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A Bargaining Dynamic Transaction Cost Approach to Understanding Framework Contracts

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A Bargaining Dynamic Transaction Cost Approach to Understanding Framework Contracts

Juliet P. Kostritsky¹

Long-term agreements (“LTAs”) in the supply chain with information sharing provisions have been heralded as new ways of doing business. Recent scholars examine how these LTAs are structured and explain their emergence as a byproduct of a new deverticalized production economy and the increased uncertainty in an innovation economy.

Much of the literature examining LTAs in the innovation and manufacturing context have conceptualized these agreements as a blend of formal² provisions that enable informal enforcement³ in a variety of ways. Recent scholars have studied LTAs in two primary contexts—the innovation economy and the standard form contract LTA in a manufacturing context between Original Equipment Manufacturers and automobile suppliers.

These scholars have treated these LTAs as new phenomenon and a new way of doing business that departs from the vertically integrated firm. Instead of making parts companies now buy externally and enter contracts to govern their purchases.

Scholars of LTAs all start from the premise that these LTAs are all necessarily incomplete. In the context of innovation of a new product that is yet undiscovered, the contract cannot specify performance obligations because the uncertainty about the final product prevents this. In the manufacturing context, the uncertainty is different; it is about whether the supplier will effectively collaborate with the buyer to produce high quality goods by participating in a process of learning by monitoring that will improve quality and timeliness of production. The response to this uncertainty in each setting is to provide formal contract provisions that obligate the supplier or the innovator to share information. Innovation scholars posit that these information sharing provisions

¹ Everett D. and Eugenia S. McCurdy Professor of Contract Law, Case Western Reserve University School of Law. Elizabeth Connors, Jessica Ice and Rachel Ippolito provided extraordinary research help. Thanks are also due to Liza Vertinsky, Professor of Law Emory University School of Law for her insights and to Stewart Macaulay and William C. Whitford of the University of Wisconsin School of Law for encouraging me to do the empirical research on this project. Peter M. Gerhart and Bill Whitford provided valuable insights on an earlier draft.

² See Richard Gil and Giorgio Zanarone, *Formal and Informal Contracting: Theory and Evidence*, ANNUAL REV. LAW SOC. SCI. 141, 142 (2017)(conceptualizing formality in terms of verifiability to a “third party.”)

³ Ronald J. Gilson, Charles F. Sabel & Robert E. Scott, *Braiding: The Interaction of Formal and Informal Contracting in Theory, Practice and Doctrine*, 110 COLUM. L. REV. 1377, 1415 (2010).

are “formal” and that they facilitate informal enforcement thereby resulting in a braiding of formal contract provisions and informal norms for enforcement. Some argue that such settings call for “low powered sanctions.”⁴ Others such as Jennejohn argue that braiding theory does not fully explain the diversity of arrangements that include unanimity requirements for decisionmaking,⁵ Unanimity requirements in decisions are a specific response to threats the parties face such as entropy and spillover.⁶

This Article takes a different approach. It draws on the literature of these scholars but suggests that another way to understand the arrangements parties enter into in a variety of settings to purchase or sell goods or to innovate on a product or drug can best be understood in terms of a bargaining dynamic that looks at how the private interests of the parties are turned into joint interests in the agreement reached. It is a mistake to talk about the form of a contract without first understanding the bargaining needs and positions of the parties and how those needs get reflected in the form of the agreement, given the options the party has. The form of the contract is not an end in itself. As a result in order to analyze the form that contracting takes we must understand the function that each party needs the contract to perform—the kinds of transaction costs that each party must minimize if they want to go forward with their projects. These costs include opportunism, asymmetric information, uncertainty, and other frictions such as entropy and spillover recently identified by Professor Jennejohn. Each party approaches the bargaining with its own private goals and will reach a bargain only if the benefits of achieving those goals through a particular contract type or form outweigh the costs which means firms are constantly looking for a contract form that will minimize its costs while maximizing contractual benefits.

In this Article I examine the choice of contractual form through this lens of bargaining theory. The choice of contractual form depends on how each of the parties defines its individual interests and their willingness to sacrifice some of their interests in order to get a deal that advances other of their interests.

Explaining the choice of contractual form must also include some factors that have previously been ignored in the literature: the need for a document that functions as a planning tool for the transaction.⁷ It will examine a range of reasons why parties would enter written LTAs including the benefits they offer

⁴ *Id.*

⁵ These are common in the biotech pharmaceutical context. See Matthew J. Jennejohn, *The Private Order of Innovation Networks*, 68 STAN. L. REV. 281, 282 (2016).

⁶ *Id.*

⁷ As Bill Whitford explains, “When a new business relationship is formed (or a new product is introduced into an existing relationship), there is a great deal of planning by both sides.” Email from William C. Whitford November 7, 2017, Professor Emeritus University of Wisconsin School of Law to Juliet P. Kostritsky, Professor of Law Case Western Reserve University School of Law.

of facilitating planning while minimizing misunderstandings.⁸ The planning needs of parties will be greater in some settings than others. Another purpose that may underlie the use of LTAs that take the form of standard form contracts (SFKs) is to centralize the processes and standards governing the sale of goods in a uniform document whose costs can be recouped by repeated use over multiple transactions.⁹ It will also suggest that certain types of LTAs that take the form of standard form contracts (SFKs) drafted by Original Equipment Manufacturers (OEMs) offer other advantages such as “centraliz[ing] decisionmaking”¹⁰ SFKs by OEMs centralized “control over terms that need to be standardized for various reasons”¹¹

Using the bargaining lens the Article will seek to identify explanations first for why parties to a transaction use a particular form, a purchase order or an LTA and second whether they use an LTA is a bespoke contract or a Standard Form Contract (SFK) LTA. It rationalizes the choice of form and the particular provisions in terms of how the LTA or other formal arrangement responds to problems or hazards that parties face when significant obstacle hinder explicit complete contractual solutions and how it serves other functions such as planning and centralization of uniform terms.¹² It offers a transaction cost minimizing explanation for the choice of form that is tied to the lens of bargaining theory.

Although initially LTAs were thought to offer some security for buyers for future business, LTAs now place more requirements on suppliers than on buyers. Because buyers have been demanding more from suppliers in return for less than a binding commitment, some suppliers view the LTA as undesirable, prompting them to opt out of signing LTAs or to use different arrangements.

This Article will consider alternatives to using LTAs and suggest that parties deliberately choose among several options for selling goods, including avoiding an LTA all together. It offers some tentative explanations for why and when parties opt for alternatives to the LTA paradigm with its information sharing

⁸ *Id.*

⁹ *Id.*

¹⁰ William C. Whitford email, *supra* note 7.

¹¹ *Id.* One reason might be to offer assurances to suppliers that all suppliers are treated equally. That might account for stickiness in the adopted terms. *Id.*

¹² The barriers to complete contracting are discussed in

Richard Craswell, *The "Incomplete Contracts" Literature and Efficient Precautions*, 56 CASE WES. L. REV. 151 (2005); Oliver Hart and John Moore, *Incomplete Contracts and Renegotiation*, 56 ECONOMETRICA 755 (1988); Avery Katz, *Contractual Incompleteness: A Transactional Perspective*, 56 CASE WES. L. REV. 169 (2005); Alan Schwartz, *Relational Contracts in the Courts: An Analysis of Incomplete Agreements and Judicial Strategies*; Robert E. Scott and George G. Triantis, *Incomplete Contracts and the Theory of Contract Design*, 56 CASE WES. L. REV. 187 (2005); Kathryn E. Spier, *Incomplete Contracts and Signalling*, 23 RAND. J. ECON. 432 (1992).

protocols. It suggests that parties can rely on informal enforcement mechanisms regardless of whether they opt for an LTA or another means of exchanging goods such as a purchase order; therefore, there must be other reasons to adopt an LTA. It will examine whether some of the benefits offered by LTAs drafted by OEMs such as centralized control and planning and control of opportunism under conditions of uncertainty can be achieved by other written agreements such as purchase orders, at least when those agreements reference elaborate documents such as quality control manuals available on the internet.

One advantage of the LTA with its information sharing protocols is that it makes more information available that can be used to informally sanction parties who misbehave.¹³ Where the risks to the buyer from not having information are great enough to justify the transaction costs of entering such long term agreements, buyers seek to enter LTAs. In terms of the bargaining dynamic lens, buyers may seek to control decisions by their managers by mandating certain standards for quality of supplier goods and they may also have an interest in signaling their willingness to offer similar provisions to similarly situated suppliers.¹⁴ The presence of large sunk costs whose costs would be hard to recoup without an LTA and a continuing purchase obligation that could help amortize the costs of the large sunk costs may explain why and when suppliers would agree to an LTA.¹⁵ In this case bargaining theory can help understand why the private interests of the parties, the buyer's desire to control managers and centralize terms and the supplier's need for protecting sunk costs could be turned into a joint agreement in the form of an LTA that would govern their relationship.

This Article seeks to explain the “alliance diversity”¹⁶ arrangements in the supply chain context as different means for controlling contractual hazards while

¹³ Lisa Bernstein, *Beyond Relational Contracts: Social Capital and Network Governance in Procurement Contracts*, 7 J. LEGAL ANAL. 561, 586 (2015).

¹⁴ Email Bill Whitford November 7, 2017.

¹⁵ Such sunk costs may, for example, explain why automotive suppliers routinely agree to LTAs with information sharing protocols (interview with Susan Helper X/17) and why manufacturers of catalog products may choose to forego LTAs with information sharing mechanisms and operate purchase order by purchase order or insist on an LTA with a quantity requirement to protect the sunk costs from capital equipment investments. Interview 2/22. In the case where the supplier can sell the product to others, the risk to the supplier from not having information about the buyer's reliability and competence might not be worth the negotiating costs since the supplier can easily resell the product to others. So the provisions of iterative sharing arrangements might be more important in a setting like pharmaceuticals where the parties need to make large sunk cost investments that will be lost or in the automotive supply context where suppliers may build entire plants for an auto company buyer. For a discussion of sunk costs and asset specificity and their implications for complete contracting, *see infra* notes x-y.

¹⁶ Jennejohn, *supra* note x, at 282. Professor Jennejohn focuses on specific governance mechanisms such as veto rights that do not serve the same purpose as the information sharing protocols of “fostering informal constraints on opportunism.” *Id.* at 282. Rather, Professor Jennejohn finds that there are diverse provisions which respond to unique and “multivalent” hazards. *Id.*

minimizing costs. The total cost minimization may explain why in some contexts “formal” LTA contracts may be cost justified.¹⁷ Both automobile suppliers to OEMs and parties involved in joint innovation use formal contracts that take the form of LTAs.¹⁸ The formal written contracts afford planning benefits and control of standardized terms across a range of suppliers for OEMs entering standard form contracts. So, although the context of these agreements differs, with OEMs demanding informational disclosures on cost and quality and innovation funding partners in the biotech/pharmaceutical arena demanding information on research progress and investment, what may tie these contexts together is that they both involve large sunk costs which means parties cannot exit easily. Where however the product is fungible and can be easily resold, parties may avoid the cost of LTAs and operate purchase order by purchase order. Since there are uncertainties in all three contexts, about the uncertainty of the quality of the product, the reliability of the counterparty and the product itself in the innovation context, and there are ways of achieving planning benefits without an LTA and ways to achieve standardization through the incorporation of quality standards of excellence available on the internet, sunk costs may be the differentiating factors that helps to explain why automobile suppliers rely on LTAs but makers of other products (some fungible, some not) often do not.

The Article also suggests that using the bargaining dynamic to understand the parties’ individual interests and their joint desire to minimize transaction costs to maximize value can illuminate differences in agreements on such matters as the structure for resolving disputes. In the innovation context unanimity is often required for decisions made during the collaboration. Why would such unanimity be required in such contexts? And why would many agreements not require such unanimity? And why, despite the presence of LTAs in the automotive setting would a leading researcher suggest that there were are not elaborate contractual mechanisms but instead a structure for learning by

Professor Gillian Hadfield and Iva Bozovic have explained the diversity of arrangements in a different way. They posit that parties in innovation contexts use formal and detailed contracts as a means “to coordinate beliefs about what constitutes a breach of a highly ambiguous set of obligations” when norms about what constitutes proper performance are otherwise absent. See Gillian K. Hadfield and Iva Bozovic, *Scaffolding: Using Formal Contracts to Support Informal Relations in Support of Innovation*, 2016 WIS. L. REV. 981, 981. Establishing such coordination permits identification of breaches and that in turn facilitates informal enforcement. *Id.* at 988 where they suggest “formal contracting provides essential scaffolding to support the beliefs and strategies that make informal means of enforcement...effective.”

This article is concerned with “alliance diversity” as well but it focuses on alternative strategies for exchanging goods, including the use and non-use of LTAs.

¹⁷ Comments in survey refers to “administrative burden” of LTAs.

¹⁸ Of course, purchase orders and acceptances are an alternative contractual arrangement that is no less “formal” even though it may not contain as many contractual provisions.

doing/monitoring that resolves around information sharing and benchmarking.¹⁹ Why would that less contractual, more pragmatic approach premised on a way of operating be a win/win approach for original equipment manufacturers but not for innovation collaborators? Professor Jennejohn suggests one answer to this conundrum based on the need to exclude a counterparty from appropriating property. I suggest that a bargaining theory lens transaction cost minimizing explanation that builds on the need to protect property and sunk costs in situations where the uncertainty about continuing relationships makes a long term agreement without veto provisions less satisfactory for controlling appropriation at the least cost.²⁰

The Article also explores why these frameworks break down, and it ties both the diversity of arrangements and their possible breakdown to legal enforcement issues. It addresses whether, when and why, as the contract innovation theorists suggest, legal remedies should be restricted to “low powered sanctions.”²¹ The bargaining dynamic lens may also help us to understand which enforcement mechanism would be consistent with a transaction cost/value maximizing outcome for the parties. To resolve that issue of enforcement and to resolve what enforcement approach would be cost minimizing and value maximizing, the Article engages literature on the role of law intersecting with the informal enforcement of norms, analyzing both the experimental literature on crowding out²² and the law and economics of norms²³ and the purpose behind norms²⁴ to

¹⁹ Susan Helper, John Paul MacDuffie and Charles Sabel, *Pragmatic Collaborations: Advancing Knowledge While Controlling Opportunism*, 9, *Industrial and Corporate Change* 443 (2000).

²⁰ See *infra*.

²¹ Professors Gilson, Sabel and Scott advocate for the use of low powered sanctions, at least in innovation contexts, and suggest courts respond “in uncertain environments by enforcing the chosen methods of mutual cooperation on terms consistent with the arrangements themselves—that is by imposing low-powered sanctions designed to encourage compliance with the verifiable elements of the information exchange regime (and the informal relations it supports).” Ronald J. Gilson, Charles F. Sabel & Robert E. Scott, *Braiding: The Interaction of Formal and Informal Contracting in Theory, Practice and Doctrine*, 110 COLUM. L. REV. 1377, 1415 (2010). But see Hadfield and Bozovic who suggest that even where parties to a contract for innovation use formal contracts, resorting to legal enforcement is largely irrelevant. The benefit to the formal contracts is not in laying the groundwork for legal enforcement but in clarifying the parties’ obligations for the purpose of informal enforcement, not legal action.

²² Iris Bohnet, et al. *More Order with Less Law: On Contract Enforcement, Trust, and Crowding*, 95 *The American Political Science Review* 131 (2001). See Robert E. Scott, *The Promise and Peril of Relational Contract Theory in REVISITING THE CONTRACTS SCHOLARSHIP OF STEWART MACAULAY* (J. Braucher, J. Kidwell and W. Whitford, eds., 2013) 105, 112 at n. 35 (discussing literature on crowding out phenomenon).

²³ See Juliet P. Kostriksy, *The Law and Economics of Norms*, 48 TEX. INTERNAT’L L. J. 465 (2013) (hereinafter *Norms*). Norms are best conceptualized as “self-imposed constraints that parties use to reduce..frictions” of exchange.” *Id.* at 467.

²⁴ In some instances norms exist to solve problems that are difficult to solve by contract because state enforcement is weak and the problem may be difficult to solve by express contract. One such

ascertain the proper role for law when informal enforcement exists in a contract with some formal terms. It suggests that the bargaining lens may also offer insights into what level of enforcement would be warranted in different settings.

Finally, it uses insights on the diverse arrangements and the potential for failures to advise lawyers counseling buyers and suppliers in the supply chain.

problem was how to constrain shirking and opportunism by agents used by merchants in long term trade among the Maghribi traders when state enforcement was weak. Norms arose to constrain the conduct of agents. “Agency relations were governed by a coalition—an economic institution in which expectations, implicit contractual relations, and a specific information-transmission mechanism supported the operation of a reputation mechanism.” Avner Greif, *Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders’ Coalition*, 83 AMER. ECON. REV. 525, 525 (1993).

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Introduction

A firm vertically integrates when it internally manufactures parts or goods that are necessary for its final product.²⁵ Alternatively, firms can buy on the spot market²⁶ or engage in a long-term relationship with another autonomous entity to acquire the parts.²⁷ The question of how to obtain the parts or goods—the make or buy decision²⁸—has implications for the boundaries of the organization of the firm.²⁹ One problem with buying externally is that it leaves firms vulnerable to holdup when there is bilateral dependency³⁰ leading firms to vertically integrate. While vertical integration could constrain opportunism by suppliers, there are offsetting costs to integration.³¹ Because of the costs of integration as well as the need to collaborate on technology to reduce the internal

²⁵ Ronald Coase suggested that transaction costs might cause a company to produce rather than buy thereby explaining the origins of the firm. Williamson expanded on this notion of transaction costs by suggesting that opportunism was a friction or transaction cost whose risk would cause a firm to vertically integrate. See OLIVER E. WILLIAMSON, *ECONOMIC INSTITUTIONS OF CAPITALISM* 91 (1985) (explaining *non-standard* vertical integration as a response to contractual hazard created by bilateral dependency).

²⁶ See John Paul MacDuffie and Susan Helper, *Collaboration in Supply Chains With and Without Trust* in *THE FIRM AS A COLLABORATIVE COMMUNITY RECONSTRUCTING TRUST IN THE KNOWLEDGE ECONOMY* (Charles Heckhauser and Paul S. Adler eds., 2006)(discussing buying on the spot market as one likely to involve “low-bid competition” and “low asset-specificity.” *Id.* at 417)

²⁷ This Article will focus on bilateral agreements between parties in the supply chain but will later consider whether the presence of a network will affect the analysis.

²⁸ Alfred Chandler explained the decision to make product internally in terms of “competitive advantages” of the large firm who “could exploit economies of scope as well as of scale by diversifying their operations into other industries.” See also Robert Gibbons, *Firms and Other Relationships* in *THE TWENTY FIRST CENTURY FIRM* (ed., Paul DiMaggio 2001); Naomi R. Lamoreaux, Daniel M.G. Raff and Peter Temin, *Beyond Markets and Hierarchies: Toward a New Synthesis of American Business History*, 108 *AMER. HIST. REV.* 404, 406 (2003). Oliver Williamson explained the decision to adopt *non-standard* vertical integration as a solution to the holdup problem. See WILLIAMSON, *CAPITALISM*, *supra* note 25, at 91..

²⁹ “The economics of organization is devoted precisely to explaining when transactions are best coordinated within hierarchies and when spontaneously in the market—that is, to explaining the boundaries of the firm.” JOSH WHITFORD, *THE NEW OLD ECONOMY* 32 (2012).

³⁰ WILLIAMSON, *CAPITALISM*. The Fisher Body story is an example of a company vertically integrating with Fisher Body to avoid hold up by a supplier. *But see* Helper, et al *supra* note 19. Professor Helper offers another explanation for GM’s acquisition of Fisher Body. *Id.* at 452-60 (explaining the acquisition of Fisher Body as part of an “effort to construct a variant...of a collaborative supplier system...” *Id.* at 459.

³¹ Integration has costs “[b]ecause incentives are degraded and because neither assent nor selective intervention agreements can be costlessly enforced, acquisition gains are always attended by added bureaucratic costs.” OLIVER E. WILLIAMSON, *MECHANISMS OF GOVERNANCE* 18 (1996).

costs of research and development firms to buy externally,³² inter-firm arrangements to acquire goods externally are making a comeback.³³

Relations with external firms raise two issues. First, there is the question of how the buy or sell decision will be arranged. If firms trade, what types of formal contractual agreements will they use and why? Two primary methods include: 1. exchanging a purchase order and an acknowledgement and 2. entering into a long-term agreement or an LTA.³⁴ There is a separate question of what form the LTA will take—will it be a standardized form contract (SFK) between an OEM and a supplier or an individually crafted innovation contract. In addition, what types of governance mechanisms if any exist for resolving disputes. Initially, the LTA had offered suppliers some security for future business, but as buyers imposed more onerous requirements in return for less than a binding commitment, some suppliers are drawn to other arrangements.³⁵

Second, what informal enforcement do parties use to enforce formal (contractual) obligations, a phenomenon in the sale of goods first empirically examined by Stewart Macaulay.³⁶ Some scholars today tie informal enforcement to a change in the formal governing agreements.³⁷ Agreements include formal contract provisions mandating the exchange of information between the

³² See WHITFORD, *supra* note 29, at 18 (deverticalization and partnering with suppliers allowed firms “to leverage partner firms and core employees to compete in the high speed learning race....” See also MacDuffie & Helper, *Pragmatic Collaborations*, *supra* note x, at 419 (explaining outsourcing as allowing one type of buyer, automakers, to “rely on specialized supplier expertise, rather than maintaining that expertise in-house.”)

³³ Ronald J. Gilson, Charles F. Sabel & Robert E. Scott, *Contracting for Innovation Vertical Disintegration and Interfirm Collaboration*, 109 COLUM. L. REV. 431, 438 (2009) (“the fear of holdups...no longer compels firms to vertically integrate”).

³⁴ As a preliminary matter, we need to define terms to describe the parties in these LTAs. The buyer is the customer who purchases goods from a supplier who manufactures parts or other inputs for a buyer. The buyer may also be an original equipment manufacturer like an airplane or a car manufacturer. The buyer and supplier are linked in a supply chain defined as “a network of firms involved in designing, producing inputs for, assembling and distributing a good.” see Helper *supra* note x, at p. In some subset of these agreements, the parties may be involved in collaborating on a joint product.

³⁵ See *infra*. There are still other arrangements not involving an LTA or a purchase order that will be later discussed.

³⁶ Stewart Macaulay, *Non-Contractual Relations in Business: A Preliminary Study*, 28 AM. SOC. REV. 55 (1963). See also Gibbons, *supra* note 28, at 186. Other scholars had noted the importance of informal enforcement intra-firm. See PETER M. BLAU AND W. RICHARD SCOTT, *FORMAL ORGANIZATION: A COMPARATIVE APPROACH* (1962) (noting “[i]t is impossible to understand the nature of a formal organization without investigating the networks of informal relations and the unofficial norms as well as the formal hierarchy of authority and official body of rules, since the formally instituted and the informally emerging patterns are inextricably linked.” *Id.* at 6-7.)

³⁷

parties.³⁸ Some scholars believe that changes in the LTAs, including information exchange, herald a new way in which the sale of goods takes place.³⁹

These formal provisions for informational exchange in LTAs facilitate informal enforcement.⁴⁰ The information, when combined with self-help provisions tied to the information, allows buyers to self-enforce, encourages cooperation,⁴¹ and increases trust levels.⁴² The contracts for innovation, another form of LTA, also include benchmarks for progress and funding obligations as well as general provisions obligating parties to act in good faith toward the development of a joint product.⁴³ These provisions all result in a braiding of formal contract provisions and informal enforcement.⁴⁴ This is because the provisions, whether setting up standard that a supplier must meet as in an excellence manual or complying with the obligation to work in good faith toward a product or investing in research and other provisions designed to guide the parties “to manage the behavior during the life of the relationship,”⁴⁵ are all provisions that will enable the parties to self-enforce obligations. By providing a formal contract provision in an LTA that references excellence standards or provisions for “managing” obligations, the parties have built in standards⁴⁶ to deal with uncertainty about quality or the product. The formal informational exchange as well as the innovation provisions guiding conduct and investment all constrain opportunism by raising switching costs for both parties,⁴⁷ since if either party has to switch to a new supplier or a new customer, that party will have to explain

³⁸ See Lisa Bernstein, *Beyond Relational Contracts: Social Capital and Network Governance in Procurement Contracts*, 7 J. LEGAL ANAL. 561 (2015). The information shared may relate to a supplier’s finances, quality, and engineering capability. If the firms are involved in collaboration and innovation, the information exchanged may also concern investments in research or funding. The latter exchanges are labeled as contracts for innovation. See Gilson, et al., *Innovation*, *supra* note 33, at 436.

³⁹ *Id.* at 431.

⁴⁰ Gilson, et al, *Braiding*, *supra* note 3, at 1384.

⁴¹ Lisa Bernstein points out that information exchanges encourage continued cooperation by helping avert misunderstandings about what performance is expected. Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 576-77. Dispute resolution mechanisms in some LTAs play a similar role in discouraging conflict.

⁴² *Id.* at 593.

⁴³ Need cite.

⁴⁴ Gilson et al., *Braiding*, *supra* note x, at 1383. Gilson, Sabel and Scott classify these information sharing protocols as “neither fully formal nor fully informal...”; they are not formal because they are not based on calculated incentives applicable to performance obligations and not informal because not “a gift relation in which the parties simply and generally pledge to exchange like (information) for like.” *Id.* at 1384.

⁴⁵ Hadfield & Bozovic, *supra* note 16, at 987.

⁴⁶ *Reference literature on rules vs. standards.*

⁴⁷ These interfirm arrangements may have “situational advantages over competing forms.” WHITFORD, *supra* note 29, at 37.

their actions to a successor and bear the cost of switching.⁴⁸ In addition to constraining opportunism by facilitating informal enforcement, LTAs may be valued because they provide a positive benefit: they help to cement relationships with a customer.⁴⁹

One unanswered question is why manufacturers of fungible products might operate purchase order by purchase order and eschew LTAs. Can such parties self-enforce without a formal LTA and can they achieve the benefits of constraining opportunism and assuring quality products without an LTA. Many of the provisions for assuring quality do not need to be part of an LTA. Instead, a short form purchase order can refer to a quality manual and require that “Seller also warrants that its processes shall comply with the John Deere Quality Manual and that the Goods will comply with all current industry standards....”⁵⁰ Even without entering into an LTA a buyer can assure the same benefits of quality assurance in goods and the processes by which they are manufactured. Such purchase orders by incorporating quality standards from the web can also achieve the advantages of cementing buyer control of and standardization of quality, advantages that inhere in the SFK’s between OEMs and automobile suppliers.

Some current scholars such as Professors Bernstein and Gilson Sabel, and Scott and Hadfield and Brozovic point to provisions in the LTA as a new means of insuring informal enforcement or of coordinating agreement on what constitutes a breach.⁵¹ But by simply requiring manufacturers to warrant in purchase orders that their goods meet the standards of excellence and that its processes comply with buyer requirements, the same overall goals can be achieved at lower cost. Such warranties could help OEMs streamline provisions that all suppliers had to comply with, thereby assuring suppliers of equal treatment.⁵² Why and when would the higher costs of LTAs be justified and what disadvantages might ensue from these LTAs?

⁴⁸ Of course, switching costs occur whenever parties are doing business with one another since it will be costly to switch due to the costs of doing so. This would be true regardless of whether an LTA is in place or not.

⁴⁹ Interview with \$2 billion manufacturer cited the desire of one section of the company to negotiate LTAs to cement relationships with customers who were not already doing business with the manufacturer pursuant to Terms and Conditions or a purchase order. The desire to enter conduct all business by LTAs was confined to one section of the company where the LTA was viewed as a “relationship differentiator” with positive effects. Other sections of the company did not follow the practice of uniformly negotiating LTAs.

⁵⁰ See: https://jdsn.deere.com/wps/portal/jdsn/Applications?WCM_GLOBAL_CONTEXT=/wps/wcm/connect/jdsn_website/jdsn/business+processes/quality/supplier_quality_manual/supplier_quality_manual_index

⁵¹ See *infra* note x.

⁵² Whitford email.

Despite these new arrangements, parties' problems in exchanging goods are durable ones. This Article will examine what is new in the production of products and the accompanying contractual agreements. However, it posits that more can be learned by looking at what is durable in terms of problems parties face, and by asking whether and how the new practices in LTAs comprise new solutions to old problems. By looking at the problems the parties face and then considering the individual interests of the parties and the bargaining dynamic, one can analyze why the parties would adopt various kinds of contracts with various provisions in order to maximize value by controlling contractual hazards at the least cost.⁵³

In devising solutions to problems, parties confront significant barriers that preclude the achievement of completely contingent contracts.⁵⁴ Moreover judicial enforcement is too costly for most parties to litigate most disputes.⁵⁵ Parties have therefore always resorted to a combination of formal contracts and informal enforcement,⁵⁶ even without the formal orchestrated information exchange that is at the heart of many LTAs. Despite the incorporation of information sharing in formal contract terms, the way parties enforce matters pertaining to quality may not be significantly different. What appears new is that the detailed information sharing provisions that facilitate informal enforcement are part of a "formal governance structure that regulates the exchange of highly revealing information."⁵⁷ The new LTAs may lower the cost of such informal

⁵³ WILLIAMSON, *CAPITALISM*, *supra* note 25, at 32-34.

⁵⁴ These barriers include bounded rationality, asset specificity and opportunism. The confluence of these characteristics precludes completely contingent contracting. *See* WILLIAMSON, *CAPITALISM*, *supra* note x, at 50-63 (detailing how asset specificity, bounded rationality and opportunism preclude completely contingent contracts). Steven Shavell defines a complete contract as one in which "the list of conditions on which actions are based is exhaustive...." Steven Shavell, *Contracts* in *THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND the Law* 436 (Peter Newman ed., 1998).

⁵⁵ Macaulay, *supra* note x, at 15. The costs of dispute resolution have caused economists to question the validity of a system centered on legal centralism and prompted consideration of alternative governance structures and dispute resolution outside the legal system. WILLIAMSON, *CAPITALISM*, *supra* note 25, at 20 (questioning the assumptions of legal centralism).

⁵⁶ By 1962 it was uncontroversial (at least among sociologists) that "It is impossible to understand the nature of a formal organization without investigating the networks of informal relations and the unofficial norms as well as the formal hierarchy of authority and the official body of rules ..." BLAU AND SCOTT, *FORMAL*, *supra* note 36, at 6.

⁵⁷ Gilson, et al *Braiding*, *supra* note 3, at 1382. Moreover, today, the product itself or the quantity might remain uncertain, and the formal contract provisions might relate to informational transfers while the product remains unspecified.

enforcement by making more information observable.⁵⁸ Of course, they have other costs, such as the negotiation, lawyer and drafting costs.

This Article differs from the contract innovation scholars and from scholars studying standard form contracts between OEMs and suppliers like Bernstein. Such scholars provide insight on how the formal informational transfer mechanisms can enhance informal enforcement by making more actions observable,⁵⁹ by “coordinat[ing] beliefs about what constitutes a breach of a highly ambiguous set of obligations”⁶⁰ increasing the number of actions to observe,⁶¹ and by recognizing the ways in which the iterative actions can endogenize trust⁶² and raise switching costs, thereby constrain opportunism⁶³ and make firms more competitive.⁶⁴ This Article instead focuses on the fact that the form of the contract reflects the needs of the individuals to the bargain and the function that each party needs the contract to perform, the kind of transaction costs parties must minimize in order to maximize value. Thus, in some instances parties in the supply chain may opt out of LTAs even though they face many of the same uncertainties about the reliability of the counterparty and the quality of the product being delivered.

Neither the parties’ choices among supply chain agreements (a bespoke LTA or an SFK) or their opting out nor the legal enforcement issues can be understood without recognizing the inescapability of the opportunism problem.⁶⁵ While the protocols for information transfer enhance the buyer’s ability to compete, reduce uncertainties about competence and reliability,⁶⁶ and allow the supplier to furnish a credible commitment, they can also leave the suppliers vulnerable to a buyer’s opportunistic exploitation of the information shared. The potential that these informational mechanisms might also facilitate opportunism suggests that there are additional costs posed by these mechanisms and under the bargaining lens, those costs would be considered by parties considering whether their individual interests would be served by a joint agreement that would serve to minimize transaction costs to maximize value or whether the costs of the

⁵⁸ The information exchange also makes “character and capabilities” observable. *Id.* at 1386. Once those matters are observable, switching costs are higher. Those higher switching costs constrain opportunism because a party would have to expend resources to find a new partner.

⁵⁹ *Id.* at 1399.

⁶⁰ Hadfield & Bozovic, *supra* note 16, at 281.

⁶¹ Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 593.

⁶² Gilson, et al., *Braiding*, *supra* note x, at 1386.

⁶³ Gilson, et al., *Innovation*, *supra* note x, at 486-9.

⁶⁴ Jane Winn, Discussion Draft for John Kidwell lecture at 7 (unpublished manuscript on file with author); Gilson, et al., *Innovation*, *supra* note 33, at 440 n22.

⁶⁵ WILLIAMSON, *CAPITALISM*, *supra* note 25, at 30 (discussing opportunism as a characteristic of human behavior.)

⁶⁶ Gilson et al., *Braiding*, *supra* note 3, at 1404 (discussing reliability issue); WHITFORD, *supra* note 29, at 96 (discussing importance of “competence uncertainty—the problem of getting innovation from suppliers who were once asked only to execute.”).

opportunism potential would suggest that (1) either no LTA be agreed to, or (2) certain provisions on cost sharing be omitted from the information protocols, or (3) that the parties privately “hedge”⁶⁷ by not fully cooperating or sharing information to push back on opportunism potential.

Because preliminary research suggests that not all parties in the supply chain of goods or product innovation utilize LTAs with formal information sharing protocols,⁶⁸ the question arises as to why and when parties would adopt such provisions or when alternative arrangements might achieve their various goals at the least cost to maximize surplus. The choice of a governance mechanism to contain opportunism where asset specificity exists depends on which arrangement is least costly and surplus maximizing. I am researching the question of what arrangements various manufacturers use in a survey of 2000 manufacturers in Ohio. In this Article, I offer some tentative suggestions tied to the bargaining theory, transaction costs and asset specificity.

This Article will draw on research of others as well as my own interviews with Ohio manufacturers to examine arrangements in different settings⁶⁹ and to suggest some possible answers to the choices about contractual form. By considering alternative arrangements in the supply chain involving both standard products and customized products involving large sunk costs, as well as innovation, this Article seeks to explain different types of inter-firm arrangements using a bargaining lens that considers the individual interests of the parties, the particular context, the durable problems faced by parties, and the transaction cost minimization of contractual hazard theory.

Highlighting “alliance diversity”⁷⁰ in the supply chain, this Article will examine how the parties can solve uncertainties of various types and achieve their goals with and without formal protocols of information sharing or investment guideposts. That choice of the particular arrangement will also depend on

⁶⁷ WHITFORD, *supra* note 29, at 85.

⁶⁸ Interview 2/22/17. One factor is whether the risks to the buyer from not having information about the reliability and competence of the supplier are great enough to justify the transaction costs of the LTA and, further, whether the risks are insurable. For example, if the buyer has a just-in-time production scheme and the buyer’s competitiveness depends on the supplier making continuous improvements and the buyer relies on benchmarking, etc. then the risks to the buyer of not having a wealth of information about reliability, quality and competence may justify the investment of laying out the protocols in an elaborate LTA. A similar cost benefit analysis for the supplier would assess whether the benefits of having an LTA outweigh the costs. What additional protections or benefits does an LTA offer that a sale by purchase order does not? What provisions are most important to a supplier and can they be achieved in some other less costly means? What downsides exist to entering an LTA?

⁶⁹ These contexts include: original equipment manufacturers and automotive suppliers who routinely enter into such agreements, manufacturers of parts for the airline industry, some of which are catalog orders, as well as intensely collaborative ventures in the pharmaceutical industry.

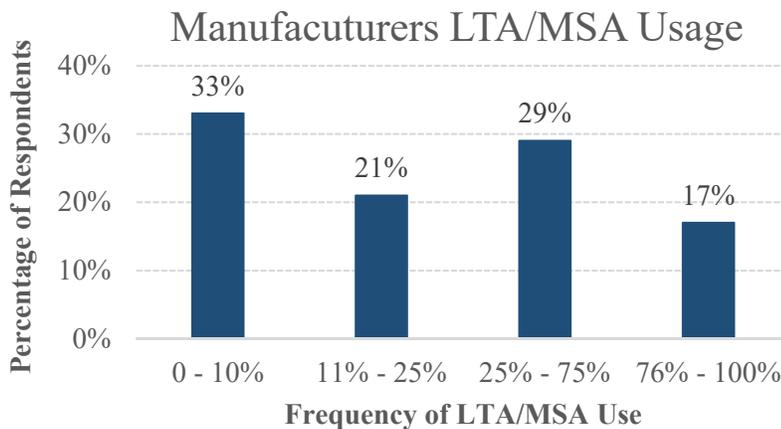
⁷⁰ Jennejohn, *Innovation*, *supra* note x, at 282.

whether that arrangement controls contractual hazards and achieves the parties’ goals at the least cost, thereby maximizing surplus for the parties.⁷¹ The value of the information sharing must be considered in conjunction with why and when the parties will opt for an LTA that includes information sharing protocols, opt out of an LTA, or choose another alternative⁷².

Finally, the choice of how to organize the purchase and sale of goods may depend on whether a large Original Equipment Manufacturer (“OEM”) customer with bargaining clout demands that a supplier sign the OEM’s LTA. Thus, the

⁷¹ The choice described here derives from Williamson. He suggests that: “Transactions which differ in their attributes, are aligned with governance structures, which differ in their cost and competence, so as to effect a discriminating—mainly a transaction cost minimizing—result.” OLIVER E WILLIAMSON, MECHANISMS OF GOVERNANCE 12 (1991). *See also* WILLIAMSON, CAPITALISM, *supra* note x, at 1 (nothing “the transaction cost approach maintains that these institutions [of capitalism] have the main purpose of economizing on transaction costs.”

⁷² The majority of companies taking our survey (54 percent) indicated that they utilize MSAs and LTAs less than 26 percent of the time in their dealings (see the graph below). Of the 47 companies that indicated that they ever used LTAs and MSAs, 30% indicated their primary concern in terms of a future law suit would be a provision to protect capital equipment or tooling costs. Additional concerns included indemnity for intellectual property infringement and damages caps.



Manufacturers LTA/MSA Usage

Percentage of LTA Usage by Manufacturers	Respondent Count
0% - 10%	21
11% - 25%	13
26% - 75%	18
76% - 100%	11

power and market dominance play a role in whether the parties exchange goods using an LTA.⁷³

The Article then confronts what are the parties' expectations for formal legal enforcement, as well as, separate normative questions of why, when and how courts should lend legal enforcement and if so, of what type. Does the nature of the formal information sharing regime affect the parties' expectations of legal enforcement or the court's willingness to enforce the agreements beyond specifically enjoining parties to adhere to the information exchange provisions? Innovation scholars argue that the presence of these information sharing regimes means that courts should use only "low powered sanctions"⁷⁴ restricted to enforcing the information sharing provisions, citing concerns that high powered sanctions could "crowd out" norms or informal enforcement. This Article argues that the choice of enforcement mechanism should be analyzed using the bargaining lens taking into account the individual interests of the parties and the parties' joint interest in an agreement that will maximize value while minimizing transaction costs. That bargaining lens suggests that the choice of an enforcement mechanism should depend on whether legal enforcement would serve the parties' joint interests of minimizing transaction costs, constraining opportunism and maximizing value. That means where the opportunistic conduct is brazen and easily detected, and failing to intervene and constrain it would be ex ante value destroying because the anticipated failure of courts to intervene later would deter parties from entering agreements or investing suggests that legal intervention would be appropriate. That approach is particularly true where the fears about crowding out are exaggerated.⁷⁵

Despite the theoretical availability of informal enforcement through reputational sanctions or through a network, networks or inter-firm arrangements can fail for a variety of reasons—raising the question of what legal enforcement scheme would be optimal in such contexts. This Article offers explanations for high powered enforcement using a transaction cost minimization approach. It also analyzes the crowding out phenomenon in the literature to see if and how it applies to the enforcement of obligations in the supply chain and whether its proponents' concerns are justified based on literature on the law and economics of norms.

Finally, the Article offers advice for lawyers advising clients in the supply chain. Lawyers can add value for their clients by considering this Article's insights on LTAs, both SFKs and bespoke innovation LTAs, governance and dispute mechanisms, and alternative agreements and advising their clients that the

⁷³ Survey results confirm this hypothesis.

⁷⁴ Gilson et al., *Braiding*, *supra* note x, at 1415. But see Hadfield & Bozovic (suggesting unlike Gilson, Sabel and Scott that "we do not associate the role of formal contracting with the use of formal contract enforcement." Hadfield & Bozovic, *supra* note x, at 1017.

⁷⁵ See *infra*.

choice of form should follow a consideration of functions, individual interests of the parties, whether an agreement will minimize transaction costs while constraining opportunism, the need for an agreement to guide and shape planning an enterprise, the need for constraining managers and offering parity of contract to suppliers and the elements of failed agreements.

Part I will analyze the origins of LTAs in the new Industrial Economy. Part II will address the contracting obstacles parties face in all exchanges and the risks of opportunism in the supply chain that parties want to control. Part III will examine the legal issues surrounding these structures. Part IV will detail the distinctive features of the information sharing and supplier excellence training programs in many LTAs; examine whether these information-sharing protocols have always existed; and, examine if and why they were part of the formal agreement. Part V will examine alternative ways of exchanging goods and suggest reasons why parties opt out of an LTA but still achieve their long-term goals. Part VI will look at how informal enforcement can occur, either through a relational contract or through the parties' position in a network, and can facilitate the transfer of information used to sanction counterparties, regardless of whether the parties opt to use an LTA or another mode of exchanging goods. Part VII looks at Network Governance as an alternative or supplement to relational contracts, LTAs, and other supply chain relationships. Part VIII examines how networks fail and why failure matters, and considers what solutions can address failures of networks. Part IX examines what the role of legal enforcement should be when parties are using agreements that are partially enforced by informal sanctions. Part X closes with advice to lawyers negotiating agreements concerning the supply of goods. Part XI concludes.

I. Ties to the New Production Economy: The Demise of the Chandlerian Firm.

Framework LTA contracts are new in some ways; they are tied to the new production economy and the de-verticalization of buyers. The vertically integrated firm that used to predominate—the Chandlerian firm—outsourced very little production except for fungible products.⁷⁶ Firms did not want to outsource production with large sunk costs because of the fear that parties making important customized investments might hold up the vertically integrated firm by demanding more money for critical components.⁷⁷ To avoid that holdup risk, firms in the early 20th century manufactured critical components inside the firm.

⁷⁶ See Helper, et al., *Pragmatic Collaborations*, *supra* note 19, at 444. (explaining Albert Chandler's "central theme...that the firm, and property in general, exist to reduce the hazards of collaboration that could not efficiently be overcome in market exchange.").

⁷⁷ *Id.* (discussing asset ownership as "powerful instruments for limiting the extortion and deception that daunt cooperation.").

However, in this new production economy large buyers began outsourcing more products or parts of production as the need to collaborate on technology to reduce the internal costs of research and development has driven firms to buy externally. Although LTAs have existed between firms for decades, the formal provisions in LTAs⁷⁸ for orchestrated informational exchange look different today because of changes in the production economy that prompt closer collaboration on jointly developed products.⁷⁹ These collaborations comprise a network of firms that exist between markets and hierarchies.⁸⁰ The de-verticalization of firms has made suppliers key players in producing goods and collaborating, changes that necessitate more complex contractual arrangements⁸¹ to govern the cooperation needed to produce innovative goods or to enhance the quality of existing goods, both situations in which development depends on inputs from each party.

These protocols for information sharing benefit firms in several ways. Some of these protocols help buyers remain more competitive⁸² and ideally permit supplier and buyer to produce higher quality products.

The exchange of information serves different purposes. By transferring knowledge, these protocols actually allow for a new way to organize production that “involves immense coordination of specialized knowledge.”⁸³ The sharing of information in a creative venture allows parties to collaborate on a complex project such as developing a new airplane like the Boeing Dreamliner.⁸⁴ It permits buyers to leverage information and expertise that they lack themselves.⁸⁵ It permits companies to “leverage” the expertise of external suppliers⁸⁶ rather than developing it all in-house. It thereby reduces the costs of production for the buyer.

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⁷⁸ “[i]t is not uncommon for supplier qualification questionnaires to ask if the supplier is a ‘certified’ supplier or any of its customers.” See Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 581-2. Bernstein details the access that the customer has to information from the supplier (discussing buyers’ access to information about “quality control systems and quality control reports, and...its books and/or other records.” *Id* at 583).

⁷⁹ The challenges for contracting are significant due to the need for “structuring transactions in the face of continuous uncertainty.” Gilson, et al., *Innovation*, *supra* note x, at 449.

⁸⁰ These firms may be autonomous but part of a network characterized by information sharing, as well as “[a] mutual orientation” and “the use of voice before exit.” WHITFORD, *supra* note x, at 37.

⁸¹ Gilson, et al., *Braiding*, *supra* note x, at 1392.

⁸² Winn, *supra* note 64, at 7.

⁸³ WHITFORD, *supra* note x, at 35.

⁸⁴ See Christopher S. Tang and Joshua D. Zimmerman, *Managing New Product Development and Supply Chain Risks: The Boeing 787 Case*, 10 *Supply Chain Forum* 74 (2009).

⁸⁵ See *Id.* at 17 (discussing OEM’s reliance on “suppliers’ specialized technology”).

⁸⁶ Jennejohn, *Innovation*, *supra* note x, at 281 (“collaborative approach gives a firm access to external expertise without executing a full acquisition.”)

Ideally, where there is a “mutual orientation,”⁸⁷ these protocols can facilitate “communication and problem solving.”⁸⁸ The new frameworks in these LTAs can facilitate collaboration and innovation in these inter-firm arrangements in a variety of ways. The “information sharing protocols”⁸⁹ that characterize some LTAs are highly orchestrated and help to transfer knowledge, cost data,⁹⁰ and information about quality.

The transfer of information permits contracting when uncertainty about what the final product will look like-- a matter that is unknown and unknowable ex ante - precludes contracting on the final product. The modern collaborative contract thus presents an additional species of uncertainty not present when the product is fungible.

The arrangements governing the sale of goods examined here may but not always involve highly “collaborative methods of innovation.”⁹¹ Regardless of whether collaboration is a key feature, all of these arrangements exist between markets and hierarchies. Often, they comprise long-term trading relations between autonomous partners. The question is why the parties operating outside pure markets and centralized hierarchies choose a particular form of alliance with a particular contractual arrangement.

The knowledge sharing protocols that are at the heart of these LTAs allow the buyers to produce higher quality end products. Because the supplier is sharing information about quality during production, the buyers can engage in error detection⁹² and make adjustments to improve the quality of the production and head off problems before they arise⁹³ and allow parties to coordinate on who must invest at what point.⁹⁴

⁸⁷ *Id.* at 37 citing Walter Powell, *Neither Market Nor Hierarchy: Network Forms of Organization* in Barry M. Staw and L.L. Cummings (eds., *Research in Organizational Behavior*, Vol. 12)

⁸⁸ *Id.*

⁸⁹ Gilson et al., *Braiding supra* note x, at 1377. See also Bernstein, *Beyond Relational Contracts, supra* note x, at 581.

⁹⁰ However, one interviewee working at a \$2 billion manufacturer indicated a real reluctance to share cost data with customers.

⁹¹ Jennejohn, *Innovation, supra* note x, at 281. The contract innovation scholars have applied their analysis to Deere Stanadyne supply contracts where innovation was only a potential issue for future products.

⁹² Helper et al., *Pragmatic Collaborations, supra* note 19, at 446.

⁹³ Jane Winn, Discussion Draft for John Kidwell lecture at p.18 (nothing shifts in “focus from arguing about who should bear the financial cost of mistakes to reducing the volume of mistakes in the first place.”) on file with author. Sometimes it can lead to collaboration without trust in which automakers outsourced mainly to cut costs. Later, automakers took a more “strategic” approach to collaboration. Josh Whitford, *The Anatomy of Network Failure*, 29 SOC. THEORY 151, 165 (2011).

⁹⁴ Hadfield & Bozovic, *supra* note 16, at 281.

Gilson, Sabel and Scott tie the parties' new arrangements to solving problems of information when there is a lack of preexisting trust in a highly uncertain environment,⁹⁵ and where reputational controls may not work. The information sharing protocols "allow parties to assess each other's disposition and capacity to respond cooperatively...."⁹⁶ Professor Jennejohn highlights benefits certain LTA provisions can have in solving previously neglected contractual hazards such as entropy and spillover.⁹⁷ Unlike Professor Gilson, Sabel and Scott who find the concern over "the resolution of the holdup problem" to be "anachronistic,"⁹⁸ this Article finds that concerns over opportunism may still be central for analyzing firms and their contractual arrangements under conditions of uncertainty and contractual incompleteness.

II. Durable Problems Confronting All Exchanges and the Contracting Obstacles

Although parties in the innovation economy encounter heightened forms of uncertainty — the product in the innovation context — the parties' solutions, both contractual and informal, are still largely constrained by the reality of the world described by the new institutional economists. Regardless of the particular forces operating on the supplier and buyer, some of which might deepen the need for collaboration to innovate between a supplier and a customer and some of which might exert pressure on suppliers to improve the quality of the goods produced and some of which might relate to the increased uncertainty about the product itself, the parties in a supply chain face problems are the durable ones that afflict all parties to any exchange. The parties need to control these problems in an efficient manner to ensure a high quality good.⁹⁹

This Article, in making the resolution of contractual hazards at the lowest cost central to understanding the variety of inter-firm arrangements, departs from the view that the braiding mechanisms mainly exist "as tools for fostering informal constraints."¹⁰⁰ Instead, the braiding mechanisms and the contracts used are adopted to solve problems or contractual hazards, while lowering the costs of

⁹⁵ Gilson et al explain that the high degree of uncertainty about the nature of the product that the parties are collaborating on producing makes it impossible to specify the product ex ante. Gilson, et al., *Innovation*, *supra* note 33, at 435.

⁹⁶ Gilson, et al., *Braiding*, *supra* note 3, at 1382.

⁹⁷ Jennejohn, *Innovation*, *supra* note 5, at 314 (explaining that entropy refers to the fact that "resources must be spent to synchronize efforts and learning processes among team members" and spillover refers to the fact that "parties cannot capture the full value of their assets without spending resources defining and policing asset boundaries.")

⁹⁸ Gilson et al., *Innovation*, *supra* note 33, at 438 (discussing comparable hold up problem as "anachronistic.")

⁹⁹ "One ought to produce a good product and stand behind it." Macaulay, *supra* note x, at 63.

¹⁰⁰ Jennejohn, *Innovation*, *supra* note x, at 282.

achieving those goals so as to maximize surplus. If, but only if, the formal information transfer mechanisms and other provisions in an LTA improve informal enforcement and the parties' goals without introducing other costs that would outweigh the benefits from the information mechanisms, then those mechanisms will be adopted and will survive. In some instances, informal enforcement will occur without the information transfer mechanisms.¹⁰¹ So, the question is why and when the formal information protocols in an LTA solve the parties problems more effectively than if the protocols were not present.

In this broader comparative view, governance arrangements exist to solve parties' problems and must be evaluated for their effectiveness and cost under Oliver Williamson's discriminating alignment thesis.¹⁰² This broader view of governance as a problem solving device using the individual interests of the parties and the bargaining lens is consistent with Matthew Jennejohn's insight that some contract provisions such as veto rights exist and can be rationalized not as devices to foster informal enforcement but to respond to "overlooked forms of transaction costs"¹⁰³ what Jennejohn labels "multivalent" hazards¹⁰⁴ such as entropy and spillover.¹⁰⁵ However, if entropy and spillover are problems that parties have, the fundamental question is what mechanism or arrangements would resolve those problems at the lowest cost. That is the central insight of the discriminating alignment thesis. So, when opportunism and spillover costs are involved, in evaluating any arrangement the parties enter to solve any problem, such as a formal veto right, one should ask: is that arrangement the most cost-effective way to establish foreground IP rights in a way that is equivalent to the right to exclude.¹⁰⁶ Having property rights depend on informal enforcement would lead to higher costs for the parties and might diminish incentives to invest, thereby making veto rights the most effective tool for achieving the parties' goals. With shirking and shading and other forms of opportunism, perhaps information transfer mechanisms can curb such behavior at a low cost and therefore might be the preferred means of curbing proclivities to produce substandard goods. The discriminating alignment theory helps rationalize why parties might rely on protocols to promote informal enforcement and in other cases adopt veto rights.

The real question for any analysis of the supply chain is how the particular arrangements adopted by the parties function to solve the problems of

¹⁰¹ That is the key insight of Stewart Macaulay and Oliver Williamson and that is that court ordering ordinarily will not be efficacious to parties who will always use informal enforcement due to the prohibitive cost of judicial action.

¹⁰² "Transactions differ in their attributes, are aligned with governance structures, which differ in their cost and competence, so as to effect a discriminating—mainly a transaction cost economizing result." WILLIAMSON, *MECHANISMS*, *supra* note x, at 12.

¹⁰³ Jennejohn, *Innovation*, *supra* note x, at 353.

¹⁰⁴ *Id.* at 292.

¹⁰⁵ *Id.* at 314.

¹⁰⁶ *Id.* at 324.

uncertainty and opportunism endemic in all exchange relations, and most particularly when large sunk costs are involved. Thus, in evaluating these LTA frameworks, and looking at alternatives to LTAs, one must examine how effective they are in solving opportunism, promoting innovation, and resolving any other problems that the parties face. How do these arrangements achieve parties' goals of getting high quality goods to the buyer while generating fewer benefits from cheating/shading in a cost-effective manner?

Solving problems like opportunism is complicated due to three major contracting constraints parties face. Bounded rationality characterizes the human condition¹⁰⁷ and it limits the ability to foresee future events and to predict future human behavior, thus making it difficult to solve problems by a completely contingent contract.¹⁰⁸ In addition, if there are large sunk costs or asset specific investments,¹⁰⁹ the parties may not simply exit to the market since they will lose their investment.¹¹⁰ Finally, parties have propensities to act opportunistically,¹¹¹ and if they are unable to control that risk directly by contract, parties turn to other private strategies to accomplish their goals.

In analyzing the role of framework contracts and why they take the particular form that they do today, one must first address the contracting obstacles that parties face in any exchange relation, including the supply chain framework.

Suppliers and buyers face many types of uncertainty. In some cases, there will be uncertainty about the actual product that will be produced or purchased¹¹² or there will be uncertainty about the quantity that will be demanded or purchased.¹¹³ Gilson, Sabel and Scott see the problem that arises with contractual innovation as presenting unique challenges due to uncertainty known as "continuous uncertain change."¹¹⁴ When presented in a heterogeneous market, informal relational contracting may be difficult to achieve.¹¹⁵ Complete contingent contracting will be impossible due to uncertainty about the end product.¹¹⁶ That uncertainty may even interfere with an alternative way of

¹⁰⁷ See WILLIAMSON, *CAPITALISM*, *supra* note x, at 45. "[e]conomic actors are assumed to be 'intendedly rational, but only limitedly so'" quoting HERBERT A. SIMON, *ADMINISTRATIVE BEHAVIOR* xiv (1961).

¹⁰⁸ WILLIAMSON, *CAPITALISM*, *supra* note 67 (discussing "difficult contracting issues" where there is a confluence of bounded rationality, and sunk costs).

¹⁰⁹ Define sunk costs.

¹¹⁰ *Id.* at 54 (discussing risk of contracts with sunk costs being "prematurely terminated.")

¹¹¹ *Id.* at 47.

¹¹² Gilson, et al., *Innovation*, *supra* note x, at 435.

¹¹³ Uncertainty about the quantity needed may cause parties to leave the quantity open in an LTA.

¹¹⁴ Gilson, et al., *Innovation*, *supra* note x, at 449.

¹¹⁵ This is because relational contracts grounded by "tit-for-tat enforcement" may not work when there are no continuing relations. Gilson et al., *Braiding* *supra* note x, at 1395.

¹¹⁶ *Id.* at 1382 n. 9.

organizing production—modularity¹¹⁷—due to the inability to specify “the relevant interfaces.”¹¹⁸ Those impediments help explain the solution of a contract for information sharing that permits a reduction in uncertainty about each other and the product.¹¹⁹ That would be particularly true in a pharmaceutical venture between a big pharmaceutical buyer and a small biotech company. Uncertainty would also be present where the buyer anticipates that the supplier will make incremental improvements to the product. Under these circumstances, the uncertainties may make it difficult to describe the product with sufficient certainty for contractual enforcement.

1. Other Uncertainties: Asymmetric Information; Opportunism by Suppliers

However, even if there is great uncertainty about the product being developed that can be ameliorated by iterative cooperative investments that may be achieved by formal sharing protocols, any analyst of organizational or contractual choices must address certain overall risks of opportunism that can mar the success of iterative cooperative exchanges. There are two kinds of opportunism that a buyer faces. One is that the supplier will not be forthcoming about what type of a supplier it is; the supplier has superior information about that issue and has a disincentive to share that information with the buyer. This is the problem of asymmetric information or adverse selection,¹²⁰ a term also used to describe insureds who know more about their riskiness than the insurer does. Buyers also face uncertainty about how a supplier will act over the course of the relationship. Economists call this behavioral uncertainty.¹²¹ Will the supplier produce high quality goods with a low defect rate that meets the customer’s (buyer’s) standards or will the supplier shirk and produce poor quality goods¹²²? Will the supplier produce goods meeting the buyer’s excellence standards as they are set

¹¹⁷ Modularization is "a process driven by rapid product change and characterized by the deconstruction of product design into discrete subsystems or functional modules." Gary Herrigel, *Emerging Strategies and Forms of Governance in High-Wage Components Manufacturing Regions*, 11 *INDUSTRY AND INNOVATION* 45, 47 (2004).

¹¹⁸ Gilson, et al., *Innovation*, *supra* note x, at 448.

¹¹⁹ Uncertainty about the other party can be reduced without information sharing protocols in an LTA. Parties can take steps to demonstrate their cooperativeness. They will have incentives to do so to signal their worth to the other party.

¹²⁰ WILLIAMSON, *CAPITALISM*, *supra* note x, at 47 (discussing adverse selection as a particular species of opportunism characterized by “the unwillingness of poor risks candidly to disclose their true risk condition.”)

¹²¹ *Id.* at 57.

¹²² Buyers also face uncertainty about the nature of the demand for their product which can fluctuate over a long period of time. Solutions to that uncertainty problem take the form of open-ended quantity terms.

forth in a quality manual? Will a biotech company invest sufficient resources and effort to maximize the chances of success? Some of the information sharing protocols shift some aspects of judging goods into standards set by the buyer.¹²³ This risk of shading/shirking is same risk of moral hazard¹²⁴ that a principal faces when hiring an agent: will the agent shirk and not exert the effort that the principal would like? It is a type of cost that inheres in all exchanges. Controlling that risk creates value and the devices for achieving good quality will be adopted if the costs of adopting them are less than the costs from non-adoption.

The risk of the buyer receiving poor quality goods is a longstanding problem, but it may be particularly troublesome for the modern buyer. A buyer/assembler today is under great pressure to meet just-in-time production,¹²⁵ and to achieve "continuous improvement"¹²⁶ in its own production so legal remedies of rejecting goods manufactured by a supplier, asking for a cure, and then suing the supplier/manufacturer in court if the cure is not made may be too costly and are therefore unsatisfactory as a remedy. But all buyers, even buyers who predate the modern deverticalized production economy, faced the same problem of legal remedies being an unsatisfactory solution for shading or other forms of opportunism by suppliers. That incentivized buyers to investigate their suppliers before contracting and to reduce uncertainty about competence and reliability by continuously interacting with their suppliers or by investigating them or requiring them to prequalify or by requiring ongoing quality metrics through warranties made in each purchase order that the goods conform to the buyer's excellence manual or by requiring adherence to certain production processes in the purchase order itself.¹²⁷ The goal of quality goods can be achieved even without the benefit of formal information sharing protocols or other provisions in an LTA requiring a monitoring of the supplier's processes.

¹²³ Insight provided by Professor Liza Vertinsky, Professor of Law, Emory University School of Law.

¹²⁴ Moral hazard is a type of opportunistic behavior. In the context of insurance it refers to the failure of insured persons "to behave in a fully responsible way and take appropriate risk-mitigating actions" once covered under an insurance policy. See Williamson, *supra* note 10, at 47. Moral hazard problems also arise in the principal/agent context. Because the principal cannot directly observe the agent's actions and because the agent cannot discern whether the poor outcomes are due to lack of effort or to exogenous events. See David E.M. Sappington, *Incentives in Principal-Agent Relationships*, 5 J. ECON. PERSP. 45 (1991). "[T]he principal can't observe...the level of effort exerted by the agent. See also Kenneth J. Arrow, *The Economics of Agency in PRINCIPALS AND AGENTS: THE STRUCTURE OF BUSINESS* 37-38 (John W. Pratt and Richard J. Zeckhauser eds., 1985) (noting that "principal cannot observe the actions themselves but may make some observations, for example, of the output.")

¹²⁵ WHITFORD, *supra* note x, at 17-18 (discussing changes from just-in-time production).

¹²⁶ Helper et al., *Pragmatic Collaborations*, *supra* note 19, at 409 n. 39 (discussing the questioning of routine as a source of continuous improvement).

¹²⁷ See John Deere purchase order.

2. Opportunism by Buyer

Suppliers face parallel problems of uncertainty and opportunism by the buyer. They risk investing significant sunk costs in tooling or capital equipment for the buyer, the cost of which can only be recouped by amortizing the cost over a long-term supply arrangement and then being terminated. They also face the risk that the buyer will falsely claim that the products are defective. The supplier faces other types of opportunism if the sharing of information results in the buyer sharing it with the supplier's competitors or using the information to manufacture the item in-house using the supplier's information. A buyer may also opportunistically expropriate information intended for joint benefits to both parties for its private benefit.¹²⁸

3. Entropy: Coordination

Parties face other problems in these collaborative innovation networks. Professor Jennejohn has identified one: the risk of entropy. He defines entropy to “mean that resources must be spent to synchronize efforts and learning processes among team members.”¹²⁹ The problems of communication can become particularly difficult when expertise necessitates developing “a shared language among team members.”¹³⁰

When team members are separate, they face challenges of learning from the other party and “concurrency” a situation in which there may be a failure to align with the counterparty.¹³¹ This could occur because the parties “will get out of step” with one another.¹³²

When conceptualized as a distinct risk, different from the opportunism described earlier, then it makes sense to focus on responses such as methodologies that solve entropy through efforts to routinize coordination¹³³ or through regular conversations¹³⁴ to discuss problems. Parties might adopt a different strategy to the entropy risk: modularity. The latter technique avoids problems of coordination by actually lessening the need for interacting with the other

¹²⁸Helper et al., *Pragmatic Collaborations*, *supra* note 19, at 444.

¹²⁹ Jennejohn, *Innovation*, *supra* note 5, at 314.

¹³⁰ *Id.* at 315.

¹³¹ *Id.* at 320.

¹³² *Id.*

¹³³ Helper et al., *Pragmatic Collaborations*, *supra* note 19, at 462-63 (discussing benefits of routinization).

¹³⁴ *Id.* at 474 (discussing tendency of “super suppliers” to be “engaged in discussion with their customers, with whom they speak by phone on average daily, three times as often as other suppliers in the sample.”)

party.¹³⁵ With modular design, the idea is that each partner is a distinct module that requires only a “standardized” connection.

While Professor Jennejohn sees entropy as a distinct problem, in fact, entropy is like any other friction in a relationship. If it is uncontrolled, it will lead to a loss in surplus.¹³⁶ Parties have to expend some resources to coordinate production and may adopt preplanned routines to reduce entropy. But if the routines do not work, there will be a breakdown and that can lead to significant costs that reduce surplus. As Williamson explains: “[e]ffective adaptation was what distinguished successful cooperative systems from failures....”¹³⁷ The fundamental question remains why parties and when parties will opt for certain mechanisms in certain types of documents and why they will opt for different mechanisms in different settings.

Promoting cooperation, facilitating the transfer of tacit knowledge¹³⁸ and designing a structure for smoothly coordinating interactions between parties will lower the transaction costs between the parties. Techniques that will be discussed infra can anticipate and respond to the need to coordinate as a problem of contractual exchange.

In many instances, however, when the coordination breaks down, it is a manifestation of the opportunism or shirking problem. In some ways, the breakdown is likely to occur when one party is not investing enough in the relationship. An analogy can be made to the employment situation by “distinguishing between consummate and perfunctory cooperation.”¹³⁹ If an employee underinvests in effort, perhaps because the employee has been “forced to accept inferior terms, [he] can adjust quality to the disadvantage of a predatory employer.”¹⁴⁰ The employee is performing under an incomplete contract and has the discretion to withhold high quality performance,

A similar type of withholding of high quality investment and the close relationship between entropy and opportunism can be seen in cases where a buyer faced with managing a complex project, such as the Boeing Dreamliner, significantly underinvests in the mechanisms that will facilitate coordination. Failure of the buyer to invest in the relationship is an example of a buyer’s “perfunctory” commitment to cooperation and ex ante poses a significant

¹³⁵ See WHITFORD, *supra* note x, at 37.

¹³⁶ See WILLIAMSON, MECHANISMS, *supra* note x, at x.

¹³⁷ WILLIAMSON, CAPITALISM, *supra* note x, at 5.

¹³⁸ Helper, et al., *Pragmatic Collaborations*, *supra* note x, at 464 (“Yet arms-length market relationships rarely provide fertile ground for the pooling of perspectives (or, put differently, for the process of making tacit knowledge explicit and shareable) that we identify as critical to pragmatic collaborations.”)

¹³⁹ WILLIAMSON, CAPITALISM, *supra* note x, at 262.

¹⁴⁰ *Id.*

problem for any putative supplier entering the relationship. This type of opportunism will be difficult to control by contract.

The interaction between coordination or entropy and opportunism can be seen in other ways. For example, buyers may institute mechanisms to smooth coordination by requiring the transfer of information. However, the mechanism designed to transfer knowledge or deal with a “learning curve” differential¹⁴¹ between the parties may also present a potential for opportunism by the buyer. In short, a buyer may decide to appropriate the knowledge shared by the supplier to bring the production in house leaving the supplier out in the cold.¹⁴² So, a device meant to smooth coordination has the potential to pose an opportunism risk for a supplier.

So, entropy is a type of friction which has the potential if uncontrolled to reduce the gains from trade. This paper will therefore treat it like opportunism or any transaction cost and hazard of contracting. In all instances, the parties will seek to design contractual or other organizational devices to reduce the friction. If not sufficiently controlled, the party facing the risk will react by withdrawing or hedging or failing to cooperate.¹⁴³

III. Legal Enforceability Are LTAs Enforceable and If Not, Why would Parties Ever Enter into Them?

Before addressing how the LTAs respond to the uncertainties and opportunism outlined in Section II, we must confront whether LTAs are legally enforceable agreements. A secondary question is whether the LTAs need to be legally enforceable to address the asymmetric information and varieties of opportunism and other contractual risks or if there are provisions that can ameliorate those problems without the need for enforceable legal obligations. The third subsidiary question is why parties would ever enter these agreements if they were legally unenforceable.

There is no one answer on the legal enforceability of LTAs in general. The particular document will determine its enforceability. If the LTA does not contain a quantity term and it is not a requirements contract, the general view is that the agreement is unenforceable.¹⁴⁴ Specifically, the LTA would lack the critical quantity requirement necessary for a sale of goods transaction to be

¹⁴¹ Jennejohn, *Innovation*, *supra* note x, at 319.

¹⁴² WHITFORD, *supra* note x, at 105 (noting tendencies “to see new managers pull the most profitable back jobs in-house”).

¹⁴³ *See infra*.

¹⁴⁴ Supply Chain Legal Reality: Why The UCC Is Sometimes The Worst, Part I (Or, Who Wrote This Thing Anyway) (Or, Traps For The Unwary) By [Sarah Rathke](#) on January 26, 2015 POSTED IN [LEGAL ANALYSIS](#)

enforceable under the UCC.¹⁴⁵ Until the first purchase order is made, there is a risk that the buyer could refuse to make any purchases under the agreement and the supplier would remain vulnerable to that risk. But, once the first purchase order is made, there is a quantity and the purchase orders may incorporate by reference the LTA.¹⁴⁶

So, parties may first enter an LTA and subsequently exchange a quote, a purchase order and an acknowledgement. There is an interweaving of provisions that will apply to a particular sale executed under a purchase order which is legally enforceable since it will contain a quantity term. These provisions in the LTA may be incorporated by reference into the purchase order,¹⁴⁷ for example, and may include information sharing protocols important for informal enforcement, limited buyer purchase obligations going forward, and some terms such as a damage cap, indemnity provisions and warranty limitations or disclaimers. The agreement consists of all of these provisions.

Yet, even when the buyer has issued purchase orders, the buyer's obligation going forward in an LTA may be unenforceable. The buyer in some LTAs may only commit to provide forecasts to the supplier¹⁴⁸ and may specifically disclaim any obligation to purchase goods made by the supplier.¹⁴⁹ So, there may be provisions that make the future purchase obligations illusory or qualified, at least until a release or purchase order is issued. In other instances, the buyer's obligation will not be illusory. Rather, it will be conditioned on the supplier's meeting certain standards of quality and price competitiveness¹⁵⁰ and continuing to agree to annual price reductions. Since those decisions must be made in good faith, the buyer's obligation could be a real commitment to buy, albeit one conditioned on meeting certain standards imposed by the buyer.

Certain contract innovation scholarship focuses on how the formal information sharing mechanisms facilitate informal enforcement. It ties the increased importance of informal enforcement to the legal unenforceability of LTAs

¹⁴⁵ The UCC has liberalized the requirements for definiteness in contract formation. "Even though one or more terms are left open a contract for sale does not fail for indefiniteness if the parties have intended to make a contract and there is a reasonably certain basis for giving an appropriate remedy." UCC § 2-204(3). However, the absence of a quantity term makes many LTAs unenforceable.

¹⁴⁶ Give example; Whirlpool?

¹⁴⁷ Get example if possible.

¹⁴⁸ Interview; *see also* Bernstein, *Beyond Relational Contracts*, *supra* note x, at 593 (noting buyer's "duty to provide *non-binding* rolling forecasts on a monthly or quarterly basis" (emphasis supplied)).

¹⁴⁹ *See e.g.* Section 2.1(c) of Master Manufacturing and Supply Agreement between Pfizer, Inc. and Zoetis, Inc. (October 1, 2012).

¹⁵⁰ Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 567 n. 15 (discussing competition out clauses that "provide if 'a particular part is . . . not a competitive value . . .'" the supplier must take action (citing an anonymous interview)).

because these agreements might not obligate the buyer to buy anything. However, master agreements in the past often operated without a quantity requirement.¹⁵¹ Without a quantity term, the agreements were initially unenforceable, at least until the first purchase order made the agreement legally enforceable at least initially.¹⁵² In today's LTAs, the new element is the formal information sharing protocols. These formal provisions may or may not be legally enforceable. If the supplier promises information but the buyer does not provide a return promise to do anything, the promise to provide the information may not be enforceable. In this case, enforcement would therefore rely primarily on informal enforcement. However, even if the agreement had a quantity or if the purchase order incorporated the terms of the LTA making the LTA, and they were therefore legally enforceable, the main enforcement mechanism would remain informal because legal remedies are so costly.

The resort to informal enforcement as the primary device for securing quality in the sale of goods context has not changed radically over time. In the past, information sharing or acquisition might have occurred informally rather than being the subject of a formal contractual agreement. Buyers would enter agreements and informally request information about supplier quality from other buyers or the suppliers, have the supplier pre-qualify before bidding, or rely on the supplier's reputation. Yet, there were not as many formal provisions for suppliers sharing that information on a continuing basis.

Today, even though many provisions for information sharing or audits or inspections at supplier's plants are now orchestrated in a formal document, the provisions remain largely self-enforcing. If the buyer today is dissatisfied with quality, it may refuse to buy. However, because the provision on quality is tied to the buyer's own metrics of excellence, a supplier would have difficulty suing a buyer for refusing to take its products. The resort would be to self-help rather than the judicial system. The supplier would be incentivized to self-police to meet quality or risk a loss of future business. In older agreements, even without

¹⁵¹ IAN AYRES AND GREGORY KLASS, *STUDIES IN CONTRACT* Law 150 (9th edition)(explaining [f]requently parties do business for an extended period of time under an arrangement where ...neither party makes a promise to the other. Here there is no contract until one party offers to sell or to buy and the other accepts the proposal.”)

¹⁵² See UCC 2-201. See *Crown Battery Mfg. Co. v. Club Car, Inc.*, No. 3:12CV2158, 2014 U.S. Dist. LEXIS 18907, at *12–13 (N.D. Ohio Feb. 14, 2014) (explaining that MSAs is not necessarily a requirements contract when it does not establish a specified sale. Rather, MSAs establish terms for future purchase orders and “each purchase order forms a separate and distinct sales contract.”)

as many formal sharing information protocols, the consequences of displeasing the buyer were the same: the loss of business or a reputational sanction.

There are two answers to the question of why parties might enter unenforceable agreements. These answers tie back to the bargaining lens in which parties understand the function the contract must perform to achieve their individual interests and then weigh whether the benefits of achieving their goals through a particular form of contract outweigh the costs. First, when the future purchase order is made, the LTA becomes enforceable at least with respect to the actual product purchased.¹⁵³ What may be most important to the supplier is not the continuing obligation to buy or provisions regarding quality because these are likely to be enforced informally. Rather, what may be most important to the supplier are provisions in the LTA which will become enforceable as soon as a product is purchased pursuant to the LTA. These could include provisions that limit damages with a capped amount, eliminate consequential damages, or provisions that limit warranties or indemnify the supplier against improper use of the product by the buyer that could result in large damages. Examples include products like an airplane or medical device, as the damages in such cases can be extraordinary.

Second, these arrangements offer suppliers with large sunk costs the security of a long-term formal arrangement. Suppliers with large asset specific investments need to recoup or amortize their investment costs over several years. These arrangements are standard between OEMs and automotive suppliers. Sometimes these contracts incorporate an “out” that allows the buyer to terminate for convenience or when the products do not meet the buyer’s standards for excellence.

Even with those limitations on the buyer’s purchase obligations, LTAs offer important security to suppliers.¹⁵⁴ The bargaining lens applies here. Even if the purchase obligation is qualified, the supplier can plan ahead, knowing that if it keeps its products to a level of excellence or remains price competitive, the buyer will likely buy its products. The LTA, even if it is unenforceable, will offer security by cementing a relationship with a customer.¹⁵⁵ Further, the buyer will have a hard time arguing that it is not obligated to buy if the outlined conditions for purchasing are met. The supplier can control that hazard by monitoring the behavior of its agents and employees and by maintaining a competitive price. Implicit trust may build up and may constrain the buyer from terminating. Alternatively, the implicit trust may mean that if the buyer does terminate for

¹⁵³ The purchase order may incorporate the LTA provisions and those provisions would then apply to the product purchased pursuant to a purchase order.

¹⁵⁴ Susan Helper interview on 2/21/17. *See also* Helper et al., *Pragmatic Collaborations*, *supra* note x, at 476 (Feb. 21, 2017) (discussing Donnelly’s expansion into side mirrors after rear view mirror contract terminated?)

¹⁵⁵ Interview 8/22/17.

reasons beyond its control, it may offer the supplier another job even though it is not mandated by the contract.¹⁵⁶ In addition, even if an OEM with an LTA is not legally obligated to do so, it may decide to finance some improvement.¹⁵⁷ Suppliers may be encouraged to invest given the implicit contracting relationship created by the LTA. All of these benefits suggest that the cost of negotiating an LTA might be outweighed by the benefits of a secure commitment (although legally unenforceable) and other benefits such as cementing a relationship.

Third, the supplier may have no choice but to agree since many large OEMs or other large global buyers dictate that suppliers submit to LTAs.

Finally, since the parties rarely expect to resort to legal enforcement regardless of whether an LTA or a less detailed purchase order is entered into, the question will resolve into whether the higher transaction costs, including lawyer time, are justified by the benefits that can be achieved by laying out the obligations of the supplier in a systematic fashion in an LTA. What are the offsetting benefits to buyers including increased security of the commitment and increased probability of recouping large sunk costs.

IV. Advantages Offered by LTAs: Foundational Mechanisms for Informal Enforcement and Solving Uncertainties

1. Controlling Contractual Hazards Under Conditions of Uncertainty

A. Reducing Uncertainties Given Limits on Contracting and Promoting Low Cost Informal Enforcement

The design of the LTAs responds to the durable problems in all exchanges—uncertainty, bounded rationality, sunk costs and opportunism—outlined in Section II. LTAs help solve these problems of exchange but “indirectly.”¹⁵⁸ The provisions on information sharing do not function to set up a possible breach of a performance obligation for purpose of initiating a lawsuit¹⁵⁹ but rather to facilitate informal enforcement.¹⁶⁰ The information sharing mechanisms in

¹⁵⁶ Interview. *Id.*

¹⁵⁷ See *supra* note x.

¹⁵⁸ Jennejohn explains the view of Gilson et al. that the “formal contract only indirectly governs collaborations by fostering informal constraints on opportunism.” Jennejohn, *Innovation, supra* note x, at 282.

¹⁵⁹ See Bernstein, *Beyond Relational Contracts, supra* note 13, at 562. The agreement could not be structured to enforce the production of the ultimate product in a collaboration for an innovative product that might never be produced.

¹⁶⁰ Jennejohn, *Innovation, supra* note x, at 282 (noting that the information protocols do not “determine performance obligations...” Hadfield and Bozovic however suggest that formal provisions in contracts help to determine if there is a performance breach which is then informally

LTAs constitute the formal provisions in the agreement, and they provide the information that is useful in administering informal sanctions against the other party. Professors Scott, Gilson and Sabel label this as “braiding”¹⁶¹ to describe the formal terms and informal enforcement combining.

In evaluating LTAs, scholars of contracts for innovation have demonstrated the ways that new devices of information sharing can achieve advantages for the parties that cannot be achieved by a formal contract with a rigid performance obligation. For example, a complete contract would not be feasible in innovation contexts, because the contours of the performance obligation are undetermined at the start of the contract. Where heightened uncertainty about the project’s contours makes it difficult “to observe whether particular actions are cooperative or not, and also hard for courts to determine ex post what counts as a good outcome...”¹⁶² Information protocols committing both parties to invest encourages continued cooperation and results in a “braiding” of formal and informal enforcement.¹⁶³

There is a spectrum of differences in the level of uncertainty affecting the sale of goods. In some cases, there is extreme uncertainty about the final product with collaborative innovation. Sometimes, there is less but still very real uncertainty when the supplier is incrementally improving the products it sells. At other times, there is no uncertainty about the product but still uncertainty about the quality of the good that will be delivered.

Do the heightened uncertainties in collaborative innovation ventures mean that the information sharing protocols will solve those problems more efficiently than other mechanisms and maximize surplus? Are there other factors in the innovation context that make adoption of such protocols important for achieving the parties’ joint interests, such as a need for a planning document to govern a highly complex project? Are the uncertainties regarding the nature of the product any different from other uncertainties that generally afflict the supply chain such as behavioral uncertainty about the potential for shirking?¹⁶⁴ In both cases, uncertainty about a product being developed or uncertainty about future quality of the product will result in an incomplete contract. Whether the parties use an LTA or some other agreement, such as a purchase order, and what type of LTA they adopt is a deliberate choice and will likely depend on the bargaining in which parties consider their individual interests and determine whether the benefits of achieving those goals through an LTA or another form will minimize

sanctioned. Even when the product was known and agreement drafted, rarely did parties sue over an alleged breach of a performance obligation so the uncertainty over the product may not have changed the likelihood or ability to invoke a legal remedy.

¹⁶¹ See Gilson et al., *Braiding*, *supra* note x.

¹⁶² Gilson, et al, *Braiding*, *supra* note x, at 1386 when the product or project is a work in progress.

¹⁶³ *Id.* at 1383.

¹⁶⁴ WILLIAMSON, *CAPITALISM*, *supra* note x, at 57 (discussing “behavioral uncertainty” as “of special importance to an understanding of transaction cost economics.”)

transaction costs (frictions) while serving other needs such as centralization and planning.

This Article will shed light on the reasons for that choice. Is the choice related to concerns that LTAs with information sharing protocols themselves pose risks or costs? What are those risks or costs? Scholars argue that the iterative sharing of information through information sharing protocols offers parties a way to determine what the ultimate product will be and, thus, overcomes one type of uncertainty: uncertainty about the ultimate product. In deciding why a particular arrangement is used, it is useful to consider other situations in the supply chain where the parties know what product they are supplying but face other key uncertainties of opportunism and shirking. When those uncertainties exist, can the parties achieve reductions in uncertainty from iterative steps without an LTA with formal information sharing protocols? Are there other ways to reduce uncertainties about reliability and competence that do not involve being in a close knit relational contract with preexisting trust? Can trust be endogenized by these iterative steps between parties, even if they forego using an LTA with a formal information mechanism, perhaps by being part of a network? Certainly, interim steps can be taken and the way the other party reacts can help to reduce uncertainty about the other party. Further, if the parties have access to a network, the parties could engage in tit-for-tat response to another party's action even when there is no long-term relationship.

The information sharing devices in LTAs are particularly useful in heterogeneous supply chains where parties may lack a close relationship that would provide a source of information, facilitate informal enforcement and overcome uncertainties.¹⁶⁵ Instead of trust already existing and forming the basis of a relationship (exogenously), the parties do not need to have “preexisting” trust with LTAs.¹⁶⁶ The collaborative information sharing mechanisms allow them to “establish a deeply collaborative relation where none existed before.”¹⁶⁷ It would be difficult to overcome the uncertainties by contract since provisions—promising to be a reliable supplier or to not shirk or one to promise to be excellent—would be too vague to enforce.¹⁶⁸

In the collaboration on a new product context, there is uncertainty about the ultimate product. Thus, contracting on the end product is impossible. Yet, to ensure that parties invest in a reciprocal way, they formally agree to make

¹⁶⁵ Jennejohn, *Innovation*, *supra* note x, at 296. “These formal mechanisms combine to foster informal constraints that otherwise may not occur in dynamic heterogeneous markets in which much collaboration occurs in the modern economy.”

¹⁶⁶ Gilson et al., *Braiding*, *supra* note x, at 1377.

¹⁶⁷ *Id.* at 1404

¹⁶⁸ See WILLIAMSON, *CAPITALISM*, *supra* note x, at 67 (suggesting such “general clause contracting” problematic where opportunism is present).

investments in either research or funding.¹⁶⁹ Parties may also agree to abide by rules requiring unanimity in committees.¹⁷⁰ These mechanisms encourage cooperation, discourage misunderstandings¹⁷¹ and protect incentives to invest since “blatant” refusals to invest will be punished.¹⁷²

By increasing transparency, the LTAs can help to deter cheating and other forms of opportunism such as shirking, a different kind of uncertainty known as behavioral uncertainty.¹⁷³ LTAs help to overcome the problem of asymmetric information between the buyer and supplier by offering the supplier a way to signal its value to the buyer in the form of a credible commitment. LTAs build up social capital¹⁷⁴ and personal ties¹⁷⁵ that offer means of informal sanctioning for misbehaviors detected through the information sharing. Of course, as Oliver Williamson points out, “[g]iven the very real limitations, however, with which court ordering is beset”¹⁷⁶ “contractual disputes are more often settled by private ordering.”¹⁷⁷

LTAs create a cost to both parties from exiting, called a “switching cost,”¹⁷⁸ thereby allowing parties to reap the advantages of mutual investment. This deters opportunism by both parties. Both parties engage in reciprocal investments. The condition of mutual investment, rather than any legal obligation, constrains opportunistic behavior by both parties, because they are locked into continuing their relationship since the switching costs of arranging for an alternative supplier are too great to justify an exit for a trivial deviation. Switching costs can occur even when the parties are not parties to LTAs with information sharing protocols. When a supplier furnishes goods to a buyer, switching costs can occur when the supplier has to find another buyer or the buyer has to find another

¹⁶⁹ Cite needed.

¹⁷⁰ Gilson et al see two main advantages of these unanimity rules. First they will ensure parties get needed information. As the authors explain, a skeptic will be able to force disclosure because otherwise the other party will not get the consent it needs to proceed. It also “discourages obstinacy”. Gilson, et al., *Braiding*, *supra* note x, at 1403. This is because high level personnel to whom the dispute will be referred will not want their time wasted.

¹⁷¹ “A referee can clarify misunderstandings early, avoiding false negatives-i.e., the interpretation of the other's behavior as a defection. When she finds that a defection has indeed occurred, a referee can, by “blowing the whistle” while providing for a fast and low-cost resolution to the dispute, forestall disproportionate responses by the aggrieved party. ... The referee also serves as an informal disciplining mechanism. . . . The subordinates' job is to resolve problems, not escalate them.” Gilson, et al., *Innovation*, *supra* note x, at 480-81.

¹⁷² Gilson, et al., *Braiding*, *supra* note x, at 1409.

¹⁷³ WILLIAMSON, *CAPITALISM*, *supra* note 25, at 57 (discussing behavioral uncertainty).

¹⁷⁴ Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 563.

¹⁷⁵ *Id.* at 35.

¹⁷⁶ WILLIAMSON, *CAPITALISM*, *supra* note 25, at 21.

¹⁷⁷ *Id.* at 10.

¹⁷⁸ Gilson, et al., *Innovation*, *supra* note x, at 1383 (defining “switching costs-the costs one party to a contract must incur in order to replace the other party to the contract.”).

supplier. Thus, switching costs in which a buyer has to research alternate suppliers can occur even without a formal LTA.

Because many LTAs are legally unenforceable when they are signed (due to the absence of a quantity term),¹⁷⁹ the agreements may be more important for the ways they facilitate interactions between the parties and reduce uncertainties about how good the products produced by the supplier will be or how competent¹⁸⁰ one's counterparty is. However, even if the agreements were legally enforceable, damage claims for breaches of the protocols would be difficult due to the contract doctrine requiring certainty in proving damages so reliance on informal enforcement would likely be predominant.

Of course, the same uncertainties plague any supply chain for the sale of goods and not all parties exchanging goods resort to LTAs with information sharing protocols or unanimity rules. Why would that be the case? In cases where there is no guarantee of repeat business, the supplier has to work hard to earn the trust of the buyer who may not know him initially. The supplier needs to demonstrate his competence, commitment to quality and reliability, where those matters are unknown to the counterparty. Uncertainties about those matters can be lowered by iterative steps taken by the supplier. Even when there is certainty about the final product, the parties may still encounter uncertainty. Specifically, there is uncertainty regarding whether the goods will be quality goods and timely delivered and whether the supplier is reliable. Iterative responses during the supply contract can lower these uncertainties, even without any formal requirement in an LTA to share information.

To assess why parties use forego using LTAs with formal informational sharing protocols, and opt to use another arrangement to govern supply chains instead, one must first assess the rationales offered for the formal informational protocols. Later, it might be useful to assess whether those rationales would also apply to non-LTAs.

The formal information sharing and iterative collaboration result in reduced uncertainty about a party's competence and reliability and in parties mutually investing.¹⁸¹ For example, typical in the pharmaceutical industry, a party (usually by the funding party) has a unilateral right to withdraw by the funding

¹⁷⁹ Winn, *supra* note 64, at 20.

¹⁸⁰ Supply Chain Legal Reality: Why The UCC Is Sometimes The Worst, Part I (Or, Who Wrote This Thing Anyway) (Or, Traps For The Unwary) By [Sarah Rathke](#) on January 26, 2015 POSTED IN [LEGAL ANALYSIS](#)

¹⁸¹ WHITFORD, *supra* note x, at 98-99.

party.¹⁸² So, while the parties do not yet know what will be produced, they are required to share information. That requirement incentivizes the research biotech industry to invest adequately in research since without adequate investment the funding party will withdraw. The information sharing mechanisms lend transparency to the investments and give confidence that the process is “fair”.¹⁸³ Sharing also leads to “iterative cooperative adjustments...”¹⁸⁴

The iterative steps are taken in the context of a contract that has nested options as well as provisions for how to handle disagreements. Due to “nested options regulating the sequence and conditions under which the parties can commercialize the product”¹⁸⁵-- contractual options within an arrangement--the party that functions as the research entity will not take costly precautions to protect themselves. The research entity will not, for example, withhold information as their research yields more results, because they will be protected once they are able to produce a successful product from expropriation by the other party.¹⁸⁶ The combination of a right to withdraw which encourages the researching party to invest sufficiently in research, the transparency, and nested options which give security as the project nears successful completion, and dispute resolution mechanisms increase accuracy in determining whether the parties have invested appropriately all constrain opportunism.¹⁸⁷ These sharing protocols also deter “blatant” abuses of shared information.¹⁸⁸

In a supply chain where there is no major design collaboration and the product is a standard good, the major uncertainties will concern the other party’s reliability, shirking potential and competence. To reduce the uncertainties about the counterparty, the parties could but do not always require a transfer of information in a formal LTA. Instead, they may rely on other means of constraining opportunism. For example, the lock in effect¹⁸⁹ which serves to deter parties from switching to another supplier or buyer when the party has performed, can occur even without the formally orchestrated exchange of information in an LTA. As parties deliver goods, make adjustments and demonstrate their competence and reliability, they reduce uncertainty about the competence and reliability of the counterparty leading to a lock in effect generated by the actions taken. In these settings, and even when they are not in

¹⁸² Gilson et al., *Innovation*, *supra* note x, at 470.

¹⁸³ Gilson et al., *Braiding*, *supra* note x, at 1409. The information transmission is combined with governance mechanisms that may implement a contract referee for disputes. Since unanimity may be required for actions, parties can easily request information from the other party to secure their consent and “makes it reasonable for skeptics to require more information...” *Id.* at 1403.

¹⁸⁴ *Id.* at 1409.

¹⁸⁵ *Id.* at 1408.

¹⁸⁶ *Id.* at 1408.

¹⁸⁷ Gilson et al., *Innovation*, *supra* note x, at 491.

¹⁸⁸ Gilson, et. al, *Braiding*, *supra* note x, at 1384.

¹⁸⁹ Cite needed

a situation where repeated dealings are contemplated, parties may still be constrained if the information about their behavior will reach others in a network to which both firms belong. The very process of dealing with each other and gaining confidence in the other party about their ability to produce quality goods has similar benefits of constraining opportunism and locking in the parties without the need for formally shared information protocols.¹⁹⁰ Thus, adoption of such protocols cannot be explained solely by the benefits of the lock in effect. Moreover, the lock in effect can also be achieved by a different contractual arrangement that locks both parties in with an upfront continuing commitment to purchase as was the case with German and Japanese economies.¹⁹¹

Professor Lisa Bernstein suggests another answer as to why information sharing protocols exist. She explains that such arrangements “broaden the self-enforcing range of contractual obligations”¹⁹² and “expand[] the types of behavior that can be sanctioned.”¹⁹³ Bernstein explains as follows: “For example, suppose that a supplier refused to permit a buyer’s representative to conduct an unannounced factory inspection or audit that was authorized by the MSA.”¹⁹⁴ The “buyer would not have a credible threat to sue for damages;”¹⁹⁵ however, the protocols offer the supplier a way of credibly committing to the buyer knowing that breaches of the audit protocol will lead to informal sanctions.¹⁹⁶ Finally, Bernstein suggests that they “clear a space for other, extralegal modes of contract governance.”¹⁹⁷ These information sharing protocols also secure a higher price

¹⁹⁰ If a supplier terminated its relationship with a buyer, it would have to explain to future buyers why it did so. Since future buyers would be wary of suppliers who terminate relationships, suppliers would be hesitant to exit, leading to a lock in effect. A similar, parallel effect could constrain buyers.

¹⁹¹ For a discussion of a different governance mechanism that produces a lock in effect in a different way than the information sharing protocols do. Instead of gradually raising switching costs through increased trust and confidence, the Japanese and German companies “first raise switching costs—in effect prohibiting exit from the relationship—and then devising ways of sharing information to work productively within the constraints they have imposed.” Gilson, et. al, *Innovation*, *supra* note x, at 1411.

¹⁹² Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 563.

¹⁹³ *Id.*

¹⁹⁴ *Id.* at 603.

¹⁹⁵ *Id.* at 603.

¹⁹⁶ For a discussion of credible commitments as a private device parties use to lower uncertainties about the other party, see WILLIAMSON, *CAPITALISM*, *supra* note 25, at 167. Credible commitments are “tactics by which one party can realize an advantage in relation to a rival by credibly ‘tying one’s hands.’” In the context of the supply chain, suppliers subscribing to abide by information sharing mechanisms are in effect offering a type of hostage or bond that distinguishes those willing to share such information from those suppliers who refuse to do so.

¹⁹⁷ Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 562.

for the supplier than could otherwise be obtained or secure a contract that it could not otherwise obtain.¹⁹⁸

If iterative steps can be taken to lower uncertainties about shirking and reliability or if a supplier can resolve those uncertainties simply by agreeing to a buyer's terms and conditions not to sell any product that does not conform to a buyer's quality manual,¹⁹⁹ then why would some relationships benefit from the additional formal provisions mandating information sharing? Why and when would those additional formal provisions be worth the cost, or would there be offsetting benefits that would outweigh the costs of negotiation?²⁰⁰ There will always be space for informal governance even without the formal information sharing protocols. The real question is therefore whether the benefits in lowering uncertainties and building trust where there is no preexisting trust outweigh the other costs of negotiating an LTA and the potential costs of opportunistic exploitation of the information. The answer to that question will vary with different contexts.

To understand why some parties use LTAs while others do not, consider several cases. Consider also the bargaining lens with its focus on the parties' individual interests and their desire to minimize transaction costs to maximize surplus. One case involves the supply chain in the automotive context, another setting involves a manufacturer of a standard product that is fungible, and another involves the highly collaborative project on research. In the automotive context, there are likely to be large asset specific sunk costs. Such large sunk costs are also likely to be present in the collaborative research context. Such sunk costs would be less likely to be the case where there is a fungible good. Differences in the degree of sunk costs and asset specific investments may explain the differential use of LTAs.²⁰¹ The need to protect those sunk costs may explain the

¹⁹⁸ Since credible commitments act as a kind of safeguard “to restore integrity to transactions.” WILLIAMSON, *CAPITALISM*, *supra* note 25, at 20. Since transactions with safeguards are acting to minimize hazards, they will be priced accordingly. *Id.* at 24

¹⁹⁹ See John Deere Terms and Conditions

²⁰⁰ The different approach to lock in where the lock in effect is achieved by a contract that obligates the company to continue purchasing has several notable disadvantages including increased shirking and a lessened ability to deal with disruptions and challenges. These disadvantages suggest reasons for why the incremental building of a lock in effect over time has advantages over the lock in effect achieved by long-term commitments. See Gilson et al., *Braiding*, *supra* note x, at 1414.

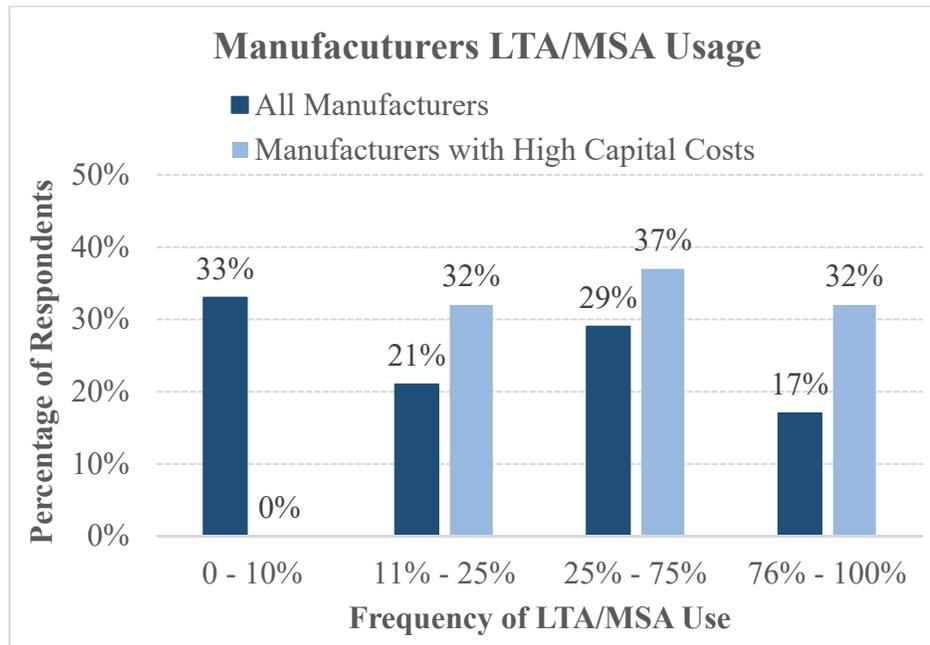
²⁰¹ Interview 2/22. 20 of the 68 companies surveyed indicated that they acquired capital equipment for a specific buyer in at least 67 percent of their dealings. Of these companies 32 percent indicated that they use LTAs and MSAs at least 76 percent of the time. All of the companies indicated that they use LTAs or MSAs at least 11 percent of the time. Although the sample size is small, survey results tend to indicate that manufacturers who incur significant costs to purchase capital equipment are more likely than the average manufacturer to use an LTA.

willingness to take on the additional costs of an LTA even with the onerous terms that are often contained in such agreements. Where large sunk costs are not present, and the goods can be resold to others, the need for an LTA may be reduced, especially if other means of assuring reliability.

Additionally, where one party’s production is dependent on the other party’s production, information sharing protocols may be important in preventing problems early before they adversely impact production by the buyer. The information sharing protocols would then provide added benefits that would outweigh the costs. In addition, when there are large asymmetric sunk cost investments, the presence of information sharing protocols may lessen

Manufacturers with LTA/MSA Usage

Percentage of LTA Usage by Manufacturers	Respondents With High Capital Costs	All Respondents
0% - 10%	0	21
11% - 25%	6	13
26% - 75%	7	18
76% - 100%	6	11
Totals	19	63



²⁰¹ See the Donnelly/Honda example from Sue Helper.

uncertainties and encourage investment which might not otherwise occur if there were no formal sharing of information to demonstrate a willingness to collaborate and invest by the other party.

2. Lowering Costs: Lowering the Cost from Shirking by Permitting Self-Help

The information provisions lower the costs from supplier shirking. Because LTAs are structured to permit buyers to exercise a great deal of self-help, they promote self-enforcement of matters involving the quality of goods.²⁰² First, if the goods do not meet the standards of the buyer, the buyer can insist that the supplier send new goods meeting those standards and supplier may need to assume expedited shipping costs.²⁰³ Instead of rejecting goods that are substandard²⁰⁴ and then suing the supplier, buyers are often not obligated to buy goods that do not meet their standards.²⁰⁵ That helps lower the costs that the buyer must shoulder for substandard goods. Suppliers agreeing to such clauses may signal their commitment to sending high quality products.

Of course, even without an LTA specifically conditioning the buyer's obligation to buy on the supplier meeting certain quality standards and facilitating self-help through the LTA, the parties often exercise self-help. If a buyer complains about a product, the supplier might simply take the product back and rarely would anyone sue over a performance obligation. So, self-help can occur without information sharing protocols or LTA provisions on self-help being present.

The bargaining lens may help explain why a buyer and a seller's joint interest in minimizing transaction costs and maximizing value might be served by an LTA self-help provision. The provision helps the buyer avoid the cost of legal enforcement over substandard goods and insuring that it is only obligated to pay for conforming goods. The supplier's self-interest is in signaling that it is a high quality supplier. Whether the buyer agrees to that kind of term in an LTA will depend on whether there are other benefits from agreeing to the LTA such as cementing a relationship with a buyer or securing a long term commitment that is either legally enforceable or comes with an implicit expectation of other benefits from the buyer should the buyer terminate its purchases early.²⁰⁶

²⁰² Winn, *supra* note 64, at 5. See also Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 607 (discussing the connection between self-enforcement and network governance).

²⁰³ See Sun Master Supply Agreement

²⁰⁴ UCC rejection provisions. 2-601.

²⁰⁵ See *e.g.* Whirlpool Strategic Alliance Agreement Section 6.3

²⁰⁶ See the Donnelly/Honda example from Sue Helper.

3. Overcoming Asymmetric Information: Credible Commitment

LTAs also act as a way for suppliers to offer a credible commitment to their potential buyers.²⁰⁷ Buyers who might be reluctant to do business with a supplier (because of uncertainties about their competence or reliability) will agree to do business with suppliers who sign LTAs. In this situation, the buyer will have more information about the supplier before the contract is signed, which helps to solve a problem of asymmetric information. Suppliers may agree to prequalify to even be eligible to be a supplier. Some suppliers may agree to participate in webinar training or achieving excellence programs.²⁰⁸ Going forward suppliers may disclose more information on a continuing basis.²⁰⁹ The supplier may agree to give the buyer access to the supplier's plant, perhaps with the provision of a quality engineer on the premises.²¹⁰ Suppliers agree to give buyers access to cost information and audits. Because suppliers have to furnish quality control reports, participate in quality training programs,²¹¹ provide cost information, and agree to participate in mandates for root cause analysis²¹² for problem detection,²¹³ the buyer learns about the supplier's competence and reliability. As a result, this lowers the uncertainty about the counterparty as the parties exchange goods with each other.

Suppliers agree to participate in part because by lowering uncertainty for the buyer and signaling its willingness to share information the supplier earns a higher price for its goods. In a sense, the supplier's agreement to engage in information sharing constitutes a credible commitment,²¹⁴ which increases the price the buyers will pay. Presumably, without such information agreements, the

²⁰⁷ See *supra* note 196 (discussing credible commitments).

²⁰⁸ See John Deere program discussed in Gilson et al., *Innovation*, *supra* note x, at 459-63; Bernstein, *Beyond Relational Contracts*, *supra* note x, at 581-83. See Deere & Company and Stanadyne Corp. 2001 Long Term Supply Agreement between Deere and Stanadyne Corp. www.sec.gov/Archives/edgar/data/1053439/00011931250718244

²⁰⁹ Bernstein, *Beyond Relational Contracts*, *supra* note x, at 583 (discussing continuing obligations to supply information through plant inspections and financial audits).

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²¹¹ John Deere requires participation in training by its suppliers in their LTAs. Suppliers may also agree that if their products are below specified metrics, the buyer is not obligated to buy.

²¹² "A root cause analysis is a 'tool designed to help identify not only what and how an event occurred but also why it happened.'" Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 584, citing James J. Rooney and Lee N. Vanden Heuvel *Root Cause Analysis for Beginners*, 37 *QUALITY PROGRESS* 45 (2004). See also

²¹³ Helper et al, *supra* note 19.

²¹⁴ "It is this information sharing regime that braids the formal and informal elements of the contract and endogenizes trust." Gilson et al, *Braiding*, *supra* note 3, at 1438.

buyer might pay less because more uncertainties about the supplier would remain unresolved.²¹⁵

Even without an LTA with a formal information sharing device, the supplier might undertake to signal its reliability and competence in other ways. It could pre-qualify as a supplier²¹⁶ and meet the specifications of the buyer before bidding. It could warrant its compliance with a quality manual in the purchase order. Suppliers could agree to terms and conditions which give the Buyer a termination for convenience clause, agreement to which would signal the supplier's confidence in the quality of its goods.²¹⁷ Under the bargaining lens modeled here, suppliers will weigh the increased prices paid for credible commitments in the form of information sharing against possible costs such as buyer expropriation of shared information.

4. Other Benefits of LTAs: Improved Methods of Production

In this process of continuous improvement, the LTA may provide for the pooling of information. This shared information leads to parties becoming increasingly nimble at adopting new methods.²¹⁸ The sharing of information reduces concerns about remaining ignorant of the other and the greater transparency may lessen what one author terms “incitements to trickery.”²¹⁹ The sharing of information by the supplier also may be useful in benchmarking and error detection techniques that permit the parties to collaborate on improvements in efficiencies.²²⁰ Information sharing also exposes the supplier to the culture of the

²¹⁵ See WILLIAMSON, INSTITUTIONS, *supra* note 25, at 174 (discussing the value of credible commitments in reducing a hazard of an exchange and thereby increasing the efficiency of the exchange).

²¹⁶ Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 597.

²¹⁷ Joseph Martini, Matthew Brown, Susan Kennedy, *Termination for Convenience under the Uniform Commercial Code*, APA Commercial Law Newsletter, Spring 2014, at 3–5.

²¹⁸ “Relational capital increases flexibility, enables the parties to rely on reciprocal informal adjustments being made over time, and leads to the sharing of information that can greatly reduce production costs.” Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 597.

²¹⁹ See Helper, et al., *Pragmatics*, *supra* note 19, at 471.

²²⁰ As Professor Helper explains: “the exchanges of information required to engage in benchmarking, simultaneous engineering and error detection and correction also allow the collaborators to monitor one another’s activities, closely enough to detect performance failures and deception before they lead to disastrous consequences.” *Id.* at 466. “As Boeing outsourced more, communication and coordination between Boeing and its suppliers became critical for managing the progress of the 787 development program. To facilitate the coordination and collaboration among suppliers and Boeing, Boeing implemented a web-based tool called Exostar that is intended to gain supply chain visibility, improve control and integration of critical business processes, and reduce development time and cost Manufacturing Business Technology, 2007.” Tang, *supra* note 84, at 78.

buyer, and that understanding gives the supplier an edge in becoming a better supplier.

5. Personal Ties Enhanced. Cost Reductions Originated

The LTA may also provide for personnel meetings, visits to the supplier's plant or visits by supplier engineers to the buyer.²²¹ The buyer could mandate a quality engineer to inspect the supplier's plant. All of these formalized interactions facilitate trust and information sharing, in part through the development of personal ties.²²² The supplier may also agree to or be pressured to accept targeted price reductions of a certain percentage each year. One author suggests that "simple sharing rules may result"²²³ and under such rules the parties could agree on how to share the "gains from innovations."²²⁴

As with other benefits generated by LTA provisions that require or encourage visits to the supplier or buyer plants, the question is whether such ties could occur without being formally orchestrated. Presumably, such contacts could occur without being formally required. These personal connections could occur because the parties are embedded in a network. Embeddedness can take "four forms: structural, cognitive, political and cultural."²²⁵ Parties constantly communicate information that results in numerous benefits including greater trust in veracity of the information shared.²²⁶ In other cases, the parties can be autonomous firms without formal information sharing protocols but personal ties can develop as the relationship continues. In other cases, the parties may not share close personal ties but may share ties to a network of buyers and suppliers that share information, making personal ties unimportant. The incentive to formally require inspections on an ongoing basis with the resulting closer personal ties might be more likely when the buyer's investment is dependent on the success of the supplier. As the buyer invests more in the joint project, it has more to lose if the supplier cannot produce quality parts or fuselages in a timely fashion. Thus, as the parties are locked into a bilateral relationship of mutual dependency, the willingness and need to adopt provisions to control hazards is greater.

²²¹ Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 593.

²²² *Id.* at 592–4.

²²³ Susan Helper, et al., *Pragmatics*, *supra* note 19, at, 472-743 (2000).

²²⁴ *Id.*

²²⁵ Brian Uzzi, *Social Structure and Competition in Interfirm Networks: the Paradox of Embeddedness*, 42 ADMIN. SCI. Q. 35 (1997).

²²⁶ *Id.* at 46.

6. Preventing Problems From Arising; Switching Costs Detering Opportunism

These mechanisms achieve major benefits. They help prevent problems from arising.²²⁷ Although the provisions may be largely unenforceable, since it is hard to envision how the buyer could sue for damages for failure to share information, they will help the buyer identify problems early on and ensure that the buyer has a continuous flow of information that will help it improve its products and remain competitive.²²⁸ The protocols alert the supplier to the kinds of information it needs to make available to its buyers and sets up expectations for the personnel at the supplier. The “braiding” that results from the multiple interactions may help to deter opportunism by both buyer and supplier. The supplier would be deterred from shirking or shading because if it did, and it lost the supply contract, it would have to explain to a new buyer why it exited a prior LTA. Similarly, if the buyer needed to find a new supplier, it would have to explain to the new supplier why it had terminated a prior supplier. It would have to assure the new supplier that it had not acted opportunistically or it might have difficulty getting the new supplier to collaborate on a project.

Although few formal provisions burden buyers,²²⁹ once the parties have solidified a relationship with each other that may include information sharing, visits to the supplier’s plant, and even training seminars to be held at the buyer’s facilities, there are informal forces that will keep buyers from going to another supplier. Thus, the benefits of this arrangement arise from a constraint of switching cost, rather than a legal cost of breaching a term of the LTA.

Can these switching costs occur without formal information transfer mechanisms? There are many ways to create switching costs without an LTA. For example, a supplier could raise switching costs for a buyer by making a unique part for a buyer. Similarly, if a supplier develops a fuel pump for an airplane engine and the fuel pump is approved by the FAA for the life of the airplane,²³⁰ then that buyer will have infinite switching costs as the FAA would have to approve a new fuel pump. Changing to a new fuel pump would not be possible without violating the airplane manufacturer’s agreement with the FAA to install only pre-approved parts. Switching costs can occur in any relationship as a party provides the other party information about its reliability and competence through its performance. Gilson, Sabel and Scott explain this

²²⁷ See Winn, *supra* note 64, at 19.

²²⁸ Winn, *supra* note 64.

²²⁹ As Bernstein notes, “Buyers have few information disclosure obligations apart from a duty to provide non-binding rolling forecasts on a monthly or quarterly basis.” Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 593.

²³⁰ The FAA has to approve the initial fuel pump and would have to approve any replacement fuel pumps. See *Interview*

phenomenon as one that occurs “in markets where learning about the quality of potential substitute suppliers and their products is time consuming and expensive, there can be significant barriers—switching costs—to exiting a relationship.”²³¹ Presumably, even without entering in an LTA with formal information protocols, the knowledge gained about the counterparty’s abilities and reliability will act as a deterrent to exit. If a buyer complains about a product, and the supplier offers a concession in price without even requiring that the defective products be returned, both parties are learning about the other, even if there is no required disclosure of information. When a supplier offers a concession on the invoice for defective products the customer complained about without even looking at the parts, it demonstrates that it is trustworthy and standing behind the quality of its products. At the same time, the reasonableness of the buyer’s complaint will signal to the supplier how trustworthy the buyer is. Is the buyer trumping up complaints or registering reasonable objections? Or is there a miscommunication of expectation between the parties that can be corrected? This “joint effort” that occurs as parties interact with one another can occur even without the formal information provisions in an LTA. The degree of investment and performance might be greater when parties are involved in a collaboration, but the same learning through observing a party’s interactive, incremental performance can occur even when parties operate purchase order by purchase order.

7. New Forms of Misbehavior Identified²³²

LTAs, with their frameworks for information sharing, personnel exchanges, mechanisms for detecting and correcting error, and encouraging training to meet buyer standards may foster the building of social capital and trust and encourage collaboration to develop innovative products. LTAs may facilitate informal enforcement in another way. By detailing lots of ways in which suppliers are expected to cooperate, buyers have new categories of misbehavior which “broadens the types of behavior that can be sanctioned through reputational harm or rewarded.”²³³ And these categories of cooperation or misbehavior do not require judicial verification.²³⁴

Of course, if the LTA laid out an information sharing mechanism that specified “the types of behavior that can be sanctioned through reputational harm,”²³⁵ then the LTA would be broadening the basis for imposing sanctions. But an LTA with a provision outlawing certain behaviors would not need to exist in order for a buyer to sanction a counterparty informally. For example, a buyer may be dissatisfied with the performance of the supplier because the supplier was not particularly cooperative or willing to make adjustments, even though the

²³¹ Gilson et al., *Innovation*, *supra* note 33, at 482.

²³² Bernstein, *Beyond Relational Contracts*, *supra* note 13 at 602.

²³³ *Id.* at 563.

²³⁴ *Id.* at 584.

²³⁵ *Id.* at 563.

supplier may have technically met the requirements of the contract. Here, the buyer could and would downgrade the supplier in future dealings even without any LTA provision that required or ranked the supplier on cooperativeness. So, the question remains whether the LTA provisions actually “broaden the self-enforcing range of contractual obligations”²³⁶ or whether they are the exclusive means of broadening the basis of sanctions.

B. Positive Benefits of LTAs: Planning Benefits and Centralization

In some cases there are reasons to enter into LTAs that originate not from an attempt to control contractual hazards but to achieve two other benefits.

One benefit from having a formal LTA is a planning benefit. It lays out the obligations of the parties in a systematic way. There is a benefit to parties in doing that “as a way of minimizing misunderstandings about what current thinking is about the future.”²³⁷ Writing allows parties to “identify incompleteness in our thought processes, and even analytical errors.”²³⁸ Written agreements to govern long term relationships are not new but outlining the planning benefits is important in terms of the bargaining lens. How much weight do the parties place on a written agreement that takes the form of an LTA? Does LTA as a written document for planning play more of a role in the innovation context where parties must engage in a complex process of research and funding? The Hadfield/Brozovic article suggests that the planning aspect in innovation contexts is a very important function. Parties routinely resort to consulting the LTA when questions arise during the course of the relationship and thereby depart from the usual practice of rarely consulting contracts in a sale of goods context.

A second positive benefit of an LTA that takes the form of an SFK is to “centralize decisionmaking.”²³⁹ Rather than allowing individual managers to negotiate individual contracts, the implementation of the LTA is centralized with unified control of what the terms look like. In the context of OEMs and suppliers, where OEMs depend on many suppliers for inventory items, the LTA SFK offers another advantage. Buyers have to be able to assure suppliers that they are offering standard terms to all suppliers and thus offering parity and the LTA offers that benefit.

V. Diversified Strategies

Some initial empirical research indicates that despite all the advantages that formal information sharing protocols achieve, parties do not adopt one uniform

²³⁶ *Id.*

²³⁷ Whitford email, *supra*.

²³⁸ *Id.*

²³⁹ *Id.*

approach to solving problems in supply chains and in collaborating; the LTA is one mechanism, but parties may deliberately opt for other ways of exchanging goods. Their choices may depend on a number of factors including the transaction costs of negotiating an LTA, and whether the LTA is needed to protect large sunk costs or capital equipment specially manufactured for a buyer. Other arrangements which parties enter into to protect their capital investments include 1. LTAs with a quantity term, 2. operating purchase order by purchase order, 3. acting as a contract manufacturer and limiting liability by executing a blueprint without any deviation, and 4. entering into joint development projects that protect capital investments exclusively by IP and licensing mechanisms.

In thinking about why parties might adopt LTAs to govern their relationship, it is important to note that parties exchanging goods, and even developing new products, have a variety of ways to structure their arrangements. Key benefits of some LTAs derive from the transfer of information, which, in turn, facilitates informal governance and constrains opportunism in the face of uncertainty about competence, shading, reliability, etc. But, parties may devise other ways of operating beyond the LTA without the information sharing protocols (braiding mechanisms) discussed earlier. And they will find ways even without an LTA to engage in informal governance to achieve the quality goals without resorting to a lawsuit. As Matthew Jennejohn explains, there is a “rich diversity of governance strategies observed in the design of many alliance contracts.”²⁴⁰ This Article explores some of the alternatives below.

A. LTA with a Quantity Term

Some parties may insist on an LTA that contains a quantity that would make it legally enforceable *ex ante*.²⁴¹ This is different than the prototypical LTA studied by scholars, because it contains a quantity requirement and is immediately enforceable. A supplier may insist on an LTA that contains a provision that prevents the buyer from cancelling without paying for work in the pipeline or if there are large capital equipment or tooling costs, may want an exit termination fee or a minimum quantity requirement. In some settings, the parties’ willingness to enter into an LTA without firm purchase obligations and the reliance on the reciprocal investments in learning and monitoring by both parties may not work to deter potential opportunism. This is especially likely to be the case when [there is not a long-term arrangement between the parties and] there are large capital equipment costs that must be incurred by the supplier. When these informal forces are unlikely to work because of the lack of ongoing relations, or when a market dominant player is involved, the supplier’s threat to impose reputational sanctions on a buyer (an original equipment manufacturer) such as Boeing may not work. Then, a term in a legally enforceable LTA that prevents

180 Jennejohn, *Innovation*, *supra* note 5, at 282.

²⁴¹ Interview 6/16.

the buyer from cancelling without paying an exit termination fee or a minimum quantity term may be important to a supplier. Some smaller manufacturers may insist on such a provision before entering into an LTA with a buyer and they will not sign an LTA without a quantity term, thereby ensuring its enforceability. In that case, the kinds of provisions of information sharing that promote trust in the other party and reduce uncertainty through a learning by monitoring process in the LTA may not be as important, because the supplier is largely responsible for making a fungible commodity and the learning by monitoring is not as important. But it may be critical to have an enforceable contract that can offer protection against opportunism if things go awry due to the large investment in capital equipment.

If the volume is in the thousands or millions, supplier firms may be unwilling to do business without an LTA, but there are other instances in which parties forego an LTA. For suppliers manufacturing a one off (unique) piece of equipment when there are no continuing purchases, having an LTA or some other contract such as a purchase order that is legally enforceable and that covers the capital equipment will be the key issue.²⁴² For a one-time 3D printing order, a firm may forego an LTA.²⁴³ The only risk is that the supplier will not get paid for that item. In that instance, the transaction costs of negotiating an LTA are not warranted.

The decision about whether to enter an LTA with a quantity term may depend on the potential for a lost sunk cost if the contract is not enforceable. However, if the LTA is crafted by a large OEM, it may be drafted in a very pro-buyer fashion, with mandated cost reductions imposed on the supplier. The supplier will need to decide on whether the LTA offers enough value in terms of constraining opportunism by both the buyer and seller through switching costs that will offset some of the disadvantages of a continuing cost reduction percentage imposed on an annual basis by a buyer and the transaction costs of negotiating one.

B. Purchase Order by Purchase Order

Of course, there are alternative ways of doing business contractually outside an LTA. A supplier can deliberately choose to operate purchase order by purchase order, even with large OEMs.²⁴⁴ With the purchase order by purchase order (PO by PO) means of doing business, the supplier can attempt to introduce terms that are favorable to it and may insist on terms that deal with warranty, damages (particularly damages caps), insurance and indemnity, and disclaimers of liability. Those provisions may be critical for suppliers whose products are going to be used by buyers who will suffer large consequential damages if a part

²⁴² Interview

²⁴³ Interview

²⁴⁴ Interview

malfunctions and a factory is shut down or a catastrophic liability if a malfunctioning part causes an airplane to crash and parties to be injured. Suppliers who operate PO by PO may use informal mechanisms of adjustment that are extra-contractual, but in some instances the contractual provisions will be very important. Regardless of whether the supplier is signing an LTA or operating on a PO by PO basis, the supplier may insist on getting limits on damages and eliminating consequential damages.

The willingness to enter LTAs without a firm quantity requirement but with elaborate information sharing requirements or to enter an LTA with a firm quantity requirement may shift when asymmetric investments or large sunk costs are absent. In such cases suppliers may be less willing to undertake the negotiation costs of entering into an LTA or MSA. Instead, the supplier may opt to operate with a quote, that is, a purchase order and acknowledgement. This is particularly likely to be true when the supplier produces most of its products from a catalog and the buyers buy from the catalog. The supplier could sell its catalog products to others. In such cases, the supplier may insert terms that favor itself in its acknowledgement order that it hopes will govern the transaction should there be a dispute. It can control the content of the contract by rejecting terms that are in the buyer's purchase order and are harmful.

In cases where the sunk costs are low because the supplier is making a fungible item or where the co-design is very limited, the costs of the LTA may outweigh the benefits particularly when the LTA may contain negative provisions like mandatory cost reductions on an annual basis. The big threat that the supplier faces is that of the buyer renegeing after the supplier invests in large and expensive capital equipment. When that is not present, the risks for the supplier are lower.

In addition, there is always the risk that a buyer will falsely claim that the goods produced by the supplier are substandard or defective. But those risks can be managed by adjustments between the parties. The supplier can offer to replace defective products and pay for the cost of shipping in order to keep the buyer happy. Then as the relationship goes on the switching costs become real and that acts as a deterrent to the buyer falsely claiming defective products.

But even if the parties will often rely on informal adjustments, there will be provisions that a supplier operating on a purchase order by purchase order basis may insist on in the event that there is a lawsuit. One supplier has indicated that the most important provisions concern warranty, liability, damage caps, IP, insurance, and indemnity. These provisions are likely to be important when informal ways of solving problems have broken down and a lawsuit has been initiated. The lawsuit may be initiated by a third party who is suing the buyer for an airplane that blew up or a medical device that malfunctioned that contained a part manufactured by a supplier. In these kinds of circumstances, the liability caps and consequential damages provisions may be key.

C. Contract Manufacturer

Another alternative means of managing the exchange of goods occurs when the supplier chooses to protect itself by limiting its role to that of a contract manufacturer. It may take the blueprints of a medical supply company but refuse to put its insignia on the print or to deviate from the buyer's print in order to limit its own liability. The liability exposure with medical devices is huge and the supplier who coordinates on production of such a device may obtain protection by becoming the implementer of a drawing made by someone else. They may operate without an LTA in such cases. The absence of a stream of future orders would mean that the transaction costs of an LTA might not be worth it.

Finally, the supplier may coordinate with another party on the joint development of a product. But, instead of using an LTA, the supplier may instead protect itself and its investment through an intellectual property and licensing agreement with the other party.

In other cases, where the goods are not customizable and are out of a catalog, the parties may not use or need a network that results in an LTA and the absence of such a network may be optimal and efficient. "Ideal typical networks presuppose an organizational field characterized by a combination of unstable demand and either rapidly changing knowledge or complex interdependencies and (2) the embedding of economic activity in social institutions that simultaneously engender a continuous search for new information and safeguards against opportunism."²⁴⁵ When there are not "complex interdependencies," the investment in the sharing protocols of information may not be worth the transaction costs of negotiating the agreement.

D. Customizable Goods IP and Licensing Contracts

Even when the supplier does have large sunk costs and undertakes to create a customizable product with another partner, it may decide that it will protect itself against opportunism only with Intellectual Property protections in a contract and may forego using an LTA. In the case of a jointly developed product, it may be impossible to describe the product for purposes of a purchase order and the time horizon may be limited; the joint product development will end with the product being successfully created. By negotiating IP ownership rights, the supplier can protect its sunk costs and therefore does not need to enter into an LTA. It may not be able to describe the item with sufficient definiteness for either a purchase order or an LTA, but it can negotiate the ownership of the IP from the product that is jointly created. The question for further research is what are the

²⁴⁵ WHITFORD, *supra* note 29, at 156.

characteristics of a transaction that will incline a supplier to use IP for joint product development rather than an LTA. What can we learn from that choice?

Conclusion: Diversified Strategies

This Article suggests that because not all parties adopt the formal information sharing arrangements in an LTA, opting to operate purchase order by purchase order instead, the choice must be explained by some additional costs posed by these formal information sharing arrangements and the overall costs of an LTA. This Article suggests that the costs of such formal information sharing protocols and of entering an LTA might outweigh the benefits particularly where a long-term relationship reduces uncertainty about competence and trustworthiness, leads to a lock in effect and constrains opportunism, making the information sharing protocols unnecessary. Moreover, if the parties are part of a network of suppliers and buyers, they may be able to acquire information about the behavior of parties even without formal information sharing protocols. Moreover, where the supplier can easily resell to others, because the part is a catalog part not requiring large sunk costs, the need to secure a long-term commitment to recoup those sunk costs would be absent making the benefit of an LTA including one with information sharing protocols less beneficial particularly when such agreements often contain terms onerous to the supplier. In such cases, an LTA with sharing protocols may not be needed. Finally, parties may avoid such agreements because the very sharing protocols that facilitate informal enforcement by the buyer also can be subject to abuse by the buyer who appropriates shared information and gives it to a competitor of the supplier.

If the buyer today is dissatisfied with quality, it may refuse to buy but since the provision on quality is tied to the buyer's own metrics of excellence, a supplier would have difficulty suing a buyer for refusing to take its products.²⁴⁶ The resort would be to self-help rather than the judicial system. The supplier would be incentivized to meet quality or risk a loss of the future business.

The decision to operate purchase order by purchase order or by an LTA or as a contract manufacturer or as the potential owner of the intellectual property from a jointly created product seems to be deliberate. In some cases, a supplier will have to sign an LTA or risk losing the business of an OEM. In these cases, a supplier may not choose to enter an LTA voluntarily and may be unhappy with the terms of the LTA. In other cases, the supplier will resist signing an LTA, calculating that another method of exchanging goods may be optimal.

Choosing a purchase order as the means of doing business may make sense where the product is fungible. There, the costs of an LTA do not seem worth it. The supplier may be less worried about having the security of an LTA where it

²⁴⁶ This definitely gives buyers the upper hand. They do not necessarily have to invest in the resources (research and development) to make the part that they need, instead the supplier has to. And then the buyer does not even need to buy

can sell its catalog product to others. In addition, the long history with a buyer may obviate the need for an LTA since the trust generated from prior dealings may give both parties confidence that any matters requiring adjustment can be worked out informally.

Moreover, even without the benefit of an LTA, the supplier can exercise the kinds of informal reputational sanctions against a buyer who reneges and a buyer similarly can threaten to cut off future dealings with suppliers who furnish substandard goods even without resorting to legal remedies against the supplier. The ability to exercise such informal sanctioning is enhanced by being part of a network of suppliers and buyers.

The advantage of the LTA is that it has established mechanisms for sharing information. These mostly obligate the supplier to furnish information to the buyer including financial statements, to allow access to the supplier's plant, to participate in supplier training programs, and to furnish information about the supplier's costs. The constant exchange of this information gives the buyer confidence about the supplier's competence and reliability. When the goods are non-fungible, and the buyer depends on the products being up to buyer standards, these devices sharing information give the buyer a way to detect problems before they arise. They also eliminate errors due to supplier's misunderstandings about the buyer's requirements.²⁴⁷ Where the contracts are long-term and the buyer is depending on just-in-time production and low inventories²⁴⁸, the buyer cannot afford to sue suppliers who renege so these sharing protocols have value. Suppliers may choose to participate because they have no choice or because in doing so, and, in doing so, they furnish a credible commitment to the buyer of their worth and quality.

Professor Jennejohn has recently suggested that the presence of a veto power, another type of governance sometimes present in an LTA, is inconsistent with the braiding theorists since "the allocation of a veto would allow a party to unilaterally undercut the mutual investment in relationship-specific information that plays an important part in the braiding model."²⁴⁹ However, these veto provisions often concern ownership rights. In assessing governance mechanisms, of whatever type, the question is what provision will best achieve the parties' goals at the lowest cost. By giving a party a veto right, that is equivalent to a right to exclude,²⁵⁰ the party with a property interest can insure that that interest is protected. The presence of a veto right or unanimity insures that there is a clear rule as to who owned the foreground IP so that the matter of the new property that was the product of the collaboration could be properly recognized and the proceeds shared. Where a property right is at stake, the

²⁴⁷ Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 578.

²⁴⁸ WHITFORD, *supra* note 29, at 17-18 (discussing trend away from customers holding large inventory).

²⁴⁹ Jennejohn, *Innovation*, *supra* note 5, at 290.

²⁵⁰ *Id.* at 324.

problem is one that may not be solved by information sharing or informal enforcement that are effective tools in insuring the quality of goods. The matter of foreground IP rights should be established by a clear rule. It is hard to see how informal enforcement would be a means of enforcing a foreground IP right. Without the protection of a right to exclude, the incentive to collaborate on an innovative product would diminish. Professor Jennejohn sees the veto right as one that responds to a contractual hazard not previously addressed by the contract innovation theories. He identifies a spillover as a risk not previously recognized. He would therefore portray contracts as subject to multiple exchange hazards that may require different types of responses necessitating “a governance mechanism” or mechanisms that can mitigate those “multivalent” hazards.²⁵¹

In this Section, I have identified different types of arrangements for the sale of goods that parties may use to illustrate the idea that parties will choose the most cost-effective means of controlling contractual hazards. Unlike Professor Jennejohn, I do not see spillover as a risk that is fundamentally different from opportunism. Essentially, one party is worried that its property will be taken or exploited by the other party. However, I agree with Jennejohn that the choice of a controlling mechanism will be determined by the particular hazard that is faced and the cost of the controlling mechanism.

Presumably, parties will organize their exchanges to minimize transaction costs and frictions to increase the surplus generated. In evaluating whether the parties will adopt an LTA that is legally unenforceable, an LTA that is enforceable *ex ante*, or another strategy will depend on the fundamental question of whether the benefits of adopting the mechanism exceed the costs, given certain assumptions about human behavior. The Nobel economist Oliver Williamson argues that parties will choose their governance mechanisms in a way that will “attenuate opportunism” and thus create value for the exchange and increase surplus. A failure to remedy such opportunism will cost parties contractual surplus and thus they will use strategies to reduce that cost.

VI. Informal Reputational Sanctions without an LTA

The success of these alternatives to LTAs may depend on understanding that many of the parties will have a variety of strategies for dealing with uncertainties about the competence and reliability (another term for opportunism) of their counterparty. Some are contractual and some are informal mechanisms. They can operate in tandem and be complements. The LTA may be one means of solving problems when there are significant problems of uncertainty and opportunism. It may be a contract but also a form of economic governance that goes beyond the parties’ formal obligations. Some LTAs, by the way they

²⁵¹ *Id.* at 313.

promote information transfer, collaboration, transparency and trust in a learning by monitoring system facilitate a private extra-legal governance structure that is as important as the legal enforcement of the parties' obligations. Of course, informal enforcement can occur even without an LTA.

Even if there is no LTA, of course, the opportunism that operates as an omnipresent threat to exchange relations could be managed informally by threats to no longer do business or damage the other party's reputation in the industry. Thus, even without an LTA, informal sanctioning of one's counterparty is possible. These are the informal relational sanctions that have been studied by scholars like Stewart Macaulay and Ian Macneil.²⁵²

In the past, buyers would enter agreements and informally request information about supplier quality from other buyers or the suppliers or have the supplier pre-qualify before bidding or rely on the supplier's reputation. However, there were not as many formal provisions for suppliers sharing that information on a continuing basis. The information sharing or acquisition might have occurred informally rather than being the subject of a formal contractual agreement. Even though many provisions for information sharing are now orchestrated in a formal document, the provisions are largely self-enforcing. In older agreements, even without as many formal sharing information protocols, the consequences of displeasing the buyer were the same: the loss of business or a reputational sanction.

For decades, scholars have recognized that when suppliers and buyers had multiple informal ways of dealing with problems in the supply chain. As Macaulay recognized, the parties regarded suing their counterparty as a last resort. If there were problems with defective product, a kind of opportunism through shirking, they would raise the issue on a businessman to businessman level. Or they would agree to just give the buyer a credit for substandard goods. They might be part of a network of businesses that would furnish information about potential suppliers, which would solve the problem of asymmetric information. Parties could achieve the same confidence about their counterparty through repeated interactions with them. That would lower the uncertainties about their counterparty's competence, provide reassurance on their reliability and decrease their uncertainty about the proclivities of the supplier to act opportunistically. They could, without the benefit of an LTA, identify forms of misbehavior or shirking that would cause them to lower their estimation of a supplier.

So, in many cases, even without an LTA spelling out the information sharing protocols, buyers could secure this information in a variety of ways. They could investigate suppliers with other buyers in a network of buyers. They could ask suppliers to pre-qualify without putting these elaborate mechanisms in an LTA.

²⁵² See *supra* note 36.

If parties were operating purchase order by purchase order, there would be really no need to make the obligation to buy going forward conditional on meeting the quality standards. Instead, the purchase obligation evidenced by the purchase order itself would be made contingent on the supplier meeting the standards in the quality manual.

In many cases, those threats may be more than adequate to do the job, especially if parties are in a close knit relational group such as buyers and sellers in the diamond industry. But, if there is a dominant market player, like Boeing, those threats may not be as powerful and the presence of a dominant player may make informal sanctioning less likely. In addition, the threat to not do business with another party as kind of reputational sanction will be more attenuated or less believable if the party lacks information. Plus, in more heterogeneous markets, the relational informal sanctions may be less effective because gaining information or sanctioning more remote players may be more difficult. The LTA levels the playing field by requiring the sharing of information that makes it possible to gain the information that is the basis for either a reputational sanction or some kind of other self-help remedy afforded within the LTA itself. So, while informal sanctions can operate as a governance mechanism without an LTA, LTAs can enhance the effectiveness of such informal devices.

It is important to note that parties entering arrangements of whatever type often resort to legal remedies only as a last resort. That was true 50 years ago and is true today. It is therefore not surprising to find informal governance as much a part of LTAs as they are also part of supply chains that are not governed by LTAs.

VII. Network Governance

Regardless of whether parties contract using an LTA with information protocols or operate purchase order by purchase order, suppliers and buyers may have other mechanisms for informal enforcement. One device comes from being part of a network that creates “structural social capital.”²⁵³ A firm can be part of close network, even if they are not part of a close relational contract that allows them to share information, which may allow them to sanction counterparties. This may be the case if they are part of a network which has been defined as “a set of connections between individuals or between organizations (here, firms).”²⁵⁴ Of course, if LTAs exist with information sharing mechanisms, the adversely affected party could share information about a supplier’s (or a buyer’s) misbehavior with the network and thereby impose reputational sanctions broadly — even beyond any relational contract that may exist. “When these connections

²⁵³ Bernstein, *Beyond Relational Contracts*, *supra* note x, at 565.

²⁵⁴ *Id.* at 599.

exist ‘they establish[] a link that lowers the costs (or raises the accuracy) of subsequent communication.’”²⁵⁵

The presence of a network could affect whether a firm decides to enter into the formal information sharing protocols in a modern LTA. If a supplier or buyer is part of a network, it might be able to obtain information without the formal information sharing contract provision in an LTA. Presumably, there is nothing that would constrain a member of a network from complaining about opportunistic behavior or misbehaviors even without an LTA with information sharing protocols. Thus, being part of a network could possibly lessen the need for an information sharing protocol in an LTA. Presumably, firms would weigh the benefit of having the information generated by the LTA and the information that could be accessed through a network and then decide whether the costs of negotiating an LTA are outweighed by additional informational benefits not available by merely being part of a network.

Firms can be ranked on how close they are in terms of proximity and centrality. “Two firms are said to be more proximate ‘when fewer intermediaries separate two counterparties.’”²⁵⁶ These connections to other firms can provide an alternative form of private governance. The connections in a network allow the firms to circulate information about others in the network. These networks can be so effective as a source of information which can sanction others in the network for misbehaving that they can substitute for other protective devices that parties might use. In the biotech sphere, parties are likely to use equity to control behavior by agents such as founders of a firm. But, such equity participation declines when the biotech firm’s position in a network is central.²⁵⁷ Thus, the party can control opportunism through equity participation or through having a network position. The network position provides a way of sanctioning anyone who behaves opportunistically and that deters wrongdoing so there is less need to assume an equity position to control such wrongdoing through an ownership stake. The fact of the decline in equity participation in biotech firms that are “deeply embedded”²⁵⁸ in networks demonstrates that the network provides a means of controlling opportunistic behavior that may be less costly and more effective for the firm.

The network has significant advantages because it works in situations that might otherwise present challenges for a network acting as a sanctioning mechanism. Sometimes information about a strategic partner is not in the public domain and

²⁵⁵ *Id.* at 599 (explaining that when firms are closer proximity the equity stakes decrease, because the firms have more information about the others reputation and abilities and because a larger firm would be able to more easily sanction a smaller firm).

²⁵⁶ *Id.* at 600.

²⁵⁷ Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 600.

²⁵⁸ *Id.* at 600.

at other times the problem is the opposite one of having “noisy” information.²⁵⁹ Studies suggest that networks can overcome these obstacles and transmit information within and impose sanctions on the basis of information that a court could not rely on to act. This would be true if the information were not observable or verifiable.²⁶⁰

These networks can function to sanction both misbehaving suppliers and misbehaving OEMs or buyers. OEMs who are part of a network may find information about their bad behavior travels easily within the network and cost them reputational damage. Suppliers too can be constrained by the fact that buyers who are in a network can access information about suppliers from others in the network.

The presence of a network is not a creation of or product of an LTA with an information sharing protocol. The LTA may operate in conjunction with a network and facilitate sanctioning by information transmission about failures of a party to an LTA to cooperate with some of the provisions. A buyer could tell others in the network of a supplier’s failure to permit a plant inspection required by an LTA. The LTA could require such access but the likelihood that the buyer could rely on such failure to successfully sue the supplier would be slim due to an inability to show damages.²⁶¹ But, the buyer could cite such non-cooperation as behavior deserving to be worthy of comment and that could help the buyer to deter misbehavior that did not amount to an infraction that warranted a legal sanction.

The presence of these networks could presumably operate even without an LTA. Suppliers and buyers who decide not to sign an LTA and are operating purchase order by purchase order could still rely on a network as a means of transmitting information about the other party to those in the network. The LTA, however, by providing a series of steps suppliers might take, might provide more sources of information about misbehaviors that could be transmitted through the network, even if the misbehavior did not warrant a lawsuit. But the network could also be used by suppliers and buyers to transmit information about behaviors that one party found objectionable, regardless of veracity. The advantage of a network is that the information need not be verifiable to a court. It is possible that even parties adopting another means of exchanging goods could use a position in the network to transmit information with a resulting

²⁵⁹ See Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 601-2 (the “information that is publicly available--namely outcomes--is too noisy to convey useful information to putative contracting partners given the low probability of success in such ventures and the wide variety of reasons they fail.”)

²⁶⁰ *Id.* at 602.

²⁶¹ *Id.* at 603.

adverse reputational cost to the other party. Alternatively, being part of these networks could result in positive reputational gains.²⁶²

VIII. Network Failures. Why Should We Care About Network Failures?

Regardless of whether the supplier and buyer enter into an LTA or some other means of exchanging goods, such as purchase order by purchase order, all of these exchange relations will be subject to stresses and possible opportunistic behavior and will be subject to breakdown. A pattern of what one scholar calls “hedging”²⁶³ may emerge.

The Article will look at why the networks set up by LTAs with information sharing sometimes fail or suffer from “partial”²⁶⁴ use and why those failures might cause parties to seek other arrangements or might prompt them to refuse to enter into the LTAs initially. These failures are undertheorized.²⁶⁵

Thus, in studying framework contracts, one should be aware not only of the role of informal enforcement but also of some granular analysis of why with LTAs with information sharing protocols networks fail or underperform. When are the framework agreements likely to be unstable? These arrangements are not static. They may solve some specific problems, respond to problems of unstable demand, and dispersion of knowledge and cost pressures. But they may underperform because they are subject to same frictions as all exchange transactions like opportunism and partner unreliability. The “virtuous circle”²⁶⁶ of the informal mechanisms constraining opportunism by increasing switching costs by the buyer and seller may not work.

Studying failure gives us a window into how parties may react to some of the threats in a framework contract, which is valuable to a lawyer advising a client about participating in a network contract. Understanding how LTAs can unravel and understanding how parties react to possible frictions in the relationships can be useful to advising clients, because it can measure the risk of entering into such arrangement.

²⁶² *Id.* at 604-605 (demonstrating a network of firms through a diagram; and, explaining that when there are more connections between firms, reputational information about the firms flows easily through the market).

²⁶³ John Deere giving out a supplier of the year award. And due to John Deere recognition, this award was prestigious, at least within that “network.” *Id.* at 583.

²⁶⁴ WHITFORD, *supra* note 29, at 100

²⁶⁵ Josh Whitford, *The Anatomy of Network Failure*, 29 SOC. THEORY 151, 152 (2011).

²⁶⁶ WHITFORD, *supra* note 29, at 99.

Why is there only partial adoption of framework contracts?²⁶⁷ Why is there hedging by both parties even when they are in an LTA? Part of the reason for partial adoption comes with the misuse of information by the buyer.²⁶⁸ In an ideal world the supplier shares information on cost reductions through innovation at the supplier level and that helps the buyer gain better pricing. But, if the buyer misuses the supplier's information by sharing the supplier's innovations with competitors, the supplier will hesitate to share information.

A supplier may cut back on sharing information on technology or cost. It will "muddy the waters."²⁶⁹ It will not share cost reduction information in a timely fashion for fear that it will just be subject to additional demands for cost reductions. So, a provision that was designed to achieve cost reductions and promote "sharing rules" may be subject to hedging by a supplier who cannot continually meet cost pressures imposed by a buyer.

There is thus a spectrum of success in how the cooperative mechanisms flowing from information sharing protocols are implemented. The framework contracts are not a perfect system; they are not static. Interfirm agreements are subject to the same pressures and contractual hazards as all exchange transactions. Whether they survive depends on whether the benefits from joint collaboration outweigh the costs.

Survival will also depend on whether the parties invest in coordination in the joint effort, as in the Boeing Dreamliner case where Boeing tried to cut costs by outsourcing more of the work to external players. Boeing relied on 50 tier I suppliers to play major roles in assembling different parts of the airplane.²⁷⁰ Major coordination problems with the suppliers developed and led to delays and major problems. Boeing eventually took over one of the tier 1 suppliers and vertically integrated with it.²⁷¹ So in representing a buyer who wants to outsource, a lawyer may want to build in as many points of contact as possible to ensure that there is likely to be adequate coordination between the two firms.

Interdepartmental strife can foster "supplier confusion"²⁷² and contribute to network failure. There are cross pressures built into firms between the purchasing department which wants to cut costs and engineering which wants the next new innovation and wants the alliance to succeed.²⁷³ These are hard to eliminate and suppliers should be aware of the cross pressures that might result and explain the risk.

²⁶⁷ WHITFORD, *supra* note 29, at 100 (discussing partial use of networks in response to opportunism).

²⁶⁸ *Id.* at 103.

²⁶⁹ *Id.* at 103-4.

²⁷⁰ Tang et al, *supra* note 84, at 77-8.

²⁷¹ *Id.* at 75.

²⁷² WHITFORD, *supra* note 29, at 115.

²⁷³ *Id.*

IX. The Importance of Contract and Legal Enforcement Remedies: What Role Should Courts Play?

The informal extralegal governance of parties' exchanges in the supply chain context and the breakdown or partial adoption of such informal governance force us to consider both the limits of legal controls and the limits of informal governance. In considering the prevalence of informal enforcement, contracts scholar Stewart Macaulay asked "Why does business ever use contract in light of its success without it?"²⁷⁴ Macaulay's insights on the limits of legal enforcement derived from his seminal studies of Wisconsin manufacturing businessmen where he found they rarely invoked the law.²⁷⁵ When is it dysfunctional to invoke the law and when is it functional to resort to contract law enforcement? How, if at all, does the diversity of arrangements, the parties' goals, and the uncertainties they face affect that question?

This Article demonstrates that parties utilize a variety of arrangements. Some are enforceable legally, others, like LTAs without a quantity term, are not enforceable until the first purchase order is made. Of course, the cost of lawsuits is prohibitive, and informal enforcement by the parties exists even if the supplier and buyer operate purchase order by purchase order with legally enforceable terms, since the parties rarely resort to invoking these terms by suing a counterparty. Often, parties will rely on informal practices to sort out problems that arise during the supply contract—for example, entering into informal arrangements for defective products. A supplier may allow the buyer to return products worth \$20,000 per each delivery period even without the buyer's actually returning the goods for inspection by the supplier.²⁷⁶ The cost of the supplier's examining the goods for defects does not warrant the return shipping costs buyer would need to incur. Thus, an informal arrangement may occur where the buyer can get a prearranged reduction from its invoiced amount.²⁷⁷ This informal practice might be similar to a more formal provision in an LTA that relieves the buyer of an obligation to buy if the goods do not meet a particular quality metric.²⁷⁸

Whenever there is a pattern of informal enforcement, the question that arises is what the role of the court should be. Should it lend legal enforcement and, if so, to which parts of the parties' arrangements when there is a breakdown?²⁷⁹ Should

²⁷⁴ Macaulay, *supra* note 36, at 62.

²⁷⁵ *Id.*

²⁷⁶ Interview 2/22.

²⁷⁷ Interview, 2/22

²⁷⁸ See Kraft MSA Section 8.3

²⁷⁹ Lisa Bernstein has raised an analogous question in the context of relational contracts. If the informal norms break down, should a court continue to enforce these relational norms? She suggests no since the relational norms have broken down and been replaced by end game norms.

the fact that there are formal provisions in the newer LTAs that help promote informal enforcement affect the assessment of whether legal enforcement should be available and, if so, to what extent? Should the court limit itself to imposing low powered sanctions, as the contract innovation scholars suggest,²⁸⁰ or should it impose high powered sanctions and, if so, of what type and why?

The general expectation in most contracts is parties will rely heavily on informal enforcement to ensure parties adhere to their contractual obligations. If parties adopt informational protocols that make informal enforcement easier and less costly, and the transaction costs of adoption are justified by offsetting benefits, have the parties fundamentally changed expectations about when and to what extent legal enforcement will be available? Even with LTAs that may facilitate informal enforcement, there will be contractual provisions that deal with issues such as indemnity, damage limitations, warranty limitations, and indemnity for loss to third parties. And, if such provisions are not covered in the LTA, they may still be contained in a purchase order. These provisions will be important if the relationship breaks down because of the misuse of information by the buyer, failure of the braiding mechanisms, or if the supplier or buyer is sued by a third party regarding a product that the supplier has sold to a buyer. So, parties entering into contracts, even when they fully expect that most disputes will be resolved by informal means, certainly do not forego the right to legal enforcement. One interviewee stated that the most important provisions in any purchase order are warranty, indemnity, liability caps, and IP provisions.²⁸¹

The fundamental question facing courts is what kind of enforcement is appropriate if some provisions are, at least partially, enforced by informal means. Answering that question requires an understanding of the effects of legal enforcement when parties have informal mechanisms for enforcing their obligations. Some scholars postulate that legal enforcement would “crowd[] out” informal enforcement.²⁸² Other scholars have argued that legal enforcement can complement informal mechanisms and thus add value to the exchange.²⁸³

The braiding contract theorists who emphasize informal enforcement, information sharing protocols, and the potential for crowding out argue that courts should and do play a limited role in legal enforcement.²⁸⁴ They argue courts should enforce only the part of the LTA contract that leads to braiding, such as the information disclosure protocols, and should restrict themselves to

Lisa Bernstein, *Merchant Law in a Merchant Court: Rethinking the Code's Search for Immanent Norms*, 144 U. PA. L. REV. 1765, 1796 (1996) (discussing end game norms as precluding incorporation of preexisting relational norms that preceded the breakdown of the relationship).

²⁸⁰ Jennejohn, *Innovation*, *supra* note 5, at 357.

²⁸¹ Interview 2/22

²⁸² Jennejohn, *Innovation*, *supra* note 5, at 295.

²⁸³ Gilson, et al, *Braiding*, *supra* note 3.

²⁸⁴ *Id.*

enforcing such protocols, perhaps by issuing an injunction.²⁸⁵ Under this theory, courts should not enforce high powered sanctions, at least in settings involving collaboration on an innovation, since awarding expectation damages would necessarily sanction a party for the failure to reach the ultimate agreement. The argument is that there is no crowding out if the court declines to issue high powered sanctions but there would be crowding out if the court interfered with the “maintenance of the collaborative protocols.”²⁸⁶ The courts should leave the “collaboration protocols established by the parties...entirely within the province of the internally generated, informal enforcement mechanism.”²⁸⁷ Thus, if a party fails to share information, there would be a low powered sanction. Even under this approach, when the parties have deliberately breached the collaborative agreement to share information, and engaged in “a secret alternative process that undermined the trust...generated through braiding,”²⁸⁸ then the court should police breaches of those obligations but should limit recovery to reliance damages. Expectation damages should not apply.²⁸⁹

This argument for low powered by scholars is premised on the idea that there are two parts to these contracts: 1. the information braiding and 2. the production of an actual product. For example, when big pharma companies collaborate with small biotech firms, contract innovation scholars argue that courts should be reluctant to grant a high powered sanction which would sanction a party for the failure to produce the ultimate product envisioned by collaboration because it would be an “attempt to regulate the nature or course of collaborative interactions.”²⁹⁰

These contracts combine “information exchange and dispute resolution mechanisms that support the informal contract—governing the search for a product—and the high powered formal contractual regime—governing a product's commercialization—which prevent the formal incentives of the latter from crowding out the informal behavior induced by the former.”²⁹¹ The sanctions for the breach of the formal nested options for commercialization will not crowd out the informal sanctions since they cover separate matters. The danger of crowding out occurs when a court administers a legal sanction for

²⁸⁵ Jennejohn, *supra* note 5.

²⁸⁶ Gilson et al., *Braiding*, *supra* note 3, at 1418.

²⁸⁷ *Id.*

²⁸⁸ *Id.*

²⁸⁹ *Id.* at 1416.

²⁹⁰ *Id.* at 1418. For a similar reason, courts would decline to enforce a purchase obligation when the supplier did not meet the excellence standards set by the buyer. In each case the initial contract would not predict in the case of a supply chain, if the supplier would meet the final target of quality and in the case of an innovated product, whether it would ever be produced.

²⁹¹ *Id.* at 1409.

breach of what had been governed by an informal norm,²⁹² thereby potentially undermining it.

Thus, in any case, where there is informal enforcement as in the supply chain, the question is what legal sanctions could or should be imposed without increasing the danger of crowding out informal norms. Resolution requires that the crowding out evidence must be assessed. Only then can we decide if the crowding out thesis should be applied to the supply chain for goods more generally and, if so, what implications would crowding out have for questions of legal intervention.

In some ways, examining the collaboration for innovation—with its neat separation of the iterative sharing of information from the contract provisions for the final product—makes this analysis too easy to conclude that high powered sanctions would be inappropriate since that means awarding expectation damages that should only be obtained for the final product. The question is whether there is any basis for awarding high powered damages for conduct during the iterative exchanges. That inquiry has the most relevance for supply chain governance, as there are no nested options that neatly separate production of a final product from the iterative process that is governed mostly by informal sanctions.

The first question with this is whether the evidence for crowding out is persuasive and relevant to non-experimental, real-life settings. Because arguments against enforcement of informal norms depend on experiments, they may have limited applicability to actual, non-experimental settings. These experiments study the effect of imposing a legal sanction to govern conduct breaches previously regulated by an informal norm.

One study evaluated the effect of imposing a fine on parents who pick up their children late from daycare when picking up their children in a timely fashion was previously governed by an informal norm.²⁹³ The study showed that the fine decreased compliance with the agreed on pick up time, which is a “performance obligation.”²⁹⁴ The study showed that the fine decreased compliance with the agreed on pick up time, which is a “performance obligation.”²⁹⁵ Higher compliance resulted when parents regarded compliance as a norm to be adhered to rather than a sanction to be avoided.²⁹⁶ This reduction in compliance may be because in settings where community norms are powerful, norms may be a low cost way of achieving the parties’ goals. Because norms are a low cost, efficient way to achieve a desired outcome, switching to a less

²⁹² See Gilson, et al, *Braiding*, *supra* note 3, at 1400. See Iris Bohnet, Bruno S. Frey & Steffen Huck, *More Order With Less Law: On Contract Enforcement, Trust and Crowding Out*, 95 AM. POL. SCI. REV. 131 (2001).

²⁹³ *Id.*

²⁹⁴ *Id.*

²⁹⁵ *Id.*

²⁹⁶ *Id.*

efficient—in this setting—method of policy enforcement through sanction may have necessarily reduced compliance.

The arguments for crowding out based on this day care study have several limitations. First, the fine was misinterpreted by the parents as a license to be late. The fine gave the wrong incentive toward creating or reinforcing a norm of being on time. A fee that is viewed as a cost does not crowd out a norm; rather it moves the norm in the wrong direction. Had the authors of the study picked a different penalty, such as barring a child whose parent was late, then the penalty would have fostered a norm of being on time. The fine imposed simply fed into the parents' self-interest in being late.

Second, the arguments of crowding out are built on an assumption of a zero sum game in which we have either informal and unenforceable norms or we have litigation. Gilson, Sabel and Scott separate norm enforcement from exchange: “the parties’ behavior will change depending on whether they understand their interaction as norm based or exchange based.”²⁹⁷ Yet, every contract is exchange based and the parties will make adjustments within that exchange to new realities and doing so is a positive sum game as long as they share a perception of what their interests are and how to balance them against another’s to keep the relationship going. They negotiate in the shadow of legal intervention. If both parties share predictions about what judges would do, then the possibility of legal intervention will increase cooperation. If one party steals another’s valuable research, then the idea is that a lawsuit would be available. One party would be taking action that makes another party worse off. In such cases it is the right to sue that keeps the partners within reasonable bounds. The potential for lawsuits encourages partners to be reasonable (assuming that judges can identify which party is being unreasonable²⁹⁸) and their rules will induce (crowd in) reasonable accommodations and crowd out opportunism.

Moreover, arguments for crowding out showing sanctions induce less compliance are misplaced for another reason. Weak sanction threats actually induced less compliance than cases involving no sanctions; however, high powered sanction threats did not result in reduced compliance, actually more compliance.²⁹⁹ It seems formal sanctions cause the trustees to experience a “cognitive shift” and make them “relatively more likely to make income-maximizing decisions.”³⁰⁰ So, while crowding out of informal norms may occur

²⁹⁷ Gilson, et al, *Braiding*, *supra* note 3, at 1400.

²⁹⁸ See Peter M. Gerhart and Juliet P. Kostritsky, *Efficient Contextualism*, 76 U. PITT. L. REV. 509 (2015). *But see* Scott and Kraus.

²⁹⁹ Daniel Houser, Kevin McCabe & Vernon Smith, *When Punishment Fails: Research on Sanctions, Intentions and Non-Cooperation* 21 (June 8, 2005) (unpublished manuscript available at <http://ssnr.com/abstract788204> Increased compliance took this form: likely to return the requested amount.

³⁰⁰ *Id.* At 21.

and result in *less intrinsic* compliance with norms, the effect of sanctions does not necessarily result in the reduced compliance seen in the daycare setting.³⁰¹ Moreover, these experimental studies are based on gift exchanges involving only one exchange with no possibility of repeat play, and even they demonstrated that severe sanctions could induce greater compliance—albeit, with greater variance.³⁰²

Questions still remain about how the threat of formal sanctions that are not weak will operate in an actual non-gift setting, where repeat play or access to a network might be possible. One should not necessarily conclude that sanctions in the supply chain context will result in reduced compliance, as even these studies show the amount of compliance depends on the severity of the threatened sanction. Furthermore, the cognitive shift moving parties away from interior norms to income maximization may still result in greater net benefits to the parties.³⁰³ Should we necessarily be worried if sanctions move parties away from interior compliance? Norms and interior remedies are a response parties use to minimize costs and increase surplus from an exchange. The tradeoff between interior enforcement and external enforcement may change depending on the cost calculus.

Concerns about crowding out informal enforcement norms might also be misplaced for another reason. Informal enforcement of a pre-existing norm depends on a norm, such as truth telling, that parties have developed that can “constitute a bedrock of virtues that facilitate all exchanges.”³⁰⁴ Norms are powerful practices, such as a set of “cultural rules of behavior.”³⁰⁵ One such norm was a default rule that governed the Maghribi traders when the contract with an agent was silent.³⁰⁶ It defined proper agent behavior in agency relations and constituted an institution that “promoted efficiency by providing a coordination device necessary for the functioning of the coalition [of merchants], economizing on negotiating cost and enabling flexibility in establishing agency relations.”³⁰⁷

The informal enforcement that results from the information protocols may not actually amount to a norm constituting an institution or a way of solving problems, such as honesty. Informal enforcement based on shared information might cause a buyer to refrain from buying goods under an agreement that permitted buyers to decline to buy goods that did not meet its quality standards.

³⁰¹ *See infra*.

³⁰² Houser et al., *supra* note 297, at 26.

³⁰³ *Id.* (discussing “higher expected return but with increased variance” when punishment increased).

³⁰⁴ Kostritsky, *Norms*, *supra* note 23, at 486.

³⁰⁵ Avner Grief, *Contract Enforceability and economic Institutions in Early Trade: The Maghribi Traders’ Coalition*, 83 AMER. ECON. REV. 525, 543 (1993).

³⁰⁶ *Id.* at 543.

³⁰⁷ *Id.*

It might permit a buyer receiving the information to benchmark problems in production so as to make better products. But such a way of informally enforcing standards and solving problems while withholding any resort to legal enforcement seems to fall short of a norm that would result in collective punishment enforced by all who subscribed to the norm. Instead, the informal enforcement amounts to a kind of self-help for a single party. If looked at in this way, research suggesting that norms would be displaced by formal enforcement, and therefore the experimental studies on crowding out norms, may not be relevant in deciding if formal enforcement is justified.

Even if one accepts (1) that crowding out can occur when the law sanctions—perhaps with a weak fine—conduct that is subject to a pre-existing norm, (2) that those results could carry over to exchanges in the supply chain, and (3) agrees with the contract innovation scholars that a high powered sanction that tries to regulate the final product is inappropriate since it is not clear what the ultimate product will be,³⁰⁸ that does not resolve whether, why and when a court should intervene beyond enforcing information protocols or go beyond such low powered sanctions.

In deciding on legal enforcement, this Article suggests reframing the argument about whether to impose high or low powered sanctions slightly differently. When parties draft any provision in a contract, the provisions are often designed to control certain risks/hazards that are inherent in any exchange. Some information sharing protocols are there to deal with the problems of uncertainty about the future behavior of the supplier: will it be compliant and meet standards of excellence or will it instead engage in shirking?³⁰⁹ Other uncertainties involve whether the supplier will be able to meet cost reduction goals and lower prices over time? In the big pharma context or another collaborative joint venture, the information protocols help reduce uncertainty about the other party and offer assurance that each party will invest in developing or funding a project. Without the informational protocols to reassure parties of such reciprocal investments, a party might be reluctant to make the initial investment. The provisions that have suppliers participating in excellence contests and gaining training on the buyer's needs are all devices that the buyer implements to deal with the uncertainty about the supplier's future behavior. These provisions may also have the effect of raising switching costs and making informal enforcement possible as the parties learn more about each other and learn to trust one another. There may be a build-up of social capital and informal enforcement.

³⁰⁸ Gilson et al, *Braiding*, *supra* note 3, at 1402.

³⁰⁹ Ronald J. Coffey, discussing “propensity to diverge” as a form of shirking. Email from Professor Ronald J. Coffey to Juliet P. Kostritsky, Professor of Law, Case Western Reserve University School of Law.

But courts should recognize that these framework contracts governing interfirm exchanges are subject to the same frictions and stresses that afflict every exchange, such as opportunistic behavior, that are difficult to control by contract. And when the relationship breaks down, informal enforcement may no longer work since it is an end game situation.³¹⁰ When parties adopt provisions for indemnity, or third-party dues, or a damage cap, they are specifically contemplating a situation where a lawsuit has occurred. All are end game situations. In such cases, the expectation would be that all legal sanctions would be available. If the parties have not ruled out a resort to the judiciary,³¹¹ it would seem that courts should be willing to intervene when the informal norms are not working to constrain a breach of a contractual obligation that does not relate solely to the informational protocols or is a blatant abuse that will deter investment.³¹²

The issue should be whether the law should supplement the informal enforcement. To answer that, analysts should consider that both norms and laws develop to solve problems and permit society and the parties to thrive while minimizing costs. Laws and norms are both “different ways of achieving those ends.”³¹³ Intervention with law might be appropriate where some parties adhere to inefficient norms³¹⁴ or norms that are ineffective or degrading.³¹⁵ Would the law be able to intervene to achieve those goals without causing costs that outweigh the benefits of intervention?

The question for courts is “whether the non-governmental means are effective and self-enforcing.”³¹⁶ “The government should use an analysis based on which

³¹⁰ Lisa Bernstein argues against the incorporation of “relationship preserving norms” in an end game situation. Relationship preserving norms “are clear and well-developed, they may be quite different from the terms of transactors' written contracts, which contain the norms that transactors would want a third-party neutral to apply in a situation where they were unable to cooperatively resolve a dispute and viewed their relationship as being at an end-game stage (“end-game norms,” or “EGNs”). Bernstein, *Merchant Law in a Merchant Court*, *supra* note 279, at 1796.

³¹¹ In some cases, parties do rule out a resort to the judiciary. “The diamond industry has systemically rejected state-created law.” See Lisa Bernstein, *Opting out of the Legal System: Extralegal Contractual Relations in the Diamond Industry*, 21 J. LEGAL STUD. 115 (1992).

³¹² Of course, in devising a sanction, courts might consider research that shows that weak sanctions might result in lower compliance. Daniel Houser, Erte Xiao, Keven McCabe, & Vernon Smith, *When Punishment Fails: Research on sanctions, intentions and non-cooperation*, Vol. 62 Issue 2 GAMES AND ECONOMIC BEHAVIOR 509, (2008).

³¹³ Kostritsky, *Norms*, *supra* note 23, at 481.

³¹⁴ *Id.* at 503 (discussing dueling norms).

³¹⁵ Eric A. Posner, *Law and Social Norms*, *The Case of Tax Compliance*, 86 U. VA. L. REV. 1781, 1787 (2000).

³¹⁶ Kostritsky, *Norms*, *supra* note 23 at 481.

law or which combination of law [including legal enforcement] would be most effective in cost minimization and achievement of parties' goals."³¹⁷

Sometimes the law's intervention will result in achieving goals and solving externalities with cost minimization. If a law is passed that regulates dog litter, passing that law will empower informal enforcement.³¹⁸ Without a law regulating the conduct, it will be difficult to control the externality because of collective action problems³¹⁹ and the cost and difficulty of identifying peripatetic violators. The law's adoption will unleash informal norms. Thus, the law and norms operating together can lower the cost of achieving certain goals—like less dog litter at the lowest cost.

If the conduct is blatant opportunistic action, as in *Emisphere*,³²⁰ then the answer as to whether the law should intervene is yes. The question is what we can learn from *Emisphere*'s outcome? What does the court's willingness to sanction Eli Lilly for misappropriating research done by its partner biotech company for their joint benefit for Eli Lilly's sole use mean? Why did the court intervene with a sanction when the informal enforcement mechanisms did not suffice to constrain that behavior? Why did it award the patent to the biotech company when there had been a blatant misuse of the its research?

One lesson from *Emisphere* is that when (1) informal mechanisms are not enough to constrain opportunistic behavior, (2) there is a breakdown and informal norms are no longer functioning, and (3) the court can easily and at a low cost intervene to sanction opportunistic behavior because the behavior is *such* a blatant a breach of trust, the court will do so.

But this would not be the case if the intervention would be costly. If one party, such as a buyer, uses cost information to pressure the other, the supplier, to reduce its prices, it would be hard for a court to determine if that use of information was opportunistic. Thus, the most appropriate method for controlling the misuse of such information is hedging by the other party, who

³¹⁷ *Id.* at 494.

³¹⁸ *Id.* at 502-03.

³¹⁹ The New Palgrave A Dictionary of Economics considers a collective action as when "individuals in some group really do share a common interest, the furtherance of that common interest will automatically benefit each individual in the group, whether or not he has borne any of the costs of collective action. Thus the existence of a common interest need not provide any incentive for individual action in the group interest." *Collective Action*, 1 New Palgrave Dictionary Econ. 474 (1st ed. 1987).

³²⁰ See *Eli Lilly & Co. v. Emisphere Techs., Inc.*, 408 F. Supp. 2d 668 (2006), 2006 U.S. Dist. LEXIS 23245 (S.D. Ind. Apr. 25, 2006) where "the court granted Emisphere's request for specific performance and required Lilly to assign the rights to the patents at issue to Emisphere." Jennejohn, *Innovation*, *supra* note 5, at 357.

withholds information in response to what it perceives as a misuse of information.

But if the buyer expropriates the supplier's property, a court should enforce full expectation damages. That is essentially what the court granted Emisphere, when it issued an injunction against Eli Lilly and granted Emisphere a patent where it was clear that Eli Lilly had appropriated the research work of Emisphere to gain its own patent. The court's willingness to assign Emisphere the patent does not, as Professor Jennejohn suggests, appear to constitute a low powered sanction.³²¹

Gilson, Sabel, and Scott argue that the court still imposed a low powered sanction because it did not interfere with the braided mechanism where informal sanctions were working, but rather sanctioned conduct that "undermined the trust that was in fact generated through braiding."³²² Gilson, Sabel, and Scott seem to want to leave the informal enforcement protocols intact and would allow intervention only when the action fell outside braiding because it "undermined the trust."³²³ But the question is why and when legal enforcement should be applied when informal devices break down.

Jennejohn explains the court's willingness to award the patent to Emisphere as a high-powered sanction, not a low powered sanction, and as a response to the separate problem of spillover, not covered by informal enforcement, thus making the need to protect any braiding irrelevant.³²⁴

Jennejohn's argument for broad enforcement of LTAs says that, in considering a legal response, one must consider that these LTAs are comprised of many provisions. There are formal contract provisions in these agreements to control certain distinct risks like spillover, which is a kind of expropriation of property. Since a provision designed to prevent a particular problem is not there to promote informal enforcement, the way the information sharing protocols are, then there is no reason for a court to withhold legal enforcement of the provisions, and it should grant full expectancy recovery.

There is another way to look at the issue of the appropriate level of sanctions. Courts should not be limited to enforcement of the information braiding protocols. They are there to deal with uncertainties and to control certain problems for parties (uncertainties about shading/quality of product) but sometimes whatever the protocols, whatever the arrangement, one party will act opportunistically at the expense of the other even when they have agreed to information sharing protocols that ideally will promote trust and social capital. Enforcing a contract that has provisions that may promote informal enforcement does not mean the parties intend to take legal enforcement off the table. And, in

³²¹ Jennejohn, *Innovation*, *supra* note 5, at 357.

³²² Gilson et al, *Braiding*, *supra* note 3, at 1418.

³²³ *Id.*

³²⁴ Jennejohn, *Innovation*, *supra* note 5, at 358.

many LTAs, or in the purchase order that references or incorporates the LTA, there are important provisions intended to deal with contingencies when there is a lawsuit. Those should be enforced, as should the provisions related to distinct risks. For example, a court should enforce provisions about the expropriation of property that's boundaries may be uncertain or provisions to constrain opportunistic behavior that amounts to “red-faced cheating,”³²⁵ which cannot be controlled by the express information sharing mechanisms. Even though both Jennejohn and Gilson, Sabel, and Scott agree with some level of intervention (Jennejohn because of the distinct risk posed by spillover, and Gilson, Sabel, and Scott because intervention would still leave the informal enforcement structure intact and separate from a cheating situation), there may be another way to justify intervention that uses a different approach, one that is consistent with achieving the parties’ goals of controlling opportunistic behavior while minimizing costs.

The approach suggested here based on transaction cost minimization for achieving parties’ goals is broad enough that it could be used in a variety of settings. It should not matter whether we allow court enforcement that extends beyond informal enforcement because we decide that the conduct is outside of the properly functioning informal sanctions or because we call it a distinct risk, such as expropriation. What matters is that there is some conduct that cannot be controlled by contract or by informal sanctions when the gains from opportunistic conduct are large. In such cases, the parties would want to control that conduct if doing so can be done in a cost-effective way. When the breach of trust is blatant, as in *Emisphere*, the court should intervene because it can control opportunism without creating costs that outweigh the benefits.

The idea that the law should control opportunistic behavior through intervention to control opportunism when the costs of doing so do not outweigh the benefits and control distinct risks, such as spillover or blatant breaches of trust, all of which is difficult to control by contract, finds support by analogy in the recent scholarship of Professors Porat and Scott. They suggest that in “spiderless” networks the control of moral hazard may be difficult to control by “legal mechanisms.”³²⁶ In such cases, they suggest a law granting a limited restitutionary recovery to limit free riding caused by externalities.³²⁷ Of course, if such opportunistic behavior occurs in an ongoing relationship, one party can hedge or withhold information as a private response to the opportunistic use of information for one party’s private benefit.³²⁸

But where the parties are at an end point, and a party plans to end the relationship by appropriating intellectual property of the other party, a low powered

³²⁵ Gilson et al, *Braiding*, *supra* note 3, at 1384, 1418, 1430.

³²⁶ Ariel Porat and Robert E. Scott, *Can Restitution Save Fragile Spiderless Networks*, 8 HARV. BUS. L. REV. 1, 1 (2018).

³²⁷ *Id.*

³²⁸ WHITFORD, *supra* note 29, at 104-6 (discussing withholding of information as a counterstrategy to opportunistic use of information)

sancations to enforce the informational sharing protocols or a remedy limited to reliance would seem insufficient to deter opportunistic conduct. Where the gains from appropriation are large enough, the ability to self-enforce through reputational sanctions may be insufficient. So, while the formal provisions may facilitate informal enforcement, in some instances the informal enforcement mechanisms will fail. If the court can intervene to control blatant opportunistic behavior and can do so at a low cost, because the conduct is blatant, it should do so because the parties would want intervention to achieve their goals. Without the possibility of court intervention, parties would be reluctant to invest and that would act as a drag on gains from trade. The parties negotiate and will make adjustments in the shadow of the law and if the parties both make predictions about what a reasonable judge would do, then the possibility of legal intervention can increase cooperation. So rather than being a zero sum game where you gain from informal negotiations or you gain from litigation but not from both, in fact, you do not need to give up the advantages of litigation to have successful informal adjustments in a contractual relationship.

Finally, one reason to allow contract enforcement beyond the low powered sanctions derives from the reasons for the existence of informal enforcement. Parties informally enforce provisions about the quality of a product, for example, because the cost of suing is too high. The parties are making a tradeoff. Informal enforcement may be the least costly way to achieve the parties' objectives. But, when the harm is sufficiently great, the injured party may want to sue and seek high powered sanctions because the tradeoff is now different. In some instances, the harm will be grave enough to justify the legal costs, so enforcement should not be withheld. The experiments do not answer this, because they studied the effects of choosing to impose fines across the board on all parties who violate a rule (such a picking up children in a timely fashion from daycare).

X. Advice to Client

The spectrum of success in supply networks and the range of mechanisms that parties have for transferring goods have important implications for how lawyers advise clients who are concerned about opportunistic behavior of their counterparties and how to structure the transactions involving the sale of goods.

Where the goods are not customizable but are catalog items, it may make sense for a supplier to forego signing an LTA, particularly if the terms require annual percentage-based cost reductions. The benefits of an LTA offering the security of purchase obligations by the buyer may not matter where there are not large transaction specific investments that can only be recouped by a long-term purchase arrangement.

The lawyer may advise the client to operate instead purchase order by purchase order. The parties can and probably will operate informally without resort to the law for many problems that arise. But, when the problems cannot be solved informally, the parties can rely on the key provisions in the purchase order or acknowledgment to protect their rights. The warranty, liability, damages, insurance and indemnity may be the key provisions according to one interviewee.

Some parties such as OEMs may insist on LTAs. The lawyer should advise the client of how the LTAs may control opportunistic behavior by both parties and result in significant sharing of information that may curtail shirking by suppliers and also advance innovation in product development. The lawyer may also advise the client that the greater the degree of investment by both the supplier and the buyer, the more likely the relationship is to continue to be a productive one with switching costs. However, lawyers should advise clients that even LTA's may be subject to partial adoption or hedging by suppliers if they feel that the buyer is acting opportunistically. If the buyer uses proprietary information supplied by a supplier, it may chill other suppliers from sharing such information in the future.

The lawyer might want to advise the client that some framework contracts fail. Lawyers might want to encourage a buyer to make reciprocal investments in training the supplier if the buyer wants the relationship to be successful and to avoid what happened with Boeing and some of its suppliers.³²⁹ Alternatively, when representing a supplier, a lawyer might advise its client that these networks can fail when the buyer does not invest enough in coordination. In the case of Boeing, an automated communication system failed to produce the coordination that was needed to bring the Dreamliner to completion on time.³³⁰

There are always alternative arrangements even for a customizable good such as negotiating intellectual property rights to protect sunk costs or acting as a contract manufacturer.

Lawyers can also offer one non-legal piece of advice that might be quite important: develop a unique product.³³¹ It is advantageous for a supplier because, with a unique part, the supplier is not subject to price pressures or to buyer

³²⁹ Navistar, "mandates that its suppliers' key personnel participate in various web-based training programs, among them a program designed to 'take our quality expectations beyond statements of expectation to training in the important aspects of quality that will deliver to our expectations.' Harley too has 'a large variety of training types for [its] suppliers,' including 'a highly formalized methodology for instructing suppliers that can last up to three months,' as well as 'training for the Master Supply Agreement[.]'" Bernstein, *Beyond Relational Contracts*, *supra* note 13, at 579.

³³⁰ Tang *et al supra* note 84, at 79–80.

³³¹ It would prevent supplier shopping, the manufacturer would likely commit to only one seller.

“shopping” “design improvements...to competitors.”³³² If a drawing is unique, it is hard to put it up for bid at an auction or to shop it.³³³ That means even in principle the buyer could go elsewhere, but it will not and the supplier’s investment will be protected.

Conclusion

Supply chains are subject to the same risks of opportunism as all exchanges. The LTA provisions for information sharing protocols may alleviate the problem of asymmetric information, reduce some of the risks of the unreliability of the supplier and reduce uncertainty about competence. They may also promote innovation and promote informal enforcement of contracts.

However, there are other ways parties may wish to organize their contracts other than through an LTA with formal information sharing protocols but without a quantity term. Parties using alternative arrangements can still resort to informal enforcement mechanisms, even without an LTA. Their ability to sanction using informal reputational controls will work best if there are ongoing relations or if the buyer and seller are part of an extensive network. A network may be effective even if a close relationship between the parties does not exist.

If parties can achieve informal enforcement without an LTA, the question of why parties enter such arrangements persists. One answer is that parties who invest large sunk costs may be unwilling to invest without the security of a LTAs. Buyers may be unwilling to select a supplier without the assurance of a guaranteed price over a long period of time, at least where other suppliers are not readily available.

But regardless of the formal arrangements, the relationship may break down and the question will arise, what role legal enforcement should have in these supply chains? My initial empirical research indicates that at least suppliers care most about the provisions that will limit damages, provide indemnities, and constrain warranties. The existence of informal arrangements will be effectively enforced through self-enforcement on matters related to quality and the networks can result in a virtuous circle of information sharing and learning by monitoring and self-enforcement. However, networks are subject to the same frictions as any exchange relationship and can fail. One party may appropriate shared information for one party’s sole benefit. In such cases, parties may privately protect themselves by hedging or engaging in only partial adoption. In cases where there is a breakdown when a matter is being litigated, the court should enforce those provisions that specifically cover litigated matters, because they are important to parties and parties never envisaged self-enforcement of certain

³³² WHITFORD, *supra* note 29, at 117.

³³³ *Id.* Also interview.

matters. Courts should also impose high powered sanctions if doing so will control opportunism that cannot be controlled by contract and the law's intervention will achieve the parties' goals while still minimizing costs. When the parties are at the end of their relationship, low powered sanctions may not be effective. Where the gains from acting opportunistically are high enough, high powered sanctions may be needed as for deterrence. This approach is consistent with the parties' own tradeoffs. They reserve informal enforcement to cases where the costs of legal enforcement are not justified and seek legal remedies when the informal sanctions break down and the harm is great. Clients should be made aware of all of these issues so that they can provide effective counsel on the uncertainties parties face in controlling certain hazards, the private informal mechanisms that are available, the danger of failure in networks, and the type of responses, both private and legal, that may be available to parties.