 (2008). On the historical inaccuracy of the *eBay* rule, see Mark Gergen, John Golden & Henry E. Smith, *The Supreme Court’s Accidental Revolution? The Test for Permanent Injunctions*, 112 Colum. L. Rev. 203 (2012).

me” are words that portend the breakdown of the complex arrangements that injunctions help preserve.

In dealing with this issue, it is important to understand that ever since the original Calabresi/Melamed article the debate has been cast in nonhistorical and incorrect terms, as if there were only the choice between either equitable relief or damages, but not both. The original rules did not take the position. Instead, they understood well that neither injunction relief nor specific performance should have zero flexibility. In effect, one starts with these remedies, but does not insist that they cover the whole waterfront. The imposition of relief can be delayed to allow for some adjustments in the defendant’s business, at which point a supplemental damage award (equity’s so-called “clean-up” damages) could be used to complete the picture.

Given this double strategy, it becomes clear that the initial moves are made through equitable relief, not through damages. Equitable flexibility should not be unstructured, but should be limited to avoid the systematic patterns of abuse that come from flouting voluntary agreements—or from refusing to enter into them because of the inability to take some intellectual property today and delay payment for many years until some infringement action succeeds. The likelihood of that holdout strategy *by outsiders* (remember holding out can happen on either side of any deal) will be diminished once it is clear that injunctive relief is the norm and not the exception. Once injunctions are available as a general remedy, the need for their occurrence and use will be much lower than might otherwise have been the case. What will happen is that when people know that they cannot profit by engaging in this kind of conduct, they will keep their pooling or supply chain obligations, and work out their differences with incremental accommodations.

The larger question remains: just how serious is this holdout question. There is little doubt that holdup issues can occur, especially with land and similar assets that have a specific physical location that cannot be moved. Virtually all network industries—think transportation and communication—require property systems that are long and skinny, and these are thus vulnerable to being snipped at any number of points. In dealing with these elements in the physical arena, it is exceedingly difficult to assemble the needed network without either the use or threat of the eminent domain value, which permits the taking of a particular asset upon payment of its fair market value, i.e. what it would fetch in a competitive market (say for farming) without regard to the network of which it would become a part.

Intellectual property networks, however, are more protean, so that it is less likely that any one patent, or even group of patents, can exert a blockade position with respect to various forms of intellectual property development. Nor should anyone assume that the creation of new patents necessarily result in more blocking positions through the now notorious patent thickets. The initial point here is that whatever design path was

available before the new patent was created is still available afterwards, so that disruption is not an issue on the table. Hence the new technology can only offer new substitutes that weaken whatever market monopoly position was held by the incumbent suppliers in the marketplace.

To overcome this difficulty, the defenders of the holdout thesis often switch to the claim that the tools needed for these developments can be blocked by others with a holdout position. But on this point, there are multiple technologies that are available, and the refusal to license on sensible terms carries with it the risk of the dissipation of a wasting patent asset. In many cases, moreover, the new entrant could be producing products and services that are complementary with those of a particular patent holder, at which point the incentive to make a deal is even stronger. The rapid filing of ever more patents should come to an end sooner or later if the blocking issue were as strong as is commonly supposed, but that does not seem to have taken place. And the prices on some commodities should turn upward, which they have not. In a recent paper²⁵ on cumulative innovation, Alberto Galasso and Mark Schenkerman seek to find evidence of patent blockade by an ingenious method. They look at patents that have been invalidated and note that patent invalidation leads to a 50 percent increase in the citation of a focal patent in subsequent hearings. But here it is hard to know what to make of an instrument that only takes effect years after the patent has been filed, and which is consistent with other explanations. Where the patent is valid, it could easily be licensed by others, reducing their costs of innovation, so that there is no need to cite a patent that covers a licensed technology. Nor is it possible by this measure to address the question of whether the invalidity of one patent may discourage others to file similar patents if they fear invalidation as well. Yet that effect cannot be picked up by this technique even though it goes to the ex ante/ex post tradeoffs that dominate the standard analysis of patent law. What are really needed are examples of real blockades that help make the point. The indirect inferences can always be drawn in both directions. In the absence of a strong theory, then, the continued rate of technology progress has to be regarded as a plus for the current patent system. Indeed today, with the 50th anniversary of Moore's law, the only serious debate is over the extent to which physical limitations will make it harder for industry to keep up with Moore's law. I see no evidence that anyone outside the narrow IP world has attributed any slowdown to current patent policies.

The holdout debate today is also raised acutely in connection with standard setting organizations that rely on standard essential patents, in order to form a platform that allows for orderly transfer of information in our communications and patent systems. The key feature of these systems is that all players in it well know that holding out carries

25 Alberto Galasso and Mark Schenkerman "Patents and Cumulative Innovation: Causal Evidence from the Courts" available at <http://hooverip2.org/conferences/the-american-patent-machine-what-role-for-patents/>.

enormous risks for them if the network is not completed, so that the entire process is governed by a series of highly-stylized negotiations in which the engineering issues are handled independently of the pricing issues, and where participation in the process is open to those who use the particular network even if they do not commit any patents to it.

The [work](#) that I have done with Scott Kieff and Daniel Spulber found little evidence of a patent thicket that held up innovation: the number of standard organizations is huge, and they do not report the kind of negotiation gridlock that the standard theory predicts. A similar [study](#) by JoAnna Tsai and Joshua D. Wright reinforces this position by noting that the diversity of terms that are found in SSOs is evidence that one size need not fit all. Any effort to impose standardized terms in this space is likely to have the counterproductive effect of making it easier to organize cartels by reducing the levels of variation. The process here is ironically incomplete, much like the contracts that are used in the earliest stages of the formation of a venture capital form. Ironically, the explanation for that result in this case depends on the ability and willingness for multiple sets of eyes to monitor the conduct of all the parties who appear in these negotiations, given the high stakes that are involved. The formation of the standard requires acceptance on both sides of a two-sided market, which operates as a consistent constraint against skewing the terms too far in either direction.

In this regard, it is instructive to compare the breakdown in the two-sided markets in debit cards, where the platform operator always has to balance interests between the customer banks (and their customers) and the merchants and their banks on the other. The [Durbin Amendment of 2010](#) imposed strict price limitations on that market which forced people out of their comfort zones by sharply limiting the amount of interchange fees that the merchants and their banks had to pay to the customer banks and their consumers. It is worth mentioning this arrangement in this context because those debit interchange fees also involve a two-sided market that are difficult to understand. I thought that the constitutional challenges to the Durbin Amendment were [powerful](#) but not as they emerged in Court where the government won clean victory.²⁶ But once those constitutional challenges went nowhere, and business arrangements had to be changed so as to put a heavier share of the burden on the customer side of the transaction, which resulted in some substantial inefficiencies in the operation of the system as well.

One source of that mistake was the overall insistence that the “good faith contracts” (similar to those mentioned by Tsai and Wright) were thought to be so indefinite that they did not create any valid expectations on either side of the market. That supposed indefiniteness meant that there were no legitimate expectations of the customer banks that were entitled to constitutional protection. The entire system lurched back and forth through major administrative proceedings that resulted in a complex and

²⁶ *TCF Nat. Bank v. Bernanke*, 643 F.3d 1158 (8th Cir. 2011).

most [dubious](#) decision of administrative law in *NACS v. Federal Reserve Bank*²⁷ If there is ever a place where the Nirvana fallacy is dangerous it lies in the notion that complex multisided negotiations are subject to improvement by aggressive doses of either regulation or the antitrust laws.

A proper understanding of how injunctions and specific performance work tells us about damage remedies. I think that it warns us to beware of the straightjacket that is placed on these arrangements by the damage typology put forward by Professor Lon L. Fuller and his student William Perdue in their famous article, *The Reliance Interest in Contract Damages*.²⁸ Fuller wrote in the Aristotelian tradition, which may be fine for philosophy, but is unwise as a guide to successful commercial transactions. Fuller's damage typology contained three sorts of damages.²⁹ *Expectation* damages were intended to put the innocent party in the position that he would have held if his trading party had fully performed his part of the bargain.³⁰ *Reliance* damages were intended to put the innocent party back in the same position that he would have enjoyed if he had never entered into the contract at all.³¹ Lastly, *restitution* damages required the party in breach to restore any money or property that it had received from the innocent party.³²

In many cases, these measures of damages work well for commercial reasons. One excellent illustration of this coincidence is the rule that awards the difference between contract and market price in competitive markets whenever it is possible to "cover" with appropriate adjustments for incidental and consequential damages.³³ But the same rules do not carry over easily to breaches that arise in noncompetitive situations. In these settings, the Fuller and Perdue rules may lead to the correct result. But that result is often fortuitous, because the correct model asks the parties to design their own damage remedies to minimize the probability of breach, and the severity of damages once that breach occurs. In simple bilateral arrangements, Fuller's measures may satisfy that standard. But that is generally not the case in sophisticated commercial agreements,

²⁷ *NACS v. Board of Governors of Fed. Reserve Sys.*, 746 F.3d 474 (D.C. Cir. 2014).

²⁸ L. Fuller & William R. Perdue, Jr., *The Reliance Interest in Contract Damages: 1*, 46 *YALE L.J.* 52, 52-53 (1936).

²⁹ *Id.* at 53-54.

³⁰ *Id.* at 54.

³¹ *Id.*

³² *Id.* at 53-54.

³³ U.C.C. § 2-712 (2010).

including those dealing with the formation of venture capital and supply and distribution management. In these settings, the occurrence of consequential damages usually requires different rules, rules that typically set damages at a sufficiently high level, so that no one has an incentive to breach a contract, or to infringe a patent, by giving the innocent party high damages, the main purpose of which is to induce potential infringers and contract breakers to respect the intellectual property rights of others.

It is not only when courts adopt poor measures of damages that the contract law is at odds with sound business practices. All too often, patent law tends to work at odds with voluntary agreement by imposing external constraints on business arrangements that have no sound economic rationale. One example of this problem is the first sale doctrine, as it applies to patent (and copyright) licenses.³⁴ The doctrine says that any restriction that is imposed on the original licensee does not carry over to third persons dealing with the original licensee.³⁵ But if that person has notice of the restriction and can adjust the price accordingly, why not allow him the business flexibility? There is no reason why individuals cannot do the same thing here if these similar restrictions can bind successive parties with notice in land transactions. In both cases, the ability to bind subsequent takers with notice increases potential gains from trade by allowing for the orderly expansion of two-party deals into three (or more)-party deals. The more complex the deal, the more likely it is that a provision like this will be necessary to take into account, for example, some other royalty payments in some unrelated transaction.

Therefore, when courts say that these arrangements are “inherently” unwise, as was done in the ill-advised Supreme Court decision in [Quanta Computer, Inc. v. LG Electronics Inc.](#), they have imported a restriction on contractual freedom that does not deal with the traditional concerns of fraud, duress, or monopoly. This last point is no small issue, because a sound antitrust law blocks horizontal arrangements, such as cartelization, while facilitating competition.³⁶ In the intellectual property space, one of its main contributions is to make sure that patents are not attacked simply because they create a legal monopoly, given that this is their purpose.³⁷ But at the same time, the antitrust laws should prevent collusive agreements between two firms that are in direct competition

³⁴ 17 U.S.C. § 109 (2012)

³⁵ *Id.*

³⁶ 15 U.S.C. §§ 1-3 (2012).

³⁷ Christopher R. Leslie, *Antitrust and Patent Law as Component Parts of Innovation Policy*, 34 J. CORP. L. 1259, 1264 (2009); *see also* United States v. Am. Tobacco Co., 221 U.S. 106, 179 (1911); Standard Oil Co. v. United States, 221 U.S. 1, 61-62 (1911); United States v. Aluminum Co. of Am., 148 F.2d 416, 427-28 (2d Cir. 1945).

with one another, while allowing firms to engage in the vertical transactions that are so critical for product development and for supply and distribution chain management.

The point of the above observations is that the first-sale doctrine addresses none of these concerns. Indeed, the great weakness in *Quanta Computer* is that the Supreme Court succumbed to these idle abstractions by failing to understand the basic economic logic of voluntary transactions.³⁸ Indeed, in *Quanta*, the reason for the complex licensing agreement was that some parties had already taken licenses from a third-party—Intel.³⁹ The effort to go beyond the scope of the first-sale doctrine was to coordinate different licensing arrangements in a coherent way to avoid double payment for the same technology.⁴⁰

The Legislative Frontier *Finding Trolls* I have developed this account of the evolution of cycle of innovation for patent law without looking at the current legal controversies in intellectual property. But, in one sense, that is a mistake. “Patent reform” is now in the air in Washington, D.C., the source of difficulty is said to be the patent troll, which today is normally defined as a party that neither makes nor licenses patented inventions, but only brings suits against hapless individuals based on inventions by others. It is easier, however, to denounce a troll than it is to identify one. To be sure, it is often the case that certain groups or institutions develop intellectual property but do not use it in manufacturing. University research labs are one such group, which is why they are so opposed⁴¹ to the [Goodlatte bill](#) now before the Senate (which is a precise rerun of the same bill two years ago). They are part of institutions that foster research, but they have neither the expertise nor willingness to engage in manufacture, so through their various liaison offices they engage in extensive licensing practices with entities that are better able to perform those functions. The actual distribution of labor is consistent with the traditional observation that specialization produces gains from trade, which means that it generates positive externalities to third persons, not negative externalities for the system as a whole. When these licensors enforce the patent they essentially prevent others from bypassing the patents. In so doing they protect the position of their nonexclusive licensees, none of whom have the incentive to seek injunctions for which they bear the full cost, but from which they derive only a fractional benefit.

³⁸ See *id.* at 638.

³⁹ See *id.* at 623-24.

⁴⁰ See *id.*

⁴¹ Big Ten Letter to Representative Sean Duffy, January 15, 2015, available at <http://patentdocs.typepad.com/files/big-10-letter.pdf>

In dealing with this issue, moreover, it is critical to recognize how difficult it is to infer abuse from aggregate numbers about the level of patent activity. In dealing with this issue, the America Invents Act has already changed the landscape, but in uncertain directions, as it will take some time for the full impact for its provisions to take effect, given that they only apply to causes of action that date from after 2011, which make it ill-advised to introduce another major reform before the lessons of the earlier one are absorbed.

There are, however, some early returns on level of activity that bear some brief mention. The Innovation Alliance reported in October 2014 that the amount of [new patent litigation](#) filings are down by 40 percent between September 2013 and September 2014. That decline, for example, should not be naively interpreted as a sign that the patent situation has somehow gotten better under the 2011 AIA. It is equally consistent that the decline in enforcement actions could harbingers a system-wide trend of weaker patent enforcement that could in turn lead to a slowdown in the overall level of licensing activity. After all, a high level of licensing activity should be expected to generate a higher level of enforcement activities. There is no reason to think that these two move in lockstep progression, for it is also possible that strong licensing protections can lead to fewer violations and hence lower levels of litigation.

Numbers like these do not address the full range of issues, and there may well be abuses in this system, as when certain companies tag small businesses with contributory infringement for the products that they lease, which is the practice that spurred the Goodlatte patent reform legislation. But it is in this regard critical to make sure that the concern with the abuse does not snuff out the important function that strong patent enforcement serves—keeping the incentives for voluntary transactions alive. Overbreadth of legislative response is a serious danger in this area. In particular it becomes dangerous to make patent-specific reforms that have been widely rejected in other areas. Here are some of the most critical issues, all of which are vital to the cycle of innovation. The harder it is to enforce valid claims, the greater the implicit tax on litigation. The civil procedure system therefore is charged with ferreting out the wheat from the dross. The new reforms tend to push this effort in the wrong direction.

Pleading and Discovery One of the achievements of the Federal Rules of Civil Procedure was to slim down the pleading requirements so that the main function of the system was to give notice of the basic factual pattern and underlying legal theory. Thus, Rule 2 of the 1938 Federal Code of Civil Procedure announces in categorical terms: “There is one form of action—the civil action.” The purpose of that 1938 reform was to avoid, at the pleading stage, the arcane distinctions among causes of action. The Goodlatte proposal contravenes a sensible procedure policy that has been in effect for over 75 years. The Goodlatte bill goes in the opposite direction by insisting on greater specificity in claims, which is often not possible until some discovery—itsself the source of much abuse—is undertaken. It would be foolish to follow the Goodlatte prescription for detailed pleadings

about all of the element claims that are subject to attack, and all the parties that might have an interest in the outcome of the litigation. Most of that information will turn out to be irrelevant and much relevant information will become available only after discovery. In that regard, moreover, it could be dangerous to grant stays of discovery against certain defendants—contributory infringers—until the case goes forward against the primary defendant. The entire situation could result in bottlenecks and delay if the primary defendant can delay discovery by a set of preliminary motions.

The better approach by far is to have a comprehensive reform of the discovery practice that in large litigation does away with the ability of a defendant or plaintiff to demand at an early stage in the litigation enormous amounts of information from all sources when its relevance and power is hard to determine. The better approach is to empower the magistrate judges who hear these cases to limit the initial round of discovery to those persons and documents that are central to the case, after which the matter can be reassessed to see how much more discovery should be required. It is also desirable to put the costs of copying and document search in large part on the party who makes outsized requests. It is fruitless at this level of generality to specify exactly how these tasks should be carried out. In ordinary civil litigation, the broad outlines only are established by statute, and the particular determinations within that framework are left properly to the sound discretion of the trial judge because in centuries of litigation, no one has found a better standard by which to fine-tune general principles to particular cases. Just that approach is needed here to counteract the mischief that can arise under the current rules of discovery insofar as they rest on the flawed premise that discovery is a joint disinterested inquiry into the truth of the case, when the strategic goals of self-interested litigators often block any such effort. So the proper path to reform is as follows: first change the general procedures and then fit patent law within that frame. Do not establish special rules for the area.

Fee Shifting Another provision of note in the Goodlatte bill calls for using fee shifting in patent litigation. As a general matter, there is much to be said in principle for a rule that requires losers to pay the costs in litigation. Indeed a rule of this sort is often adopted in other countries as a way to get the party with the weaker case to back down sooner in the trial. A party that thinks it has a 75 percent chance of winning a case is likely to stand firm if the relevant litigation costs of both sides are \$100, because it expects to receive \$100 75 percent of the time, so that its out of pocket losses are \$25. The numbers flip over for the party that has the weak side of the case, because its expected costs of litigation are \$75.

Notwithstanding this powerful effect, any implementation of a fee shifting rule requires a genuine transformation of civil procedure. That transformation requires, in turn, the creation of some institutional arrangement to determine which costs are covered in the routine case, and what exceptions to the rule should be made. But if this rule is going to work, it has to be consistently applied.

The Goodlatte bill equivocates on all these issues. It rewards “a prevailing party” its “reasonable fees” but then quickly goes silent on two key issues. First, there is no clear account as to who is a prevailing party in the common situation where the plaintiff prevails on some claims and the defendant prevails on others. Some division of expenses may be appropriate here, but it is hard to figure out in the abstract what those might be. Second, there is no workable account of the term “reasonable fees,” except for the general bromide that excessive fees should not be awarded. But the needed fee determinations are expensive to run, and could easily generate collateral disputes that could be subject to all sorts of appeals. Two huge exceptions to the rule make its status even more unclear. For the plaintiffs, the fees are to be awarded “unless the denial of such damages or fees would be manifestly unjust.” A similar but narrower loophole for defendants lets them obtain their fees and other expenses “unless such sanctions would be unjust.” No “manifestly” requirement here. The difference between “manifestly unjust” and “unjust” is manifestly unclear. Nor is any explanation offered for this troubling asymmetry.

Disclosure The Goodlatte bill also introduces a troublesome disclosure provision into the law. One common misconception is that disclosure obligations are a cheap and effective way to control misconduct because they don’t require a firm that discloses to alter the way in which it does business. But disclosure obligations suffer acutely from mission creep, so that the required information becomes ever more detailed and ever less relevant, as Omri Ben-Shahar and Carl Schneider have written in an instructive book, [*More Than You Want To Know: The Failure of Mandated Disclosure*](#), addressing overdisclosure under such laws as the Securities and Exchange Laws and Truth-in-Lending Laws.

Just this failing is evident in the Goodlatte bill, which requires massive disclosures by any party who is related to an initial patent holder, be it as a parent corporation or assignee or with some financial interest in the patent. The legal rule with respect to these claims runs as follows. But such disclosures are needed in any legal system that follow the correct rule that no patent claim against can be strengthened or weakened by its assignment or license to any third party. That rule blocks phony assignments made to bolster a claim. It also removes a disincentive to assignment that would arise if assignee had a weaker position than the assignor. In some case that information could prove relevant, but if so it should be supplied only on a for-cause or need-to-know basis, not as part of some general discovery regime. By way of example, I cannot recall even one case where the identification of “each partner or other entity that holds more than a 5-percent share of that partnership” was salient to the litigation. But the public disclosure of this information could force companies to reveal trade secrets about their own business positions that could help competitors figure out their potential business plans

Remedies A similar attitude should carry over to the choice of remedies in patent disputes. One risk of many of the current legislative reform proposals is that they seek first to soften injunctive relief, and second to dilute damage awards, so that deliberate

breach and conscious infringement become profitable strategies, thereby increasing the likelihood of their occurrence. In this environment, high damage awards are intended to reduce the probability of breach ex-ante, rather than to supply the ideal remedy for breach ex-post. The key here is that the institutional demands for sound rules should lead to a decision to give too much attention to “justice in the individual case.” Instead, the concern is with the long-term institutional stability of these complex arrangements. The stronger the remedial protection, the greater the choices that people have in dealing with venture capital arrangements, on the one hand, or supply and distribution chains, on the other. Ideally, the damage and injunctive remedies should work together to that common end.

Conclusion: A Return to Fundamentals At the end of this long journal, it is important to return to our original theme. The key point of a general legal theory is to develop sound doctrines of contract and property law with those timeless abstractions Mr. A and Ms. B, and Blackacre and Whiteacre. In order to do this, it is critical, in my view, for intellectual property lawyers to understand that their work is embedded in a larger and more traditional system of law that has worked out many of the liability and remedial interests in ways that work well in intellectual property contexts. Yet, all too often intellectual property judges and lawyers tend to act as though every problem they face is subject to de novo review—as if the lessons of the past from other areas of law do not carry over to this area, when so often they do.

Intellectual property does not exist in some intellectual vacuum. What is so critical about setting the right intellectual framework is that it allows us to organize, from the ground up, the special intellectual property problems in the four main settings that they appear. The first of these is the informal arrangements that get the juices flowing in both the creative and innovative industries. The second deals with the higher level of formality that becomes necessary once third-party financing is needed to bring a product to market. The third deals with the complex set of business arrangements that are required to deal with supply and distribution chain management. And the last is the structure of the remedial system for both breach of contract and patent infringement that backs up each stage of the innovation cycle. In working out this multipart plane, there is surely much else to take into account. But if these issues are dealt with responsibly, it should be possible to derive from doing it right for technological innovation, which is the object of this entire enterprise.