

University of Southern California Law

From the SelectedWorks of Gillian K Hadfield

Winter 2016

Scaffolding: Using Formal Contracts to Build Informal Relations to Support Innovation

Gillian K Hadfield, *University of Southern California Law*

Iva Bozovic, *University of Southern California*



SELECTEDWORKS™

Available at: <https://works.bepress.com/ghadfield/48/>

Scaffolding: Using Formal Contracts to Build Informal Relations in Support of Innovation*

Iva Bozovic

University of Southern California

Gillian K. Hadfield

University of Southern California

February 25, 2015

Abstract

In a study that follows in Macaulay's (1963) footsteps, we asked businesses what role formal contract law plays in managing their external relationships. We heard similar answers to the ones Macaulay obtained fifty years ago from smaller companies that described important but non-innovation-oriented external relationships. But we also uncovered an important phenomenon: companies, large and small, that described innovation-oriented external relationships reported making extensive use of formal contracts to plan and manage these relationships. They do not, however, generate these formal contracts in order to secure the benefits of a credible threat of formal

*The authors would like to thank Bob Gibbons, Oliver Hart, Louis Kaplow, Stewart Macaulay, Kyle Mayer, Bob Scott, Steve Shavell, Henry Smith, Kathy Spier, Joel Watson, Barry Weingast, anonymous referees and workshop participants at the Southern California Innovation Project Roundtable, USC Department of Economics, Harvard Law School, Boston University Law School, M.I.T. Sloan School of Management, the International Society for New Institutional Economics and the CEPR European Summer Symposium in Economic Theory. We are grateful to the Kauffman Foundation for generous support for this work.

contract enforcement. Instead, like Macaulay’s original respondents, they largely relied on relational tools such as termination and reputation to induce compliance. In this paper we first present examples of this phenomenon from our interview respondents, and then consider how conventional models of relational contracting can be enriched to take account of a very different role for formal contracting, independent of formal enforcement. In particular, we propose that formal contracting—meaning the use of formal documents together with the services of an institution of formal contract reasoning—serves to coordinate beliefs about what constitutes a breach of a highly ambiguous set of obligations. This coordination supports implementation of strategies that induce compliance—despite the presence of substantial ambiguity *ex ante* at the time of contracting—with what is fundamentally still a relational contract.

“Have I ever thought I would end up in court?
No! . . . Neither party has any intent to use this
contract...”

High-tech consumer electronics executive

“We have spent a lot of time on [the contract]
... I cite contracts all the time...”

Same high-tech consumer electronics executive

1 Introduction

When close to 45 years ago Stewart Macaulay (1963) asked, “What good is contract law?” his research suggested that it mattered a lot less than expected. His study of 43 businesses in Wisconsin found that companies often fail to plan transactions carefully by providing for future contingencies, and seldom use legal sanctions to address problems during exchange. Written contracts, he found, were often highly standardized documents that were largely confined to the drawer once drafted by the legal department and then rarely consulted to resolve disputes. The parties’ obligations were often

adjusted without reference to the terms of the original contract and breaches were resolved without litigation or litigation threats. When problems arose, parties would find a solution “as if there [had] never been any original contract (Macaulay 1963).” Macaulay’s results are still among the most highly cited in the literature of law, economics and organization.

Macaulay’s work raised a theoretical puzzle for economists, particularly in light of the growth of the literature exploring principal-agent models and mechanism design: how are the incentives of contracting parties secured in business relationships that require commitments over time if not by formal court-ordered penalties? Attention to this puzzle spurred key developments in the economic theory of contracts and organizations, specifically the analysis of incomplete, self-enforcing and relational contracts. Early work in this literature includes Alchian and Demsetz (1972), Goldberg (1976) Klein, Crawford, and Alchian (1978) Williamson (1979), and Kreps (1990). This theoretical literature emphasized two key points originally identified by Macaulay: the centrality of the problem of adapting to unforeseen events that emerge after a contract is formed and the important role played by non-contractual enforcement mechanisms such as reputation and loss of future revenues or quasi-rents to secure contractual compliance. A different branch of this literature, grounded in Grossman and Hart (1986), focuses on the allocation of property rights over assets as an alternative solution to the problem of adaptation and obstacles to complete contingent contracting.

Macaulay’s respondents included American business giants such as General Electric, S.C. Johnson and Harley Davidson¹, companies that typified the large vertically-integrated multi-unit firms of the mid-20th Century analyzed by Alfred Chandler in his seminal work, *The Visible Hand* (1977). They operated within large, well-developed industrial settings and relatively stable competitive environments. Macaulay’s explanation for how these enterprises managed critical relationships with customers and suppliers appealed to the presence of well-established norms for interpreting and adjusting contractual obligations in stable markets for standardized goods:

Most problems are avoided without resort to detailed planning or legal sanctions because usually there is little room for honest misunderstandings or good faith differences of opinion about the nature and quality of a seller’s performance. Although the parties fail to cover all foreseeable contingencies, they will exercise

¹Private communication, Stewart Macaulay.

care to see that both understand the primary obligation on each side. Either products are standardized with an accepted description or specifications are written calling for production to certain tolerances or results. Those who write and read specifications are experienced professionals who will know the customs of their industry and those of the industries with which they deal. Consequently, these customs can fill gaps in the express agreements of the parties. (Macaulay 1963, 62-63.)

This approach to gap-filling has been adopted by much of the literature on incomplete and relational contracts (Telser 1980; Klein and Leffler 1981; Holmstrom 1981; Bull 1987; MacLeod and Malcomson 1988; MacLeod and Malcomson 1989; Baker, Gibbons, and Murphy 1994; Klein 1996; Klein 2000; Bernheim and Whinston 1998). In this literature it is presumed that contracting parties—whether within or between firms—can develop a shared and unambiguous understanding of what counts as contract performance, even if they cannot convert their definition of performance into a verifiable contract term enforceable by a court. In legal language, we would say that the parties agree on the law (what performance is owed) and only face disagreements or difficulties of proof with respect to the facts (what performance was delivered). Macaulay’s observations in this framework amount to a finding that, at least in well-established, relatively standardized and relatively stable relationships, industry norms guide parties to agree on what performances are owed and the facts are relatively easy for industry insiders to discern. This tracks the theoretical literature on repeated games: parties agree on what it means to cheat and cheating, even if not verifiable to a court, is observable.

This well-established Macaulay-inspired framework for analyzing contracts presents us with new puzzles in the context of relationships aimed at innovation. Relationships such as these are subject to pervasive uncertainty: about the attributes of any ultimate collaboration and/or about the features of the competitive environment in which the fruits of collaboration will be deployed. In the modern economy, characterized by widespread de-verticalization (Langlois 2003; Lamoreaux, Raff, and Temin 2003) and the corresponding increase in contracting, such relationships are pervasive. Examples include arrangements such as:

- a co-development or milestone acquisition agreement between a biotech startup and pharmaceutical manufacturer

- joint product development efforts between a specialized chip manufacturer and a software vendor
- a research and development component to a supply contract between an automobile manufacturer and a supplier
- collaborative service innovation between a business services start-up and a database system provider

As Gilson, Sabel and Scott highlighted in a pair of important papers (2009, 2010), pervasive uncertainty drives contracting in innovation-oriented arrangements heavily in the direction of incompleteness, as it becomes more and more difficult to anticipate and provide for future contingencies in a way that courts can readily interpret and enforce. In the conventional framework, this would lead us to predict that we would see reduced reliance on court-enforceable contracts and increased reliance on relational contracting mechanisms.² That is, we would predict that in innovation-oriented relationships we would see what Macaulay saw: little use for formal contract law.

There is a problem with this prediction. The businesses Macaulay studied, in turning away from formal contract, turned towards well-established industry- (and sometimes product-) specific norms to govern their relationships. They looked to these norms to determine what had been promised, whether it had been delivered and what was an appropriate adaptation to unexpected events. In the context of innovation, however, it is unlikely that such extra-legal norms exist. The products in question are likely to lack pre-existing and well understood engineering specifications. The organization of production may itself be undergoing upheaval such that there are no models

²We might also predict, drawing on the original (Williamson 1975) framework, greater integration into the R&D function as the costs of contracting rise relative to the costs of hierarchy. Our focus in this paper is on the characteristics of contracting for innovation and we abstract from the question of when contracting will be preferable to integration. Empirically, however, it does appear that firms are increasingly relying on collaborative relationships for innovation, pursuing what Henry Chesbrough (2003) calls “open innovation.” One reason for this may be that innovation is more likely to occur when there are diverse sources of new ideas. Holmstrom (1989) suggests that innovation is more likely to take place in smaller firms because the costs of integrating across routine and innovative tasks is high. Langlois (2004) argues that specialization in different capabilities (such as individual components of a computer) lowers the cost of innovation and makes contractual innovation superior to integrated innovation.

providing standard relational solutions to unexpected events. High degrees of specialization, in the collaborating firms as well as in the design of their collaboration itself, may also imply the absence of standard and shared ways of responding to change. Also, the rapid rates of change implied by persistent innovation undermine the capacity for market actors to settle on shared understandings. In settings like this we are likely to find what Macaulay did not: widespread and often good faith disagreements about what constitutes proper performance or an appropriate response to new events. The innovation context is one in which individual judgment that differs from conventional thinking takes center stage.

The conventional approach to the choice between formal and relational contract, then, presents us with a theoretical dilemma: parties cannot rely on formal contract enforcement to support their arrangements because of the obstacles to generating express detailed agreements based on verifiable events and yet they also cannot rely on established relational norms about what is acceptable conduct because such norms are unlikely to exist.

In this paper, we present some preliminary evidence of how at least some parties engaged in innovation relationships are resolving this dilemma in practice. Following in Macaulay's footsteps, we conducted semi-structured interviews with 30 businesses in California and asked them to discuss how they managed an important external relationship. Did they draft formal contracts? What role did any formal agreements play in responding to issues that arose in the relationship over time? Did they resort to litigation or threats of litigation to resolve disputes? Although we initially set out to ask all of our respondents about external relationships that they felt were important to their innovation efforts, forty percent of our respondents, all small businesses as it turns out, told us that they didn't think of their companies as innovative and so had no external relationships they felt played an important role in innovation. We asked these respondents instead about an external relationship that they felt was important to their business success. The remaining sixty percent, ranging from small businesses to Fortune 1000 firms, described for us how they managed an external relationship that was important to their innovation as a company.

From the small business respondents who described an important but not innovation-oriented external relationship, we obtained answers that replicated those Macaulay obtained. For these relationships, respondents had little use for formal contracts: they either did not generate them or relied only on standardized documents; they ignored any formal agreements when

resolving relational difficulties; and they relied not on litigation but on informal means of enforcement—reputation and the threat of cutting off future business—to secure compliance.

The respondents, large and small, that told us about an external relationship that played an important role in innovation, however, presented an important twist on Macaulay’s results. On the one hand, as we would predict in a setting beset by high levels of uncertainty and incompleteness, these respondents reported that they made little use of litigation or even the threat of litigation to secure compliance. Like Macaulay’s businesses in the 1960’s, they said they had little use for litigation and court-ordered dispute resolution. They did not merely settle their disputes in the shadow of the courthouse (Mnookin and Kornhauser 1979), they ignored the courthouse. But on the other hand, unlike Macaulay’s respondents, these respondents described heavy reliance on formal contracts and legal advice in the initial stages of the relationship and frequent reference to formal agreements and legal interpretation of documents to manage behavior during the life of the relationship.

Our interviews thus identify an important phenomenon that has been overlooked in the literature on relational and formal contracting: the use of formal contracts to structure an external relationship important to innovation, apparently for reasons other than court enforcement. This is not to say that parties writing formal contracts never make use of (the threat of) formal court enforcement. But we clearly heard of many cases in which parties found it valuable to write and reference a formal contract despite a clear belief that a threat to seek court-ordered penalties for breach was not credible. We document this phenomenon in Section 4 of the paper.

We have thus uncovered a new puzzle in relational contracting. What could explain the resort to costly formal contracting if not the formal enforcement threat that goes along with it? In Section 5 we examine the existing accounts of relational and incomplete contracting in the literature and consider how well they line up with what we heard from our respondents. We then propose, in Section 6, a new account of the role of formal contracting in a setting in which parties expect to rely exclusively on informal means of enforcing obligations. Our explanation shares important features with Macaulay’s original account of the role played by industry norms in supporting commitments and adaptation in a contractual relationship. We draw, however, an important distinction between *formal contracting*—meaning the creation of formal contract agreements and the use of formal legal advice to manage

a contractual relationship—and *formal contract enforcement*—meaning resort to formal court procedures to obtain court-ordered remedies. These two features of formal contracts are currently conflated in the relational contracting literature. They were also conflated by Macaulay, who anticipated our results in one sense when he suggested that parties will resort to formal contracting in complex relationships (p. 65). But for Macaulay too the value of formal contracting in the face of complexity was the formal enforcement threat it afforded.

We argue, however, that formal contracting is valuable even when formal contract enforcement is not. In our framework, formal contracting provides essential *scaffolding* to support the beliefs and strategies that make informal means of enforcement such as reputation and the threat of termination effective. Whereas Macaulay’s respondents scaffolded informal enforcement by looking to industry norms to determine what counted as performance and what counted as breach in their efforts to adapt to circumstances, our innovation-oriented respondents, we suggest, looked to formal contract reasoning and advice from experts schooled in that reasoning (lawyers).

Our account emphasizes the classification function of law to coordinate the beliefs and strategies involved in informal mechanisms of enforcement (Hadfield and Weingast 2012). This function is critical, we claim, precisely in the context of innovation-oriented relationships where ambiguity about what counts as performance and breach is likely to be high and established industry norms are likely to be absent to resolve ambiguity. We relate the scaffolding function of formal contracts to the game theoretic analysis of contract enforcement that we find in the relational contracting literature generated by Macaulay’s original paper.

2 Method and Sample Characteristics

To investigate how businesses manage highly collaborative innovation-oriented relationships subject to uncertainty and ambiguity, we conducted informal, semi-structured interviews with businesses in California. Participants were recruited both by cold-call of businesses in the San Francisco and Los Angeles areas, drawing from the National Establishment Time-Series (NETS) database, and through personal contacts of the investigators. A majority of the interviews took place in person and ranged from 45 minutes to 2.5 hours in length. In almost 95 percent of the cases, the individuals we spoke to were

Table 1: List of interviewed companies; self-reported as non-innovative

	Company Descriptor	Size (No. Employees)
1	clothing manufacturer	4
2	wireless phone retailer	5
3	candy manufacturer	6
4	film distributor	7
5	plastic bag manufacturer	1-10
6	independent film company	15
7	shoe producer	19
8	motorcycle wheel manufacturer	25
9	producer in entertainment	11-50
10	food manufacturer	40
11	undergarment manufacturer	105
12	brake manufacturer	200-500

high level executives who had access to information about the firm’s critical outside relationships and any challenges encountered by companies in maintaining those relationships. In approximately 5 percent of the companies the individual we spoke to was either legal counsel at the firm in question or was an executive with significant legal training.

We set out in this research to learn if and how businesses use contracts to structure external relationships that play an important role in innovation. At the beginning of each interview, therefore, respondents were asked whether their business can be classified as innovative or whether other businesses in the industry would consider them to be innovative. Interviewees were asked to think beyond product innovation and to consider innovative practices in terms of production processes or organizational structure as well. It soon became clear that many businesses randomly drawn from a population of enterprises do not consider themselves innovative, even in a broadly-defined sense. We therefore supplemented our randomly selected companies with companies that we expected were involved in innovation in some dimension and indeed many of these classified themselves as innovative. Of our final sample of 30 businesses, 18 self-identified as innovative and 12 self-identified as not innovative. Moreover, of those who self-identified as not innovative, all of them were small businesses. Businesses that self-identified as innovators, in contrast, were both large and small, ranging in size from 10 employees to over 75,000.

Table 2: List of interviewed companies; self-reported as innovative

	Company Descriptor	Size (No. Employees)
1	advertising agency	10
2	optical telecomm network solutions	20
3	online collaboration platform	11-50
4	analytic database systems	11-50
5	mergers and acquisitions	11-50
6	online expert knowledge platform	50-75
7	optical systems	100-200
8	laser inspection system manufacturer	51-200
9	internet portal	250
10	logistics services	300
11	online service provider	350
12	business software solutions	200-500
13	high-tech consumer electronics	200-500
14	film production	8,000
15	computer processor manufacturer	9000
16	semiconductor manufacturer	9,500
17	semiconductor company	13,000
18	high-tech equipment provider	75,000

We asked respondents to describe the importance of external relationships for the success of their business. If the company self-identified as innovative, we asked about those external relationships that were perceived to play an important role in innovation. If the company self-identified as not innovative, we asked about external relationships perceived to play an important role in the business overall. These latter relationships involved important customers or suppliers. The questions we asked explored the nature of relationships, their history, risks involved, and any mechanisms used to manage them. A particularly illuminating set of questions that allowed us to learn more about external relationships dealt with dispute resolution. Interviewees were asked to identify an example of an important recent dispute, what it entailed, and how it was resolved. This was helpful in learning about businesses' strategies for problem solving and their expectations for what role contracts could play in this process.

For convenience, we use the labels “innovators” and “non-innovators” to track these two groups below, but we emphasize that we are not describing

differences between how innovative and non-innovative businesses engage in contracting, writ large. We asked innovators specifically about how they manage external relationships that are important for innovation; these companies undoubtedly also have external relationships that play little role in supporting their innovation agenda and they may well manage those relationships in the same way that our non-innovators do. The distinction we are drawing attention to is the difference between the management of relationships that take place in an innovation context and those that do not. In addition, because our non-innovator sample consists only of small businesses, while the innovator sample consists of both small and large companies, we do not suggest that the results we find among innovators may not also exist among large companies that do not describe themselves as innovative.

3 Contracting in non-innovation-oriented relationships

The twelve businesses that identified themselves as not innovative were asked to discuss external relationships that were important for their overall business success. These businesses spoke to us about relationships with important customers and suppliers. Their responses closely tracked the responses Macaulay heard from Wisconsin businesses in the early 1960's. And indeed, these businesses appear to share many characteristics with Macaulay's respondents. They were engaged in the sale or manufacturing of relatively standardized products such as candies, brake systems, motorcycle wheels, plastic bags and undergarments. These are products that have characteristics that are relatively easy to define and assess. The success of a relationship involving these products is easy to verify: Was the right candy formula delivered; was a bag of the correct color produced; was the clothing done with the correct design and material? Like Macaulay's businesses, the non-innovators we spoke to routinely faced unplanned-for contingencies and the problem of relational adaptation. But rather than resorting to contractual terms to devise a response, these businesses, like Macaulay's, looked to informal processes and norms. In managing important external relationships, these businesses said they made little use of formal contracting, rarely referred to formal contracts in dispute management, and they almost never litigated, or threatened to litigate, to enforce obligations.

We present excerpts of the responses we heard from non-innovators below and include extended quotes in the appendix.

3.1 Little use of formal contract

While they may have a formal written contract for a lease or for protection of intellectual property, most of the non-innovator respondents spoke of relying on verbal agreements or emails for initiating exchange. They often spoke of sending out and receiving orders as opposed to contracts. Any formal documents they did use were either brief or standardized. While they appreciated that some of the written formal documents they used include standardized terms “on the backs of the forms” these respondents did not consider them to be formal written contracts that create an opportunity for formal enforcement. Most of the companies were unaware of the terms stated by their partners’ purchase orders.

Really, we have no written contracts that obligate us to purchases or anything like that.^[1]

Most of our customers we do not have contracts with. They just place orders with us and we ship the order...^[2]

...I would rather just agree to a one-pager that broadly outlines the deal.^[3]

Most of the respondents in this group indicated that they would prefer to design their agreements without the assistance of lawyers.

Lawyers are usually overreaching^[4]

...[Lawyers] don't really understand what I'm trying to do.^[5]

3.2 Little reference to formal contract terms to resolve transactional issues

Just as Macaulay found in the early 1960s, we found that businesses involved in important but non-innovation-related external relationships paid little attention to formal contract terms and they had little use for lawyers when resolving problems in the relationship.

You spend all this time, energy, effort, money, moving one comma to one side, and the other to the other side. And then you throw the thing in the drawer. . .^[6]

As a general rule, I will avoid legal involvement at all cost.^[7]

If we did everything by contract it would basically slow us down; it just won't work in our business.^[8]

Instead, these businesses looked to industry and relational norms to adapt to contingencies and respond to the behavior of their contracting partners. A clothing manufacturer, for example, told us that their order forms played little role in determining what would happen if the customer changed its mind and wanted to cancel an order. According to the formal terms, the customer was obligated to take and pay for the order the company signed for, with no option to cancel. But in fact the relationship between the manufacturer and its customers allowed for significant accommodation to circumstances in which the customer no longer wanted the ordered goods. If production was still in the early phases, such that cancellation would not cause the manufacturer to incur significant losses, the customer would be allowed to cancel. If manufacturing of an order had progressed significantly, the customer would be asked to take the partially completed merchandise at discount or to find alternative use for the clothing already produced, even if it required additional processing. This same clothing manufacturer's order forms stated that when the customer received the order it was required to issue payment within 30 or 60 days. In practice, however, if the customer's customers (major retailers) refused the clothing, the clothing manufacturer reported that he and his customer informally would agree to absorb the cost of the lost sale. The clothing would either be re-styled and sold to other retailers or the two companies would split the loss. A shopping bag manufacturer told us that in this industry when an order is correctly fulfilled but the customer made a mistake in the order, the prevailing norms specify that the customer is obligated to accept the product. The manufacturer could choose to offer a discount on the merchandise but was not obligated to do so. In the clothing manufacturing industry, in contrast, if the customer has made a mistake in ordering, but the manufacturer has failed to double-check with the customer, the manufacturer absorbs all the losses. In the spoke manufacturing and wheel assembly industry, we were told, the prevailing norms suggest that it is the manufacturer's obligation to verify the quality standards of the materials received for

manufacturing and it is the seller's obligation to replace any defective materials. However, the seller is not obligated to pay for the cost of any products manufactured with defective materials. It is accepted that the manufacturer is at fault for using materials whose quality was not verified prior to use.

None of these practices are reflected in a formal contract, according to the respondents. The formal contracts—the purchase or sale order form(s)—sit dormant and the parties rely on prevailing norms or common understanding to address any problems in exchange. Past practices and norms, and not the contract, are the reference point for judging the quality of partner's effort and direct, open communication is key to problem solving.

I call somebody on the phone and we deal with it. . . It's all trust.^[9]

I don't care what's in the contract; I care about what you and I agreed to, like in the old mafia, with a handshake.^[10]

3.3 Reliance on informal enforcement mechanisms

Respondents in this non-innovator group clearly did not see courts as a significant means of enforcing contractual obligation. They avoid litigation. When asked, our respondents said that they avoided litigation because of its high cost and uncertainty about whether the cases would be resolved in their favor; they perceived this as a substantial risk even if they were clearly in the right. Even if cases were resolved in their favor, our respondents said they expected the cost of legal fees far to outweigh the benefit of damages obtained through a court award or settlement. Litigation was largely seen by these respondents as an unrealistic means of enforcement.

These respondents instead turned to the types of informal enforcement mechanisms that Macaulay found. They sought out partners they trusted and relied on a tendency for people to follow industry norms and to take care to avoid earning a bad reputation or losing a valuable business relationship.

... [our partners] aren't gonna jeopardize their business with us [by making] a similar tasting [product].^[11]

... we don't like the way we're being treated, we'll go somewhere else.^[12]

All in all, [our choice of a contracting partner] was based solely on our take of them.^[13]

I have to make a judgment call on how reliable the person is.^[14]

I am[. . .] gravitating to the people that I trust so that I don't have to get into these convoluted legal relationships ^[15]

4 Contracting in innovation-oriented relationships

The picture that emerges from interviews with the small businesses that disclaimed involvement in significant innovation tracks the picture Macaulay painted in 1963, a picture that has informed major developments in the literatures on incomplete contracting, relational contracting and organization. The picture must be one that economists and other organizational scholars find *a priori* compelling, given the relatively weak empirical evidence Macaulay provided—and acknowledged—in his self-consciously titled “Preliminary Study.”

Our preliminary findings, however, suggest a very different picture among respondents who described their businesses as innovative and who spoke to us about how they managed external relationships critical to their product or process innovation. These were relationships with collaborators, customer focus groups, contributors, competitors, venture capitalists, partners for outsourcing, and joint venture partners. They included the relationship between a biotech startup and a pharmaceutical manufacturer involved in the execution of a milestone acquisition agreement, a collaboration between an online platform connecting users with expert knowledge and a firm that provides identity-verification services, and a joint-product development agreement between a specialized circuit manufacturer and a software developer. In these innovation-critical relationships, the picture of contracting overlaps with Macaulay’s in only one dimension: these businesses perceived formal contract litigation as a very unlikely instrument for enforcing compliance with contractual obligations. They, like our small non-innovators, said that they relied heavily on informal means of assuring performance—reputation and the threat of terminating a relationship. But this is where the overlap ends. For despite eschewing formal contract enforcement methods, these respondents relied extensively on formal contracting to plan and manage their innovation-critical relationships. We present this picture below.

4.1 Significant reliance on formal contracting

Contrary to the practice of businesses that Macaulay spoke to, many of the businesses in our innovator sample did not turn away from contractual mechanisms when structuring their innovation-critical relationships. These businesses told us they invested significant time and resources to explicitly and carefully plan and generate formal contracts dealing with obligations and contingencies. Lawyers, many said, were always consulted in the course of preparing and designing written agreements.

Yeah, we definitely have a formal contract in place.^[16]

Being more formal in a lot of cases still is better in the thoughts of people doing business with us.^[17]

[Our relationships] have an extremely high legal content.^[18]

It's the precision of the contract [that we find valuable]^[19]

I don't want to do business without a contract.^[20]

So the contracts have agreements about what you're going to design, what the parameters of the design are, what the delivery dates are, what the cost is to the companies. And they also have conflict resolution paths (they do or they don't), they have agreements about how you're going to program manage this, how are you going to track the dates, who in the companies is going to communicate, are they going to live together in the same place, because you're trying to collaborate and try to innovate together.^[21]

Formal documentation of an agreement is important both at the outset and through the course of the innovation-oriented relationships we learned about. These respondents report relying on various mechanisms to continually update the formal contract to track as much as possible their changing relationships. To add “fluidity” to contractual mechanisms, an advertising agency executive relies on a communication system with his clients that carefully records client’s feedback and references any changes to the workload as an addendum to the original contract. To secure and monitor commitment in dynamic relationships involving IT services, a production company relies on service level agreements that reference the original contract but allow for much more refined definition of performance benchmarks and mechanisms for ensuring compliance with the overall service obligations. To protect specific

assets while exploring ongoing possibilities for collaboration, an information technology firm, an optical systems manufacturer, and an online business service provider all report that they rely on non-disclosure agreements and written memoranda of understanding with their contractual partners in which any communicated information and ideas are referenced in explicit written form.

4.2 Formal contracts frequently referenced in solving problems

The formal contracts that the businesses involved in innovation-oriented relationships spend significant resources to create and amend are not documents that lie dormant in a drawer once they have been drafted. Instead, we heard, they are frequently consulted by these businesses to understand their own obligations and those of their partners. They are expressly brought out to help settle disputes that arise during the course of the relationship.

I cite contracts all the time; you are in breach of this and that. . .^[22]

[C]ontract gets dusted off frequently.^[23]

The contract is an operational document that lets everyone know how they can proceed. . .^[24]

I just refer to the contract first because that was our guiding principle basically. Especially when we get a little bit more customized, because that's what we agreed upon.^[25]

It wouldn't be [that] I never go back to these things, [that] they are in a file drawer. I dig them out when I have to, when there is some reason: what did we do? I can't remember, what did we agree to?^[26]

[W]e would reference the contract. I mean you won't just write a letter in vacuum; you are going to reference it. . .^[27]

I would frequently analyze the contract if something we are considering doing complies with our relationship. . .^[28]

Every time someone comes and says to me, I think we need to terminate this relationship, or revisit this relationship, or assess this relationship, the first thing I do is look and see, what is the relationship? . . . You pull out the contract . . .^[29]

[Y]ou have to go back to the contract and see what the words mean to [resolve] the discussion.^[30]

[Do you reference the contract if you're thinking of pursuing a new direction or getting out of a relationship?] Absolutely. What can I get away with, yeah. How can I reduce my commitment to this venture? We agreed to pay a certain amount; can I break the contract? How much does it cost to break the contract?^[31]

4.3 Reliance on informal enforcement

Despite the significant attention paid to drafting, amending and consulting formal contracts, businesses in our innovator group clearly did not expect to use them to obtain formal contract enforcement. This was not merely a prediction that they would be able to resolve their differences successfully in the shadow of a litigation threat, in the spirit of Mnookin and Kornhauser (1979). Rather, they viewed litigation as simply not presenting a credible option for enforcement. Litigation, they told us, is prohibitively costly and associated with reputational harm that is not compensated by potential court-awarded remedies. The legal process takes too long, particularly relative to the speed with which their business moves. Court-awarded damages, they said, are unlikely to adequately capture the value of joint technology³ and projected profits. Even if awarded, damages, they told us, are next to impossible to collect and very likely to be surpassed by legal costs.

[E]verybody knows that nobody wants to go to court.^[32]

It never goes to court. I have never been in a contract that went to court, even when things went just terribly wrong. . . . [B]ecause court is not effective. You can't go to the legal system for something so short-term focused and so urgent.^[33]

We have spent a lot of time on [the contract] and neither party has any intent to use this contract.^[34]

[N]othing would cost enough to make me go sue somebody.^[35]

³Note that liquidated damages are different from court-awarded damages in that they are like any other term in the agreement: failure to pay liquidated damages in the event of a breach is also a breach of the agreement—and hence can be the subject of informal enforcement.

[Y]ou do the first few [in a legal process], and you realize it's way too much...^[36]

It's absolutely deadly for small companies to start up in anything to do with litigation...^[37]

[What is the best strategy for resolving conflicts?] Well certainly not taking legal action - it's not the best way. It costs a lot of money and usually nobody is happy.^[38]

For us to go to court would grind things [to a halt]; that would be terrible.^[39]

... but I think that everybody knows that if it happens, both parties lose. There will be a winner and a loser, but at that point, it's bad for everyone.^[40]

I think they know that we're not going to wake up [one day] and go to court.^[41]

... it's usually not worth following [the breach;] it's just part of the process.^[42]

Our respondents did indicate that they might end up in court over major bet-the-company problems. But the threshold would appear to be very high and perhaps never crossed for many companies. Even in some cases of major losses, litigation was seen as of limited value. The laser inspection system manufacturer explained to us, for example, that even if his customers or competitors obtain and copy his technology, he is unwilling to consider litigation as a recourse because of exorbitant legal fees and the inability to prove damages in terms of lost profits. Instead of relying on legally enforceable patents, this executive uses less formally structured confidentiality agreements and has no intention of enforcing these in court. Some of our respondents in fact spoke of using formal legal documents, such as memoranda of understanding and non-disclosure agreements, despite well-known or routine obstacles to the enforceability of such documents.

I always hear lawyers say: don't do MOUs - memoranda of understanding - they are worthless; they are not legally enforceable by law. Well they're right. They are not. But that's not why we're doing it. [...] So it's all about clarity... and so those types of things become useful instruments for communication clarity.^[43]

Instead of relying on formal enforcement of their formal contracts, these innovators turned to extra-legal enforcement mechanisms much like the ones Macaulay identified: contract breach is penalized by the loss of a valuable relationship or reputational harm. An online collaboration platform executive, for example, told us that the best mechanism for ensuring contract compliance is the “mutual dependency” which serves as the “real deterrent” against malfeasance. The fact that many respondents are aware that others in their line of business will know about their interactions with partners was important to make sense of businesses’ significant concern with their reputation. Respondents found it important to mention that they, and their business partners, operate in small communities where “everyone knows everyone else.” Moreover, mobility of employees within industries ensures that executives’ and managers’ behavior toward insiders and outsiders becomes publicly known.

It doesn't matter if you end up going to court or not, I mean, it just matters that you didn't keep your promise. ^[44]

If we misuse [Company A's] or [Company B's] IP, nobody is going to trust us or give us anything and we will be gone. You have to have [...] trust. ^[45]

If either side were to do that [breach confidentiality terms], it would look real bad for them. So it would have ramifications then. You'd very quickly develop a reputation of someone not to do business with. ^[46]

What makes these things work is the alignment of interest. [Company A] wants to promote their product to as many users as possible. [Company B's product] gives them a way to do that. [Company B] wants to offer users choice for different products. [Company A] provides a way to do that. Put the two together so we are both interested in being in a relationship. ^[47]

But maybe we go over and above what we need to do to get the job done, even if it is more than what we were contracted to do. We just do it knowing that we really want to serve the client ... ^[48]

[T]o me the most important thing is picking the right partner, doing the due diligence to figure out who performs well, who's trustworthy, who's going to stay around, and then it has to work for your business. ^[49]

Another protection this industry has is that you know that when you are talking to [Company A] in a room of engineers, some of those people are going to work at [Company B] so you cannot go to [Company A] and say here is how you destroy [Company B] because some of those people are going to be at [Company B] later ...^[50]

[Is reputation information valuable ...?] I don't know whether it is a high-tech thing, but most of the information on that is well-known because it is a small industry.^[51]

So it's a trust relationship... [What is it based on? How is it built?] Time. Like any other trust relationship, it's based on time. And having a history of sharing competitive or crucial business information and keeping it confidential.^[52]

Nobody can or has the time or the legal staff to stop the normal course of business and spend the time [in courts when there has been breach]. I'm either going to not work with you anymore (one decision people can make) or I'm going to work with you but you are going to have to make it worthwhile because you just cost me a lot of money.^[53]

5 Existing accounts of incomplete contracting

Like Macaulay's businesses of a half century ago, all of the companies we interviewed manage their critical external relations with a primary reliance on relational tools to enforce and adjust their deals. The difference, however, is that when those external relations are important for innovation, we find that at least in some cases formal contracts are the focus of intense design efforts up-front and are consulted extensively in resolving disputes, even though they are not made the basis of actual or threatened litigation. The fact that companies with innovation-critical external relationships report that they sometimes devote resources to the creation and interpretation of formal contracts but rely on informal enforcement of contractual commitments is a puzzling phenomenon. Why would the businesses we spoke to use formal contracts if a formal enforcement threat is rarely employed and is rarely credible? If contracts are not used for formal enforcement, then what good are

they? We have not seen evidence that this departure from the well-known Macaulay picture is a secular change in attitudes towards contracting; the small businesses that disavowed the innovative label told us what Macaulay’s respondents told him: our important external relationships are structured without any significant role for formal contracts; we don’t use them to either plan or manage our relationships. Although our sample is small and thus we cannot make general claims about the frequency with which formal contracts are used by modern enterprises, innovative or otherwise, we have clearly identified instances of a puzzling phenomenon that appears to arise in the context of innovation-oriented relationships. Although Bernstein (2015) presents evidence that Macaulay’s findings with respect to the use of formal contracts also may no longer hold in large OEM procurement contracts, perhaps in the absence of innovation-critical relations, we emphasize that size alone does not explain our results: our sample of innovation-critical relationships is drawn from companies ranging in size from very small (10 employees) to very large (over 75,000 employees).

How well do our existing theoretical accounts of the role of contracting in organizing economic activity in the presence of major obstacles to complete contingent contracting explain what we heard in our interviews with innovative companies? We consider here the two major lines of analysis in the contracting literature.

5.1 Ex-post negotiation and contracting

In general, as Simon (1951) first analyzed it, the problem of incomplete contracting arises because things change between the time of initial contracting and the time of contract performance. Put most generally, at the time of contracting the future state of the world—and hence jointly-optimal actions for the contracting parties—is unknown. If complete contingent contracting is not feasible, *ex ante* efficiency generally cannot be attained. One approach to analyzing the role of contracts in this world of incomplete contracting is to emphasize the potential for *ex post* re-contracting, at a time when the contracting parties are symmetrically informed about what actions would be first-best and able to write enforceable contracts directly over action choices (Grossman and Hart 1986; Hart and Moore 1988, 1990). In such a setting, parties contract *ex ante* over verifiable aspects of a relationship, such as whether trade occurs at all and at what price or who possesses residual rights to control an asset, with an aim to structure the *ex post* re-contracting game

by manipulating threat points. *Ex post* efficiency is then achieved through enforceable contracts that implement actions that are jointly-optimal in light of *ex ante* investments.

Our interviews are not, of course, a test of this theory of the role of incomplete contracting. Our interviews were conducted against the backdrop of whatever *ex ante* structural choices our contracting parties had already made; we can presume that any available efficiencies to be obtained through the type of asset ownership allocation and integration decisions emphasized in this literature had been exhausted. What is revealing about our interviews is the emphasis respondents placed on the *barriers* they perceived to *ex post* negotiation and re-contracting. It was very clear that at the time of initial contracting, the parties who described innovative relationships to us often felt they knew little about what it would be best to do in the future. They anticipated that each of the contracting parties would learn more privately as the future unfolded. But, they reported, sharing information with a contracting partner *ex post* is potentially very costly; there are lots of reasons, they indicated, for continuing to withhold information even if it would improve *ex post* decision-making. One source of such costs is somewhat mundane: engaging in ongoing negotiations and recontracting burns time and money and generates delay; with complex interactions and many dimensions of uncertainty, it is simply not worth discussing everything. More fundamentally, however, ongoing uncertainty about the durability of the relationship makes it costly to reveal one's thinking as private information about the costs and benefits of the collaboration accumulates, particularly relative to alternative opportunities such as taking a piece of the currently-contracted work in-house or adding it to the scope of the collaboration with another contractual partner. Our respondents painted a picture of a complex communication terrain post contract formation, attended by substantial concerns about sharing private information.

[I]t is infrequent that [when] you take [the contract] out of the drawer [that you] then talk to the other party about it. Because you would not want to tell the other party that you are evaluating your obligations.^[54]

[Increasing] communication over time signals a rise in importance of the proposed business.^[55]

At the same time, our respondents also indicated that as relationships

developed, problem-solving negotiations to improve contract terms did occur with some frequency (as in Mayer and Argyres 2004). And, notably, an important spur to engaging in the costly process of sharing confidential information and re-negotiating or adding terms to a written document was to avoid misunderstandings about obligations that might threaten the stability of the relationship and not (merely) to fill in the details to secure efficient performances once uncertainty was resolved:

Well let's come up with something, let's extend the terms, let's change the royalty rate, let's do this, let's do that. Or come up with something that we both win-win.^[56]

We read this evidence to indicate that *ex post* re-contracting and negotiation is potentially at least as problematic as *ex ante* negotiation and contracting in the relationships our respondents described. Sharing information about the state of world, options and possible actions may be very costly: disclosures may threaten to disrupt cooperation and the building of trust if misinterpreted (or not) by the other party; disclosures also risk the loss of competitive secrets, particularly given the weakness of formal protections available through non-disclosure agreements and trade secret law. Moreover, when *ex post* negotiations do occur, these respondents tell us about a relational role for revising a written document that appears to go beyond filling in detail as uncertainty is resolved.

5.2 Relational contracting

A second branch in the literature focuses on a role for incomplete court-enforceable contracts in supporting non-contractible agreements in a repeated game setting. Applying the Folk Theorem (Fudenberg and Maskin 1986), early contributions in this literature demonstrated the feasibility of informal agreements in which a worker agrees to supply formally non-contractible effort in exchange for the payment of a formally unenforceable bonus (Bull 1987; MacLeod and Malcomson 1988, 1989; Baker, Gibbons and Murphy 1994). These papers introduced the innovation of modeling self-enforcing “relational” contracts as equilibrium trigger strategies in a repeated game: a deviation from the informal agreement is punished by termination of the relationship or reversion to the lower returns available from an incomplete formally-enforceable agreement. Later contributions in this literature have

explored the potential to use the terms of formally enforceable reversion contracts to improve the results obtainable with relational contracts (Bernheim and Whinston 1998; Baker, Gibbons and Murphy 1999, 2002, 2011; Levin 2003; for a review see MacLeod 2007).

This branch of the literature presents a decent account of the types of relationships we heard about from our innovators. First, it generally focuses on a period during which *ex post* negotiation and re-contracting is not possible, a characteristic of the situations described by several of our respondents. Second, it is clear that our respondents are relying on the type of reversion incentives in repeated games that the relational contracting literature emphasizes.

We did, however, observe evidence of a few important dimensions of relational contracting that are not currently captured in the literature. First, it is generally assumed in the relational contracting literature that continuation values are common knowledge. We heard evidence, however, that those involved in innovation-critical relationships are keenly aware that the success of their contract depends on both partners maintaining a belief that the contract has a high expected continuation value relative to alternative options and that this critical variable is a matter of considerable uncertainty.

Typically you're looking at the long term value. [In the] short term you don't really know what the value of the relationship is going to be long term, you haven't had the time yet to learn.^[57]

A second key feature of innovation-critical contracts that is underdeveloped in the existing relational contracting literature is the extent to which the terms of formal contracts are left open and ambiguous. Existing models assume that courts are able to judge whether verifiable terms have been breached and this is what makes formal contract terms effective to implement relational contracts. Our respondents however emphasized the ambiguity and incompleteness of their formal written agreements.

You can't [specify required performances] because you don't know. You can't. You can say things like: best efforts, good faith efforts, I'll put this many people on it, but... that's all [the contract] can do.^[58]

Well the contract itself is not for a single instance. It's for a service. So, yeah, part of [the problem] is [that] there are loopholes that exist ...^[59]

[Our contracts will say things like] “We agree to act with good faith.” [Is that enough?] Probably not ...^[60]

You cannot contract everything in these kinds of complex relationships; it is difficult to specify exactly what all your rules of behavior will be.^[61]

The contract might say “you can’t use my IP to improve your property.” [But] I fixed a bug in my IP. Is that an improvement or a bug fix? It gets pretty fuzzy [How is that fuzziness resolved?] It’s really not.^[62]

If you’re buying 500 chairs you sign for it [and it’s done]. Here you’re developing in real time ...^[63]

We did not collect contract samples from our respondents.⁴ But publicly available contracts in innovation-critical relationships are replete with open and ambiguous terms such as the following:⁵

[The parties] agree that they will conduct the Research and Development Plan on a collaboration basis with the goal of commercializing Products.^[64]

Pricing is subject to negotiation if 100% raw material pass throughs result in an uncompetitive situation.^[65]

[Party] shall use reasonable commercial efforts to ensure adequate manufacturing capacity and sufficient supply of the Products during the Term.^[66]

[Parties] shall in good faith use their best efforts to develop jointly a plan to ensure continued Product supply.^[67]

⁴A major obstacle to this kind of empirical research is the reluctance of commercial parties to discuss the terms of their important contracts. We were able to get as much from our respondents as we did because we did not press them for specifics.

⁵Sources and more extended excerpts from the contracts referenced below are provided in the appendix.

6 Scaffolding: Formal contracting and informal enforcement

In our conventional accounts of incomplete contracts, a formal contract institution serves only one purpose: to provide third-party penalties in the event of the breach of terms that are verifiable by a court. These third-party penalties are then used to structure a framework (asset ownership, a relational contract) in which the non-contractible terms of a deal are renegotiated or shaped by incentives to avoid informal penalties such as the loss of a relationship or reputation. As such, the existing literature doesn't address the phenomenon our interviews uncovered: the use of *formal contracting*—meaning reliance on formal legal rules, norms, practices and expertise—without the use of *formal contract enforcement*. In this section, we propose a role for formal contracting that does not depend on formal contract enforcement.

We can take as a starting point a recent exploration of a role for contracts in a setting of incomplete contracting that does not necessarily depend on third-party enforcement: Hart and Moore's (2008) concept of contracts as reference points. Their approach proposes a psychological role for formal contracts. In their model, contracting partners are motivated to underperform on non-contractible terms of a deal if they are aggrieved by their counterparty's own exercise of discretion in performance. In their example, parents hiring a caterer for their daughter's wedding face the obstacle of being unable to contract at time 0 for all the details of both parties' performance at a future time 1 (the quality of service and food provided by the caterer, the cooperation and respect afforded by the hosts). If the parties postpone an agreement on price until the week of the wedding—at which point both are locked in bilateral monopoly—there is a risk, Hart and Moore suggest, that one or both of them will feel they were entitled to a better price than the one on which they settle. Aggrieved when they are denied the price to which they feel entitled, one or both of them might be motivated to retaliate by exploiting gaps in the third-party enforceability of the contract by providing inferior performance. A contract for price at time 0, they suggest, can help to overcome this problem by setting expectations and hence avoiding the losses associated with grievement and shading. In their way of describing this, the contract serves as a reference point for feelings of entitlement and hence the experience of grievement.

This is a complex psychological, indeed sociological, story. It presumes

that a document called a contract modifies beliefs about what is socially appropriate behavior and can thus influence actions (contract performance) because individuals are endowed with a psychological mechanism that punishes deviations from what is believed to be socially appropriate behavior. With a contract it can be socially appropriate for the wedding hosts to pay a low price and the caterer will not implement punishment for doing so. Without a contract, the risk is run that paying a low price will incur punishment. Hart and Moore (2008) do not explore the difficult question of why this socially constructed thing called a contract might change beliefs about what behaviors should be punished. They suggest that their analysis goes through even if a contract is non-binding but they also speculate that “the solemnity that accompanies the writing of a legally binding contract may help to give weight to the expectations and entitlements embodied in the contract.” (p. 12-13)

We think that our interviews provide evidence to support this intuition, but on a much broader scale than the Hart and Moore model assumes. Consider the following quote from a respondent who seemed to have a clear grasp of the aggrievement risk:

The contract [is] simply the documentation of what we agreed to, and we'll remember what we discussed and agreed to, and if anybody forgets, well this is what we put on paper, right, it becomes a reference document. . . “What did we say about: if we sell the deal here, but it goes to Europe,” or something, you know, it would be “what did we agree how to. . . ?” The more likely thing is, “shoot we never thought about this. . . let's figure this out”, because we didn't know enough or we didn't anticipate this circumstance. And you've got to [say] “well, I guess from what we agreed to, it seems like it'd be fair if we did it this way. That make sense to you? Well, wait a minute what about this? Well, ok, all right. Are we good, or do we need to put it in there? Well, we better put it in as an attachment on there.” Well that's kind of how these things unfold, because again, both sides, you try to do this win-win. You know if you start doing stuff that's going to mess up the other side, they're going to be demotivated to work with you, so it's in your mutual interest to always keep the other side happy, motivated, and working on your behalf. (online collaboration platform)

This is a vivid depiction of the idea of contracts as reference points. Note,

however, that the document is helping to “keep the other side happy, motivated, and working on your behalf,” by eliminating the potential for costly disagreements about what each side is entitled to not only, as Hart and Moore (2008) propose, by locking in a clear verifiable (third-party enforceable) statement of entitlements at the outset. “The more likely thing is” that the parties are using the document as a reference for filling in gaps about unanticipated circumstances: “*from what we agreed to, it seems fair if we did it this way.*”

We see in our interview evidence an even more important generalization of the Hart and Moore (2008) approach to contracts as reference points. The mechanism by which the contract serves to manage gaps in *ex post* performance is not limited to the psychology of aggrievement. The full set of relational enforcement tools—cutting off a valuable business relationship, harming a partner’s reputation—are also implemented with reference to the formal document. Although only the respondent above made a statement that we would characterize as acknowledging an aggrievement concern, many of our respondents spoke about the role of the contract in helping to bridge the uncertainties and gaps in their relationship by setting a framework for an evolving shared understanding of what each was, and was not, obligated to do. The contract serves as a reference point for the imposition of standard relational penalties such as termination and loss of reputation.

For us the primary value of the contract is a guide on how to answer questions about the relationship . . . The remedy is, you breached the contract, and you’re not the kind of company we want to do business with.^[68]

[T]he contract served as the outline and we ended up using it as a directional “here’s how we should resolve this situation” even though it’s not specifically mentioned in the contract.”^[69]

[Our partner] is a very, very valuable company. They have a lot at stake and when they look at their strategic threats, one of their largest strategic threats is us. It’s that we will go into their business and they need to make sure it does not happen while still working with us. In other words, [the contract] makes it very clear where the boundaries are and what’s going to be the impact if we do become their competitor.^[70]

[The contract] creates guardrails for the relationship. It doesn’t

solve all things but it shows what these parties can do and that's important because there is a lot of uncertainty and a lot of chaos.^[71]

[The contract] sets a type of boundaries of what's acceptable and if some people are going too far then the contract is like a whip to say 'hey, you are doing something illegal outside the contract.'^[72]

[The contract shows] what you intend to do together and what the boundaries will be.^[73]

The contract has to serve in some places to ensure that if things go [wrong]—if one side is much more optimistic, the other side cautiously optimistic—that one side or the other doesn't withdraw when their expectations are not immediately met.^[74]

In the end you are deciding whether to continue to do business. The reasons you do things on the whiteboard [with the lawyers] is to establish an agreement beforehand that will govern the relationship and you can call each other on it.^[75]

I want the lawyer to understand that we're constructing a home but we've never built a house like this before; we don't know what the stress on this beam will be until we get there. So, be aware, listen to what the customer is saying, listen to what we're saying and start to think about how we can construct a contract that helps us construct this house.^[76]

We call this use of formal contracts *scaffolding*. Like the temporary structures used to facilitate the construction or repair of a building, formal contracts bridge gaps and provide just enough support for work on the underlying edifice to move forward. A formal contract institution—consisting of formal legal rules as well as the norms, practices and beliefs that expertise in those rules generates—does this, we argue, by serving as what Hadfield and Weingast (2012) call a *classification institution*. When parties engage in formal contracting they invoke a formal contract institution to serve as their classification institution.

We can think of a particular formal contract institution—such as the law and practice of contracting in California—as an institution that supplies a set of terms (both those considered clear and those considered vague or ambiguous) and common knowledge doctrinal rules. Using these doctrinal rules,

practitioners in the institution (lawyers) are able to take a subset of terms and concrete facts about actions, states of the world etc. and give an opinion about classification: breach or not breach.

The designation of a classification institution in a contract is not the same as the adoption of a plan that classifies, *ex ante*, all possible actions in all possible circumstances as in Levin's (2003) definition of a relational contract. A classification institution operates *ex post*, when all of the concrete evidence relevant to classification is available.⁶ As we have emphasized, in the innovation-critical relationships we heard about, the idea that the parties could settle on a complete plan at the outset of their dealings is hard to credit. But a classification institution relieves the parties of the need to specify a complex plan *ex ante*. Instead they can agree on a much less demanding plan: a plan for some actions that are clearly stated and others that are framed in vague terms that will take on concrete content only after concrete circumstances have evolved; a classification institution that will supply that content *ex post*; and an agreement that whatever is classified by that institution as "breach" in the future will call for the imposition of a relational penalty such as termination or degradation of reputation.

A modification of Levin's (2003) definition to account expressly for the role of classification would then define a relational contract as a *complete public classification plan* for the relationship together with a plan for what consequences will follow when actions are classified as breach. A classification plan can consist of the designation of a formal contract institution and a set of terms drawn from that institution.⁷ It is this role for formal contracting—

⁶This is a well-established principle in most legal systems: courts will decide only "ripe" cases. Only in exceptional circumstances will they offer advisory opinions about what may or may not constitute a violation. This is because in the ordinary case, the dimensionality of potential considerations is so great that it is simply not possible to identify all of the factors that are implicitly going into classification of a hypothetical situation. A commitment to classifying only in concrete cases helps to maintain the integrity of legal rules, by avoiding ambiguity about whether, had the classifier known of late-appearing fact X, the classification would have been different.

⁷For example, if we enter into a sales contract in a U.S. state and we do not designate differently, our contract is governed by the Uniform Commercial Code. That code uses terms that have acquired, through doctrinal development, meanings that an expert in the UCC can share with a client. For example, in the event of a breach by the buyer, the seller is authorized in some circumstances to resell goods "identified" to the contract and collect as damages the difference between the resale price and the contract price, provided the resale is conducted "in good faith and in a commercially reasonable manner." As one of us has learned from many years of teaching and advising on the UCC, law students and

to provide a common knowledge basis for classification of actions *ex post* as breach or not breach—that we believe we see in our interviews.

In theory (Hadfield and Weingast 2012) an effective legal institution generates clear common knowledge classifications on which users of the system can coordinate their expectations about what is and what is not punishable as a rule violation, at the time that all the facts of the potential rule violation are known. In practice of course, there are hard cases with hard-to-predict classification. Cases such as these may require adjudication and a definitive classification by an authoritative entity such as a court; in the absence of adjudication there will be residual variance in predicted classifications. (Hadfield and Weingast (2012) emphasize that it is a characteristic of a legal order, as opposed to a social order based on informal norms, that a final authoritative answer is available to resolve ambiguous classification cases.) But it is clear that experts in the institution will generate a much smaller variance in predicted classifications than lay people. Anyone with training in the law of a particular contracting institution will have access to standardized methods for resolving ambiguity, including a prioritization of steps and sources. This makes the classification reached by the application of those models available, and known to be available, to both parties. Even conceding that the application of doctrinal rules to a set of materials can yield residual ambiguity as to meaning, it seems fairly clear that the scope of the ambiguity is much decreased by the appeal to a specialized interpretive mechanism. Understanding how very specific doctrinal reasoning works and using it to predict (and predict how other lawyers will use it to predict) the classification of behavior is fundamental to legal expertise.

In the abstract, there is no reason to think the parties could not designate some other institution—perhaps an industry trade group or a professional association of, say, engineers or accountants—to serve as their common classification mechanism. Indeed, this is one way of understanding what takes place in settings that line up with the environment that Macaulay originally studied and which we heard about from our non-innovator respondents. Contracting parties in these contexts can rely on common knowledge of industry

even lawyers not expert in the UCC frequently misunderstand what it means for goods to be “identified” to the contract. It does not mean, as a non-expert thinks, that they are identifiable or that they meet the specs of the contract. It means that at the time of resale the seller had designated that this particular sale was intended to be the one that would fix the resale price for purposes of claiming damages. “Identification” is a term made available to the parties by the UCC (but not all bodies of contract law.)

standards and norms to predict how their partners will classify conduct. (Indeed, their rejection of lawyerly documents may be a way of signaling that they are playing the strategy of 'look to the industry standards' and not 'look to lawyerly interpretations' to resolve ambiguity.) But in high-novelty settings such as the ones we heard about from our innovators, we believe there is a reason for contracting parties to turn to formal contract law as a classification mechanism. Law, as Hadfield and Weingast (2012) emphasize, is characterized by attributes that can be understood as particularly well-tailored to the task of coordinating the normative classification of conduct. Law is self-consciously designed to provide unique, neutral, clear, stable and public classifications. Achieving these attributes is a normative obligation of participants in the legal enterprise (Fuller 1964). Moreover, law aspires to be a complete system, capable of binary classification of any circumstances put to it. Law does not answer "maybe" or "we don't know" or "we won't say." There is a rule for how to classify when evidence is weak or incomplete: the plaintiff fails to establish the claim and the conduct is classified as "not breach." But a body of experts does not feel constrained in this way. An industry trade group may say "there is a clear expectation that an order for fabric can be cancelled before the fabric is cut" but also say "there is no established practice about how to respond to an order cancelled after fabric is cut." Professional engineers may be able to opine uniformly on whether steel of a given thickness is acceptable for purposes of manufacturing motorcycle wheels to particular specifications, but may have no opinion on whether a particular frequency of defects in a delivered lot of steel is acceptable. And there would seem to be no other institutions that purport to be able to say in novel settings, "giving this contracting partner a device that is twice as fast but uses three times as much power is [or is not] a breach of contract."

Additionally, although we have focused on the aspects of a contracting relationship that are not amenable to formal contract enforcement, it is clear that when parties generate a formal contract, there are some circumstances in which formal enforcement, and its threat, will be available. Even highly innovative relationships are likely to include some provisions that it is cost-effective to enforce: an agreement to a revenue-sharing formula for successful products produced by the contractual venture, for example, or a designation of the ownership of a patent. By generating a formal contract and relying on a formal contract institution for classification services for all aspects of their relationship, the parties retain the capacity to resort to formal enforcement when it is cost-effective to do so. For these reasons, we suspect that

law provides higher value in some settings as a classification mechanism—and perhaps particularly in innovative settings—than other candidate classification mechanisms.

The idea that a formal contract is serving to coordinate beliefs about what constitutes breach is admittedly in some tension with evidence that when there are gaps or ambiguities in a contract the parties sometimes negotiate about how the gap or ambiguity is to be resolved. In our scaffolding framework, however, we have a way of reconciling these competing pictures of post-formation contracting behavior. As we have emphasized, the relational contract includes a classification mechanism that is not completely determined as of the time of contracting. This implies that at future points in the relationships, classifications supplied by the formal contract may well depart from classifications the parties prefer. Alternatively, ambiguity may be sufficiently high that the parties recognize that their classification mechanism is very noisy and they may worry about the risk that behavior will be misinterpreted as breach. Obviously, if *ex post* negotiation is low cost, they can just reach a new agreement, as the line of incomplete contracting literature exemplified by Grossman and Hart (1986) proposes. But if *ex post* negotiation is costly, for the reasons we note in section 4, then the presence of scaffolding may help to boost the willingness to undertake *ex post* negotiations that the parties would otherwise avoid. The reason is that the benefits of resolving ambiguity differently than the existing formal contract include not only the gains in efficiency available from modifying actions taken under the contract but also the benefit of forestalling inappropriate termination and loss of the entire surplus available from cooperation as a result of errors in classification. Scaffolding here provides a framework for problem-solving and refinement of the contract over time, helping to bridge some of the strategic gaps that exist in the relationship, such as the disincentives to share information or risk unsettling beliefs.

The good thing is we have this contract because we are trying to legitimately get something done. Both are working together for a major customer and things have [come] to a halt because of [this problem] so we have to fix it. [Our customer] has no patience to bring lawyers into a room - they just want it fixed.^[77]

We will to the best of our ability perform on our commitments, but we'll come up against roadblocks and when we hit those roadblocks, we'll depend on our quick wittedness to get around it. But what if

that violates how we agreed to do it in the contract? The contract is a living document. When you have a multiyear contract you have to realize that things will be changed repeatedly. ^[78]

[In] the agreements that tend to look more like business partnerships . . . one can define specifics, like we will agree to do this many sales seminars . . . And yes, we said seminars, but now we know more, and it's better if we try this other thing. And maybe the third thing you try, you find that solution. ^[79]

Or a lot of times, instead of terminating or amending the contract, we would add terms informally to the contract- a lot of times that's done by an e-mail, and some people would say in legal terms if there wasn't an integration clause, then it's totally fine to add an e-mail saying, hey from now on can you turn this around in 3 days instead of 4, and they turn back and say, yep 3 days is totally fine, we'll do that from now on. ^[80]

You know often times that happens; these guys are working with a client creatively and they thought they were gonna do one thing when they first started but it changes in some way shape or form. Or the client asks us to do more. . . . And then at the point where a scope of work might change, we actually create a change order that explains how the work is changing and how many more hours it might take or whatever is different from the original proposal and we get the client's signature on that. ^[81]

I mean there are just a ton of things that when you start into a kind of a new area of collaboration you don't anticipate always the downstream effects and as you negotiate successive nodes or you extend the contracts, it becomes much more complex. The contracts today for [semiconductors] are probably a foot or more paper when printed. ^[82]

A formal contract supported by a shared institution for ex-post resolution of (or at least reduction in) ambiguity also supports the capacity to form inferences about the other side's current evaluation of the continuation value of the relationship. We noted that our innovator respondents expressed a keen awareness that their primary weapon for punishing defections from the contract is termination and that the power of the termination threat is largely private information possessed by the other side. (Halac 2012) The relative

value of the relationship under a concededly imperfect contract is something the parties need continually to attempt to deduce from the other's behavior. The contract, we argue, provides a reference point for doing so. A willingness to commit to a contract or to breach its terms is treated as evidence about the other party's assessment of the continuation value—the stability and reliability—of the relationship. As one of our respondents, a provider of business software solutions, put it, the contract provides a “litmus test for: do they value us, do they have integrity, do we want to [continue to] do business with them?” Our respondents noted both that the willingness and process of signing a contract and behavior under the contract conveyed important information, signaling assessment of the value of the contract.

[W]hen in my experience, one party determines their value from a contract is decreasing, they are less likely to care about adhering to their own obligations.^[83]

There's NDA's [in place already], but if they're not going to respect the contract here, there's sure as hell not going to respect that nondisclosure agreement^[84]

[The NDA] sets the tone. Let me give you an example. If you are out on a date, will the guy that you are dating open the door when you come into the restaurant or not? You cannot force someone to do that but it is pretty much accepted that the man should do it and if he does not do it maybe it shows that he is not fully ready for a relationship. [... NDAs] are actually pretty useful to get a temperature of the relationship.^[85]

What they sign up to is absolutely indicative [of their commitment].^[86]

The act of signing and committing to each other [is most important.]^[87]

[Signing an MOU] is a game of learning how far you can trust your partner and building [the relationship] to that degree.^[88]

The hope would be that you would vet out [their] intent in the process of creating this NDA or the development agreement. ... I think it's [also] their chance to really vet: are we really serious or are we just spinning their wheels; are we willing to put down some intent to manufacture or intent to procure timeline.^[89]

The key distinction between existing accounts of the relationship between formal and informal contracts and scaffolding that we want to emphasize is this: our account provides a role for formal contracting that is independent of formal enforcement. All other accounts suppose that parties use formal contracts to support informal contracts by exploiting formal enforcement. The Grossman and Hart (1986) asset ownership approach is, in effect, an appeal to the enforceability of formal agreements about who owns what asset to manipulate informal renegotiation. Baker, Gibbons and Murphy (2011) make this explicit, with their account of the use of formal agreements governing decision rights to manipulate renegeing constraints and thus expand the set of feasible relational contracts. Gilson, Sabel and Scott (2009, 2010), in their analysis of the incentive to “braid” formal and informal contracts are also drawing on the enforcement of formal contracts: in their account, by using formal (but low-powered⁸) enforcement of an agreement to participate in an information exchange and dispute resolution regime, a successfully braided contract endogenously generates a level of trust (and practical information about the value of a joint project) sufficient to support the non-contractible commitments that make for successful collaboration in an environment of high uncertainty. Our approach complements theirs in that we too are considering how informal and formal contracting tools may interlace to support commitment in settings of high uncertainty where conventional complete contracting and court-awarded damages are unavailable as a practical matter. But, unlike their approach, we do not associate the role of formal contracting with the use of formal contract enforcement. Thus the formal contracting we envision ranges, potentially, over the full domain of the contractual relationship and is not limited only to what the literature has defined as “contractible” (meaning verifiable and court-enforceable) terms.

7 Conclusion

Stewart Macaulay’s seminal interviews with businesses about their contracting practices in 1963 identified a puzzling phenomenon: businesses in many instances chose not to rely on formal contracts to manage important economic relationships. The puzzle was this: if these economic actors weren’t relying on what we think of as a pillar of the developed market economy—the availability

⁸By “low-powered” GSS mean reliance damages for breach, as opposed to expectation damages.

of third-party enforcement mechanisms to secure contractual commitments—what were they relying on to protect their plans and investments? The Macaulay puzzle spurred the development of a robust literature in incomplete and relational contracting, a centerpiece of our understanding of organizational economics. Today this literature has produced sophisticated game-theoretic accounts of the important phenomenon of self-enforcing contracts and provided theoretical tools for understanding the tradeoffs between markets and hierarchies (Williamson 1975) to organize economic activity.

Our Macaulay-inspired interviews reveal another puzzling phenomenon: businesses engaged in innovation-critical relationships making extensive use of formal contracts but still spurning the use of formal contract enforcement to secure their commitments. In addition to painting what we hope is a fairly rich picture of this phenomenon, we have proposed an account that enriches our understanding of relational contracting. Formal contracting, we argue, provides valuable scaffolding to support the implementation of the informal enforcement mechanisms that underpin the efficacy of relational contracts. This can explain the use of formal contracts—and all that goes with that, such as the appeal to legal advisors and legal methods of interpretation—even in settings where formal enforcement of contracts is weak or non-existent. Our account can be understood as an application of a more general insight, articulated by Hadfield and Weingast (2012, 2013): the function of law is not solely to provide centralized coercive enforcement of rules but also to coordinate decentralized mechanisms of punishment for rule-violations. One of the essential things that law does is to provide public and (at least aspirationally) clear classifications of conduct as being either in breach of or compliance with a rule. Our analysis of scaffolding emphasizes that the efficacy and stability of relational contracts—analyzed in the literature as equilibria in repeated games—depends on the availability of a common knowledge classification system. This, we argue, is what formal contracting can provide.

In addition to providing an account of an important phenomenon, particularly in an economy that grows increasingly dependent on innovative inter-firm relationships and where vertical integration gives way to networks of alliances and collaborative ventures (Langlois 2003; Lamoreaux, Raff, and Temin 2003), scaffolding focuses attention on dimensions of both contract law and organizational design that have thus far been largely overlooked. Law that is well-suited to the scaffolding role, for example, may differ in its attributes from law that is well-suited to formal enforcement. Moreover,

the availability of a contracting mechanism with attributes that support the scaffolding role is likely to vary across different economic settings and thus an appreciation of the scaffolding function can contribute to organizational theory. Baker, Gibbons and Murphy (2011), for example, raise the question of whether the absence of formal contract enforcement mechanisms within the firm may undermine relational contracts by depriving the parties of a tool for manipulating the feasibility of relational contracts. Our analysis of the scaffolding role played by formal contract institutions asks: are relational contracts within the firm hampered in a way that relational contracts that cross-firm boundaries are not by the absence of a neutral, comprehensive, stable and public system for classifying conduct and resolving the inevitable ambiguities of incomplete contracting? We leave these questions, together with the development of more formal models incorporating the scaffolding function into relational contracts, for further research.

References

- Alchian, A. A. and H. Demsetz (1972). Production, information costs, and economic organization. *The American Economic Review* 62(5), 777–795.
- Baker, G., R. Gibbons, and K. J. Murphy (1994). Subjective performance measures in optimal incentive contracts. *The Quarterly Journal of Economics* 109(4), 1125–1156.
- Baker, G., R. Gibbons, and K. J. Murphy (1999). Informal authority in organizations. *Journal of Law, Economics & Organization* 15(1), 56–73.
- Baker, G., R. Gibbons, and K. J. Murphy (2002). Relational contracts and the theory of the firm. *The Quarterly Journal of Economics* 117, 39–83.
- Baker, G., R. Gibbons, and K. J. Murphy (2011, November). Relational adaptation. Working Paper.
- Bernheim, B. D. and M. D. Whinston (1998). Incomplete contracts and strategic ambiguity. *The American Economic Review* 88(4), 902–932.
- Bernstein, L. (2015). Private ordering, social capital, and network governance in procurement contracts: A preliminary exploration. *Journal of*

- Legal Analysis*. Forthcoming.
- Bull, C. (1987). The existence of self-enforcing implicit contracts. *The Quarterly Journal of Economics* 102(1), 147–160.
- Chandler, A. D. (1977). *The Visible Hand*. Harvard University Press.
- Chesbrough, H. (2003). *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Boston: Harvard Business School Press.
- Fudenberg, D. and E. Maskin (1986). The folk theorem in repeated games with discounting or with incomplete information. *Econometrica* 54(3), 533–554.
- Fuller, L. L. (1964). *The Morality of Law*. New Haven: Yale University Press.
- Gilson, R. J., C. F. Sabel, and R. E. Scott (2009). Contracting for innovation: vertical disintegration and interfirm collaboration. *Columbia Law Review* 109(3), 431–502.
- Gilson, R. J., C. F. Sabel, and R. E. Scott (2010). Braiding: The interaction of formal and informal contracting in theory, practice and doctrine. *Columbia Law Review* 110(6), 1377–1447.
- Goldberg, V. P. (1976). Toward an expanded economic theory of contract. *Journal of Economic Issues* 10(1), 45–61.
- Grossman, S. J. and O. D. Hart (1986). The costs and benefits of ownership: A theory of vertical and lateral integration. *Journal of Political Economy* 94(4), 691–719.
- Hadfield, G. K. and B. R. Weingast (2012). What is law? a coordination account of the characteristics of legal order. *Journal of Legal Analysis* 4(2), 1–44.
- Hadfield, G. K. and B. R. Weingast (2013). Law without the state: Legal attributes and the coordination of decentralized punishment. *Journal of Law and Courts*. Forthcoming.
- Halac, M. (2012). Relational contracts and the value of relationships. *American Economic Review* 102(2), 750–779.
- Hart, O. D. and J. Moore (1988). Incomplete contracts and renegotiation. *Econometrica* 56(4), 755–785.

- Hart, O. D. and J. Moore (1990). Property rights and the nature of the firm. *Journal of Political Economy* 98(6), 1119–1158.
- Hart, O. D. and J. Moore (2008). Contracts as reference points. *Quarterly Journal of Economics* 123(1), 1–48.
- Holmstrom, B. (1981). Contractual models of the labor market. *The American Economic Review* 71(2), 308–313.
- Holmstrom, B. (1989). Agency costs and innovation. *Journal of Economic Behavior and Organization* 12(3), 305–327.
- Klein, B. (1996). Why hold-ups occur: The self-enforcing range of contractual relations. *Economic Inquiry* 34(3), 444–463.
- Klein, B. (2000). The role of incomplete contracts in self-enforcing relationships. *Revue d'économie industrielle* 92(2), 67–80.
- Klein, B., R. G. Crawford, and A. A. Alchian (1978). Vertical integration, appropriable rents, and the competitive contracting process. *Journal of Law and Economics* 21(2), 297–326.
- Klein, B. and K. B. Leffler (1981). The role of market forces in assuring contractual performance. *Journal of Political Economy* 89(4), 615–641.
- Kreps, D. M. (1990). *Perspectives on Positive Political Economy*, Chapter Corporate Culture and Economic Theory, pp. 90–143. Number 4. Cambridge University Press.
- Lamoreaux, N. R., D. M. Raff, and P. Temin (2003). Beyond markets and hierarchies: Toward a new synthesis of american business history. *The American Historical Review* 108(2), 404–433.
- Langlois, R. N. (2003). The vanishing hand: The changing dynamics of industrial capitalism. *Industrial and Corporate Change* 12(2), 351–385.
- Langlois, R. N. (2004). Chandler in a larger frame: Markets, transaction costs, and organizational form in history. *Enterprise & Society* 5(3), 355–375.
- Levin, J. (2003). Relational incentive contracts. *The American Economic Review* 93(3), 835–857.
- Macaulay, S. (1963). Non-contractual relations in business: A preliminary study. *American Sociological Review* 28(1), 55–67.

- MacLeod, W. B. (2007). Reputations, relationships, and contract enforcement. *Journal of Economic Literature* 45(3), 595–628.
- MacLeod, W. B. and J. M. Malcomson (1988). Reputation and hierarchy in dynamic models of employment. *Journal of Political Economy* 96(4), 832–854.
- MacLeod, W. B. and J. M. Malcomson (1989). Implicit contracts, incentive compatibility, and involuntary unemployment. *Econometrica* 57(2), 447–480.
- Mayer, K. J. and N. S. Argyres (2004). Learning to contract: Evidence from the personal computer industry. *Organization Science* 15(4), 394–410.
- Mnookin, R. H. and L. Kornhauser (1979). Bargaining in the shadow of the law: The case of divorce. *Yale Law Journal* 88, 950–997.
- Simon, H. A. (1951). A formal theory of the employment relationship. *Econometrica* 19, 293–305.
- Telser, L. (1980). A theory of self-enforcing agreements. *The Journal of Business* 53(1), 27–44.
- Williamson, O. E. (1975). *Markets and Hierarchies*. New York: Free Press.
- Williamson, O. E. (1979). Transaction-cost economics: The governance of contractual relations. *Journal of Law and Economics* 22(2), 233–261.

Appendix

Examples

[1] *Really, we have no written contracts that obligate us to purchases or anything like that. We call up a place and order over the phone aluminum and steel wire like all other customers... we have never really written out contracts or that sort of thing. We have hooked up suppliers and gotten other stuff done with people coming in and not demanding that they sign a contract from our end. We won't produce those.*(motorcycle wheel manufacturer)

[2] *Most of our customers we do not have contracts with. They just place orders with us and we ship the order. . . We have general terms and conditions placed in order forms. Suppliers, it's the same - they typically work without contracts. . . What I have found with contracts, it's a little like computer problems. You can never think of all the possibilities in a contract. A contract can quickly become obsolete because now you are dealing with all this kind of stuff that you weren't thinking of when you wrote the contract in the first place. And so I think a contract works best when it's kept broad enough instead of being so precise that it becomes an impediment to business. (brake manufacturer)*

[3] *I have very little interest in going forward with any sort of contract with anybody that I remotely trust, because I would rather just agree to a one-pager that broadly outlines the deal. (independent film company)*

[4] *Lawyers are usually overreaching. You ask them to review [a deal] and just make sure that legally the bases are covered. They don't understand those instructions. They don't. Well, some of them do, but they are the good ones. Most lawyers feel that their job is to protect you from yourself. . . It's not just that they want to present the right legal framework. They are actually changing the terms. I can agree on the deal with [a partner's] marketing people but then it goes to their legal and they change the deal to something that I can't accept. . . (brake manufacturer)*

[5] *But I just don't trust the lawyer. I feel when they write anything, it's somewhat generic and they don't really understand what I'm trying to do. And so I end up going through the whole thing. I am paying them to send me something so I can re-write it and pay them to read what I wrote and fix it, and send it back to me so that I can tell them that they did not understand what I was writing in the first place. . . I shouldn't be doing it but I don't trust the lawyers to do it properly, and they are going to bill me \$10,000 for a stupid piece of paper that is going to sit in their drawer. So we know what the deal is and they either do it or they don't. They either trust me or they don't. (candy manufacturer)*

[6] *[Distributors] have pretty extensive contracts that we sign with them for exclusivity. Those are the only really negotiated things and it's such bullshit. No one ever looks at the things. . . You spend all this time, energy, effort, money, moving one comma to one side, and the other to the other side. And then you throw the thing in the drawer. . . (candy manufacturer)*

[7] *As a general rule, I will avoid legal involvement at all cost, because it is not helping resolve things. It's only there, really, for contracts that are necessary to engage in a job or a business situation or a bank loan, that are essentially unavoidable steps in a business deal - where paper trails need to exist.* (independent film company)

[8] *If we did everything by contract it would basically slow us down; it just won't work in our business. We would not be able to call, pick up the phone and say: hey, I have this order coming in, please get the materials ready* (clothing manufacturer).

[9] *We talk to everybody, it's all... it's mostly conversation. I got a problem I call somebody; I call somebody on the phone and we deal with it... It's all trust.* (undergarments manufacturer)

[10] *I don't care because I know that if I had a dispute about the deal, I'd go to [the partner] and say: you know the spirit of our understanding, so I don't care what's in the contract; I care about what you and I agreed to, like in the old mafia, with a handshake.* (independent film company)

[11] *There is no formal contract. All I have is an agreement [for partners] not to make certain formulas that are proprietary... I mean, they are "proprietary" in the sense that [our partners] aren't gonna jeopardize their business with us [by making] a similar tasting [product].* (candy manufacturer)

[12] *We will be stronger if we treat them well, pay them on time, and they will follow us too. There's other people like us. And look, we don't like the way we're being treated, we'll go somewhere else. So we have choices also.* (clothing manufacturer)

[13] *All in all, [our choice of a contracting partner] was based solely on our take of them and we thought they were reputable and extremely skilled. And that's what we needed but I just can't see how you would write a contract on that.* (motorcycle wheel manufacturer)

[14] *It's really the good old-fashioned way—I have to make a judgment call on how reliable the person is.* (brake manufacturer, asked how he ensures his partners in China do not use his technology and training to supply his competitors)

[15] *I am, for better or for worse, gravitating to the people that I trust so that I don't have to get into these convoluted legal relationships that are so unen-*

forceable and fraught with misinterpretation. (independent film company)

[16] *... Yeah, we definitely have a formal contract in place. The contract was signed after we had negotiated all of the business terms... before we started, for sure. Before we did anything to get the business relationship in the works, we signed the contract. So we negotiated everything, all the business terms, all the legal terms, and then we got started. We have made amendments to it mostly for pricing, and some expansion of services.* (online expert knowledge platform)

[17] *We give our client a contract to sign. We have an investigation period where we find out and go through all the discovery of what we are going to be doing, and how they want us to do it. Then base the contract on all of that information... I think because it's just the comfort of knowing that both parties are protected by a contract. And if there's going to be a dispute, there is something to fall back on other than an e-mail... being more formal in a lot of cases still is better in the thoughts of people doing business with us.* (logistics services)

[18] *We have partnerships, relationships with distributors and we have important economic relationships with other service providers whose services are included in our [...] products... They have an extremely high legal content.* (internet portal)

[19] *It's the precision of the contract [that we find valuable]; it's the imprecision that leads to the controversies... it comes down to the same thing: clarity and definition* (M&A consulting services)

[20] *I don't want to do business without a contract... If you're going to invest in something, even if we are putting our time into it, I have to understand who is going to own what and how it's going to be... how the future rights are going to be handled... I mean if you're just selling something, then I guess that means the UCC applies. There's a commercial code and you know, you could imply the terms. But when you're doing innovation and the kind of stuff we do, often there's no pattern for what you're doing before. So you need to have some kind of agreement.. particularly if there's a lot of money involved. I mean sometimes these ideas like I said the one that was millions of dollars, we have another one that we've generated 3 million dollars of royalties on it, it's all documented, there's 3 amendments to that agreement.* (optical systems)

[21] *So the contracts have agreements about what you're going to design, what the parameters of the design are, what the delivery dates are, what the cost is to the companies. And they also have conflict resolution paths (they do or they don't), they have agreements about how you're going to program manage this, how are you going to track the dates, who in the companies is going to communicate, are they going to live together in the same place, because you're trying to collaborate and try to innovate together. How do you embody that in a contract safely? The contract gets you to anticipate the actual specifics which you're supposed to deliver to an n-th agree and what happens if you don't agree or don't deliver. What if things change? That's where contracts can be good or bad.* (computer processor manufacturer)

[22] *I cite contracts all the time; you are in breach of this and that... but I've never actually said we are going to use the contract to extract something from you and enforcing it in a court of law. I have never done that.* (high-tech consumer electronics)

[23] *The contract gets dusted off frequently.* (logistics services)

[24] *The contract is effective because it shows direct consequences of inaction. When I have a problem, first thing I look at is [liquidated] damages, what am I responsible for here. The contract is an operational document that lets everyone know how they can proceed... it is the basis for business reviews and performance assessment.* (analytic database systems)

[25] *... I just refer to the contract first because that was our guiding principle basically. Especially when we get a little bit more customized, because that's what we agreed upon. And you know... hey, we both signed off on this and that's what we are supposed to do... The whole reason I am putting emphasis and the time and effort into that contract in the first place, is that I can rely on that if I have to.* (laser inspection system manufacturer)

[26] *I would use [the contract] as a reference document. It wouldn't be [that] I never go back to these things, [that] they are in a file drawer. I dig them out when I have to, when there is some reason: what did we do? I can't remember, what did we agree to? Oh, that's what we agreed to. All right, well that's the deal. Get on it with it.* (online collaboration platform)

[27] *It's not infrequent that we have to do something; we have to change something as time goes by; we change a term or something... But we would say... we would reference the contract. I mean you won't just write a letter*

in vacuum; you are going to reference it. . . (optical systems)

[28] *[Contracts] are frequently revisited to understand your own obligations and the other party's obligations. . . I would frequently analyze the contract if something we are considering doing complies with our relationship. . . (internet portal)*

[29] *Every time someone comes and says to me, I think we need to terminate this relationship, or revisit this relationship, or assess this relationship, the first thing I do is look and see, what is the relationship? Not just what someone says it is. I want to read what we agreed to, whether it was two months ago or twenty years ago. That's what's really important - you pull out the contract, so you would refresh your memory. (business software solutions)*

[30] *[To resolve a problem do you reference contracts?] That's the first thing we do. When you're sort of qualitatively disagreeing, that whole kind of he-said-she-said discussion, you have to go back to the contract and see what the words mean to [resolve] the discussion. (high-tech equipment provider)*

[31] *[When do you pull the contract out of the drawer?] When you find a bug/error in the processor - who's responsible for that? When they're late in delivery do you get a reduction in some of the fees? When someone comes after you for IP/patent infringement, if it is in [company B's] processor - who pays for it? Do we or does [company B]? [Do you reference the contract if you're thinking of pursuing a new direction or getting out of a relationship?] Absolutely. What can I get away with, yeah. How can I reduce my commitment to this venture? We agreed to pay a certain amount; can I break the contract? How much does it cost to break the contract? Things change, or there's a better provider that costs less and you've made a long-term commitment and you try to get out of that long-term commitment. (computer processor manufacturer)*

[32] *The threat of litigation is not necessary for the other aspects of enforcement to work. It helps having the possibility out there but everybody knows that nobody wants to go to court. (high-tech equipment provider)*

[33] *The only thing I can say is it doesn't go to court because court is not effective. You can't go to the legal system for something so short-term focused and so urgent. [. . .] A contract is a terrific outline. Maybe there are things better than contracts. If you could [map out], when people are angry, a dispute resolution path for big companies before you start talking about a lawsuit,*

nobody will take that to court; people will discover their own ways. In the end, even if it goes up to the CTOs, some conversation happens that resolves [the issue]. It never goes to court. I have never been in a contract that went to court, even when things went just terribly wrong. Instead, you find a way to resolve it among like minds. (computer processor manufacturer)

[34] *Have I ever thought I would end up in court? No! We have spent a lot of time on [the contract] and neither party has any intent to use this contract because by the time you get to the point where you are [going to court], now you have a public relations issue. We are a consumer electronics company. You view those kinds of things. . . it has impact far beyond the contract: other people don't want to do business with you, you could stifle innovation, you could have a public relations or consumer products problem . . .* (high-tech consumer electronics)

[35] *[N]othing would cost enough to make me go sue somebody.* (laser inspection system manufacturer)

[36] *. . . okay [suppose] I have an individual, an employee, who signed an NDA [non-disclosure agreement], right? So we start a legal process. Now I am running lawyers, and they say, well, what are your damages? Well, I say: I don't know, the damages are all going to show up a few years from now, and they are going to go to the competitors, then they got to make it, get it out to the market. . . so that gets very murky. And on a practical level, let's say it costs me three hundred thousand dollars. Well, my ability to get these thousands of dollars is for me tenuous, so very quickly, you do the first few, and you realize it's way too much. . .* (business software solutions)

[37] *The fundamental problem [with litigation], and again, this is very much a Silicon Valley perspective, is: the things that delay you are as bad as the things that don't happen. They're kind of equivalent. So, the minute you open litigation, you've put in this time delay. [Moreover] if [your customers see you involved in all kinds of legal problems, they start to wonder] 'what's going on?' . . . then they [decide] "I'm not going to do business with them." If somebody views you as high-risk— it's absolutely deadly for small companies to start up in anything to do with litigation. . .* (online collaboration platform)

[38] *[What is the best strategy for resolving conflicts?] Well certainly not taking legal action - it's not the best way. It costs a lot of money and usually nobody is happy. Seriously, almost all issues of conflict need face-to-face dis-*

cussion. I find that by far the best, and to make sure I never get [to legal action] in the first place. I feel it's necessary to open discussion: "here is my intent," and if I got to tailor [all the language to] that supplier because it's important enough, I'll do that. But then I have a feeling we won't ever have to use that contract because we [had] agreed, we understood [the terms], and that was something we both agreed to . . . I have a feeling it'd be smoother, not have to go through the legal process if there's a problem. (laser inspection system manufacturer)

[39] *The contract is more of an operating manual for the people. For us to go to court would grind things [to a halt]; that would be terrible. (semiconductor company)*

[40] *[Theoretically, going to court] is always an option, but I think that everybody knows that if it happens, both parties lose. There will be a winner and a loser, but at that point, it's bad for everyone. (online services provider)*

[41] *I think they know that we're not going to wake up [one day] and go to court. I think if something goes wrong on either side, there will be a business to business discussion. Almost every partner - if we do something wrong or they do something wrong - has understood that it could be a long cycle were we to meet with the lawyers. If it's just a mess and we don't trust them then go straight to litigation. You can, there just has to be a long list of prior bad behavior. (high-tech equipment provider)*

[42] *We've signed thousands of NDAs over the years, we've had people breach them, and it's usually not worth following it. . . it's just part of the process. (business software solutions)*

[43] *[You find yourself] calling these lawyers [for advice in the context of a dispute] who say these are non-enforceable contracts. . . I always hear lawyers say: don't do MOUs - memoranda of understanding - they are worthless; they are not legally enforceable by law. Well they're right. They are not. But that's not why we're doing it. This memorandum of understanding - it's a memo that says what we've been talking about, what we agreed to, and we want to be clear with each other. So it's all about clarity. . . and so those types of things become useful instruments for communication clarity. [Even if they] become a contract; well, I'd argue they are still for communication clarity. (online collaboration platform)*

[44] *So people think basically that if you act according to expectations and the*

agreement, then you're a good company, and if you breach it, you're not a good company. It doesn't matter if you end up going to court or not, I mean, it just matters that you didn't keep your promise. (online expert knowledge platform)

[45] ...if we misuse [Company A's] or [Company B's] IP, nobody is going to trust us or give us anything and we will be gone. You have to have [...] trust. The disastrous scenario is that [our partner] goes to our mutual customer and in order for the mutual customer to get their chips done, they need [our] and [our partner's] engineers in the room working together. If they go to [mutual customer] and they say "you can't let any of [this company's] people in the room" and [...] if [our partner is] able to say "let us show you what happened - they stole our stuff" ...if they have a moral argument that [the mutual partner] can't disagree with, [our mutual partner] would say "ok, I get it, we have to kick them out and take their competitor [instead] because they are not trustworthy and I can't force you to compromise your IP."(semiconductor company)

[46] If either side were to do that [breach confidentiality terms], it would look real bad for them. So it would have ramifications then. You'd very quickly develop a reputation of someone not to do business with. So if this business went south, or it got to where you didn't [want to deal with them anymore], ...in the end agree to disagree. You don't make a big deal about it, because you know that particularly in business, there's a very good chance that somewhere down the road, you're going to see that company or that person again under different circumstances, so don't burn your bridges, it'll come back to you. (online collaboration platform)

[47] We don't need a contract to have the relationship, to do what we do. We could agree on the terms. What makes these things work is the alignment of interest. [Company A] wants to promote their [] product to as many users as possible. [Company B's product] gives them a way to do that. [Company B] wants to offer users choice for different [] products. [Company A] provides a way to do that. Put the two together so we are both interested in being in a relationship. It's like being married. Are you married only if you have a justice of the peace or a priest sanctify your relationship? There is a commitment that goes beyond the anointing and the allocation of risk in case something goes wrong. (internet portal)

[48] But maybe we go over and above what we need to do to get the job done,

even if it is more than what we were contracted to do. We just do it knowing that we really want to serve the client and we want the end the way the campaign or the project ends up is very important to us, so we want it to be the best it can be. So we might go over and above what we contracted to do just so that things have a great conclusion. (advertising agency)

[49] *I think choosing the right partner is the most important thing. It's just like interviewing a job candidate - I mean, you can put anything in the contract about how they have to give you this level of service and that - but if you just hired someone who's not that smart, but tried their hardest or something, nothing you put in the contract is going to help that... so to me the most important thing is picking the right partner, doing the due diligence to figure out who performs well, who's trustworthy, who's going to stay around, and then it has to work for your business, and then everything after that is just figuring out what the optimal terms might be, and then looking towards the worst case scenario.* (online services provider)

[50] *What we cannot do and never would do, and would be destroyed if we did, is to say [to someone] "oh, by the way, did you know that [Company A] is doing this?" Because engineers move from [Company A] to [Company B]! Another protection this industry has is that you know that when you are talking to [Company A] in a room of engineers, some of those people are going to work at [Company B] so you cannot go to [Company A] and say here is how you destroy [Company B] because some of those people are going to be at [Company B] later and say "you know, those guys [from this company]... they said ... " The mobility in the industry forces you to be forward on all of that stuff.* (semiconductor company)

[51] [Is reputation information valuable ...?] *I don't know whether it is a high-tech thing, but most of the information on that is well-known because it is a small industry. I have someone who works with the company and whatever the issue was, there is someone here that has worked with that company who had that problem on that issue. But even when I was in Taiwan, there was a very tight connection, and a tight connection in Japan, about who does what. And we get feedback from our big partners. [They] tell us, hey, you don't want to work with them. They may have their agenda to tell us that, but they also know the partners that you are working with and they understand what their intentions are.* (high-tech consumer electronics)

[52] [How is a collaborative product-development relationship with a cus-

tomers maintained over time?] *Well I think it's willingness over time for them to be open about their business needs and sharing and trusting us. So it's a trust relationship... [What is it based on? How is it built?] Time. Like any other trust relationship, it's based on time. And having a history of sharing competitive or crucial business information and keeping it confidential. Having never breached that confidence. It's not something you do 6 months after meeting a company, I mean our customers have been customers for a long time. And they often rely on us now to the point where they share things like that [previously mentioned] problem, sometimes they do, sometimes they don't.* (optical systems)

[53] *Nobody can or has the time or the legal staff to stop the normal course of business and spend the time [in courts when there has been breach]. I'm either going to not work with you anymore (one decision people can make) or I'm going to work with you but you are going to have to make it worthwhile because you just cost me a lot of money. And then the management teams work it out. If they don't, they would just say "I don't want to work with you anymore; I'll go to your competitor" and it gets worked out that way. [And if you are pretty certain that you delivered a good product?] We are not going to make them reasonable and we need to work this out somehow. [We consider:] what is the value of the continuing relationship, how do we keep these teams working effectively? How do we placate everyone and keep moving forward? Maybe I will be able to tell them we got a discount on the next deal or [this company] will make that up to you by giving you this other contract or it is all worked out. The whole game is keeping things moving forward and don't stop to resolve [issues].* (semiconductor company)

[54] *[I]t is infrequent that [when] you take [the contract] out of the drawer [that you] then talk to the other party about it. Because you would not want to tell the other party that you are evaluating your obligations. I frequently analyze the contract [to determine] if something we are considering doing complies with our relationship but I won't talk to the other side about it. There is no upside; there is no benefit in telling them; there is little benefit in one telling others "I am considering divorcing you - I am considering other options." What would be the upside? It destabilizes the relationship.* (internet portal)

[55] *[The process of sharing code under the terms of an NDA] is a behavioral process where communication over time signals a rise in importance of the proposed business. It furthers the relationship and their commitment to share*

information and further the proposed deal. [The interviewee elaborated that the sharing of information was critical to ensure that partners can capitalize on their joint-technologies by customizing products for the end consumer. At the same time, he explained that neither partner is willing to share information with the other until they detect that the partner is going to commit sufficient resources and energies to the joint project.] (analytic database systems)

[56] *You can have an honest disagreement that if you read [the contract] rationally, well I understand why you disagree. Well I gotta figure this: you're a good customer, you're a good distributor, you're a good partner, okay. Well let's come up with something, let's extend the terms, let's change the royalty rate, let's do this, let's do that. Or come up with something that we both win-win. You know, I want to keep the relationship, I don't want to blow it up over this, and you don't either. But I understand that you've got a problem with it, and it's not working for you. Or vice versa, it's not working for me.* (optical systems)

[57] *Typically you're looking at the long term value. [In the] short term you don't really know what the value of the relationship is going to be long term, you haven't had the time yet to learn. So the example: you go out on a date, you don't really know in the first month if this is somebody you want invest the time in. Right? If you have a customer that comes in, it's the first time they've ever used your product, you don't know if they're just going to use it, and they're gonna dump it, or they're going to keep using it. So you really can't assume . . .* (optical systems)

[58] *You can't [specify required performances] because you don't know. You can't. You can say things like: best efforts, good faith efforts, I'll put this many people on it, but. . . that's all [the contract] can do. And if you're trying to do more than that, then those people won't sign it. "We've gotta do exactly this? What if that's the wrong thing? Who wrote this?"* (online collaboration platform)

[59] *Well the contract itself is not for a single instance. It's for a service. So, yeah, part of [the problem] is [that] there are loopholes that exist, so [in] every single instance that contract was not thought through, [that means that] no one has asked the question: well what are we going to do in that situation? How are we going to manage this situation?* (film production)

[60] . . . [W]e just sat down and agreed on milestones of payments. But the next part of the contract is even harder to manage: what if these milestones don't happen? And what did the buyer have to do in order to show that they did? . . . Good faith, is it just good faith? "We agree to act with good faith." [Is that enough?] Probably not. . . . Better contracts . . . might include a marketing plan: "We agree that we will execute this marketing plan or trial plan" and then [the parties] have to document that. And if they don't do that plan, is that then, a breach of contract? So really this next [part of the contracting exercise involves deciding] how far these parties [can] go in defining what good faith is and applicable efforts in achieving those milestones. (M&A consulting services)

[61] So [Company B] runs promotions all the time that increase our revenue. They are not doing that to benefit us but because it is beneficial to them to distribute our [product] because we created the right commercial alignment. Yet I don't have a [specific] contract [term requiring] that they do that. (internet portal)

[62] The contract might say "you can't use my IP to improve your property." [But] I fixed a bug in my IP. Is that an improvement or a bug fix? It gets pretty fuzzy [How is that fuzziness resolved?] It's really not. It's just an argument at the next contract. "I think we need money from you because I think you were improving your product using our IP which you weren't supposed to do." "No, we were just fixing bugs!" I think this has more influence on the next negotiation. (semiconductor company)

[63] The contract can't embody everything that will actually happen. It's not as simple as buying chairs. If you're buying 500 chairs you sign for it [and it's done]. Here you're developing in real time and problems can arise and you have to solve them. (computer processor manufacturer)

[64] **Scope of Collaboration.** *The Parties will work together to research, develop and commercialize Products pursuant to this Agreement. All such research and development work shall be conducted according to a Research & Development Plan during the Collaboration Term established and approved by the Research & Development Steering Committee pursuant to Article III. The Research & Development Plan will be conducted with the goals of (a) worldwide development of product in Primary, Secondary and Tertiary Indications and exploration of additional indications; and (b) development of efficient and economic processes for manufacture of Product. Procter & Gam-*

ble will commercialize Products pursuant to Article V. Alexion and Procter & Gamble agree that they will conduct the Research & Development Plan on a collaboration basis with the goal of commercializing Products.(Collaboration Agreement between Procter & Gamble Pharmaceuticals and Alexion Pharmaceuticals (1999). Available at techagreements.com)

[65] Product Pricing

Year 1 . . . \$6.00/board foot

Year 2 . . . \$5.50/board foot

Year 3 . . . \$4.20/board foot (Target Price)

Sharing of Risk and Reward. *With \$4.20/board foot as the target, both parties agree to share the risk and reward. If \$4.20 has not been reached by the start of Year 3, the difference between actual and target price will be shared at a 50/50 rate. Similarly, the cost advantage below \$4.20 will also be shared. For example, at the start of Year 3, if the actual price remains at \$5.50, Customer's price will become \$4.85, representing an equal sharing of the shortfall. . . . The price agreed to at the start of Year 3 becomes the baseline for future cost reductions and savings credited to Supplier's 10% of value added obligation. . . .*

Raw Material Increases. *Customer will be provided with documentation that the raw material increases have been accepted by the OEM. These increases will be reflected in the actual price as well as the above mentioned target price. Pricing is subject to negotiation if 100% raw material pass throughs result in an uncompetitive situation . . . Increases of greater than 2% justify an immediate review with implementation of a documented increase to be agreed to by both parties.* (From a co-development agreement between a foam manufacturer and manufacturer of interior systems for sale to original equipment manufacturers in the auto industry (using fictionalized prices). Used in a case study, *Martindale Foam*, prepared by Hadfield and available on request.)

[66] MTI's Duties. *MTI shall use reasonable commercial efforts to maintain adequate manufacturing capacity and sufficient supply of the Products during the Term. Should MTI fail to maintain adequate manufacturing capacity and/or sufficient supply of the Products, MTI and Abbott shall in good faith use their best efforts to develop jointly a plan to ensure continued Product supply, which plan may include, at Abbott's reasonable discretion, Abbott's exercise of its standby right to manufacture the Products under Sec-*

tion 4.12 and appropriate mutually agreed upon Forecast adjustments pursuant to Section 3.3. MTI shall use commercially reasonable efforts to develop appropriate Product Line extensions in order to assure maintenance of market-competitive Products in the Field. MTI shall give due consideration to recommendations from Abbott in this regard.(From Exclusive Distribution Agreement between Abbott Laboratories and MicroTherapeutics Inc. Available at techagreements.com)

[67] **Prototype.** *The parties shall use commercially reasonable efforts to undertake and complete development of a prototype model of the Cable System.*

Joint Development. *As more specifically set forth in the Statement of Work, Cisco and Terayon will use commercially diligent efforts to develop the Interfaces.*

Development Schedule and Specifications. *The parties will use commercially diligent efforts to prepare a Development Schedule and Specifications for the prototype of the Cable System ("Phase I System") with which the parties will agree to and comply. Each party represents that it is capable of successfully completing its portion of the Phase I System and the Phase I System may be available for field trials by Cable Operators no later than October 1, 1996.*

Delay. *Should a developing party ("Developing Party") incur delay in meeting the Development Schedule, that Developing Party shall promptly notify the other party in writing of any delay in meeting the Development Schedule hereunder. The parties agree to work together in good faith to develop a mutually acceptable revised development schedule taking such delay into account, and to meet the revised development schedule. However, should the Developing Party fail to meet the revised development schedule, the other party at its election shall be relieved of its obligations under Sections 4 and 6 below upon written notice to the Developing Party.* (From Product Development Agreement between Cisco Systems Inc. and Terayon Corporation, available at techagreements.com)

[68] *For us the primary value of the contract is a guide on how to answer questions about the relationship, but the ultimate remedy for us usually is not, if you breach the contract, then screw you! The remedy is, you breached the contract, and you're not the kind of company we want to do business with. So it's a litmus test for: do they value us, do they have integrity, do we want*

to [continue to] do business with them?(business software solutions)

[69] *I was working with a third-party supplier with a design that we were going to implement into our [own] design. They had a way of going twice as fast as we could go. At a certain point we realized it wasn't twice as fast, but it was three times as much power, which isn't a good thing. Their [folks] said "wait a minute - we did not have to think about power" so the contract served as the outline and we ended up using it as a directional "here's how we should resolve this situation" even though it's not specifically mentioned in the contract.*" (computer processor manufacturer)

[70] *[Our partner] is a very, very valuable company. They have a lot at stake and when they look at their strategic threats, one of their largest strategic threats is us. It's that we will go into their business and they need to make sure it does not happen while still working with us. In other words, [the contract] makes it very clear where the boundaries are and what's going to be the impact if we do become their competitor and [they] try to keep that from happening. [. . .] The contract sort of sets the "no fly zone" - don't go anywhere near that; that would destroy us. [The contract] provides a very nice barrier beyond which you cannot go and nobody wants to violate the contract - everybody knows that contracts are absolute. [. . .] On a day-to-day basis, nobody thinks about the contract. People think about the procedures that were established in the contract and things like that. It gets to sort of an ethical position - you don't want any ethical violations and [. . .] anything you imagine could be in the contract, you don't want to go anywhere near it. That would be disastrous.* (semiconductor company)

[71] *[The contract] creates guardrails for the relationship. It doesn't solve all things but it shows what these parties can do and that's important because there is a lot of uncertainty and a lot of chaos. So getting started on how parties can trust each other: we both know we have risk, so we [use the contract to] create manageable risk profiles for both parties.* (high-tech equipment provider)

[72] *[The contract] sets a type of boundaries of what's acceptable and if some people are going too far then the contract is like a whip to say 'hey, you are doing something illegal outside the contract.'* *Contracts are setting the boundaries but they don't define the relationship inside those boundaries.* (optical telecomm network solutions)

[73] *[The contract] does show intent. And it does define intent. And [...] until you start to really go into the contract, you don't really know what you are agreeing to do. So a lot of that process is very clarifying - what you intend to do together and what the boundaries will be. (semiconductor manufacturer)*

[74] *The contract has to serve in some places to ensure that if things go [wrong]—if one side is much more optimistic, the other side cautiously optimistic—that one side or the other doesn't withdraw when their expectations are not immediately met, because it's very common that one side is all “we're going to make so much money off this!” “That's great, I'll be satisfied if we do this. You expect to do [that]. I'll be happy with this.” Well, let's put [a contract] in place, so we're kind of defining the level of effort such that, since we do not really know how things are going to go, we are clear on what we are going to put into this to try to be more successful. And if not, well, okay. (online collaboration platform)*

[75] *In the room you would say: “remember [that] we said we were going to do is this, this, this and this. And maybe this and that got further refined by the lawyers but in the end we understood what our relationship was. And you are outside the bounds!” You might say: “we gave you this IP, you said you were going to do this with it and [yet] you did this with it; what were you thinking?!” In the end you are deciding whether to continue to do business. The reasons you do things on the whiteboard [with the lawyers] is to establish an agreement beforehand that will govern the relationship and you can call each other on it. (semiconductor company)*

[76] *I've involved lawyers early, not to actually write things down but to get a sense of what we're trying to accomplish. Because otherwise lawyers tend to write a very generic contract as though we're buying a home, or constructing a home. Instead, I want to get the right kind of lawyer or a lawyer with the right intellect. I want the lawyer to understand that we're constructing a home but we've never built a house like this before; we don't know what the stress on this beam will be until we get there. So, be aware, listen to what the customer is saying, listen to what we're saying and start to think about how we can construct a contract that helps us construct this house. (computer processor manufacturer)*

[77] *The good thing is we have this contract because we are trying to legitimately get something done. Both are working together for a major customer and things have [come] to a halt because of [this problem] so we have to fix*

it. [Our customer] has no patience to bring lawyers into a room - they just want it fixed. Management is heavily incentivized to find a way around this problem. And it might just be done as a one time [thing] - "we are going to do this in order to make this problem go away." The same thing happens when it is us and the end customer [...] for instance. We are working on a project and there's some technical difficulty. "Your tool does not work." "No, no, it works; you are using it wrong." It goes up the management chain, [...] where generally the management's role is to say "ok, there are all sorts of things you can do to resolve this: let's get an independent group of engineers to take a look at it, let's try to accelerate the schedule for this ..." Maybe we think [they're] probably wrong but we just need to solve the problem and fix it. We don't need to be right. [...] so when there are misunderstandings like [this problem], they are all resolved in the context: what we are doing together is really hard, misunderstandings occur, and we just need to resolve the situation. In six months we will have another technical problem to resolve. The[se] are not sort of you're cheating us or we're cheating you [issues]. (semiconductor company)

[78] Too many times when you do a contract you try to anticipate what is involved in a multi-year relationship in a document that nobody could possibly think through in a multi-year way. The tech progresses quickly, the problems aren't apparent, and you are in the midst of design. So you have to be very careful in the contract not to encourage the exact wrong behavior. There has to be alignment between those parties and that's a difficult thing to craft, especially if you're working with big companies who want security. They want to know that everything you say is true and it's going to be delivered this way, and smaller companies like us have to be light on our feet and realize that we will to the best of our ability perform on our commitments, but we'll come up against roadblocks and when we hit those roadblocks, we'll depend on our quick wittedness to get around it. But what if that violates how we agreed to do it in the contract? The contract is a living document. When you have a multiyear contract you have to realize that things will be changed repeatedly. (computer processor manufacturer)

[79] [In] the agreements that tend to look more like business partnerships, which comes closer to our investor/strategic partner [case], that depends on active participation on both sides to make it successful, one can define specifics, like we will agree to do this many sales seminars, we will agree to provide this level of support with this ... So then you do it, 20 people show up

and 15 of them look like they have no business being there, and the other 5 are not interested, or they are competitors, or something like that . . . So you decide, ultimately it is a result where you say: 'you know, we both worked really hard at this' [or] you could say 'I thought you guys did a great job, we worked hard, it did not work' and then definitely say 'let's try something else.' And you carry on the spirit [of the contract]. The contract may have said seminars and you end up doing something totally different. But the spirit of it was such that we're going to jointly work to try to [make] business together. And yes, we said seminars, but now we know more, and it's better if we try this other thing. And maybe the third thing you try, you find that solution. (online collaboration platform)

[80] Or a lot of times, instead of terminating or amending the contract, we would add terms informally to the contract- a lot of times that's done by an e-mail, and some people would say in legal terms if there wasn't an integration clause, then it's totally fine to add an e-mail saying, hey from now on can you turn this around in 3 days instead of 4, and they turn back and say, yep 3 days is totally fine, we'll do that from now on. If the original contract says 4 days, and they're still doing 4 days, is there really a breach? Some people say yes, some might say no, but if the contract itself is silent whether or not you can change some of its terms whether orally or by writing, then I think you can. When this company was in its infancy, it very much relied on confirming emails, more than formalization of contract. If you tell someone I'd like you to start turning stuff around in 3 days, and then they say okay and they're turning it around in 3 days, and they do so for the next 6, 8, 10 months, and they keep going, to many entrepreneurs who don't find the risk great, that's enough. You don't need to go then and say now that's put that in the contract and we'll amend that term and take care of it. That being said, if that contract has a termination date where it says it will expire on this date, and it's coming close to that date, they'll say we need to sign an agreement again, so they'll take those terms they had informally agreed to and put them in the new one, and sign that agreement. So it's a little bit of a patchwork quilt, but then it's what I call restated, and then it moves forward again with maybe some patchwork, hopefully less. (online service provider)

[81] Well you know, basically we'd put what we call a 'change order' together if the scope of work or if anything changed. and we would present that before we engaged in any new type of work so there is no misunderstanding. You know often times that happens; these guys are working with a client creatively

and they thought they were gonna do one thing when they first started but it changes in some way shape or form. Or the client asks us to do more. Anytime we have a client meeting, there's always a conference report done by the account executive that goes to tell the discussions we've had. And then at the point where a scope of work might change, we actually create a change order that explains how the work is changing and how many more hours it might take or whatever is different from the original proposal and we get the client's signature on that. So that, again, so that we have their approval. You know, those things happen but it's a communication thing. (advertising agency)

[82] *Clearly when you do your first one, you don't always anticipate, well, you know, the things that will come out of it and there are lessons learned. So when you renegotiate, it gets to a whole new level of complexity because now you have a better understanding of the downstream impacts of these decisions that you make in terms of the contract, like [when] you realize that you need more exclusivity on this. Or hey, I find out that they could be licensing it to somebody you don't want [them] to or you find out that there may be an opportunity to develop a downstream supply claim where you hadn't anticipated the contract impact [...]. So, all of these things start to come into better focus as you move forward in this. So, as you [are] jointly developing and you realize that you are adding more capability than your partner in certain areas and they are benefitting from it, and you are not getting any cool benefits somewhere else, then all of these things want to be leveled out to what's an equitable contract. [...] I mean there are just a ton of things that when you start into a kind of a new area of collaboration you don't anticipate always the downstream effects and as you negotiate successive nodes or you extend the contracts, it becomes much more complex. The contracts today for [semiconductors] are probably a foot or more paper when printed. (semiconductor manufacturer)*

[83] *If you have to rely on your contract to enforce the interest alignment that you thought you had, there is probably a bigger problem. Because the other party should be interested in meeting their obligations and if they start [going off] on their own it's because they are getting value from [that]. So when in my experience, one party determines their value from a contract is decreasing, they are less likely to care about adhering to their own obligations. When their value is high they are very interested in the aligned terms; they want to [fulfill] their obligations but when the value goes down then they don't*

care as much that the other party is upset. (internet portal)

[84] [How do you build trust in your relationship over time?] *You know, you have a little bit of the conversation, you make a judgment about trust, you have a little more of the conversation, and you iterate -well, “what do you want to do and when do you want to do it?” There’s NDA’s [in place already], but if they’re not going to respect the contract here, there’s sure as hell not going to respect that nondisclosure agreement.* (business software solutions)

[85] *[The NDA] sets the tone. Let me give you an example. If you are out on a date, will the guy that you are dating open the door when you come into the restaurant or not? You cannot force someone to do that but it is pretty much accepted that the man should do it and if he does not do it maybe it shows that he is not fully ready for a relationship. [...NDAs] are actually pretty useful to get a temperature of the relationship. And I can tell really quickly with an NDA what type of relationship I have, what I am getting myself into. It’s more like an indicator. [...]* *If you work with a Japanese company or the US company, things will be very different. So when you have people who are different, small or large companies, or companies from distant countries, your contracts become a meeting place where you can learn about each other’s way of doing business. It codifies a little bit some aspects of the relationship. I am meeting with someone and we are talking that we should work together. If the guy does not send me an NDA then he is probably not that serious about it. But let’s say that the person in the other company spends the time to get the NDA, get it signed by the CEO or the CTO. It means that he cares enough about this project to involve other people inside the company. So number one it validates that something is going on; [...] there are a lot of things that you are going to be able to calibrate through that document.* (optical telecomm network solutions)

[86] *What they will commit to in a contract is indicative of two things. Either ignorance of what contracts are - they don’t understand what they are signing up for. Or, commitment to the business. Some guys will be very difficult to work with on a contract and some will want to work with you so badly that they’re just giving you the farm in the contract, so they really want to be invested in this. Others, not so much; they’re nervous, they’re being cautious. So what they sign up to is absolutely indicative [of their commitment].* (high-tech consumer electronics)

[87] *The act of signing and committing to each other [is most important]*

because everything will change in a multi-year agreement.(computer processor manufacturer)

[88] *We built the foundations of trust; we can see the need for this [relationship]. Typically at this stage, there's the signing of some document called the Memorandum of Understanding and it's something that . . . people around the world feel more committed to things when they sign a document. It's a game of learning how far you can trust your partner and building [the relationship] to that degree.* (computer processor manufacturer)

[89] *The hope would be that you would vet out [their] intent in the process of creating this NDA or the development agreement. During the process of saying okay, let's put the development agreement together, maybe they come and say "we are actually planning to talk to three other people." Okay, let's talk about that now as opposed to going through subsequent discovery later on. So it helps you think through what the intent of the development idea is. . . . Then at the same time, they may find out something about us too. I think it's their chance to really vet: are we really serious or are we just spinning their wheels; are we willing to put down some intent to manufacture or intent to procure timeline.* (high-tech consumer electronics)