2022

Managerial Contracting: A Preliminary Study

Lisa Bernstein

Brad Peterson

MANAGERIAL CONTRACTING: A PRELIMINARY STUDY

Lisa Bernstein[*] and *Brad Peterson*[†]

ABSTRACT

Important types of contractual relationships—among them those between integrated product manufacturers and their suppliers—are neither fully transactional nor fully relational. The agreements that govern these relationships incorporate highly detailed written terms that focus not only on what is promised but also on the details of how it is to be achieved and how suppliers' actions will be monitored and responded to over the life of the agreement. Together with the implicit relational contracts that support their operation, these provisions create an economic hybrid that lies between markets

* Lisa Bernstein is the Wilson-Dickinson Professor of Law, The University of Chicago Law School, and International Research Fellow, Center for Corporate Reputation, Said School of Business, University of Oxford, and Contracting Fellow of World Commerce and Contracting. E-mail: lbernste@uchicago.edu

† Brad Peterson is a Partner at Mayer Brown LLP, where he leads the Outsourcing and Technology Transactions practices and co-leads the Supply Chain & Distribution Practice. E-mail: bpeterson@mayerbrown.com.

We would like to thank Emilie Aguirre, Yehonaton Arbel, Nick Argyres, Yehuda Anidjar, Douglas Baird, Patrick Barry, Oren Bar-Gil, Edward Bernstein, Sadie Blanchard, Brian Bix, Ron Burt, George Coligan, Bob Cooter, Tim Cummins, Shahar Dilbary, Avinash Dixit, Richard Epstein, Ricardo Gil, Mark Granovetter, Lucas Da Matta, Connie Fleisher, Sally Guyer, Oliver Hart, Sue Helper, Dan Hemmel, Emily Kadens, Juliet Kostritsky, Louis Kaplow, Avery Katz, Stella Katz, Mike Klausner, Dan Klerman, Bentley MacLeod, Stewart Macaulay, Claude Menard, Joan Neal, Kish Parella, Mitch Polinsky, Thomas Priest, William Ladas, Henrik Lando, Bruce Markell, Haggai Porat, Mark Ramseyer, Weija Rao, Chuck Sabel, Robert Scott, Steven Shavell, Bill Schwesig, Zenichi Shishendo, Ziv Schwartz, Simone Sepe, Mari Seiko, Zenichi Shishendo, Brian Silverman, Sameer Srivastava, Rafe Stolzenberg, Chad Syverson, Kate Vitasek, Hagay Volvovsky, Joel Watson, Robert Zafft, Georgio Zanarone, and participants at the University of San Diego Economics Department, Conference on "Changing Norms and Relational Contracts" (2019), the Harvard Law School Law and Economics Workshop (Spring, 2020 and Fall, 2020), the Stanford Law and Economics Workshop, the Yale Private Law Workshop, the University of Arizona Faculty Workshop, the Yale Faculty Workshop, the Academy of Management 2021 Meeting, the Columbia Conference on the Ownership of Enterprise, the American Law and Economics Association Annual Meeting, the Relational Contracts Workshop Annual Meeting, the PUCE Center Workshop, the University of Chicago Work-in-Progress Workshop, the Canadian Economics Association Meeting, European Law and Economics Association Meetings, the Italian Law and Economics Association Annual Meeting, the Asian Law and Economics Association Annual Meeting, the Indian Law and Economics Annual Meeting, and the George Mason Law School Faculty Workshop, for helpful comments or discussion. Special thanks are due to Caroline Cordell, Jennifer Lin, Matthew Xu, Rachel Sims, Eserhan Esser, and Tsung Mu for their excellent research assistance and to the Aaron Director Fund for research support.

https://doi.org/10.1093/jla/laac007

and hierarchies, a set of relatively standard institutional arrangements that give buyers the right (but not the obligation) to exercise a package of quasi-integration rights that enables them to obtain many of the most important benefits of vertical integration while simultaneously reaping most of the core benefits of outsourcing. The contract provisions used to govern these relationships are termed here "managerial provisions" because they employ the techniques of intra-firm hierarchy that managers use to organize relationships and increase productivity within firms. This article focuses on a subset of these provisions, namely those that are analogous to the eighteen management practices that the World Management Survey (WMS) reveals are closely associated with persistent performance differences across similarly situated enterprises. After documenting the convergence between these practices and the terms of procurement contracts, the article suggests that the contract governance regime these practices create is well designed to support the creation and maintenance of cooperative relationships, strengthen the force of network governance, and scaffold the emergence of the type of inter-firm process-based trust that is associated with better supplier performance. More generally, this article concludes that in the modern economy, where the value of so many types of contracts—from research and development alliances to business process outsourcing agreements and beyond—depends on employees of the contracting entities working together much as if they worked for a single firm, lawyers would be well advised to look to the broad array of managerial techniques successfully used within firms (not only those based on WMS practices) to develop new ways to better govern transactions between firms.

1. INTRODUCTION

Over the past four decades, significant changes have taken place in American manufacturing—among them: firms outsourcing all but core competencies,[1] shorter product life cycles,[2] the increased pace of technological change,[3] the

1 Robert B. Handfield, Daniel R. Krause, Thomas V. Scannell, & Robert M. Monczka, *Avoid the Pitfalls in Supplier Developmen*t, 41 Sloan Mgmt. Rev. 37, 37 (2000) ("As manufacturing firms outsource more parts and services to focus on their own core competencies, they increasingly expect their suppliers to deliver innovative and quality products on time and at a competitive cost."); *see also Outsourcing,* The Economist (Sept. 29, 2008), https://www.economist.com/news/2008/09/29/outsourcing. ("[Outsourcing] has grown exceptionally fast in recent years…. [I]n 1946 only 20% of a typical American manufacturing company's value-added in production and operations came from outside sources; 50 years later the proportion had tripled to 60%.").

2 *See* Susan Helper & Janet Kiehl, *Developing Supplier Capabilities: Market and Non-Market Approaches,* 11 Indus. and Innovation 89, 89 n.2 (2004); Abbie Griffin, *Modeling and Measuring Product Development Cycle Time Across Industries*, 14 J. Eng'g Tech. Mgmt. 1, 2 tbl.1 (1997) ("[A] 1989 study of product development… reported that nearly 41% of the respondents indicated that overall, their organizations were developing new products more quickly than they were five years ago[.]"); Jos van Iwaarden & Ton van der Wiele, *The Effects of Increasing Product Variety and Shortening Product Life Cycles on the Use of Quality Management Systems*, 29 Int'l J. of Quality & Reliability Mgmt. 470, 470 (2012) ("Two important trends in the current business climate are increasing product variety and shortening product life cycles[.]").

3 Jamie N. Jones, Jeff Cope & Andy Kintz, *Peering into the Future of Innovation Management*, 59 Rsch.-Tech. Mgmt. 470, 470 (2016) ("The increased pace of technological change and a number of megatrends are reshaping how firms approach innovation….").

widespread adoption of just-in-time inventory and manufacturing methods,[4] the outsourcing of design and innovation (not just production),[5] and the need to meet the competitive challenge created by the introduction of high-quality Japanese products in the early 1980s.[6] These changes, in turn, have led to fundamental changes in the nature of contractual relationships between integrated product manufacturers (like John Deere or General Motors) and their suppliers.[7] Gone are the days of purely informal relational governance described by Stewart Macaulay, a world in which written contracts were put in the drawer and rarely referenced.[8] Today, while interpersonal relationships among buyer and supplier employees remain important, the work-a-day conduct that is needed to implement modern supply agreements within and across firms is governed by a class of highly-detailed written contractual provisions

4 *Just-in-time*, The Economist (July 6, 2009), https://www.economist.com/news/2009/07/06/just-in-time.; Helper & Kiehl, *supra* note 2 at 89.

5 *See, e.g.,* Pete Engardio & Bruce Einhorn, *Outsourcing Innovation*, Business Week Online (Mar. 21, 2005) (discussing the trend of large companies outsourcing and offshoring innovation); Zhijian Cui, Christoph H. Loch, Bernd Grossmann & Ru He, *Outsourcing Innovation*, 52 Rsch.-Tech. Mgmt. 52, 54 (2009) ("There is a continuing trend toward shifting product… innovation activities outside the firm…. One survey of the world's largest R&D spenders reveals an increasing reliance upon external sources of technology over the last ten years[.]"); James Brian Quinn, *Outsourcing Innovation: The New Engine of Growth*, 41 Sloan Mgmt. Rev. 13 (2003) (providing an overview of trends relating to the outsourcing of innovation in a variety of settings); Press Release, BMW Group, BMW Group Recognizes Suppliers for Outstanding Innovations (November 22, 2018) ("The companies that supply the BMW group ceased to be just suppliers of components… and have now become system developers and innovation partners… their share of value creation at the company… currently stands at over 70 percent."); Yan Dong, Keith Skowronski, Sining Song & Sriram Venkataraman, *Supply Base Innovation and Firm Financial Performance*, 66 J. Oper. Mgmt 768 (2020) (noting that "firms have begun to utilize their suppliers to supplement internal R & D investments," and exploring the effect that this has on firm performance).

6 *See* Robert E. Cole, *Learning from the Quality Movement: What Did and Didn't Happen and Why?*, 41 Cal. Mgmt. Rev. 43, 44, 51 (1998) (providing an overview of the competitive challenge posed by high-quality Japanese manufacturing and slow response of US firms).

7 This article focuses on contracting between buyers and their Tier 1 suppliers. However, supply contracts often require Tier 1 suppliers to flow down the requirements in the buyer's Supplier Handbooks to their sub-suppliers and buyers often reserve the right to audit and inspect sub-suppliers and/or dictate their sources of raw materials. *See, e.g.*, Cummins Inc., Supplier Handbook 1, 22 (May 15, 2019) ("Cummins requires that Cummins Tier 1 suppliers allow and facilitate Cummins visits and audits of Sub-Tier suppliers as requested[,]" and "[s]uppliers are encouraged to apply the principles outlined in [the Cummins] Sub-Tier Supplier Management process guidelines[] to all their sub-tier suppliers."). Although provisions reserving the right to audit sub-suppliers arose along with the widespread use of other managerial provisions, supplier audit provisions (and plant inspection) provisions long predated the rise of managerial contracting.

8 Stewart Macaulay, *Non-Contractual Relations in Business: A Preliminary Study*, 28 Am. Socio. Rev. 55, 61 (1963) ("There is a hesitancy to speak of legal rights or to threaten to sue… [e]ven where the parties have a detailed and carefully planned agreement which indicates what is to happen if, say, the seller fails to deliver on time, often [if a dispute arises] they will never refer to the agreement but will negotiate a solution when the problem arises apparently as if there had never been any original contract."); *see also* Email from Stewart Macaulay to author (July 28, 2019) (confirming that most managerial provisions were not present in the contracts that he examined in his study).

that are incorporated into the contract management systems that are used to administer these agreements,[9] systems that are consulted by both supplier and buyer personnel on a regular basis. These provisions are designed to facilitate the flow of information between the transactors, induce buyers' and suppliers' employees to act as if they are employees of the same firm,[10] and facilitate adjustments necessitated by the transactors' changing needs.[11]

These provisions are termed here "*managerial provisions*" because they closely parallel common techniques that managers use to organize relationships and increase productivity within firms.[12] Managerial provisions

9 For an example of the type of contract management electronic platforms that are used to administer these types of agreements, *see* Trane Tech., *Doing Business with Us – Supplier: Supplier Dashboard*, https://www.tranetechnologies.com/en/index/company/doing-business-with-us/supplier-dashboard-registration.html.

10 Jeffrey H. Dyer, *How Chrysler Created an American Keiretsu*, 74 Harv. Bus. Rev. 42 (1996) ("[M]any manufacturers… are seeking: ever more innovative products, ever faster product development, and ever lower costs.… [yet to do this they must] involv[e] suppliers in product development and process improvement[,]" a change that "requires radically changing the nature of the [buyer-supplier procurement] relationship" into "a bona fide partnership, in which there is an unimpeded two way flow of ideas.").

11 Managerial contracting provisions (albeit with a different content) are also commonly used in alliance agreements between large pharmaceutical companies and smaller biotech firms, and agreements between large food companies and their suppliers, as well as in large-scale information technology outsourcing and business process outsourcing agreements. In these types of deals, there may be even more core aspects of parties' relationships that cannot be dealt with effectively through more complete contracts given the difficulty of objectively measuring performance and/or foreseeing the types of adjustments that will be needed.

12 The rise of managerial contracting was foreshadowed by Arthur Stinchcombe. *See* Arthur Stinchcombe, Information and Organizations 194-236 (1990) (focusing on the problems that arose in relation to contracts in "construction contracting market[s], the market for weapons R&D, [and] the market for the services of franchised automobile dealers[.]" Stinchcombe hypothesized that "attempts [will be made] to solve such problems by creating "contractual functional substitutes for hierarchy," and "writing administrative provision[s] into the contract," dealing with how aspects of the contract's core "stipulations may be change[ed] by specified methods," given that "the future is uncertain."). Similarly, Gulati and Singh hypothesized that more hierarchical governance structures would be used in alliances that required significant coordination between the parties. They used alliance structure as a proxy for the degree of hierarchy—coding contractual alliances as the least hierarchical, minority equity investments as moderately hierarchical, and joint ventures as most hierarchical—and showed that the magnitude of anticipated coordination costs and appropriation costs were correlated with the degree of hierarchy in the alliance governance structure selected. *See* Ranjay Gulati and Harbir Singh, *The Architecture of Cooperation: Managing Coordination Costs and Appropriation Concerns in Strategic Alliances*, 43 Admin. Sci. Q. 781 (1998). However, these results should be interpreted with caution. The study looked at data from 1970 to 1989 much of which preceded the rise of managerial contracting. In addition, it did not look at the provisions of the actual contracts, but relied instead on press accounts of their structure and business rationale. *See also* Lisa Bernstein, *Beyond Relational Contracts: Social Capital and Network Governance in Procurement Contracts*, [hereinafter, "*Beyond Relational Contracts*"] 7 J. Legal Analysis 561, 562, 572 n.35 & 572-76 (2015) (discussing other aspects of hierarchy in procurement contracts).

focus on both outcomes and the processes used to achieve them. Although most managerial provisions would be legally enforceable in a suit for breach of contract,[13] they do not derive significant value from the threat of

13 There are several reasons that many WMS-studied managerial provisions are not meaningfully legally enforceable. First, to obtain money damages a buyer would be required to prove that the damages it suffered were caused by the breach. *See, e.g.*, Restatement of Contracts 2d Sec. 347(a) Measure of Damages in General (setting out the requirement of causality in relation to damages). The buyer would also have to prove them to the requisite level of certainty. *See, e.g.*, Restatement of Contracts 2d. Sec. 352 Uncertainty as a Limitation on Damages and Robert M. Lloyd, *The Reasonable Certainty Requirement in Lost Profits Litigation: What it Really Means,* 12 Tenn. J. Bus. Law 11 (2010). Meeting both of these burdens would be difficult and any recovery of damages would not compensate the buyer for the loss of the core benefits that managerial provisions are designed to achieve, such as smoother operations, more innovation, and reduced risk. Second, the standard for injunctive relief is difficult to meet in a contracting context. *See* Brian H. Bix, An Advanced Introduction to Contract Law (2023) (Elgar) at 78-80 (discussing the difficulty of obtaining injunctive relief in contract cases). And, even if the standard for injunctive relief could be met, injunctive relief would be of little value to the buyer with respect to many managerial provisions. For example, if the contract provided that the buyer had the right to inspect the supplier's plant with no notice and the supplier refused, the time required for a buyer to get an injunction would allow the supplier to hide whatever it was that the supplier wished to hide from the buyer. Third, if a buyer sued a supplier for lost profits, the buyer would have to prove what its profits would have been absent the breach. In litigation, this could make the buyer's cost structure a part of the public record, thereby revealing its profits on a particular product to its suppliers. This in turn, might hurt the buyer's bargaining power when negotiating with its suppliers—something it must often do regularly as many supply contracts do not set prices for long periods, but rather set them on an ongoing basis. For a discussion of the role this "secrecy" interest plays in deterring lawsuits of various types, *see* Lisa Bernstein & Omri Ben Shahar, *The Secrecy Interest in Contract Law*, 109 Yale L.J. 1885 (2000). Fourth, suppliers often do not have assets subject to legal process to satisfy judgments, and contractually-required insurance only covers measurable, definite risks due to chance, not ordinary course business failure such as quality failures.

Finally, companies who want to continue their relationship with their suppliers are reluctant to sue because the cost and adversarial nature of litigation harms their personal and business relationships and sullies the market reputations of both of the parties in terms of their perceived ability to amicably resolve disputes. *See, e.g.*, Interview with Counsel to Large Midwestern OEM (December 2015) ("[A] supplier gets offended if you, the customer, take him to court. It leads to bad blood, he is going to be pissed off at you during the litigation as he is incurring attorney's fees and having his employees distracted, the distrust that litigation creates just makes continued dealing impossible."). Given this, while parties may have a credible threat to sue for breach of a contracting relationship, *see* Bernstein, *Beyond Relational Contracts*, *supra* note 12, they might not have a credible threat to sue for breach of a particular contract provision (even if it conditioned on verifiable information) unless they want to end the relationship and incur the substantial switching costs involved in doing so. This suggests that the so-called shadow of the law is much weaker with respect to terms whose violation does not make it worthwhile to end a contracting relationship. This problem is particularly acute in the industrial procurement setting where switching costs are often high. *See* Ronald J. Gilson, Charles F. Sabel & Robert E. Scott, *Contracting for Innovation: Vertical Disintegration and Interfirm Collaboration*, 109 Colum. L. Rev. 431 (2009) (discussing the substantial switching costs that may exist in the procurement context especially when joint or supplier-led innovation is contemplated) despite some buyers' attempts to mitigate them by multi-sourcing and/or owning the specialized tooling needed to make their parts. *See, e.g.,* Stratec, Supplier Handbook (2019) at sec. 4.2.3.4-4.2.3.4.2 ("After full payment, the tool becomes the property of STRATEC," although "the tools commissioned by STRATEC generally remain with the supplier."). *See also* Gillian K. Hadfield and Iva Bozovic, *Scaffolding Using Formal Contracts to Support Informal Relations in Support of Innovation*, 2016 Wisc. L. Rev 981 (2016) (suggesting that in contractual relationships involving innovation many contract provisions do not derive their value from the threat of legal enforcement.)

legal enforcement.[14] In practice, the obligations they create are supported almost entirely by the threat of termination,[15] the possibility of reduced future order size, the imposition of nonlegal sanctions (like reputational harm), or, in some relationships, the prospect that the buyer will exercise

Although litigation over these types of supply agreements is said to be uncommon, comprehensive data is not available. Many of these contracts include arbitration provisions, making it difficult to determine the rate of disputing requiring third party adjudication. However, to get a feel for how often these disputes go to court, Litigation Analytics on Bloomberg and Context on LexisPlus were used to find court filings relating to buyer-supplier contract disputes filed by or against nine large manufacturing companies over a five-year period. The companies examined were: Carlisle Interconnect Technologies, Bridgestone Americas, Cummins Inc., Donaldson Company, Ingersoll Rand, Intel Corp., International Paper Company, Johnson Electric Limited, and Karlee Company. Research covered both state and federal courts. No buyer–supplier litigation was found for Carlisle Interconnect Technologies, Bridgestone Americas, Donaldson Company, Ingersoll Rand, Intel Corp, and Karlee. Across the remaining companies, suppliers initiated three disputes while buyers initiated no disputes. *See* First Amended Complaint, Avialae S. De R.L. De C.V. v. Cummins Inc., 472 F. Supp. 3d (W.D. Tex. 2020) (EP-19-CV-380-PRM) (suit for breach of contract for cancellation of projects, reckless estimates, and refusal to pay for orders); Complaint, Pacific Controls, Inc. v. Cummins Inc., No. 19-cv-03428 (CM), 2019 WL 6830790, (S.D.N.Y. Dec. 13, 2019) (suit for fraud in the inducement and conspiracy to commit fraud, breach of contract, bad faith, and unjust enrichment claims for breach of a Master Agreement to market supplier's product); Plaintiff's Original Petition and Jury Demand, V2 Chemicals, LLC v. Int'l Paper Co., 18-cv-00147 (S.D. Tex. 2018) (suit for breach of contract for refusal to accept soap from the supplier).

14 Although managerial provisions do not depend on legal enforcement to realize their value creating potential, *see supra* note 13, the legal enforceability or non-enforceability of the parties' arrangement may well effect other aspects of their relationship. *See* Interview with Focal Firm Supplier # 2, *infra* note 33. (The supplier explained that while his firm sometimes had four-to-five-year contracts with the buyer, sometimes used purchase orders, and sometimes had no contract, the work-a-day conduct of the contracting relationship remained the same regardless of the supplier's contractual status, but that high-level strategic thinking—like how much specific investment the supplier was willing to make or how willing they would be to share innovations with the buyer—was influenced by the type of contracting relationship in effect).

15 Buyers typically have the right to terminate for convenience with payment of a reliance-based termination charge. *See, e.g.*, Milsco, Terms and Conditions of Purchase, at 2(a), ("Buyer may… terminate this Contract, at any time, for its convenience and in whole or in part, by any reasonable manner…. [and] Seller's sole claim shall be for the costs it reasonably incurred in the performance of this Contract prior to such termination."). In addition, many contracts include competition-out clauses that permit the buyer to terminate (without a termination charge) when another supplier offers either a superior good or a lower price and the incumbent supplier cannot meet the lower price or produce an equivalent product. *See, e.g., Chemilog Development and Supply Agreement between UCB-Bioproducts S.A. and the Medicines Co. Inc.* (Aug. 24, 2000) at article 21 (giving the buyer the right to purchase from a third party if that third party offered a price x% below the incumbent supplier and the incumbent supplier refused to meet it); *Strategic Alliance Agreement Corporate Procurement between Whirlpool Corporation and Whitesell Corporation*, (Mar. 15, 2002) at section 4.8 (giving Whirlpool the right to purchase goods from another supplier if the supplier offers goods at a better price or "offers Whirlpool a technology or quality advantage not offered by [the incumbent] supplier," and the incumbent supplier does not commit to meeting the offer within ten days after being given "written proof of such offer.").

its right to withhold part of the price when delivery is late or quality is below specifications.[16]

Managerial provisions and the contract administration mechanisms that have been developed to support them can be found in supply contracts,[17] purchase orders,[18] statements of work,[19] supplier handbooks (or quality manuals),[20] supplier scorecards,[21] and similar documents. Managerial provisions commonly incorporate third-party standards from organizations like the International Organization for Standardization (ISO) or the Automotive Industry Action Group (AIAG).[22] Among other things, managerial provisions set out processes

16 *See, e.g.*, Precision Machine Inc., Supplier Handbook, at 2.6 (Nov. 2016) (listing the categories of chargebacks for certain types of "nonconformance to requirements."). However, the fact that the contract permits imposing chargebacks for late or defective delivery does not mean that firms will impose them each time they are entitled to do so. *See, e.g.*, Bernstein, *Beyond Relational Contracts*, *supra* note 12. ("As one procurement manager [of a large Medical Equipment OEM] explained, her firm tended to impose these fines only when the relationship with the supplier was deteriorating, or when she wanted to get the attention of more senior managers who could see to it that the underlying problem was corrected[.]").

17 *See, e.g., External Manufacturing Services Agreement between Lucent and Celestica* (Mar. 1, 2005) at 86.

18 *See, e.g.,* Enovation Controls, Purchase Order Terms of Purchase ("Buyer shall have the right, at any reasonable time to inspect materials, work in process, finished items and components, and records relating thereto, at any Seller facilities"). Other purchase orders incorporate supplier handbooks, *see*, *e.g.*, Donaldson Co., General Terms and Conditions of Sale, at Cl. 1 (2019) (incorporating various handbooks); Ingersoll Rand, Standard Terms and Conditions of Sale (2017) (incorporating the supplier quality manual); John Deere, Terms and Conditions., at cl. 13 (2019) (same). *See also*, Enovation Controls, Supplier Manual, at 6 (2017) ("Acceptance of [a] purchase order implies acceptance of the policies and procedures outlined in this manual.").

19 *See, e.g., Statement of Work Under the Master Development and Supply Agreement Between Apple and Audience, Inc.* (Mar. 26, 2010) ("[T]he parties shall use reasonable efforts to meet face-to-face at least once every… months to enable: (i) the parties to discuss any issues relating to this SOW and the parties' relationship; (ii) Company to present updates to its product roadmap; and (iii) evaluate opportunities new products or technical collaboration"); *Project Statement of Work between Precision Co. and ToughBuilt Industries* (Oct. 18, 2016) at 4.3 (allocating responsibility for 19 design and production-related tasks, and requiring weekly calls between the parties, joint creation of parts lists, and more).

20 These supplier handbooks are sometimes incorporated by reference into contracts, *see, e.g.*, *Master Manufacturing Agreement between NCR Corp. and Jabil Inc.* (Aug. 3, 2018) (providing that "the NCR Supplier Manual" is included in the contract). Other times, the supplier handbooks are assented to by suppliers as part of the supplier qualification process.

21 *See infra* notes 91–110 and accompanying text.

22 Some third-party drafted standards are very specific. *See infra* note 76 and accompanying text (describing the AIAG's detailed Production Part Approval Process). Others like the ISO 9001 standard for manufacturing quality systems are more general. *See* ISO 9001: Quality Management Systems – Requirements (Int'l Org. for Standardization 2015) (sketching out the topics and operational areas a quality management system should cover). Standard setting organizations played an important role in the rise of managerial contracting. In 1987, two things occurred that likely eased acceptance of managerial contracting provisions. First, Congress co-sponsored the Malcolm Baldridge Quality Award and endorsed the manufacturing processes and quality standards it was based on, most of which are reflected in managerial provisions. Second, the International Organization for Standardization adopted ISO 9001, whose basic contours shape the structure and

and procedures that suppliers are required to use to source inputs, solve problems,[23] test and develop new products, calibrate machines, manufacture goods, and train employees. They also give buyers extensive rights to monitor, audit, and participate in suppliers' (and in many instances sub-suppliers')[24] design, innovation, raw-materials sourcing, and production-related activities. They describe how information is to be exchanged between the parties[25] and specify the type and frequency of interactions between the buyer's and the supplier's personnel. They also contain multi-step processes to guide new product design and introduction, as well as adjustments to product design, changes to suppliers' manufacturing processes, and variations in the quantities ordered. Together, these provisions create conditions that are conducive to joint or supplier-led

content of many supplier handbooks today. Many handbook provisions spell out firm-specific ways of implementing ISO 9001's dictates. Together, the efforts of US government and the ISO helped make the minute detail in these handbooks seem like ordinary business routine, thereby reducing the relational costs to buyers of imposing them on suppliers. Some supplier handbooks make this connection quite explicit. *See* Manitowoc Supplier Quality Assurance Handbook (2014) (introducing its 82 pages of strict quality requirements by stating that it seeks "A Quality Management System… structured after a proven methodology such as ISO 9001, ISO/TS 16949, the Malcolm Baldrige Criteria for Performance Excellence, the Deming award, or the European Foundation for Quality Management.").

23 A commonly required problem-solving method is root-cause analysis. The American Society for Quality defines root-cause analysis as a "wide range of approaches, tools, and techniques used to uncover the causes of problems," that is a "core building block" of the total quality management approach to manufacturing. Am. Society for Q., *Learn About Quality,* https://asq.org/quality-resources/root-cause-analysis. *See infra* note 80 and accompanying text (discussing root cause analysis and 8D, two common problem-solving processes required by buyers).

24 *See, e.g.*, Cummins Inc., Supplier Handbook, at 8.4 (May 15, 2019) ("Cummins requires that Cummins Tier 1 suppliers allow and facilitate Cummins visits and audits of Sub-Tier suppliers as requested[,]" and "encourage[s them] to apply the principles outlined in… 'AIAG Sub-Tier Supplier Management Process Guidelines[.]'"); Donaldson Co., Supplier Business Operating System standard, (2019) at 5-8 ("Tier 1 suppliers will be held responsible for the products and services… supplied to them from Tier 2 []suppliers… [and] [w]e encourage our suppliers to have [] sub-suppliers with a quality management system in accordance with [current revision of ISO 9001] as a minimum… [and we] reserve[] the right to directly assess a Tier 2 supplier that has a significant impact on final quality.…").

25 Many buyers require suppliers to reveal not only process and quality-related information but also costing information. *See, e.g., Supply Agreement between Navistar and Core Molding Technologies* (Nov. 1, 2013) at 46 ("Buyer and Seller shall work together to develop target costs and establish the lowest possible cost of any new product. Seller agrees to provide all price/cost submissions with full cost transparency throughout the iterative design process."); Law Insider, *New Product Development* Sample Clause (same); *Long Term Agreement Between Deere and Stanadyne* (Nov. 2001) ("Both DEERE and STANADYNE CORPORATION shall work together to develop target costs and establish the lowest possible cost of any new Parts. STANADYNE CORPORATION agrees to provide all price/cost submissions with full cost transparency throughout the iterative design process. The degree of detail will be negotiated between STANADYNE CORPORATION and DEERE.") Extensive financial disclosures that include costing are sometimes required as part of the supplier qualification process. *See* DAF, *Suppliers Questionnaire* at sec. 4, Appendix 1. Interviews with suppliers suggest that the degree to which they reveal accurate costing information depends on how much they trust the buyer. *See, e.g.,* Interview with Focal Firm Supplier #6 *infra* note 33.

innovation and to suppliers continuously improving their ability to deliver high-quality products while reducing costs and responding flexibly to the buyer's changing needs.

At present, there are no empirical studies of the prevalence of managerial provisions[26] or their effect on the creation of contractual value.[27] However, studies based on the World Management Survey (WMS), the most comprehensive database of information about managerial practices and firm performance,[28] have found that within firms, the use or non-use of eighteen particular work-a-day management techniques[29]—as well as the sophistication with which they are implemented—is "associated with large, persistent differences in firm performance"[30] across similarly situated enterprises. Each of the eighteen practices explored in the WMS has an analogue in the types of managerial provisions found in supply contracts. The striking correspondence between these intra-firm managerial techniques and the managerial provisions found in these contracts raises the possibility that the use of managerial provisions incorporating

26 While it would be desirable to know how frequently managerial provisions are included in procurement contracts, there is no way to compile this data. Firms prefer to keep the terms of their contracts private and many procurement contracts prohibit the supplier from disclosing even the mere fact of a contracting relationship without the buyer's permission. Although the SEC requires large publicly traded companies to disclose their so-called "material contracts," parties are permitted to redact parts of their agreements, and redactions are common in the governance section of procurement contracts where managerial provisions tend to be found. In addition, as noted in the text, managerial provisions are commonly found in other writings, like supplier handbooks, some of which are publicly available, but others of which require access to the password protected supplier portal section of the buyer's website to obtain. *See also* note 32 *infra*.

27 For a discussion of the reasons such inquiries are rarely undertaken, *see* Francine Lafontaine and Margaret E. Slade, *Inter-Firm Contracts: Evidence*, in Gibbons and Roberts, Handbook, *infra* note 56 at Ch. 24 ("Unfortunately, studies of the effects of contract terms on firm performance or other outcome variables (e.g., prices, sales, profits, growth, and survival) are relatively rare for a reason. First, studies of profitability or cost differences require detailed data that are typically proprietary.… Second, and more importantly, the endogeneity issue is particularly problematic in these studies. Simply put, the effects of various contractual decisions are difficult to identify empirically, given that firms do not make contractual choices randomly. Instead, parties to a contract choose certain options based on what they expect will give the best outcome in a given situation… [these concerns] raise[] important issues when assessing the effects of contractual practices.").

28 For a copy of the survey instrument, *see* Centre for Econ. Performance, World Management Survey, https://worldmanagementsurvey.org/ [hereinafter, "*WMS Survey*"]. *See also*, Chad Syverson, *What Determines Productivity?* 49 J. Econ. Literature 326, 329, 336-338 (2001) [Hereinafter, "*Productivity*"] (discussing the design of the WMS and the "steps [taken] to enhance the accuracy and consistency of the survey.").

29 Nicholas Bloom & John Van Reenen, *Why Do Management Practices Differ Across Firms and Countries*? [hereinafter "*Management Practices*"] 24 J. Econ. Perspectives 203, 206 tbl.1 (2010) (listing the four WMS "Management Practice Dimensions.").

30 Raffaella Sadun, Nicholas Bloom & John Van Reenen, *Why do We Undervalue Competent Management*? [hereinafter "*Competent Management*"] 95 Harv. Bus. Rev. 120, 123 (2017). *See also*, Bloom & Van Reenan, *Management Practices*, *supra* note 29, at 212 ("Higher management scores are robustly associated with better performance.").

these and other intra-firm managerial techniques into contractual relationships may also have a beneficial effect on the creation of contractual value.[31] After all, many of the most difficult contracting challenges in procurement relationships are rooted in the need to induce buyer and supplier employees at many levels of each organization to adopt common goals, such as innovation and continuous improvement, to share information, and to work together much as they would if they were all employed by the same enterprise—the very challenges that many of these managerial practices were designed to meet within a firm.

Drawing on an exploratory study of managerial provisions used by 196 firms[32] and preliminary interviews with high-level supply chain managers at a mid-sized OEM and teams of managers at six of the firm's suppliers,[33] this article explores the ways that the managerial practices the WMS found to be associated with intra-firm value creation in the manufacturing sector have been imported into the supply contracts used by integrated product manufacturers. It suggests that in addition to the operational benefits and task-specific incentives these managerial provisions may create—benefits that in any *particular relationship* are likely to depend on aspects of both firms' formal and informal internal structures, culture, and intra-firm relational contracts—managerial provisions may contribute to contract governance writ large. Taken together, traditional contract terms, managerial provisions, and the relational understandings that arise in their shadow create a transactional framework that is well-structured to

31 Although for tractability this article focuses primarily on the inclusion of WMS practices in procurement contracts, other distinctly managerial techniques are finding their way into commercial contracting—such as the use of cross-firm teams and committees to govern or partially set the terms of certain types of exchanges. *See* Lisa Bernstein and Brad Peterson, *Teams and Incomplete Contracts* (work in progress).

32 Since the goal of this preliminary study was simply to document that these managerial practices were widely used enough to warrant scholarly attention, we searched the Web for product manufacturers whose supplier handbooks (sometimes called supplier/vendor manuals or Supplier Quality Requirements) incorporated many of the 18 managerial practices identified in the WMS. We also searched for the supplier handbooks that included managerial provisions for each of the firms listed on IndustryWeek magazine's online list of the 500 largest US Manufacturing Firms, *see* IndustryWeek.com (Summer 2021), https://www.industryweek-digital.com/industryweekmag/summer_2021/MobilePagedReplica.action?pm=2&folio=10#pg12. The names of the 196 firms we identified are provided in Appendix A. We stopped at this point as the listed firms provide a good overview of the range of companies that have adopted this approach to contracting. To get a feel for the frequency with which managerial contracts are used, we also looked at all the firms on the Industry Week list (regardless of their line of business) and found that 23 percent of them used managerial contracting. However, this is likely an undercount of the number of firms adopting a managerial approach because many firms keep their manuals behind the password protected parts of their supplier web portals. The study also cites examples of managerial provisions in the Exhibit 10 Material contracts (all of which were contracts for the sale of goods) that are on file in the SEC's Edgar system. *See also*, *supra* note 26 (explaining why a random sample of firms' contracting practices could not be undertaken based on publicly available data.)

33 These interviews were conducted between March of 2021 and February of 2022 [hereinafter these interviews are referred to as "Interview with Focal Firm Supplier # _."].

support commercial cooperation, strengthen network governance, and facilitate the development of inter-organizational process-based trust, which has been associated with "enhanced supplier performance."[34]

The rise of managerial contracting can be understood, in part, as a response to challenges created by the outsourcing and manufacturing quality movements of the late 1980s and the 1990s.[35] During this period, American manufacturers began to outsource not only the manufacturing of more components (including strategically important components and sub-assemblies) but also aspects of component design and product innovation. At the same time, they began to shift from the so-called "old [quality] paradigm,"[36] characterized by a focus on "conformance to requirements,"[37] and an "emphasis on downstream fixes… [and] quality improvement activities as a limited repetitive cycle of detect and repair,"[38] to a new paradigm based on Japanese methods.

This new quality paradigm had an "upstream prevention focus." It viewed quality as jointly created by buyers and suppliers[39] in a joint and iterative process beginning early in the design phase of product development[40] and continuing until final assembly. This process was said to work best when it: involved all of a firm's employees; utilized "a well-defined problem-solving methodology";[41] required "training activities tied to continuous quality improvement";[42] and used a variety of methods to achieve "cross-functional cooperation,"[43] all in an effort to "eliminat[e] waste and rework result[ing] in both higher quality and lower cost."[44]

The changes introduced by the new quality paradigm required much closer coordination between buyer and supplier personnel at all stages of the design and production process. It also left a much smaller margin for error. As a result,

34 Akbar Zaheer, Bill McEvily & Vincenzo Perrone, *Does Trust Matter? Exploring the Effects of Interorganizational and Interpersonal Trust on Performance*, 9 Org. Sci. 141, 157 (1998).

35 *See* John L. Pence & P. Saacke, *A Survey of Companies that Demand Supply Quality*, 42 Ann. Quality Cong. 715 (1988) (concluding that the move toward use of the practices mandated by managerial provisions was a "response to the challenge of meeting increasingly rigorous quality needs").

36 Cole, *supra* note 6 at 44.

37 *Id.*

38 *Id.*

39 Pence & Saacke, *supra* note 35 (noting that where quality was once viewed as a function of a supplier's quality control processes, it came to be viewed as a function of the buyer's quality assurance program as well).

40 Supplier handbooks reveal widespread acceptance of this principle. *See* Cummins Inc., Supplier Handbook, at 18 (May 15, 2019) ("Quality must be in the design of the product as well as in the development of the process that will produce the product.").

41 Cole, *supra* note 6, at 44.

42 *Id.*

43 *Id.*

44 I*d.* at 51.

traditional contracting techniques involving promises (as well as delivery, inspection, and rework) and court-imposed damages for non-performance became an increasingly ineffective way of governing exchange. A 1988 study conducted by the American Society for Quality Control concluded that "extensive warranties do not substitute for quality" and revealed that the companies they surveyed had "reject[ed] supplier contract concessions… as ways to better quality."[45] Rather, buyers had begun to adopt "a diverse range of methods for 'managing' [their] suppliers." These methods relied on "establishing rigorous requirements and standards," and "weeding out poor performers,"[46] while paying close attention to "suppliers' demonstrated capability and competence, backed by their good faith and history of commitment."[47]

Over time, as technological advances decreased the cost of contractual specificity and performance monitoring,[48] these practices morphed into some of the core managerial practices used to govern supply contracts today. Their focus is on preventing non-performance or detecting it early through buyer regulation of and involvement in suppliers' design, sourcing, testing, and production processes—rather than on merely deterring non-performance or giving the buyer the right to sue for damages in court. Although suppliers are often required to have insurance policies against product liability-related claims that name the buyer as an additional insured,[49] when it comes to routine contractual non-performance, the right to sue suppliers will often be of limited value to the buyer. Suppliers are often judgment proof, buyers want to avoid gaining a reputation for suing their suppliers, and quality problems or production disruptions can lead not only to monetary harm but also to significant reputational harm to buyers, harm that is not recognized by the legal system.

Part 2 of this article describes ways that the managerial practices explored in the WMS are incorporated into the terms of supply contracts. It reveals that the use of managerial provisions has led to a degree of formal convergence between the governance techniques of contract and the WMS-studied aspects of

45 Pence & Saacke, *supra* note 35.

46 *Id.*

47 *Id.*

48 For example, the cost of creating large, complex documents has been reduced by computerization and office productivity tools. Once created, the documents containing managerial provisions accumulate, requiring only updating not re-creation. The cost of distributing those documents has been reduced by the development of the World Wide Web and secure Internet sites that serve as "supplier portals." The cost of interfirm monitoring has been reduced by the development and implementation of supply chain and plant management systems, the lower cost of connected cameras and other sensors, and the widespread use of video conferencing.

49 For a model insurance provision for a supply contract, *see* Special Study for Corporate Counsel on Major Supply Agreements 402 (2011-2012 ed.). *See also Long- Term Supply Agreement between Deere & Stanadyne* (Aug. 14, 2007) at Sec. XIX (describing the type of products liability insurance Stanadyne is required to buy and specifying that Deere is to be named as an additional insured).

intra-firm hierarchy.[50] This convergence has created a relatively standard hybrid organizational form that enables buyers to obtain many of the benefits commonly associated with vertical integration without forgoing the innovation-related and other benefits of non-integration.

Part 3 suggests that, while buyers tend to standardize most managerial provisions across their supply base, the effect of managerial provisions on the operations and productivity of any particular supplier is likely to depend on the organizational structure (both formal and informal), relational contracts, and culture within that supplier (and in some cases the buyer), not only on the terms of the contracts (both formal and relational) between them. Part 4 suggests that in addition to any productivity gains they may create, these managerial provisions have the potential to add additional value to these agreements. When implemented together, they create a contracting framework that is well-structured to promote commercial cooperation, strengthen the force of network governance, and build the type of inter-organizational process-based trust that has been associated with enhanced supplier performance and successful contractual relationships. Part 5 concludes. It provides some preliminary thoughts about the implications of managerial contracting for theories of the firm and suggests that further empirical work is needed before the scope and efficiency of managerial contracting can be fully assessed and understood.

2. MANAGERIAL CONTRACTING IN INDUSTRIAL PROCUREMENT

The WMS identified "four broad dimensions" of management that were associated with persistent performance differences among similarly situated manufacturing firms,[51] plants at the same firm,[52] and across countries.[53] Namely, "operations

50 Conversely, there is some evidence that contracts are being used to organize some types of intra-firm transactions. *See, e.g.,* Gabriel Rauterberg, *Contracting Within the Firm*, (Working Paper 2016) (showing that the Joint Venture Memorandum of Agreement between two Lockheed divisions was nearly identical to the Memorandum that was adopted between Lockheed and BAE after BAE purchased one of the divisions); Catherine Magelssen, *Allocation of Property Rights and Technological Innovation Within Firms*, Strategic Mgmt J. 758, 759 (2019) (finding that multinational firms "use formal written contracts between subsidiaries [which are legally distinct entities] to assign strategic asset ownership rights[.]"). *See also* Catherine Magelssen, Beverly Rich, and Kyle Mayer, *The Contractual Governance of Transactions between Firms, (and sources cited therein)* Org. Sci. https://doi.org/10.1287/ORSC.2021.1536 (2022) (exploring the conditions under which firms are likely to use intra-firm formal contracts and providing examples of their use).

51 Sadun et al., *Competent Management*, *supra* note 30, at 122, 123 ("The large, persistent gaps in basic managerial practices we documented were associated with large, persistent, differences in firm performance.").

52 *Id.* at 123 ("[M]anagement practices inside firms across their plants accounted for about one-third of total variation across all plant locations.").

53 Nicholas Bloom, Raffaella Sadun & John Van Reenen, *Management As a Technology?* [hereinafter "*MAT*"] (Nat'l Bureau of Econ. Rsch., Working Paper No. 22327, 2017).

management," "performance monitoring," "target setting," and "talent management." Across these dimensions, the WMS looked in depth at the firms' adoption and implementation of eighteen more specific management practices.[54] Although studies using this data found that "differences in management practices account for about 30% of total factor productivity differences both between countries and within countries across firms,"[55] they cannot definitively establish that the use of these eighteen practices caused the performance differences. Nevertheless, "focused-sample studies at the plant and even the line level suggest that these large-sample results are robust to controls for many other factors… identifie[d] as potential determinants of productivity."[56] And, a recent literature review concluded, "the evidence that management and productivity are related is starting to pile up… [and] some of this work strongly suggests that this relationship is causal."[57]

To understand the ways that these eighteen practices have been formally incorporated into buyer–supplier relationships in the manufacturing sector, it is useful to look separately at each dimension of managerial activity explored as part of the WMS and the types of contract provisions and other writings that import these practices into buyer–supplier relationships.

2.1 Operations Management

The WMS operations management category focuses on the "use of lean techniques" and the "reasons for adopting lean processes."[58] Lean manufacturing "encompasses a wide variety of management practices, including just-in-time, quality systems, work teams, cellular manufacturing, [and] supplier management… in an integrated system."[59] It involves a supplier "shar[ing] a substantial

54 *See* Centre for Econ. Performance, *World Management Survey Instrument for Manufacturing*, available at https://worldmanagementsurvey.org/survey-data/methodology/.

55 Bloom et al., *MAT*, *supra* note 53.

56 *See* Robert Gibbons and Rebecca Henderson, *What Do Managers Do? Exploring Persistent Performance Differences Among Seemingly Similar Enterprises*, *in* The Handbook of Organizational Economics, 680 (Robert S. Gibbons & John Roberts eds., 2012) [herein "The Handbook"].

57 Syverson, *Productivity*, *supra* note 28, at 339 (providing an overview of the literature on the relationship between management practices and productivity and a discussion of the difficulties of proving causation). For citations to studies that make stronger causal claims, *see* Nicholas Bloom, Erik Brynjolfsson, Lucia Foster, Ron Jarmin, Megha Patnaik, Itay Saporta-Ekstein, & John Van Reenen, *What Drives Differences in Management Practices*, 109 Am. Econ. Rev. 1648, 1651 (2019) and sources cited therein.

58 *See WMS Survey, supra* note 28.

59 Rachna Shah & Peter T. Ward, *Lean Manufacturing: Context, Practice Bundles, and Performance,* 21 J. Operations Mgmt. 129, 129 (2003). *See also* Jaideep Motwani, *A Business Process Change Framework for Examining Learning*, 103 Indus. Mgmt. & Data Sys. 339 (2003) (noting that lean manufacturing involves continuous improvement efforts, quality in products and processes, flexible production, and minimizing waste of any kind). For an introduction to lean manufacturing that illuminates (indirectly) the role that relational contracts within the firm play in its successful implementation in a plant or company, *see* James P. Womack, Daniel T. Jones and Daniel Roos, The Machine That Changed the World, (2007) (detailing the Toyota production system).

part of its proprietary information about costs and production techniques,"[60] "finish[ing] products at the pace of customer demand with little or no waste"[61] and "accommodat[ing] customer requests for engineering changes in their product or manufacturing process."[62] Its goal is to produce continuous improvement in all aspects of a firm's operations, thereby enabling the firm to produce better goods at a lower cost over time.[63]

Contracts and the supplier handbooks they incorporate often mandate that suppliers use lean manufacturing processes.[64] Many buyers also specify the lean practices they consider most important.[65] However, while adopting a set of

60 Womack et al., *supra* note 59, at 152.

61 Shah & Ward, *supra* note 59 at 2.

62 *Id.*

63 *See, e.g.*, Lincoln Elec. Co., Supplier Guidelines & Expectations, at 3 (2017) (noting that suppliers are expected to have "[a] continually improving [] Quality System"); Ingersoll Rand, Global Supplier Quality Manual, at 5.6 (2014) ("The process of continuous improvement must be included in the goals and objective of the entire supplier organization."); Harley Davidson, Doing Business with Harley Davidson, at 1 (2013) ("Continuous improvement should be a standard process ingrained in the supplier's business, not simply performed to achieve a requirement of Harley Davidson."); *Master Hardware Agreement between NCR Corp. and Universal Global Scientific Industrial* (Sept. 7, 2018) at Sec. 3.3 "Cost Reductions" ("Supplier will… use its best efforts to reduce costs for all Products and for Product support."); Donaldson, Supplier Business Operating System standard, (2019) at 17 ("We expect our suppliers will… provide a minimum of 0.5% of the total amount of goods sold to Donaldson in annualized cost savings"); *Agreement between Square and Cheng and Uei Precision Industries* (June 27, 2012) at 7.7 ("Supplier shall make best effort[s] to reduce the costs of Supplier-Controlled Components and manufacturing… and will pass the same amount of achieved reduction in the price of the Products unit cost…. " and "[t]he Parties shall meet on a quarterly basis to review and discuss in good faith overall Product pricing.").

64 The extent to which potential suppliers have already adopted core elements of lean is a common subject of inquiry in the supplier qualification process. Evoqua asks potential suppliers "Are Lean Manufacturing principles… practiced?" *See* Evoqua, *Supplier Questionnaire,* available at: https://www.evoqua.com/en/about/Pages/Supplier-Portal.aspx. Kaman Aerospace notes in the information given to potential suppliers that their "Supply Management team is open to potential new sources who have shown a demonstrated commitment to lean." *See* Kaman, "Supplier Qualification Assessment" available at https://www.kaman.com/fuzing-precision-products/supplier.

65 Supply contracts also explicitly require or suggest that suppliers adopt particular practices that are widely considered to be part of lean manufacturing. *See* Shah & Ward, *supra* note 59, at 131 tbl.1 (setting out core lean practices). For the adoption of Kanban, *see, e.g.*, *Master Supply Agreement between Xerox and Flextronics International* (Nov. 30, 2001) at 4.2 and 4.3 ("The Kanban Process shall be used for all products designated Kanban Products"); *Supply Agreement between Siemens Magnet Tech and Bruker* (May 15, 2009) at 6.3 ("The method for delivery… shall be by way of the KANBAN System"); just-in-time inventory, *see, e.g., Supply Agreement between Maxtor and MMC Tech Inc.* (Aug. 18, 1998) at 2.7 (requiring supplier to hold a buffer stock "in order to provide just in time… delivery"); cycle time reduction, *see, e.g., World Wide Supply Agreement between Honeywell International and Axcess Inc.* (June 20, 2003) at c. 8 ("Seller agrees to aggressively seek out and advise buyer of cost reduction opportunities in the area[] of… cycle time reduction."); *Supply Agreement between Boehringer Mannheim Corp and Spectrx* (Jan. 5, 1996) at 8.2 ("The Parties agree to cooperate in an ongoing effort to [achieve]… cycle time reductions"); cross functional workforce, *see, e.g., Supply Agreement between Amdahl and Encore* (Nov. 21. 1994) (requiring the supplier to create and "empower" a cross-functional team with "representatives from Quality

formal lean-related practices can help support organizational change, it is only the first step in achieving the full benefits of lean manufacturing.[66] A successful lean transition also requires management and shop-floor employees to change the way they approach their jobs and to take on a variety of responsibilities that cannot be specified in writing or measured directly in performance metrics. For example, workers must gain an understanding of the production process as a whole (not only their own roles in it), become proficient in a wide variety of tasks and manufacturing techniques, many of which are firm-specific, and then use this knowledge and proficiency to become effective problem spotters and solvers.[67] They also must learn to work effectively in teams because "dynamic team work [often around problem solving or implementing continuous improvement]… [is] the heart of the lean factory."[68] Management must give more weight to workers' input and judgment and create an atmosphere in which workers feel comfortable being "proactive" in spotting and proposing solutions to problems before they can cause significant harm. Workers must be confident that they will not be punished for identifying a problem that turns out to be minor, even if it leads them to "pull the Andon cord" and stop the production line. Finally, workers need to believe that they will not be laid off if the lean transition is successful and productivity increases.[69]

Assurance, Manufacturing, Manufacturing Engineering and Materials" to deal with eight aspects of "Contract Execution."); *Master Purchase Agreement between Intel Corp and Aquantia Corp* (Jan. 15, 2009) ("When applicable both parties agree to assign cross-functional team members [representing sixteen 'disciplines'] to the Product Project… includ[ing] employees of each party."); *License, Supply, Manufacturing Agreement between Sunshine Heart and DSM PTG* (Apr. 26, 2010) at 13.1(b) (permitting communication between cross-functional teams at each company relating to "quality, MRP, operations, purchasing, engineering, and any other matters."); Total Quality Management, *see, e.g., Southeast Glass Bottle Supply Agreement between Anheuser Busch and Anchor Glass* (Aug. 19, 1999) ("Anchor shall at all times use reasonable diligence… adhere[] to total quality management practices and statistical process control."). Handbooks also require the use of lean practices, *see, e.g.,* Carlisle, Supplier Handbook, at 7, 20 (2018) (requiring "supplier[s] to [use]… cross-functional teams, JIT inventory, Six Sigma methods, preventive maintenance programs, and a kanban system); Harley Davidson Motor Co., Supplier Quality Requirements Manual, at 3 (2018) (requiring the use of "cross-functional teams" as part of product development methodology); Littlefuse, Supplier Quality Manual, at 20 (2017) (listing "cellular manufacturing" as one of the acceptable ways of achieving continuous improvement).

66 John Paul MacDuffie & Susan Helper, *Creating Lean Suppliers: Diffusing Lean Production through the Supply Chain,* 39 Cal Mgmt. Rev. 118, 120 (1997).

67 Womack et al., *supra* note 59, at 99.

68 *Id.*

69 MacDuffie & Helper, *supra* note 66, at 125 (discussing this problem and noting that as Honda sought to move its American suppliers to lean, "the supplier… had to agree not to carry out any employee layoffs as a result of the [lean] activities."); *See also* Susan Helper & Rebecca Henderson, *Management Practices, Relational Contracts, and the Decline of General Motors,* 28 J. Econ. Persp., 49, 57 (2014) (discussing how the poor relational contracts within GM and between GM and its suppliers contributed to the company's decline).

More generally, bringing about a productivity-enhancing lean transformation often requires changes in the relational contracts between a firm's workers and its managers (and/or changes in its culture) that can be difficult to achieve.[70] "Studies of plants trying to adopt lean production reveal that workers respond only when there exists some sense of reciprocal obligation, a sense that management actually values skilled workers, will make sacrifices to retain them, and is willing to delegate responsibility to the team."[71]

Buyers recognize that merely mandating the use of lean processes may not be enough to bring about the desired changes. They often assist suppliers with aspects of their lean transformation by sending in outside consultants or a team of their own employees.[72] Many also help finance their suppliers' lean-related projects.[73]

70 The difficulty of effecting a true lean transformation is illustrated by the fact that it took General Motors more "than two decades to imitate Toyota's [lean] practices consistently," even though they had engaged in a successful joint venture with Toyota in running a California plant under the Toyota production system and therefore knew exactly what they had to do. *See* Helper & Henderson, *supra* note 69, at 55 (explaining that the difficulty arose because "Toyota's practices were rooted in the widespread deployment of effective *relational contracts*—agreements based on subjective measures of performance that could neither be fully specified beforehand nor verified after the fact and were thus enforced by the shadow of the future—and… GM's history, organizational structure, and managerial practices made it very difficult to maintain these kinds of agreements either within the firm or between the firm and its suppliers."). For an overview of the differences between the way GM ran the California plant before the joint venture and the way they did so during the joint venture, *see* Maryanne Keller, Rude Awakening: The Rise and Fall and Struggle for Recovery at General Motors, (William Morrow & Co., 1990) at chapter 6 (contrasting the team-work oriented plant culture encouraged by Toyota and the bureaucratic culture created by GM). For a discussion of the productivity (and quality) enhancing effects of adopting lean production, *see* John F. Krafcik, *The Triumph of the Lean Production System*, Sloan Mgt. Rev. 41 (1988) (presenting the results of a study of productivity and quality in auto plants in North America, Japan and Europe and finding that plants with a high score on the study's lean index were more productive and produced higher quality goods than firms with lower scores); and James P. Womack and Daniel T. Jones, *From Lean Production to the Lean Enterprise*, Harv. Bus. Rev. (March-April 1994) (discussing the magnitude of the productivity gains a shift to lean production can produce as well as the many barriers that often impede firms' ability to adopt lean practices.").

71 Womack et al., *supra* note 59, at 100.

72 *See* MacDuffie & Helper, *supra* note 66 (describing the supplier development teams Honda sent into its U.S. suppliers to help them transition to lean).

73 As examples, Aerojet-Rocketdyne "provides Lean and Six Sigma experts at no cost to [their] suppliers." Aerojet Rocketdyne, *Continuous Improvement in Supplier Development*, https://www.rocket.com/suppliernet/supplier-development, and Medtronic "offer[s] Lean Sigma training for select Suppliers." Medtronic, *Resources for Suppliers*, https://www.medtronic.com/us-en/about/corporate-governance/suppliers/lean-supply-chain-principles.html. *See also*, Littelfuse, Supplier Quality Manual, at 20 (2017) (noting that Littelfuse will help selected suppliers implement lean—including Kanban and 6 Sigma—and that "[o]nce a supplier has been selected, a cross-functional team consisting of Littelfuse and supplier will be formed to work together to ensure that certain targets are achieved"); Stanley Black & Decker, Supplier Manual (2020) ("The Stanley Black & Decker Supplier LEAN program works with select key suppliers to improve operation[] efficiency while reducing the cost of quality and waste which may be commonly hidden in both production and transaction processes.").

2.2 Performance Monitoring

The WMS performance monitoring category focuses on "process documentation," as well as on "how problems typically get exposed and fixed," the "use of key performance indicators (KPIs), KPI reviews, [the] discussion of results, and [the] consequences for missing targets."[74] Buyers' expectations in these areas are set out in the managerial provisions included in their contracts and/or the policies, procedures, supplier development programs, and software systems they use to manage their interaction with their suppliers.

2.2.1. Process Documentation.

Buyers typically require suppliers to provide many types of highly detailed process documentation throughout their contracting relationship.[75] Among the areas where these requirements are most extensive are: the production part approval process,[76] quality processes and quality control,[77] machine maintenance and calibration,[78] supplier change requests (which are required when a supplier wants to change a material used, an aspect of product design, or an aspect of its production process),[79] supplier self-audits, and the structured

74 Sadun et al., *Competent Management*, *supra* note 30, at 122.

75 Some buyers contract for the right to require suppliers to provide additional documentation at their discretion. *See, e.g.,* NCR, Supplier Quality Manual, at 6.18 (2015) ("Based on the need, on request from NCR, Supplier will provide any necessary documents and/or reports at any point in time."); Cummins, Supplier Handbook, (2019) at 13 ("The Cummins SQIE [Supplier Quality Improvement Engineer] has the authority to request data above & beyond the stated requirements in the Cummins Supplier Handbook if it is deemed pertinent to protect the interests of Cummins.").

76 Firms tend to base their production part approval process (PPAP) on the standards set out by the AIAG. *See* AIAG, Production Part Approval Process (4th ed., 2006) (a 68 page manual setting out the processes to be followed and the documentation to be provided). However, firms also add firm-specific requirements, *see, e.g.,* SL Tennessee, Supplier Part Approval Process (PPAP) Manual ("[C]ommunicat[ing] SLTN's requirements with respect to PPAP," and explaining that they are compliant with the AIAG standard but include "specific requirements and additions[.]").

77 *See, e.g.,* Johnson Controls, Inc., Supplier Requirements Manual, (2d ed. 2015) at 4.2.4 ("JCI suppliers shall maintain quality records such that they remain retrievable… for [the] 'life of [the] program,'" including "[r]ecords relat[ing] to non-conforming product[.]").

78 Cummins Inc., Supplier Handbook, (2019) at Section J 2 p.13 (setting out detailed calibration and verification processes the supplier must undertake and document).

79 *See, e.g.,* Douglas Autotech Corp., Supplier Manual (2013) (providing that a supplier change request "must be submitted and approved prior to any changes to the process or product… [including u]se of alternate material or construction… Use of new or modified tools (except perishable tools), dies, molds, etc., including additional or replacement tooling… Changes in process flow… Production from a new or additional manufacturing site… Changes in supplier for materials, components, or outside processing (e.g. heat treat, plating, painting)… Changes in test/inspection methods… Dimensional Discrepancies and/or Measurement discrepancies… [and the] Use of Alternate Packaging."). Some buyers require supplier change requests even for "rearrangement of existing tooling or equipment." Parker Hannifin Corp., Supplier Quality Requirements Manual, at 20 (2016).

problem-solving procedures buyers require supplies to use to uncover the "root cause" of any problems that arise.[80] Suppliers are required to upload the required documentation directly to their buyers' management software platforms. These platforms provide detailed guidance (based on the requirements of contracts and handbooks) about the documentation required and the timeframe for submitting it.

2.2.2. Monitoring.

Buyers also contract for the right to employ both electronic and boots-on-the-ground monitoring techniques. Contracts routinely give buyers rights to enter their suppliers' (and sometimes their suppliers' sub-suppliers') plants[81] with or without notice,[82] either at their election or for designated reasons—such as auditing[83] and monitoring the implementation of agreed corrective action tasks. Some companies, like Cummins, require their own quality engineers to oversee and give their approval at many stages of the supplier's design and production

80 *See, e.g., Supply Agreement between Pacific Gas and Electric Company and Itron Networked Solutions,* (July 15, 2008) (supplier "shall conduct a root cause analysis with respect to any Products not conforming to the requirements set forth in this Agreement and provide a written report…. The report will include… final root cause determination… methodology of identifying and resolving the root cause; and… target dates for installation of resolution"); *Manufacturing Supply Agreement between Andrew Corp. and Elcoteq Network* (Sept. 14, 2006) ("Supplier shall perform and provide to Company a detailed analysis of all returned Product found to be defective, identify root cause, and implement any appropriate corrective action."); Navistar, Integrated Supplier Quality Requirements (ISQ-001-Qm), at 4.2.1 (2019) ("[S]uppliers are expected to lead root cause investigations and report progress on a timely basis."); and Cummins, Supplier Handbook, at 27 (2019) ("Suppliers are expected to submit evidence of problem solving tools used during root cause [analysis]… [u]nacceptable responses will be returned to the supplier for further work."). For an overview of the root cause analysis process, *see* James J. Rooney, & Lee N. Vanden Heuvel, Root Cause Analysis for Beginners, 37 Quality Progress 45 (2004).

81 *See* Harley-Davidson Motor Co., Supplier Quality Requirements Manual, at 2 (2018) ("H-D reserves the right to conduct onsite audits of Supplier from time to time to assure continuing compliance with this manual and all quality and process documentation. H-D also reserves the right to conduct onsite audits of a Supplier's Sub-Tier Suppliers that produce H-D product, and Suppliers shall cause their Sub-Tier Suppliers to allow these audits preferably with a representative from the Supplier in attendance.")

82 *See, e.g.,* NCR, Quality Manual, (2015) at 6.4.3. *See also Master Hardware Supply Agreement between Universal Global Scientific Industrial Co., Ltd. And NCR* (June 1, 2018) at 13.2 ("Supplier agrees to allow NCR's representatives… or NCR's customers at any and all times during regular business hours to enter Supplier's facility where Products are produced to inspect the facility, the manufactured Products, and the means for manufacturing Products…. ").

83 *See, e.g.,* NCR, Quality Manual, (2015) at 11.2.1 ("Physical Audit"); *Supply Agreement between Apple and GTAT* (Oct. 31, 2013) at 11 ("During the Term and for two (2) years thereafter, Apple… may inspect GTAT facilities and audit GTAT's records to verify that GTAT has complied with its obligations under this Agreement."); Douglas Autotech, Manual, (2013) at 5 ("[V]isits to all suppliers may happen on an annual basis," and audits will be conducted when "a suppliers quality rating trends downward," or other key metrics begin to fall.).

process.[84] Nike "keeps Nike Personnel onsite full time at its suppliers' facilities," in an effort to "closely oversee[] the quality and responsiveness of its production units."[85] Other buyers have created supplier development or consulting teams that are available to go into a supplier's plant when a production problem surfaces and remain there until the problem is solved.[86] Pratt & Whitney, for example, has "200 engineers [who are] deployed… to work directly with suppliers [at their plants] to help them build capacity and improve metrics."[87]

Additional process monitoring may also occur indirectly by virtue of the production methods selected. For example, the "just-in-time production methods" that are central to lean manufacturing also contribute to process monitoring. When just-in-time methods are used on the factory floor, problems that arise "at one station halt production by disrupting the flow of parts to downstream operation[s]."[88] This "render[s] disruptions and defects immediately visible,"[89] and enables the supplier to detect "performance failures and deception before they lead to disastrous consequences."[90]

2.2.3. KPIs, Discussions, and the Consequences of Missing Targets.

Supply contracts contain a variety of KPIs.[91] Common examples include part-per-million error rates, on-time delivery rates, and supplier's responsiveness to

84 Cummins, Supplier Handbook (2019) (describing the authority of its Supplier Quality Improvement Engineer, and the role that he or she plays in setting standards for and approving various stages supplier's production processes). *See also*, *External Manufacturing Services Agreement between Lucent and Celestica* (Mar. 1, 2005) at Article 29 ("Company may place one or more personnel in Supplier's facility… to carry out the functions Company may deem necessary in the portion of the facility in which Supplier kits Material and manufactures, inspects, repairs, distributes and ships Product…. includ[ing] access during normal working hours to areas where Product is manufactured, repaired, stored and distributed.").

85 James Brian Quinn, Intelligent Enterprise 45 (1992).

86 *See, e.g.,* Jon R. Stegner, Bill Butterfield & Craig T. Evers, *John Deere Supplier Development Program* (87 Ann. Intl. Conf. for the Inst. Of Supply Mgmt. 2002); Management scholars have found that supplier development programs increase suppliers' trust in their buyers. *See* Jeffrey H. Dyer & Wujin Chu, *The Determinants of Trust in Supplier-Automaker Relationships in the US, Japan, and Korea: A Retrospective,* 42 J. Int'l Bus. Studies 10, 14 (2011) ("According to the suppliers we interviewed [and data from a survey of 453 suppliers], the buyers' processes for providing regular assistance to suppliers (in many cases helping suppliers fix buyers' operational problems) were likely to influence the degree of trust in the buyer.").

87 Loren B. Thompson, *The New Landscape in American Manufacturing: What it Takes to Succeed Today*, Lexington Inst. 8, available at https://www.lexingtoninstitute.org/wp-content/uploads/2016/01/New-Landscape-in-American-Manufacturing.pdf.

88 *See* Susan Helper, John Paul MacDuffie & Charles Sabel, *Pragmatic Collaborations: Advancing Knowledge While Controlling Opportunism*, 9 Indus. and Corp. Change 443, 467-68 (2000) [hereinafter "*Pragmatic*"].

89 *Id.* at 467.

90 *Id.* at 466.

91 Some contracts also spell out the consequences of failing to meet certain KPIs. *See, e.g.*, NCR, Supplier Quality Manual, (2015) at 6.16 (providing that where the PPM error rate is exceeded, the costs associated with the errors are "charged back" to the supplier including "[p]roduction loss, expedited freight costs, rework cost, field replacement/repair cost, administration cost and any other associated cost.").

corrective action requests. Buyers incorporate these and other KPIs into their supplier scorecards. A supplier scorecard is a document issued on a quarterly basis that aggregates a supplier's performance metrics into a grade like A or B or C. These scorecards (whose use is either mandated by contract[92] or simply part of the buyer's standard operating procedures) typically have many objective or quasi-objective components.[93] Some also contain more subjective components that attempt to capture qualities like the supplier's attitude and flexibility.[94] John Deere's scorecard contains a subjective category called "wavelength," defined as a "composite analysis of the supplier's initiative, attitude and responsiveness, attention to detail, communications, and performance."[95] This category reflects John Deere's view of the degree to which suppliers openly share information, prioritize John Deere as a customer, are proactive in identifying and solving problems, are "fully aligned and integrated into John Deere processes" and are trustworthy.[96] Other buyers provide subjective metrics to their suppliers but do not incorporate them into the overall scorecard grade.[97] Scorecards are reviewed with the supplier in quarterly meetings,[98]

92 *See, e.g.*, *Master Hardware Supply Agreement between NCR and Universal Global* (July 10, 2018) at 7.5 ("The Supplier Scorecard will be used as a tool to review and evaluate a Supplier's performance during quarterly business reviews with Supplier."). Buyers' intention to use supplier scorecards is often documented in their supplier handbooks. *See*, *e.g.,* Videojet, Supplier Relationship Manual, at 7.1 (2012) (describing the quarterly supplier scorecard issued by the Buyer); and Jabil, Supplier Manual (2022) (noting that Jabil uses scorecards to evaluate its suppliers and that "[o]ngoing performance issues can impact a supplier's status as an Approved Manufacturer[.]").

93 Some scorecards contain only objective metrics. *See, e.g.*, Donaldson, Donaldson Buys Value, at 7-16 (July 10, 2017) (describing the objective rating scores used by Donaldson); and Douglas Autotech, Manual, (2013) at 22-24 (same).

94 *See* Northrup Grumman Aerospace Systems, *Supplier Scorecard Guidelines* SG-0110 (2021).

95 John Deere, Supplier Quality Manual, at 7 (2020); *see also*, Cummins, Supplier Handbook, at 11 (2019) ("The supplier [is rated] in the categories of Price/Cost, Quality, Delivery, Technology, and Attitude/Administration"); and Hengst, Supplier Manual, at 20 (Jan. 15, 2019), (noting that their supplier scorecard "also takes into account so-called soft facts from the purchasing area.").

96 John Deere, *Achieving Excellence: A Strategy for World-Class Supplier Relationships* (Sept. 25, 2014) at 11, available at https://www.worldcc.com/Resources/Content-Hub/View/ArticleId/7156/Achieving-Excellence-A-Strategy-for-WorldClass-Supplier-Relationships. Similarly, NCR's scorecard considers the supplier's innovativeness and strategic alignment with NCR's goals, as well as the supplier's willingness to make changes and openly communicate. *See* NCR, Supplier Score Card (2010).

97 *See, e.g.,* Kohler Engines, *Supplier Scorecard Overview*, at 5, 6 (2012) (discussing the provision of a "Subjective Category" for "information purposes only and not included in the overall supplier score," that looks at "ease of doing business," which includes such things as "responsiveness… governance… and technical assistance.").

98 These meetings are sometimes mandated by contract, *see*, *e.g.*, *License, Supply, Manufacturing Agreement between Sunshine Heart and DSM PTG* (Apr. 26, 2010), at 13.1(a) (requiring a quarterly business review meeting), or by a handbook, *see, e.g.*, Generac Power Systems, Supplier Handbook, at 10 (2018) ("Generac will schedule business reviews with suppliers," that will cover 15 enumerated areas); and Wurth, Supplier Handbook, at 2.2 (2019) (A "supplier scorecard methodology [is used] to measure supplier performance… [and] [s]corecard results will be reviewed and discussed with the Supplier during a quarterly business review.").

where the results are discussed (sometimes disputed) and remedial actions for underperformance or plans for new goals are typically discussed.[99]

Buyers differ in the way they use scorecard results. Some, like Lincoln Electric,[100] use them only as a basis for discussion at the quarterly business review. Others impose rewards and punishments of varying degrees of specificity for different grades. In many companies, a supplier's score will affect the amount of the buyer's future purchases or other aspects of the transactors' relationship. At NCR, for example, suppliers with an "Excellent" rating are rewarded with more business or other benefits, while those who score lower might be subject to additional oversight throughout the production and shipping process, face smaller purchases, and/or be required to submit a remedial plan and implement it on an agreed timeframe.[101] At some companies, a particularly low grade may trigger the buyer's right to terminate the contract.[102]

To create incentives for suppliers that earn consistently excellent scorecard grades to continue to perform and improve, many companies have created supplier status categories and/or supplier awards programs that give

99 *See* Sherry R. Gordon, Supplier Evaluation and Performance Excellence: A Guide to Meaningful Metrics and Successful Results 162-66 (2008) (describing the ways these meetings are typically conducted).

100 Lincoln Electric rates its suppliers using a weighted measure of four criteria: quality, delivery, the supplier's responsiveness to corrective action requests, and supplier flexibility (a category that reflects not only metrics but sometimes also includes a "subjective assessment"). Lincoln Elec. Co., Supplier Guidelines & Expectations, at 9 (2017) [hereinafter "LEC Guidelines"]. It also provides its suppliers with detailed information about the rating criteria that it uses and the weights assigned to each aspect of the supplier's performance. *See* Lincoln Elec., *Reading & Understanding the Supplier Scorecard* (July 24, 2014), available at https://www.lincolnelectric.com/en-us/company/Documents/guidelines-reading-supplier-scorecard.pdf; LEC Guidelines, at 8, VII(b) (2017). However, Lincoln Electric does not explicitly link its scorecard rating to particular consequences. Rather, it uses the scorecards and quarterly business review meetings to "provide a platform to improve their [the supplier's operations]… to achieve world class performance levels." LEC Guidelines at 8.

101 *See, e.g.,* NCR, Supplier Score Card (2010) at 6; Milsco, Supplier Quality Requirements Manual at Sec. 1.8 (2014) (providing that suppliers classed as "preferred [score greater than 85%] can get new business… growth potential… [c]onditional [score between 70 and 85%] may or may not get new business… [and an] action plan to improve may be required… poorer [score less than 70%] possible loss of business… [with an] action plan for improvement required."); Hengst, Supplier Manual (2019) at 20 (discussing the steps suppliers must take and the plans they must submit depending upon their scorecard grade).

102 *See, e.g., Supply and Purchase Agreement by and between Engineered Materials Solutions, Inc. and Texas Instruments Incorporated* (Jan. 17, 2005) at 2(c) ("BUYER shall have the right to terminate this Agreement if SUPPLIER fails to achieve or maintain the minimum SUPPLIER Scorecard ratings set forth in section 15 for a period of three (3) consecutive months and fails to implement a cure within 60 days."). The consequences of a bad scorecard grade can extend beyond the relationship in which it was received in part because other suppliers may ask for these metrics as part of their supplier qualification process. *See, e.g.,* DAF, *Suppliers Questionnaire* at 1.3.3 ("Do your customers have a vendor rating or assessment of your performance or process (who and what is the result)?").

higher-performing suppliers additional benefits.[103] At Pratt and Whitney, suppliers who earn "gold" status are rewarded with "more favorable commercial terms, lower buffer stock requirements, and directed requests for quotes on new work."[104] Similarly, Rockwell Collins suppliers who reach "Platinum Premiere" status gain "[a]ccess to executive leadership and program design teams, [b]adge access to Rockwell Collins facilities, [p]referred Engineering Supplier/part list, [p]referred [status] for future sourcing decisions, [and preferred p]ayment term consideration."[105] At other firms, the benefits of achieving a particular status level with a buyer might include the right to be awarded work even without being the low bidder.[106] It is not uncommon for suppliers who sell to buyers known to be particular about quality and performance to advertise being a "partner-level supplier"[107] on their website. The trade press also covers supplier of the year awards from large companies.[108]

Finally, to encourage suppliers to engage in types of behavior not fully measured in their quarterly scorecards, buyers give other types of supplier awards. For example, in addition to its standard metrics, John Deere gives Innovative Supplier of the Year awards, based on "creativity, feasibility, collaboration, and bottom-line impact."[109] Spirit Aerosystems goes further. It gives awards for

103 Even after a supplier has reached the buyer's highest supplier designation and received public supplier awards, the supplier will have a continued incentive to please the buyer since falling out of a buyer's highest category or failing to re-win an award might hurt the supplier's reputation with its other buyers.

104 Thompson, *New Landscape, supra* note 87.

105 Rockwell Collins, *Rockwell Collins Trusted Supplier Program* (2012) https://www.rockwellcollins.com/~/media/Files/Unsecure/Resources/Supplier/Trusted-Supplier-data-sheet-110812.aspx.

106 *See, e.g.,* Jeffrey Rickert, Joel Rogers, Darya Vassina, Josh Whitford & Jonathan Zeitlin, *Common Problems and Collaborative Solutions: OEM-Supplier Relationships and the Wisconsin Manufacturing Partnership's Supplier Training Consortium*, Ctr. on Wis. Strategy Paper, 1, 17 (2000) (Ariens Corporations' suppliers reaching a certain rating level are awarded work when they are within 5% of the lowest bidder); Aberdeen Group, *The Supplier Performance Measurement Benchmarking Report,* http://www.lyonsinfo.com/_resources/aberdeen_spms_report.pdf (Dec. 2002) ("[E]nterprises often give new business proposals… from preferred suppliers additional weight, allowing preferred suppliers to win new business without necessarily being the lowest priced offer.").

107 *See, e.g.*, Argos Multiligual, *Argos Subsidiary Earns Recognition as a John Deere "Partner-Level Supplier"* (Nov. 22, 2014), https://www.argosmultilingual.com/blog/argos-subsidiary-earns-recognition-as-a-john-deere-partner-level-supplier; Eurotech, *Achieving Excellence in John Deere's Partner-Level Performance Program*, https://www.eurotech.com/en/awards/achieving-excellence-in-john-deere-s-partner-level-performance-program (highlighting their status as a Deere supplier); and Bossard, *John Deere: "Partner-Level"* (Feb. 22, 2013), https://www.bossard.com/ca-en/about-us/news-and-press-releases/2013/02/press-release-john-deere-partner-level/ (same).

108 Sometimes publicly acknowledging the existence of a supply relationship, or engaging in various types of quasi-cobranding, can function as a supplementary contract binding device. *See infra* note 224 and accompanying text (discussing John Deere's and Briggs & Stratton's co-branding efforts).

109 *See* Press Release, Kondex Corp., Kondex Receives John Deere Supplier Innovation Award (July 20, 2020), https://www.kondex.com/kondex-receives-john-deere-supplier-innovation-award.html (press release from Kondex advertising receipt of Deere's Supplier Innovation award and the criteria it is based on).

"Strategic Supplier of the Year; Most Innovative Supplier; Collaboration Values Partner; Transparency Values Partner; Inspiration, Values, and Community Partner; Performance Partner; Emergent Support Partner; and Indirect Supplier of the Year."[110]

2.3 Target Setting

The WMS also explored a constellation of "target setting" practices. These include "[c]hoice of targets… connection to strategy, extent to which targets cascade down to individual workers… [t]ime horizon… [l]evel of challenge… [and c]larity of goals and measurement."[111]

As discussed above, target setting, KPIs, and KPI measurement systems are introduced into procurement relationships through explicit contractual terms, the requirements of supplier handbooks, and the scorecard process. They are closely tracked by both buyers and suppliers using buyer-administered supplier relationship management computer platforms. These platforms have dashboards that enable both buyers and suppliers to get a quick overview of a supplier's KPI performance relative to the targets. They contain up-to-date performance metrics, trends, and other supplier-related information that varies by firm. This information gives suppliers an overview of how buyers rate their performance (along numerous dimensions) on something close to a real-time basis,[112] rather

110 *See, e.g.*, Press Release, Spirit Aerosystems, *Spirit AeroSystems Recognizes 12 Suppliers for Superior Performance* (Sept. 12, 2019).

111 *WMS supra* note 28.

112 The Trane Supplier Dashboard contains 23 metrics or categories, some of which are updated daily and others of which are updated weekly. Its summary screen lets the supplier see "Spend… [over] last 12 months, ... whether they are] recognized as a diversity supplier… the results of the[ir] latest On Site Assessment… the count of Non-Conforming Material… records entered against the supplier… defective parts per million receipts for all parts supplied… count of Supplier Corrective Action Requests… percentage of SCARs that are responded [to]… by the due date… number of Initial Customer Quality (ICQ) claims submitted… ICQ claims within 90 days of Warranty Start Date/Receipt qty in last 12 months… percentage of the time receipt was before the Need by Date… percentage of time the receipt was later than the plant's Need By Date AND longer than stated lead Time… On-time [receipts]… Weighted Lead time… percentage of receipts that are made within state lead time… count of the manually logged import issues into the US or Canada… Weighted payment terms in days… status of Sustainability survey… status of tier 2 diversity reporting… [whether] the supplier has an active EtQ account [an application 'that is used to collaborate on supplier quality issues'] and has logged on in the last 30 days… whether] there are any contracts between [the] supplier and Trane Technologies on file… [the] Percentage bracket of invoices using automated mechanism[s]… [whether] A primary contact has been loaded for the supplier, and [whether] Supplier has an active iSupplier account and has logged on in last 30 days." They can then click on any of these metrics and "drill down" to get more detail. For example, with one click the supplier can access information about where and when reported defects occurred, as well as the "part number, description of defect, date of finding, [and] nonconformance report number," for each defect. The same system lets suppliers access information about their open purchase orders with Trane and access Trane's forecasts on a part-by-part basis. *See*, Trane, *External Supplier Dashboard: Supplier Training Presentation*, https://www.tranetechnologies.com/en/index/company/doing-business-with-us/supplier-dashboard-registration.html.

than only in the more formal run-up to a quarterly business review. These dashboards are an important way that contractual requirements are disseminated through both firms and provide an electronic forum for the exchange of information and documentation.

Many buyers also consider it important for their suppliers to understand their strategic goals. Some buyers include their suppliers' alignment with their strategic goals as part of their supplier scorecard rating.[113] At NCR, for example, a supplier's innovativeness and degree of business alignment with NCR count for 25 percent of the supplier's score card grade.

To ensure that their high-level strategic goals, as well as their more precise targets and operational specifications, are well understood by their suppliers,[114] some buyers, like Johnson Controls, require their suppliers to designate a supplier employee (called the "supplier champion") whose "job [it] is to understand JCI expectations, demonstrate an acceptable level of competence in the tools and techniques [JCI requires], and be capable of disseminating that knowledge to the rest of the [supplier's] organization."[115] The "supplier champion" must complete

113 *See* Private Scorecard Rating Matrix of a Mid-sized OEM on file with author and NCR, NCR Supplier Score Card (2010); On Semiconductor, Material Supplier Handbook, at 10 (noting that part of their scorecard rating turns on whether the supplier's "technology roadmap aligns with On Semiconductors future technology.").

114 The John Deere manual provides that "the [supplier's] training should provide [its] employees with an awareness of the relevance and importance of employees' activities and how employees contribute to the achievement of quality objectives in the buyer's business plan." John Deere, Supplier Quality Manual, at 5.3.3 (2015). Similarly, Milsco's handbook has a section titled "Supplier Management Responsibility" that, among other things, charges the supplier with ensuring that Milsco's goals are made known to their employees and that steps are taken to ensure they are met. *See* Milsco, Supplier Quality Requirements Manual, at 1.1 (2014) ("Supplier management shall ensure that Milsco['s] needs and expectations are determined, [and] converted into requirements…").

115 Robert B. Handfield, *Avoid the Pitfalls in Supplier Development*, *supra* note 1 at 43 (discussing the use of a supplier champion by Johnson Controls). Donaldson also requires its strategic suppliers who participate in its supplier rating and development programs to appoint a program "[c]hampion [who] is responsible for completing any required training, communicating [the results of the rating and training programs] within the supplier's organization and serving as [the buyer's] point of contact." *See* Donaldson, Donaldson Supply Management Program: Donaldson Buys Value (July 10, 2017). A Supplier Champion can be understood as a relational complement to a contract's specific terms. He/she functions as a contract provision him/herself by importing a range of understandings of the buyer's needs and expectations into the relationship even those that are not fully or adequately captured though written documentation alone. The Champion also fulfills the role of a network broker by gaining an in depth understanding of the buyer's needs and perspectives and then using his "internal credibility," *see* Robert M. Monczica, Robert B. Hanfield, Larry C. Giunipero and James J. Patterson, Purchasing and Supply Chain Management 7th ed (Cengague 2021) at 348 to diffuse these understandings through the supplier's organization in a way his fellow employees will understand. *See also* Ed Potoczak, *Insight from Honda Executives on Becoming a Honda Supplier* (Oct. 29, 2015), https://blogs.solidworks.com/delmiaworks/insight-from-honda-executives-on-becoming-a-honda-supplier/ ("Honda North American leadership has been working to instill a 'Passion for Quality' culture in its associates and supplier partners. Honda has asked its suppliers to appoint internal corporate quality leaders to help spread this 'passion' throughout the organization.") These supplier champions play a role in these relationships that is quite similar to a role created

all training classes that the buyer deems necessary. And, if he or she leaves the employ of the supplier, a new champion must be appointed.[116] Cummins prefers to assign these duties to one of its own employees, a Supplier Quality Improvement Engineer (SQIE), who is tasked with ensuring that suppliers that he or she works with understand and meet Cummins' requirements. The SQIE is given broad-ranging authority to answer supplier questions, oversee aspects of the supplier's operations, and request "data above & beyond"[117] what is explicitly required if "it is deemed pertinent to protect the interests of Cummins."[118]

In sum, from a broad operational perspective, the managerial provisions and contract administration mechanisms discussed above give buyers a clear view of their suppliers' actions throughout their contracting relationship and suppliers a clear sense of whether or not they are meeting their buyers' expectations.[119] Together with the wide variety of boots-on-the-ground monitoring systems and periodic performance reviews required by these agreements, the availability of this real-time information should enable transactors to catch problems sooner rather than later and prevent the largest possible harm from arising.

2.4 Talent Management

The WMS focused on several aspects of talent management, including "talent development," "talent retention," "[e]mployee value proposition" and "[st]retch goals… [and] management of low performance."[120] Although supply contracts state that suppliers are independent contractors and not employees, many buyers

by CISCO—a technology company that grew largely through acquisitions and is regarded as an industry leader in post-acquisition integration—namely, the so-called "manager of the intangibles." *See* Ronald S. Burt, Neighbor Networks: Competitive Advantage Local and Personal 6 (Oxford, 2010). The manager of the intangibles is a highly regarded CISCO employee who works closely as a "buddy" with an employee of the acquired firm who is named as the "integration team leader," to bring about the integration of the acquired firm's personnel and operations into CISCO. *See* Myra Micheline Widjaja, Thesis: Management Studies, Factors that Enhance the Post Merger Integration Process in Relation to Innovation Performance 49-68 (2008).

116 Handfield et al., *supra* note 1.

117 Cummins, Supplier Handbook, at 6 (2019).

118 *Id.*

119 Although economic modelers have paid attention to the effects of contract provisions that condition on information that is observable but not verifiable. *See* Alan Schwartz, *Relational Contracts in the Courts: An Analysis of Incomplete Agreement and Judicial Strategies*, 21 J. Legal Stud. 271 (1992), they have not paid similarly close attention to provisions that condition on information that is verifiable (during the discovery phase of a lawsuit) yet not observable to the parties without filing a lawsuit. By making so many types of lawsuit-verifiable information observable during the course of the parties' relationship, managerial provisions should reduce the number of lawsuits filed due to asymmetric information between the parties.

120 *WMS Survey, supra* note 28.

are interested in[121] and seek to influence aspects of their suppliers' management structure.[122] They also seek to influence some of their suppliers' human resources policies (which are often scrutinized as part of the supplier selection process),[123] especially those related to employee training.[124] Buyers' actions in this area are, however, chilled by their fear that if they exercise too much control in these areas, their suppliers may lose their independent contractor status. This, in turn, might result in a buyer being designated as a "joint employer" of some of its supplier's workforce, a determination that could subject the buyer to burdensome regulatory obligations.[125] As a consequence, talent management is an area in which WMS practices and managerial provisions, while similar, are less closely matched.

121 *See infra* notes 160-162 and accompanying text (noting that some companies require suppliers to submit their formal organizational chart as part of the supplier qualification process).

122 *See infra* note *127*.

123 *See, e.g.,* GTI, *Supplier Questionnaire,* ("Is there a plan for training/certification of employees and is it implemented? Are the actual training certifications documented?"); Husky Energy, *Prequalification Questionnaire*, at Sec. 6. (noting that suppliers are asked about the training they provide for particular positions and the types of training updates they offer); Ranir, Supplier Handbook, (2017) (noting that a supplier's "human resources" practices are taken into account in the supplier selection process); Rortok, Supplier Handbook, at 6 (Aug. 2019) (noting that its supplier selection process may look at the supplier's "business management… training and human resources" policies).

124 See *infra* note 131.

125 The U.S. federal regulations that define joint employment are in flux. In 2020, the U.S. Department of Labor adopted changes to the existing regulations designed to "promote innovation and certainty in business relationships," in light of the fact that "[t]he modern economy involves a web of complex interactions filled with a variety of unique business organizations and contractual relationships." *See* Joint Employer Status under the Fair Labor Standards Act, 84 Fed. Reg. 14043, 14047 (Apr. 9, 2019) (to be codified at 29 C.F.R. pts. 791), https://www.govinfo.gov/content/pkg/FR-2019-04-09/html/2019-06500.htm (FLSA). Those changes were rescinded in October 2021. *See* 29 C.F.R. § 7919 (repealed and reserved Oct. 5, 2021). However, despite its laudable objectives, these regulatory changes did not provide the types of safe harbors needed to remove the chill of these regulations on the adoption of new types of managerial provisions (like the right of the buyer to provide bonuses directly to the suppliers' employees) with the potential to fine tune the incentive alignment of the supplier's employees with the buyer's contractual goals. The rise of managerial contracting discussed here suggests that regulations should include clear safe harbors for the managerial practices discussed in the text and others that could be used to fine tune incentives in these contracting relationships. The existing regulation already has one such safe harbor that could be a template for drafting others in ways that would not run afoul of the purposes and policies behind the FLSA. *See* Determining Joint Employer Status under the FLSA, 29 CFR 791.2 (d) 4 ("The potential joint employer's contractual agreements with the employer requiring quality control standards to ensure the consistent quality of the work product, brand, or business reputation do not make joint employer status more or less likely under the Act. Similarly, the monitoring and enforcement of such agreements against the employer does not make joint employer status more or less likely under the Act. Such contractual agreements include, but are not limited to, specifying the size or scope of the work project, requiring the employer to meet quantity and quality standards and deadlines, requiring morality clauses, or requiring the use of standardized products, services, or advertising to maintain brand standards."). Providing procurement contract safe harbors is likely to become more important as new technologies enable buyers to see the sensor output and other data from the suppliers' production line in real-time and might therefore lead them to contract for even more powerful managerial rights than they currently have. For an overview of recent regulatory changes and court decisions in this area, *see* Thomson-Reuters, *Joint Employment: Overview, Practical Law Practice Note Overview 9-523-4928* (2022).

Despite these legal concerns, buyers do seek to influence or dictate some aspects of their suppliers' management structures[126] and human resources related policies. Contracts often require suppliers to create high-level safety or quality management positions with very clearly delineated roles and responsibilities and to specify that the person occupying the position must have access to top management and/or the authority to resolve problems.[127] "Key personnel" provisions, naming supplier employees who cannot be replaced without the buyer's consent, are also common.[128] Most buyers require suppliers to comply with Codes of Ethics that require, among other things, safe working conditions, preservation of

126 Johnson Controls, Inc. (JCI), Supplier Quality Requirements Manual, at 4.1 (4th ed. May 2018) ("Supplier management at highest levels shall demonstrate involvement and support for process efficiency, customer focus, quality policy, planning, defining responsibility, authority and communication and management review"); *See also* Toyota, Supplier Quality Assurance Manual, (Aug. 2006), at 1.1 ("A permanent management level position must be established or designated as the executive management representative for overall quality assurance… [who] will be responsible for comprehension, deployment, and ongoing internal training of SQAM requirements… [and a] succession plan must be in place to ensure [sic] smooth transition and retention of SQAM knowledge."); John Deere, Supplier Quality Manual (2015), at 4.4.1-4.4.4 ("Top management shall take an active role in the quality management system. This commitment shall address the managerial processes of quality planning, quality control, and quality improvement.").

127 *See, e.g.,* Toyota, Supplier Quality Assurance Manual, (Aug. 2006) at Section 1 p. 2 ("A permanent management level position must be established or designated as the executive management representative for overall quality assurance. This position will be responsible for comprehension, deployment, and ongoing internal training of SQAM requirements. A successful plan must be in place to ensure smooth transition and retention of SQAM knowledge."); PCC Structurals, Quality Requirements for Suppliers, at 7.1.4 (Aug. 5, 2019) ("The Supplier shall appoint a management representative who irrespective of other responsibilities shall have defined authority and responsibility for ensuring the requirement of this [the firm's quality] specification are implemented and maintained. The representative shall be afforded unrestricted access to Top Management to resolve issues relating to Quality."); *See also*, Milsco, Supplier Quality Requirements Manual, at 1.1 (2014) (requiring its suppliers to "appoint a member of the supplier's own management with the defined authority to…" oversee and monitor the supplier's quality system, communicate with Milsco, and deal with problems that arise); *See also* Harman, Supplier Quality Manual (2021) (requiring every supplier to "appoint a Product Safety Officer [at each of its plants who has access to management and]… who acts as a central point of contact to Harman," and setting out the "knowledge," she must have and the "tasks" she is to perform, and the authority she must be given to stop shipments for safety-related reasons); *External Manufacturing Services Agreement between Lucent and Celestica* (Mar. 1, 2005) ("Supplier shall appoint a senior operations executive and the parties shall agree on a governance model for managing the relationship including accountability metrics that the senior operations executive shall meet for Company and Supplier."); *Master Manufacturing Agreement between Signature Industries Ltd. and Custom Interconnect* (Nov. 14, 2011) (requiring the supplier to appoint a "customer account manager… quality manager… Engineering [manager] responsible [for the project]… [and] one representative responsible for the general administration of the [project]… [and] for the settlement of disputes."); Carlisle, Supplier Handbook, at 18 (2018) ("The Supplier shall make known a person to CarlisleIT, who will have the necessary authority to assume responsibility for product quality. It is expected that the named person will provide evidence of the Supplier's commitment to the development and implementation of the Quality Management System and the continued improvement of its effectiveness.").

128 *Major Equipment Supply Agreement between Southeast Renewable Fuels and Sim Argo* (Feb. 19, 2019) at Sect. 4.7 ("Major Vendor shall ensure that key personnel… are not assigned to other projects to the detriment of the Major Vendor Services. Except for key personnel who leave Major Vendor's employ,

the right of association, and not using child labor.[129] These Codes also go to great lengths to emphasize that suppliers are expected to adopt the same values and ethical standards that buyers expect their own employees to observe.[130]

Buyers take a variety of steps to promote the development of their suppliers' employees' talents and skills. Many encourage or require suppliers' employees to participate in buyer-run training programs.[131] Caterpillar runs a Supplier Development college (with both live and e-learning) that "offers a variety of classes for new suppliers designed to increase their understanding of Caterpillar's contract requirements, quality standards, and unwritten expectations."[132] Similarly, John Deere has provided webinars and online tutorials to help its suppliers understand John Deere's quality and other expectations.[133]

Major Vendor may not remove the key personnel from participation in the Major Vendor Services without first notifying Owner and demonstrating that a change in personnel will not adversely affect performance of the Major Vendor Services."); Parker Hannifin, Supplier Quality Requirements, at 7 (2016) ("The Supplier shall promptly notify the Parker Buyer of any substantive changes to the Supplier's quality management system or personnel.").

129 John Deere, John Deere Supplier Code of Conduct, at 2 (Aug. 2016); Johnson Controls, Inc., Supplier Requirements Manual, (2015) at 6.4.1 (requiring that "the use of Personal Protective Equipment is defined and in place"); *Id.* at 3.3 ("Suppliers should treat workers with dignity," "maintain workplaces free of physical or mental harassments, abuse or any other behavior that diminishes a person's integrity and self-esteem.").

130 *See, e.g.,* Ingersoll Rand, Code of Conduct for Business Partners and Code of Conduct (noting that the firm's core values of "[i]ntegrity… [r]espect… [t]eam work… [i]nnovation… [and c]ourage," define "how we [Ingersoll] interact with our customers and suppliers… [and] how we treat each other in the workplace and how our values guide our business decisions"); Aerojet Rocketdyne, Supplier Code of Conduct (2017) ("Set[ting] forth the expectations… for every third party who works on our behalf and reflect[ing] the standards we set for our own employees.").

131 *See, e.g.*, Letter from Navistar to Navistar Suppliers (June 6, 2014) (announcing that "Navistar has developed and instituted a training program hosted on the internet that takes our quality expectations beyond statements of expectations to training in the important aspect of quality that will deliver to our expectation," and mandating that all key supplier personnel be trained and tested to ensure that "our quality deliverables are clearly understood," and warning suppliers that participating in this program "will be a significant condition in the decision to continue doing business"); Navistar Integrated Supplier Quality Requirements ISQ-001-QM (Apr. 8, 2019) (describing the "learning modules," covering all stages of "quality life-cycle management," that suppliers have to complete); Generac, Supplier Handbook, at 2 (2018) (describing the Supplier Development Program that is part of the company's Supplier Management Program); Johnson Controls, Inc., Supplier Quality Requirements Manual, (2015) at section 5.2-5.3 at 9 (imposing "Supplier Training Requirement[s]," and discussing the way that training on the job is to be conducted and documented); and *Contract between John Deere and Stanadyne* (2007) ("STANADYNE CORPORATION agrees to participate in the John Deere Power Systems… Supplier Development… Team Program to reduce cost of products supplied to DEERE.").

132 Bernstein, *Beyond Relational Contracts*, *supra* note 12, at 578-80. Polaris also provides its suppliers with courses through the online University of Polaris (recently renamed "Supplier Continuous Improvement Process"), *see* Polaris, Supplier Business Practice Manual, at 11 (2021), which "leverages an extensive course catalog to facilitate an understanding of Polaris expectations, requirements of the business relationship and to establish the manner in which business between Polaris and its suppliers is established." Polaris, *Polaris Investor Relations: University of Polaris*, https://www.polarissuppliers.com/supplier_training.asp.

133 *Id.* Harley Davidson also provides webinars to assist its suppliers in implementing its many requests in an integrated way. *See* Harley-Davidson, Supplier Quality Requirements Manual, (2018), at 3 ("Suppliers are required to review the '*APQP vs M9*' webinar, located on H-DSN.com.").

Many larger buyers also provide suppliers with direct hands-on training or assistance at the plant level.[134] Deere's Supplier Development program sometimes provides a "Supplier Development engineer [who] trains supplier personnel as necessary in techniques of problem solving that can be used for particular projects," and also on "future [projects] without the involvement of Deere."[135] Other buyers, like Harley-Davidson, will sometimes require the suppliers' engineers to work out of their premises so they can interact with and learn from the buyers' engineers on a daily basis.[136] At Polaris, "[m]ajor suppliers have temporary offices located in Polaris' main engineering center, which gives them direct access to the company's design and technical teams."[137]

Other buyers require their suppliers to offer "opportunities for training and continuing education to improve employees' skill level,"[138] either in general or in particular areas such as "cross training to ensure product quality."[139] Deere requires its suppliers to provide "opportunities for training and continuing education to improve employees' skill level,"[140] as well as training that will "provide employees with an awareness of the relevance and importance of their activities and how they contribute to the achievement of quality objectives in the business plan."[141] Ingersoll imposes similar requirements.[142] Some buyers take a more hands-off approach and merely require their suppliers to document the training their employees receive and make records of that training available for inspection by the buyers.[143]

134 *See* Macduffie & Helper, *supra* note 66 at 123 (describing the supplier assistance Honda provides at the plant level).

135 *See* Jon. R. Stegner, Bill Butterfield and Craig T. Evers, *John Deere Supplier Development Program* (87 Ann. Intl. Conf. for the Inst. Of Supply Mgmt. 2002).

136 *See* Bernstein, *Beyond Relational Contracts*, *supra* note 12, at 608-609 (describing the way Harley-Davidson embeds its suppliers' engineers into its organization).

137 *See* Jim Harris, *Polaris Industries*, Supply Chain World Mag., Aug. 25, 2014. These types of personnel exchanges help transfer tacit, non-codifiable information across the formal boundaries of the contracting firms.

138 John Deere, Supplier Quality Manual, at 5.3.2 (2015).

139 *Id.* at 5.3.4; Adidas Group, The Adidas Group Supplier Training Program ("[t]he group has initiated a complex system of multi-level and cross-functional training sessions with its network of suppliers around the world."); Ingersoll Rand, Global Supplier Quality Manual (2014) (requiring suppliers to provide "appropriate training to ensure that employees are all competent and qualified to produce quality deliverables" and to "manage employee records of training, performance metrics, and skills.").

140 John Deere, Supplier Quality Manual, at Sec. 6.2 "Human Resources" (2009).

141 *Id.*

142 Ingersoll Rand, Global Supplier Quality Manual, at 2.1 (2014) ("The supplier shall provide appropriate training to ensure that employees are competent and qualified to produce quality deliverables. The supplier shall review and document the required skills and competencies necessary for the production, inspection, handling, and delivery of products to Ingersoll Rand and/or its customers. The supplier shall provide appropriate training to ensure that employees follow applicable processes and instructions. The supplier shall maintain employee documented information of training, performance metrics, and skills.").

143 *See, e.g.,* Johnson Controls, Inc., Supplier Requirements Manual, at 6.2.2.3 (2d ed. 2015).

Finally, buyers have created supplier-directed equivalents of the types of "employee value propositions"[144] explored in the WMS. This category focused on what makes a particular firm a distinctive place to work, how a firm convinces prospective employees to join it, and how employees feel about their jobs.[145] Buyers attempt to create a similar "supplier value proposition" for prospective suppliers. Their supplier manuals and handbooks extoll the buyers' social values and emphasize their orientation towards suppliers as collaborative partners, not merely parts providers.[146] Ranir's supplier handbook, for example, states that Ranir "aspire[s] for… suppliers to become our strategic partners" by creating "long term partnerships through a rigorous and collaborative approach requiring honesty and integrity… [as well as] two-way communication, innovation in our products, quality and sustainability and fast reaction times."[147]

2.5 CONCLUSION

As the description above reveals, the management practices that studies based on the WMS associated with the creation of value within firms have been widely imported into inter-firm relationships. This has resulted in a degree of formal convergence between the governance techniques of contract and some of the core productivity-enhancing governance techniques of intra-firm hierarchy. In some relationships, it has resulted in some degree of informal convergence as well. As a supplier to a mid-sized OEM remarked, "if you look at the guys on our line most are wearing caps in [the OEM's] signature color and if you go in our parking lot most of the trucks have bumper stickers with the [OEM's] logo… sometimes it feels like we work for [them]," [148] a sentiment echoed by other suppliers to the same OEM.[149]

144 *See, e.g.,* Kristina Martic, *Employee Value Proposition (EVP): Magnet for Attracting Candidates*, TalentLyft (Feb. 27, 2018), https://www.talentlyft.com/en/blog/article/105/employee-value-proposition-evp-magnet-for-attracting-candidates. ("EVP… is a set of values that you, as an employer, offer to your employees, and use as a magnet for attracting new hires. Besides attracting candidates… [it] can help you engage and retain employees.").

145 *WMS Survey*, *supra* note 28, at Question 17. *See also* Elizabeth G. Chambers, Mark Foulon, Helen Handfield-Jones, Steven N. Hankin and Edward G. Michaels II, *The War For Talent*, 3 McKinsey Q. 44, 50 ex.2 (1998) (listing nineteen components of the EVP that executives consider important, including "Values and culture… Good at development… Inspiring mission[,]" as well as aspects of compensation and work life balance).

146 *See, e.g.,* Cooper Tire & Rubber, Global Supplier Guidebook, at 3 (2016) (noting that the "Cooper Way" of partnering with suppliers, is to "help each other succeed… have engaged Communication… be agile… provide world class service… be results focused… [and] do the right thing" the same "Cooper Way" that is found in the Cooper Code of Conduct for its employees).

147 *See, e.g.,* Ranir, Supplier Handbook, at 1 (2017).

148 Interview with Focal Firm Supplier # 1.

149 Interview with Focal Firm Supplier # 3 ("I work at [Supplier 3] but I work for [focal firm], our hearts beat for [focal firm]"); *see also* Interview with Focal Firm Supplier # 2 ("We always tell the guys when we are running the line for [Focal Firm], it makes them work harder.").

More broadly, the use of managerial contracting techniques enables buyers to obtain many of the benefits associated with vertical integration without vertically integrating—among them, the ability to exert a degree of centralized control over aspects of their suppliers' operations[150] and the ability to transfer a variety of managerial and other intangibles as well as other types of tacit information across firm boundaries.[151] At the same time, the managerial approach

150 The authority to centralize certain types of decision making in an integrated firm's headquarters while giving headquarters the option to delegate that decision making to an internal supplier (while retaining the option to recentralize it at will) is viewed by some economists as a central benefit of integration that cannot be captured through contract. *See* Laura Alfaro, Nick Bloom, Paola Conconi, Harald Fadinger, Patrick Legros, Andrew F. Newman, Raffaella Sadun and John Van Reenen, *Come Together: Firm Boundaries and Delegation* (NBER, Working Paper No. 24603) (2020) (suggesting that "[w]ithin a firm's boundaries, management can… [centralize and delegate] relatively seamlessly, choosing to delegate production decisions to its integrated suppliers or to centralize those decisions, depending on which problem arises," but noting that "[t]his option is hardly available outside the firm," and that as a consequence "[f]irm boundaries and the allocation of decision-making inside the firm are thus intrinsically linked"). However, the three core ways these economists envision buyer-firms implementing these centralization/delegation decisions within the firm, can also be implemented, at least in part, using managerial contracting methods. As they explain, these rights relate to: (1) the ability "to improve productive efficiency by imposing costly investments on [internal] suppliers, such as conforming to standards, re-tooling, or even relocating plants"; *id.* at 1 (2) the benefits created by the fact that ownership "confer[s] greater control over the [supplier] firm's internal organization"; *id.* and (3) the ability to better solve the "different types of problems [that] are bound to arise," during "the course of a lengthy and uncertain production process," that is made possible by enabling "top managers… to re-allocate decision rights among themselves and their [internal] suppliers to solve [these problems] according to their relative expertise or to centralize those decisions, depending on which problem arises." *Id.* However, as the discussion of managerial contracting presented here reveals, to a considerable extent, many of the benefits these authors see as being available only within the firm can be at least partially recreated by contract. First, buyers typically require suppliers to meet the strict standards in their supplier handbooks and other contractual requirements. This often requires significant investment by the supplier. Buyers also commonly retain full ownership and control over tooling (even though it physically resides at the seller's plant) as well as rights over retooling (even when the supplier owns the tooling) and in some instances even the placement of tooling on the factory floor. In addition, most contracts require the supplier to obtain buyer's approval before the supplier moves the location of production. Second, managerial provisions give buyers some control over the internal organization of their suppliers, including the right to demand the creation of particular management roles, the right to help determine the organization of the factory floor, and the right to demand compliance with the many handbook rules that seek to dictate aspects of the way the supplier's quality function is organized. Third, managerial provisions and many of the supplier development programs that support their implementation and operation give buyers the right to intervene when problems arise and participate in solving them. *See supra* text accompanying note 135 (describing how John Deere does this). In some situations, the buyer only has the right to approve or disapprove a supplier's proposed solution. Other times, the buyer's quality engineer assigned to the contract works with the supplier to solve the problem or the buyer sends in a team of either internal or external consultants to solve the problem for the supplier or helps the supplier find a solution. Taken together these considerations suggest that if the power of buyers to delegate to vertically integrated suppliers plays a role in determining the boundary of the firm, a buyer's ability or inability to delegate to or control similar aspects of an independent supplier's operation by contract might be relevant to this decision as well.

151 *See infra* notes 251-253 and accompanying text (discussing the types of managerial and other intangible inputs managerial contract provisions can help disseminate throughout buyer and supplier firms). In addition, the new firm acquisition integration techniques used by firms like Cisco and Danaher, who are said to be leaders in developing successful integration practices, have many analogues in Supplier Handbooks and in the onboarding and supplier development processes used by large OEMs.

permits buyers to reap many of the core benefits of outsourcing, including lower production costs and the ability to quickly switch suppliers if another supplier introduces a major innovation. In some contexts, the approach may also give the buyer the opportunity to have the design and perhaps the production of a component governed by a managerial approach and/or corporate culture that might be quite different from that used in the buyer's own firm. As case studies have shown, it can be very difficult for a firm to use different management styles and implicit incentive systems in different parts of its organization, a consideration that may sometimes make it difficult for established firms to optimally take advantage of (either through an in-house division or through an acquisition) opportunities involving highly innovative products or activities that need to be governed in a fundamentally different way.[152] As the head of a small midwestern manufacturing firm who sold 95 percent of its output to one OEM recounted, "when we asked the OEM if it wanted to buy us out, it declined," explaining that it did not want "to ruin what we [supplier firm] had put together or disturb the culture that let [us] do what [we] can do," emphasizing that if the supplier were acquired, it "just would not be the same," since "the employee loyalty to management that enabled us [the supplier] to quickly pivot and respond to the OEMs needs, might be lost."[153]

In sum, the widespread adoption of these managerial practices by buyers suggests that buyers consider them beneficial as applied to their supply-base as a whole. And, while the obligations they impose on suppliers are extensive, they may also create value for suppliers as well by enabling them to overcome barriers that are said to impede firms' efforts to adopt and implement managerial "best practices."[154] As one midwestern supplier said of its dealings with a

152 *See* Sarah Kaplan & Rebecca Henderson, *Inertia and Incentives: Bridging Organizational Theory and Organizational Economics*, 16 Org. Sci. 509 (2005) (giving examples of firms that have successfully and unsuccessfully adapted to managing new technologies); David Teece and Gary Pisano, *Dynamic Capabilities of Firms: An Introduction*, 3 Indus. and Corp. Change, 537, 544 (1994) ("The frequent failure of incumbents to introduce new technologies can thus be seen as a consequence of the mismatch that may exist between the set of organizational processes needed to support the conventional product/services and the requirements of the new… radical organizational re-engineering [that] will usually be required to support the new product."); *see also* Jack A. Nickerson and Todd R. Zenger, *Envy, Comparison Cost, and the Economic Theory of the Firm*, 29 Strat. Mgt J. 1429 (2008) (providing examples of firms that faced serious problems when faced with implementing different internal management practices within different parts of a single firm in part because of social comparison costs).

153 Interview with Focal Firm Supplier # 6.

154 Management scholars have set out three core reasons that managerial best practices, including many of those explored in the WMS, might not be adopted in a particular firm. All of these barriers can be either eliminated or ameliorated by managerial contracts.

particularly demanding OEM, "some customers elevate your supply base," by "demanding… [higher] quality and quality processes… their high expectations make us better."[155]

The first barrier to the adoption of these practices is said to lie in problems "of perception"—that is, the managers "don't know they are behind." Gibbons & Henderson, *infra* note 219 at 1350. However, the supplier qualification process used by most buyers is designed to identify the extent to which the supplier has adopted certain managerial "best practices." If a prospective supplier's operations are found wanting, the prospective supplier is either rejected outright or required, as a condition of getting business, to submit plans for adopting and implementing these practices. After going through the supplier qualification process with an intermediate-sized or large OEM, a supplier's managers are therefore likely to be well aware of whether their firm's practices are up-to-date or "behind." Moreover, the periodic buyer-run audits of supplier management practices help to make supplier managers regularly aware of managerial shortcomings that might develop.

The second barrier to the adoption of these practices is said to lie in problems "of inspiration"—that is, managers "know they are behind but do not know what to do about it." *Id.* This problem is commonly addressed by contract or handbook provisions requiring suppliers to participate in buyer-run supplier development programs. *See* text accompanying notes 131-143.

The third barrier to the adoption of these practices lies in the problems "of implementation," that arise when managers "know they are behind… know what to do… and… are trying hard to do it, but… nonetheless cannot get the organization to get it done," often because the relational contracts (that is "collaboration sustained by the shadow of the future") within the firm, or in some instances the lack of the same, get in the way of or prevent effective implementation of these practices. *See* Gibbons & Henderson, *infra* note 219 at 1350. Although managerial contracts cannot entirely solve problems of implementation, they can sometimes ameliorate them. For example, Honda's inclusion of provisions prohibiting a supplier from laying off workers when productivity increased due to implementation of lean principles, played a role in the success of supplier development projects at suppliers with poor intra-firm relational contracts between management and workers. *See generally* MacDuffie & Helper, *supra* note 66. Requirements imposed by buyers may also help suppliers overcome other barriers to change like managerial inertia, social comparison costs, or worker resistance. For example, a manager who asks the workforce to speed production on the line without offering increased compensation, may face more resistance than a manager who announces that the firm has won a lucrative new contract that will increase job security but involves a buyer who demands an increase in production speed.

155 Interview with Focal Firm Supplier #2. Suppliers sometimes advertise that they supply to an OEM known to be particularly demanding in its quality requirements and hands-on in its oversight. *See, e.g.*, Wisconsin Supplier Network, Yash Technologies (noting that they supply to John Deere) and Velicon (same). Although the demands made by some OEMs, like using lean manufacturing methods, can be expensive to implement, buyers often provide free consulting and financial assistance to help their suppliers accomplish it. And, while suppliers do complain of sometimes conflicting demands of different buyers, *see* interviews with buyers 1-6 of the Focal Firm, they say they can usually deal with this by conforming their line to the demands of their most demanding customer.

In this connection, it is important to keep in mind that OEMs benefit when their suppliers succeed and get other customers. Buyers want to be able to vary the quantities they purchase from their suppliers as demand fluctuates without putting their suppliers out of business in a downturn or creating serious problems for them during periods of more short-lived demand fluctuation. As a result, buyers are wary of buying more than a third of any supplier's output or dealing with suppliers who have another buyer who purchases more than a third of its output. For a more detailed discussion of these considerations, *see* Bernstein, *Beyond Relational Contracts*, *supra* note 12 at notes 91-92 and accompanying text.

How much value these managerial provisions (or some subset of them[156]) will create in the context of any *particular* buyer–supplier relationship is likely to depend, at least in part, on supplier-specific (and in some markets buyer-specific) considerations. As the management literature has suggested and some empirical studies have documented, the effect on any one firm of formally adopting WMS practices as part of their intra-firm hierarchy, is likely to turn, and often does turn, on aspects of the firm's formal and informal organizational structure and its intra-firm relational contracts and/or organizational culture. These findings, which are discussed further below, suggest that similar considerations (both within and across supplier and buyer firms) are likely to influence the way managerial practices and aspects of the buyer's own intra-firm organization, internal relational contracts, and culture may affect a particular supplier's operations and the overall success of a particular contracting relationship.[157] It is useful to explore these considerations before turning to the ways that managerial contract provisions, together with some of the core contract administration mechanisms used to implement them, can affect contract governance writ large.

3. THE MANAGERIAL APPROACH AND INTRA-FIRM HIERARCHY

Many managerial contracting provisions require suppliers to make internal changes in their management structures and production processes, often to bring their operations in line with what are now considered to be international best practices. However, as discussed further below, the effect of these and other types of managerial interventions is likely to turn, at least in part, on aspects of

156 Management studies have suggested that there are complementarities among some of the WMS management practices so that the value to a firm of adopting any one practice may depend on the other practices they adopt. *See, e.g.*, Phillipe Aghion, Nicholas Bloom and John Van Reenen, *Incomplete Contracts and the Internal Organization of Firms* (NBER, Working Paper 18842 (2013)) at 13 and sources cited therein. ("One of the key reasons why firms may find it difficult to adjust their organizational form is that there are important complementarities between sets of management practices… The effects of introducing a single practice will be heterogeneous between firms and depends on what practices they already have.").

157 Put differently, the success of these relationships is likely to turn on the "dynamic capabilities" of the buyer—that is, the buyer's skill in developing and deploying "routines or patterns of current practice and learning," that enable it to succeed in "appropriately adapting, integrating, and reconfiguring internal and external organizational skills, resources and fundamental competencies toward changing environments." *See David Teece and Gary Pisano, The Dynamic Capabilities of Firms: An Introduction,* 3 J. Ind. & Corp. Change, 537 (1994) (extending the resource-based theory of the firm to encompass a consideration of dynamic capabilities). While these capabilities are seen as being more available within a firm than across firms, *id.,* it may well be that a buyer's ability to implement managerial contracts and create the types of relational understandings needed to unlock their full value, is itself a "dynamic capability," that might enable some buyers to work with their suppliers to develop cross-firm routines that enable them to harness the value created by these routines in the interfirm context as well.

the suppliers' and the buyers' pre-existing formal and informal internal management practices and structures; their intra-firm cultures and relational contracts;[158] and the ways that these and other considerations are influenced by the incentives facing the managers and workers at different levels of both organizations who are responsible for the performance of the contract.[159]

The importance that buyers attach to suppliers' management structure and the identity of key personnel is suggested by the attention paid to them during the supplier qualification processes. Supplier qualification questionnaires typically require suppliers to attach an organization chart[160] and/or a discussion of where the company's head of quality control is in the supplier's internal hierarchy.[161] Most of these questionnaires also ask for the name and contact information of managers occupying key positions.[162] Some buyers also require their suppliers to give notice when key personnel change[163] and/or "any changes within their management structure" are made.[164] Others buyers go even further. They require their suppliers to create particular management roles with clearly delineated

158 In addition, some buyers take steps to ensure that suppliers understand their culture. Avenet, Supplier Quality Handbook, at 4 (Oct. 1, 2020) ("This handbook is intended to familiarize potential and existing partners within [our] Supply chain with our company, our culture, and our future direction in supply chain management.").

159 Some companies have already begun to take this into account. *See, e.g.,* Carlisle Interconnect Tech., Inc., Supplier Handbook, at 8 (Apr. 2018) ("At Carlisle IT we have a structured Supplier Relationship Management (SRM) program to maintain alignment at the plant, Vice President, and Executive levels. In these business review meetings, we discuss performance feedback, co-development opportunities, long-term agreements, service improvements and technical product road maps. Key Suppliers are expected to prepare for and participate in these meetings as directed.").

160 John Deere's Supplier Information Survey, for example, focuses on "Management Structure." It asks prospective suppliers: "Do you have a documented organization structure?" If their answer is yes, they are asked to provide a copy of their organization chart. If their answer is no, they are asked to indicate whether they are willing to discuss their organizational structure with Deere. *See also,* Husky Energy, *Prequalification Questionnaire* ("Please provide a current Organization Chart for your company, indicating, but not limited to, management personnel and reporting relationships. Please also identify where this organization's management personnel are located. Please ensure the organization chart indicates personnel (including names) which would be supporting the scope of work. Please also identify where these individuals are located geographically."); ACEMCO, *Supplier Questionnaire* (requesting an organizational chart); DAF, *Suppliers Questionnaire* at sec. 0.4.1-0.4.2 (requiring the submission of an "organisation chart," including the names of key personnel and a description of the scope of their duties); Valcor, *Supplier Qualification Questionnaire* (same); Vossloh, *Supplier Qualification Questionnaire* (same).

161 *See, e.g.,* Dynomax, *Supplier Audit Questionnaire* (2006) ("Does the department responsible for Quality report directly to the president?"); GTI Indus., *Supplier Quality Management System Questionnaire* (2020) ("Is an organizational chart available showing the position of the Quality Assurance/control in relation to other management functions?"); *See* DAF, *Suppliers Questionnaire,* at 0.4.6 (requiring the submission of an "organization chart of the quality department, together with a job description for the head of this department.").

162 ACEMCO, *Supplier Questionnaire* at 1. *See also* source cited *supra* note 160.

163 Parker Hannifin, Supplier Quality Requirements (2016) at 7.

164 Cummins, Supplier Handbook, (2019) at 6.3.

responsibilities as a condition of doing business with them.[165] As one procurement manager for a large buyer explained, she considers it very important to know where in the "supplier's food chain" the supplier's account manager is located before contracting with a supplier. She wants him to be well-connected throughout his firm and to have the shortest possible route to the C-suite—considerations that she views as having a large influence on how well and how quickly problems will be solved when they arise.[166]

Buyers also take steps to understand the more informal aspects of a supplier's operations and culture. Most send multi-functional teams to conduct on-site visits[167] and talk with employees from upper management to workers on the factory floor. Parker Hannifin does so "to determine if the supplier's culture, methods and skills are present to actively pursue continual improvement."[168] Hypertherm too "weigh[s] these [cultural and values related] selection criteria heavily when qualifying new suppliers."[169] It explains that "[a] good cultural match can be important in any business relationship."[170] Other buyers ask detailed questions about the supplier's worker–management relations[171] as well as aspects of the suppliers' work-a-day plant floor processes and employment practices. Most buyers place a special emphasis on those processes that can help them assess (at least in part) the extent to which a culture of (or conducive to) lean manufacturing is operative at the supplier's plants.[172] Some firms, like Honda, are known

165 *See supra* notes 126-129 and accompanying text (providing examples of the supplier management positions some buyers require). The importance of role definition provisions should not be underestimated. As Bengt Holmstrom suggested in explaining the limits of traditional performance incentives like bonuses, when you have an employee with two tasks to do, one that can be easily measured (and thus rewarded) and one that cannot be objectively valued, employees will skew their efforts toward the activity with measurable dimension. The solution to this is to split the job between two parties and to define their roles carefully so that activities that can be explicitly incentivized are undertaken by one person and other things, whose value is more subjective, are undertaken by another person. *See* Bengt Holmstrom, *Pay for Performance and Beyond*, 107 (7) Am. Econ. Rev. 1753 (2017).

166 Interview with procurement manager at large OEM.

167 *See, e.g.,* Cummins Inc., Supplier Handbook (2014) (noting that the supplier qualification process includes a site visit by "representatives of engineering, manufacturing, purchasing, quality and finance," and may also include "[p]rocess/Product audits of similar products being run on the process proposed for Cummins.").

168 Parker Hannifin, Supplier Quality Requirements, at 8 (2016).

169 Hypertherm, Supplier Handbook, at 5 (2020).

170 *Id.*

171 *See DAF Suppliers' Questionnaire*, at 4.3-4.5 (asking about "turnover and absenteeism percentages" over the past five years, the "ratio between permanent and temporary employees, and the frequency of strikes"); GTI Industries, *Supplier Quality Management System Questionnaire* (same). *See also* ACEMCO, *Supplier Questionnaire* at 3 (asking about labor agreements and no-strike provisions).

172 ACEMCO, *Supplier Questionnaire,* at 161 (asking detailed questions about EDI, logistics, KANBAN, JIT, quality practices—including "Manufacturing Feasibility Analysis," and PPAP—calibration equipment, tooling arrangements, length and frequency of factory shifts, available technology and asking about the suppliers "environmental strategy/policy").

to "take the trouble to learn all they can about their suppliers… [and] don't cut corners while figuring out the operations and cultures of the firms they do [or might do] business with."[173] Honda's goal is to "know as much about their vendors as the vendors know about themselves,"[174] even if it takes embedding one of their engineers in a potential supplier's firm for a year in order to understand their operations well enough to assess their compatibility with Honda's way of doing business.

To get a feel for why these aspects of their suppliers are so important to buyers, it is useful to look at some studies that illustrate the ways that aspects of a buyer's or supplier's internal organization and operations may affect the ways that a contract is likely to be performed.

3.1 Formal Organizational Structure

The effect that a firm's formal organizational structure can have on the implementation of contracts can be seen in the results of a study that looked at the ways that the internal management structure of strategic alliance partners affects the success of the alliance and the stock market response to an alliance announcement.[175] The study, which defined an alliance as "any independently initiated interfirm link that involves exchange, sharing or co-development,"[176] a definition that encompassed "production agreements,"[177] found that "[e]nterprises with a dedicated [alliance management] function achieved a 25% higher long-term success rate with their alliances than those without such a function. They also generated almost four times the market wealth whenever they announced the formation of a new alliance."[178] As a consequence, knowing the way that a prospective alliance partner manages its alliances/development-oriented supply relationships,[179] is essential to understanding how well an alliance/

173 Jeffrey K. Liker & Thomas Y. Choi, *Building Deep Supplier Relationships*, Harv. Bus. Rev. (Reprint) (2004).

174 *Id.* at 5-6.

175 *See* Jeffrey H. Dyer, Prashant Kale & Harbir Singh, *Alliance Capability, Stock Market Response, and Long-Term Alliance Success, The Role of the Alliance Function*, 23 Strat. Mgmt. J. 747 (2002) [hereinafter "*Alliance Capability*"].

176 *Id.* at 748.

177 *Id.*

178 Jeffrey H. Dyer, Prashant Kale & Harbir Singh, *How to Make Strategic Alliances Work*, 42 Sloan Mgmt. Rev. 37, 38 (2001) [hereinafter *Alliances Work*].

179 It is also important for an alliance partner to know if their counterparty has "creat[ed] guidelines and manuals to help them manage specific aspects of the alliance life cycle." *Id.* at 38. These manuals can be so extensive that the way a company is likely to act during an alliance cannot be understood without taking them into account. Hewlett Packard, for example, has "developed 60 different tools and templates, included in a 300-page manual for guiding decision making in specific alliance situations." *Id.* at 39.

supply relationship might work,[180] the amount of value it would be likely to create, and the types of managerial and other governance-related provisions that should be included in the alliance agreement. If, for example, a contracting partner does not have a dedicated alliance/contract management function, it might be advisable to include a provision requiring each firm to appoint a "project manager," who is "responsible for the day-to-day cooperation between them."[181] Alternatively, it might be useful to authorize a joint steering committee composed of managers from each firm to oversee the implementation of the agreement and work together to resolve any disagreements that might arise.[182] All three of these approaches create repeat interactions among designated individuals who are tasked with dealing with a broad range of issues. These repeat interactions are likely to improve the ability of these employees to communicate.[183] This improved communication, along with the employees' authority to trade off solutions to different problems either simultaneously or over a period of time, makes it more likely that problems will be resolved than it would be if two managers having a one-off disagreement over an issue with clear distributional consequences were left to work it out on their own. However, if both firms already have a dedicated alliance/contract management function that would be tasked with overseeing the agreement, such provisions would add little to the functioning of the contractual relationship.[184]

180 The management literature ascribes the value created by a dedicated alliance function to four core functions. Namely, "acting as a focal point for learning," "keeping relevant stakeholders informed," "providing internal coordination and resource support… and monitoring and evaluating alliance performance." Dyer et al., *Alliance Capability, supra* note 175 at 752. Yet these structures may also create value by designating managers on each side of the alliance who will have to work together to solve a great many disagreements over the life of the alliance. Given the prospect of these repeat interactions, they may be more likely to work problems out cooperatively than managers at lower levels who do not see themselves as repeat dispute resolvers. This suggests that even in discrete deals, incentives can be improved by allocating various decision rights (ideally across multiple domains) to pairs of transactors who will deal with one another on a repeat basis over the life of the contract (whose length is often indeterminate when the deal is structured using a master agreement that creates obligations only after a purchase order is issued).

181 Corporate Counsel Study, *supra* note 49, at sec 1.13.

182 *See* Bernstein and Peterson, *Completing Incomplete Contracts with Teams* (work in progress).

183 For a discussion of the ways that repeat interactions, especially in a small group, improve the ability of group members to effectively communicate with one another, *see* Ronald S. Burt and Ray Reagans, *Team Talk: Learning, Jargon, and Structure Versus the Pulse of the Network,* 70 Social Networks 375 (2022) and sources cited therein.

184 *Id.* (further suggesting that these managers should be compensated in such a way that "the success or failure of the arrangement will play at least some part in their salary reviews.").

3.2 Informal Organization

To get a feel for how a firm's internal informal organization might influence aspects of its contracting relationships, consider the following preliminary study which focused on how where the supplier's primary contact in the buyer firm was in the buyer firm's internal network (the pattern of ties among its employees), influenced the supplier's perception of the buyer's "forecast accuracy and development cycle volatility."[185] It found that suppliers whose primary contact in a buyer was well-connected to employees in many other areas of the buyer (that is, had a relatively open network) rated the buyer more highly along these dimensions than did suppliers whose main buyer contact was siloed within one area (that is, had a relatively closed network). Knowing this might be important to a buyer in deciding who should manage a particular supplier relationship because it affects the likelihood that the supplier will view the buyer's forecasts

185 *See* email from Ronald S. Burt to author (Oct. 11, 2019) (containing text and graph below).

Burt explains that the "data [reflected on the graph above] come from a consulting project by a colleague in our business school. The population is a division of supply chain managers and the unit of analysis is a manager. Each manager described his or her network of key connections for the work they did in the company. The data are used to sort managers on the horizontal axis, from managers embedded in a clique of interconnected contacts (to the right) to 'network broker' managers with disconnected contacts in diverse parts of the company (to the left). The vertical axis is based on supplier ratings of how difficult it is to do business with the company. Individual managers are matched to the suppliers for whom each manager is most responsible so that supplier ratings can be linked to the work of individual managers. The company receives more positive ratings from suppliers who deal with managers who are network brokers. By network theory, network brokers are better informed about when and what the company is about to do. The company receives less positive ratings from suppliers who deal with managers embedded in a clique of interconnected contacts."

(which are often non-binding) as credible enough for the supplier to be willing to make the investments necessary to meet the buyer's anticipated needs.

In a similar vein, a study of the joint product development projects undertaken by Japanese automotive OEMs and their suppliers found that aspects of the buyer's internal organization and intra-firm understandings influenced the success of its joint component development projects with its suppliers.[186] More specifically, the study revealed that a buyer's "level of internal coordination,"[187] which included "coordination within engineering,"[188] as well as "coordination between engineering and purchasing,"[189] were both positively related to its ability to engage in "integrated problem solving,"[190] with its suppliers, which in turn led to "a higher level of component design quality."[191] The study concluded that "effective external coordination needs effective internal coordination." It cautioned, however, that improvements in a firm's ability to effectuate internal coordination depended on the adoption of practices that often required "long-term efforts" because they might "conflict with existing corporate values," force management to "face tradeoffs with other objectives," and "often involve long-term career development policies."[192]

186 Akira Takeishi, *Bridging Inter- and Intra-Firm Boundaries: Management of Supplier Involvement in Automobile Product Development*, 22 Strategic Mgmt. J. 403, 419 (2001).

187 *Id.* at 416.

188 *Id.* at 417.

189 *Id.* at 417.

190 *Id.*

191 *Id.*

192 *Id.* at 418-419. For additional management studies that provide support for the idea that the internal governance of firms will affect the way they perform their contracts, *see, e.g.*, Bas Hillebrand & Wim G. Biemens, *The Relationship Between Internal and External Cooperation: Literature Review and Propositions,* 56 J. Bus. Res. 735 (2003) (noting that while few articles focused explicitly on the relationship between a firm's internal governance structures and the external governance structures it used with its suppliers and alliance partners, the existing literature contains strong indications that the relationship might be important to value creation); Alexandra J. Campbell, *Do Internal Departmental Relationships Influence Buyers' Expectations About External Supply Partnerships?*, 13 J. Bus. & Indus. Marketing, 199, 199 (1998) (drawing on a qualitative study of buyer-supplier relationships in the European flexible packaging industry to suggest that "buyers do attribute internal firm attitudes or norms to their external supply relationships[,]" explaining that "[i]n firms characterized by cooperative inter-departmental interaction, buyers have a more cooperative orientation towards their supply relationships than do buyers in firms characterized by competitive inter-departmental interaction."). *See also* Sascha Albers, Franz Wohlgezogen, & Edward J. Zajac, *Strategic Alliance Structure: An Organization Design Perspective*, 42 J. Mgt. 582, 594 (2013) (theorizing that the success of a strategic alliance is likely to turn not only on the "interorganizational network of ties," but also on each partner's "intraface," that is their "intraorganizational network of ties among employees involved in the alliance, ties that reach back into a participating organization's internal structure.").

3.3 Intra-firm Relational Contracts/Firm Culture[193]

The management literature points to several canonical management practices that depend for their effectiveness on the relational contracts within a firm. One of them is Toyota's empowering its shop floor employees to "pull the Andon cord" and stop the production line when they see a problem, a practice that (as noted above) only adds value if the employees trust their management not to punish them if they do so without a problem then being discovered. Another such relational contract-dependent practice is Lincoln Electric's compensation system which includes a discretionary bonus that is typically a substantial part of a worker's compensation and is based on both quantitative and qualitative aspects of an employee's performance.[194] For the prospect of this bonus to motivate workers, they must believe that if they work hard, Lincoln will both rate them fairly and pay the bonus, even though it is not legally obligated to do either.

A recent study sought to systematically examine the ways that organizational culture (more specifically the effect of individualist and collectivist orientations) can affect the ways managerial practices influence worker behavior. The study looked at a trucking firm that operated in many locations. At half of its locations, the firm had implemented a program to educate its workforce on the values (but

193 The management literature contains many definitions of the term "organizational culture." *See, e.g.,* generally Trevor Cadden, Guangming Cao, Ying Yang, Alan McKittrick, Ronan McIvor and George Onofrei, *The Effect of Buyers' Socialization Efforts on the Culture of their Key Strategic Supplier and its Impact on Supplier Operational Performance,* Production Planning and Control 1102, 1102-03 (2021) and sources cited therein (providing an overview of the "academic debate about the [definition and measurement of] the concept of culture," in a firm). There is no clear line between culture and the terms of implicit relational contracts. *See* Gibbons & Henderson, *infra* note 219 at 1331 ("high-performing organizations rely especially heavily on informal understandings, variously called norms or cultures or [relational] contracts.") However, Edgar Schien's widely recognized definition of organization culture dovetails nicely with the idea of culture being the reflection of the terms of the implicit relational contracts within an organization. As he explains, culture can be defined as the "set of shared, taken for-granted implicit assumptions that a group holds and that determine how it perceives, thinks about and reacts to its various environments." Edgar H. Schien, *Culture: The Missing Concept in Organizational Studies*, 41 ASQ 229, 236 (1996). In elaborating this definition, Schein developed a three-part typology of organizational culture which provides a way to help identify organizational and cross-organizational practices that are seeking to influence what managers consider aspects of organizational culture. *See* Edgar Schein, Organizational Culture and Leadership (5th ed. 2016) at ch.2 (suggesting that the first level of organizational culture is "artifacts," that is, the "visible and feelable structures and processes" including "charters, formal descriptions of how the organizations works, and organization charts" as well as "observed behaviors," the second level is that of "espoused beliefs and aspirations," including "ideals, goals values, aspirations, ideologies and rationalizations," and the third level is that of "basic underlying assumptions," that is "the unconscious taken for granted beliefs and values [that] determine behavior, perception, thought.").

194 *See* Gibbons and Henderson, *supra* note 56 (discussing the examples of Toyota and Lincoln Electric) and Jeffrey Pfeffer, *Producing Sustainable Competitive Advantage through the Effective Management of People*, 9 Academy of Mgt. Exec. 55 (1995) (noting that Lincoln Electric determines each worker's "merit rating" on the basis of "four equally important aspects of performance: dependability, quality, output, and ideas and cooperation.").

not the work practices) of lean.[195] The program focused on "re-centering the workplace culture toward teamwork and the empowerment of front-line workers" in an effort to create a more "collectivist culture," one in which employees would also feel free to raise problems and develop solutions without depending on management.[196] At the other half of its locations, the firm retained its "prevailing individualistic and top-down orientation."[197] The firm then introduced an electronic driver tracking system that collected objective metrics to rate driver performance. At some locations, the drivers were given only their own ratings, while at others, they were also given the performance ratings of their coworkers (by name). The study found that at the traditionally managed locations, giving the drivers their rating along with the ratings of other drivers improved their performance more than simply giving them their own rating. In contrast, at the locations that had received lean values training, providing the comparative information resulted in poorer performance than giving drivers only their own rating. The decrease was especially common among "the top quartile of drivers." The study attributed this effect to "top performers reduc[ing] their effort out of deference to their lower performing teammates,"[198] and their internalization of the "collectivist orientation" of the lean values training. More generally, the study suggests that knowing the culture of a firm can be important to understanding how its workers will respond to the introduction of new managerial practices, whether their use is initiated internally or required by a contracting partner.

Another aspect of a firm's unwritten understandings that is likely to influence the effect of managerial provisions on employees' behavior is the extent to which employees fear second-guess risk.[199] A supplier's manager might, for example, have information that could help solve a problem or improve a product or process if shared with a buyer. However, if revealing that information may cause a problem for the supplier, even if the probability of its doing so were remote, the manager may fear adverse consequences from being second-guessed by his/her

195 *See* Steven Blader, Claudine Gartenberg and Andrea Prat, *The Contingent Effect of Management Practices*, 87 Rev. Econ. Stud. 2 at 721, 722 (2020). For more examples of the dependance of many management practices on intra-firm relational contracts, *see* Gibbons & Henderson, *infra* note 219.

196 Blader et al., *supra* note 195 at 722-23, 727.

197 *Id.* at 722.

198 *Id.* The study involved a third treatment where the drivers were given their own rating and the ratings of their coworkers but without any names. This treatment did not result in drivers in the lean-educated locations cutting back on their performance. The study's authors noted that this result was "consistent with social psychological research showing that the competitive behavior arising from the postings should be greatly reduced when one does not know the identity of one's adversaries." *Id.* at 723.

199 Edward A. Bernstein, *Structural Conflicts of Interest: How a Law Firm's Compensation System Affects Its Ability to Serve Clients*, 2003 U. Ill L. Rev 1261, 1268 (2003) (discussing the concept of second-guess risk). Buyers and suppliers might be able to reduce both buyer and supplier employees' fear of second-guess risk by including a provision in their contracts committing them to follow the types of "guiding principles," suggested by Frydliger, Hart and Vitask, *see A New Approach to Contracts*, *infra* note 249 and other sources cited therein. These guiding principles typically require transactors to follow norms of "reciprocity, autonomy, honesty, loyalty, equity and integrity." *Id.*

superiors. Because in many instances, a manager will gain little if any personal benefit from revealing the information, yet risks career harm if something goes wrong, in the absence of internal firm management practices or relational understandings that reduce or eliminate second-guess risk managers are unlikely to reveal the information unless required to do so by contract,[200] even if the CEOs of both entities would view it as desirable to have that information revealed.[201]

In sum, understanding the culture and internal organization of both the buyer and the supplier is critical to understanding the ways that managerial contract provisions and the contract administration mechanisms that support them are likely to affect their contracting relationship. In practice, these considerations, together with the relational contracts between the firms, will have a considerable impact on the value of these relationships. This suggests that any attempt to optimize the contract between two firms needs to take into account not only the terms of the agreement between them but also these often intangible, yet critically important, aspects of each firm's internal operation.

4. MANAGERIAL CONTRACT GOVERNANCE

Although each of the managerial provisions reflecting adoption of WMS managerial practices has the potential to add value to contracting relationships, taken

200 *See* Dries Faems, Mady Janssens, Anoop Madhok and Bart Van Looy, Maddy Janssens, Anoop Madhok and Bart Van Looy, *Towards an Integrative Perspective on Alliance Governance: Connecting Contract Design, Trust Dynamics, and Contract Application*, 51 Academy of Mgmt J. 1053 (2008) (presenting a case study of sequential alliances between two firms which found that the more successful second alliance was characterized by the "presence of contractual obligations for information flows… [including] [p]lanning of joint review meetings in which results of technological experiments need to be exchanged," more contractually specified joint tasks for employees of both parties to engage in together, and more "behavior monitoring mechanisms.").

201 Conversely, the existence of second-guess risk within a supplier firm may also create benefits for the stability of the contracting relationship by making some types of opportunism less likely. Consider for example, a supplier's manager who wants to save money by producing substandard goods. To do so, the manager needs to convince a foreman to produce the substandard goods. That foreman, however, whose compensation, status within the firm, or future employment possibilities, may depend, or be perceived by him to depend, on meeting quality standards, might fear being fired, demoted, or otherwise sanctioned for overseeing a substandard production run. He might fear discipline from a second manager who notices the low quality and disagrees with the first manager's decision, or even by the first manager who on seeing the results of his decision comes to regret it and seeks to place blame on the foreman. Given this, it may not be easy to convince the foreman to cut corners—thereby creating a dynamic that might be thought of as an agency benefit. More generally, a large-scale hold-up that requires the cooperation of many of the employees within a firm may be harder to accomplish than if the party engaging in the hold-up were a one-person enterprise. Fear of second-guess risk if the hold-up goes wrong might deter participation in a plan to accomplish it, and a ringleader contemplating proposing such a plan to co-workers might not only fear second-guess risk from his superiors, but might also be concerned that whether or not the plan goes forward, the other employees may trust his word less than they would have in the absence of a proposed opportunism thus impairing his future effectiveness as a manager.

together, these provisions may also create governance benefits that go beyond the incentive and/or productivity effects associated with adopting individual provisions or sets of provisions.[202] Together, they create conditions that: (i) make it more likely that cooperative contracting relationships will arise and endure; (ii) are likely to strengthen the force of network governance; and (iii) may also facilitate the emergence of the type of inter-organizational process-based trust that has been associated with more productive buyer–supplier relationships.

4.1 Cooperation

Managerial contract provisions and the contract administration mechanisms that support them have the potential to increase the likelihood that cooperative contracting relationships—that is, "relationships where shirking is minimized, relationship-specific investments are adequately bonded, and opportunistic behavior is adequately controlled"[203]—will arise and endure. Indeed, many supplier handbooks state that their goal is to create and maintain cooperative relationships with their suppliers. As the introduction to the Artiston Thermal Handbook explains, its "aim[]" is to create "deeper cooperation" with its suppliers built on three fundamental elements (from both sides): "Clarity in Communication… Transparency in behaviors and decisions… [and] Willingness to learn from errors and to improve continuously."[204]

The first step in creating the preconditions needed for cooperation to emerge is the supplier qualification process. When a supplier has been fully vetted through this process, the buyer is able to enter the relationship with the confidence that the supplier has the ability[205] and financial resources to perform.[206] Conversely, publicly-available information and private inquiries can usually give the supplier the confidence that the buyer will be able to pay. The cost to both the buyer and supplier of participating in the pre-contract supplier qualification

202 *See* Aghion et al., *supra* note 156 (explaining that the value of adopting any particular management practice may depend on what other practices are adopted along with it).

203 *See* Bernstein, *Beyond Relational Contracts*, *supra* note 12 at 576.

204 Ariston Thermo, Supplier Quality Handbook, at 1.1. *See also*, Generac, Supplier Handbook, at 1 (2018) ("Strong supply chain relationships are built with clear communication of expectations, alignment of goals, building of mutual trust, and a focus on cooperation.").

205 See *supra,* notes 160-174 and accompanying text (describing the supplier qualification process). The supplier qualification process helps to create competence-based trust—that is, the belief that one's counterparty has the "technical and managerial competence," to fulfill its obligations. *See* Mari Sako, Prices, Quality and Trust: Interfirm Relations in Britain and Japan 37 (Cambridge, 1992) (introducing the concept of competence-based trust and exploring the role it plays in buyer-supplier relationships in Britain and Japan). Such trust is crucial for buyers who outsource the production of component parts. Massive recalls can stem from defects in even small and inexpensive parts like an automobile ignition switch.

206 Dun & Bradstreet, for example, compiles much of this information. *See* Dun & Bradstreet Direct for Supplier Risk, https://www.dnb.com/products/third-party-risk/dnb-direct-for-supplier-risk.html.

process is high enough[207] that there would be little reason for firms that did not intend to perform (at least at the start of the relationship) to go through it. As a consequence, suppliers and buyers who complete the process are likely to be those who are both able and inclined to begin a relationship by cooperating,[208] especially because it is the only way for them to recoup the cost of engaging in the relationship-specific supplier qualification process.

Once an initial pattern of cooperative behavior has been established (often through small initial deals where the parties test out one another's attitudes, competencies, and ability and willingness to solve problems),[209] many commonly used managerial governance techniques contribute to the ability of these relationships to remain cooperative, often over long periods of time. The clarity of the contracts' operational terms, the buyers' efforts to teach their suppliers exactly what is expected (in terms of both manufacturing process and output), the numerous channels created for communication and clarification, and the many internal steps that both firms take to ensure that agreements are understood by the employees who will implement them, together reduce the likelihood that a

207 *See* Damian Beil, *Supplier Selection* in Wiley Encyclopedia of Operations Rsch. and Mgmt. Sci. 2 (James J. Cochran ed., 2010) ("[I]dentifying and qualifying potential suppliers can be time consuming and costly… qualification can take weeks or months — even for commodity-type parts such as printed boards."). *See also* Cummins Inc., Supplier Handbook (2014) (noting that at Cummins, the qualification process includes a site visit by "representatives of engineering, manufacturing, purchasing, quality and finance," and may also include "[p]rocess/Product audits of similar products being run on the process proposed for Cummins.").

208 *See also* Mark Fichman & Daniel A. Levinthal, *Honeymoons and the Liability of Adolescence: A New Perspective on Duration Dependence in Social and Organizational Relationships*, 16 Acad. Mgmt. Rev. (1991) (suggesting that commercial relationships often "start with some initial stock of assets, which (depending on the particular context) can include favorable prior beliefs, trust, goodwill, financial resources, or psychological commitment… [such] that if a relationship starts with an initial stock of assets, the risk of the relationship dissolving at its inception [or during an early honeymoon period] is reduced, even if the initial outcomes of the relationship are unfavorable.").

209 *See* Nancy Y Moore, Laura H. Baldwin, Frank Camm & Cynthia R. Cook. *Implementing Best Purchasing and Supply Management Practices: Lessons from Innovative Commercial Firms*, at appendix A (RAND Documented Briefing, 2002) (describing how Deere moves from small purchases of standard goods to more complex contracting relationships); *See also* Liker & Choi, *supra* note 173 at 4 (noting that in dealing with North American suppliers, Toyota and Honda would give, "their new vendors small orders to begin with and expect[] them to meet certain cost, quality and delivery parameters," and if they "coped with the first orders well, Toyota and Honda awarded them larger contracts."); Interview with Focal Firm Supplier # 6 (Jan., 2022) (noting that the relationship began with small parts where they "vetted you out," moved on to prototypes and finally design). As another supplier to this OEM explained, "solving problems over time builds the relationship. Relationships are built during times of adversity, not during great times.") Interview with Focal Firm's Supplier # 4. For a more extended discussion of how solving problems builds trust, *See, e.g.*, Desire´e, Knoppen, & Ellen Christiaanse, *Interorganizational Adaptation in Supply Chains: A Behavioral Perspective*. 18 Int. J. Logist. Manag. 217, 228-229 (2007) (presenting case studies of supply relationships in which "partners admitted that trust had grown over the years, by living through good and bad times together," and concluding that "the satisfactory resolution of negative themes or crises fostered trust.")

contracting relationship will break down due to the parties (or their employees) having disparate understandings of their respective obligations.

Among the most important steps taken to create and communicate these common understandings both within and across firms are: the communications that take place during the negotiations over supply contracts; the contract management platforms that put the contracts' requirements (and the metrics that are used to evaluate them) at the supplier's fingertips along with a way to message the buyer with any questions or notify it of any emergent problems; the designation of a manager within the supplier's organization with responsibility for flowing the buyer's requirements throughout the supplier's hierarchy; the weekly meetings or quarterly business review meetings between procurement managers; conversations surrounding the creation of deal-specific responsibility matrices;[210] and meetings of the cross-functional teams tasked with implementing aspects of the transaction as well as the process of negotiating Statements of Work and/or Service Levels, which are said "to strengthen communication, so that the parties come to better understand one another's needs, priorities, and concerns."[211] These processes are further supplemented by the steps that buyers take to educate suppliers about their needs and expectations. In addition, as in Macaulay's day, the individual relationships between managers in the buyer's and seller's firms continue to play a role in making these relationships work. As one manager at a supplier to an intermediate-sized buyer explained, "yes, we communicate through the online platform, but we have their personal cell phones, and they have ours, if we have to meet on a Saturday morning to get something done, we meet on Saturday morning."[212] And, as another supplier to the same OEM explained, "the OEM's relationship managers want 'their' suppliers to be highly ranked, partner level even, this gives them an incentive to work with you when a problem arises rather than to play a game of got'ya."[213]

Yet, even when contractual requirements are clear, there will almost always be inadvertent instances of under-performance or non-performance. These

210 A responsibility matrix allocates responsibility for different aspects contractual performance to an employee of one of the parties (often but not always identified by name). It is sometimes included in a contract, other times it is mentioned in the contract but created after the deal is concluded. *See, e.g.*, *Manufacturing Supply Agreement between Andrew Corp and Elcoteq Network* (Sept. 14, 2006) ("The Parties agree that by the end of calendar year 2006 they will have discussed and agreed in detail on a Responsibility Matrix that will document their detailed and common understanding of certain of their respective responsibilities [for thirty items] under this Agreement.").

211 Naomi Karten, How to Establish Service Level Agreements (2003). http://www.nkarten.com/ExcerptSLAHandbook.pdf. Although the costs of negotiation are typically viewed as transactions costs, this is an example of a way they create value apart from the terms of the agreement reached.

212 Interview with Focal Firm Supplier # 2. As another supplier to the same buyer explained, the computer systems are useful, but it is still "easier to build trust, get honest feedback, and get the collaboration benefit of working as a team," when buyer and supplier employees communicate by phone or in person. Interview with Focal Firm Supplier # 5.

213 Interview with Focal Firm Supplier # 2.

instances can be a threat to cooperation since there is an ever-present chance that a buyer might interpret a bad outcome as a defection, rather than as an inadvertent breach that can be remedied. The buyer might therefore respond with a defection of its own, leading to the breakdown of cooperation.

Managerial contracts mitigate this risk in many ways. A number of their formal provisions (together with the computer platforms used to implement them) are designed to make key information observable or verifiable to both parties, thereby reducing the likelihood that cooperation once established will break down over a misperception of an outcome. At Trane Technologies, for example, the online contract management platform ensures that "the supplier sees the same reports that Trane Technologies sees to help with joint problem solving… [and] enable[] data driven discussions."[214] Many online systems give suppliers the ability to note their disagreement with the accuracy of data presented.

Another aspect of managerial contracting that increases the stability of buyer–supplier cooperation[215] is that the buyer does not treat every production problem or other instance of non-conformance to the contract specifications as a breach of contract. Rather, at least initially, it is treated as a routine problem to be analyzed and solved.[216] This perception is facilitated by the structure of contract management software that supports the implementation of these agreements. At Cummins, for example, when a non-conformance is detected, the supplier receives an automated email that there is an "assignment" waiting on the supplier dashboard. When the supplier logs in to see the "assignment," it is directed to a form that asks it to document its intended response to the non-conformance. Even when Cummins decides to issue Supplier Corrective Action Request (typically used to address more systemic problems) it also does so by simply posting an "assignment" in its computer system. When the supplier opens the "assignment," the software then guides the supplier through the core steps needed to identify the problem, document the steps it takes to determine its root cause,

214 *See* Trane Tech., External Supplier Dashboard: Supplier Training Presentation, at 3 (on file with authors).

215 Additional stability in these relationships may arise as a byproduct of the many steps throughout the product design and the production part approval process ("PPAP") that are closely monitored by the buyer, and documented in the information platform, so that any misunderstandings that do arise are likely to be caught early in the design and production process. Early detection in turn, reduces both the harm caused as well as the cost (both monetary and relational) of remediation.

216 *See, e.g.,* Cummins, Quality Management Software CQMS-MetricStream Training, [hereinafter "CQMS Training"] v 6.1 at 2.5 (2021) ("[I]t is easiest to think of a[n]… assignment [on the dashboard which may include notices of defects or requests for corrective action] as a task or activity waiting to be completed."). Macaulay too found that businessmen tried to avoid framing problems as breach of contract. *See* Macaulay, *supra* note 8 at 61 ("Often businessmen…speak of 'canceling the order' rather than 'breaching the contract.'").

formulate a solution, and track both the short and long-term effectiveness of the corrective actions taken. Together, a buyer's rights to demand a root cause analysis, to audit and inspect the supplier's plant, and to observe whether the supplier takes timely and effective corrective action, will often enable the buyer to determine with reasonable accuracy if a bad outcome was the result of opportunism, a mistake, or an operational deficit that can (or cannot) be remedied, thereby reducing the likelihood that cooperation, once established, will break down due to misclassification of a bad outcome or other problem as an act of defection.[217]

By carefully articulating scorecard policies, a buyer can contribute to the stability of a cooperative relationships by giving its suppliers a sense of the strategy that the buyer will play in response to particular types of bad outcomes or other problems[218]—such as cutting its buy until the problem is corrected, increasing oversight, demanding replacement, providing assistance, or terminating the relationship. Scorecard policies sometimes also set out what the supplier must do before the buyer will return to full cooperation, like following a set of steps to identify the cause of the problem, implementing remedial actions,

217 Supplier scorecards also contribute to the stability of contractual relationships as they aggregate performance data on a monthly or quarterly basis (thereby smoothing out blips) and in many firms are displayed to both buyer and supplier managers in "graphs and charts to show time-based trends." Some firms display comparisons to other firms supplying the same good, though this practice is less common. Gordon, *supra* note 99, at 113.

218 The strategies vary widely. Some buyers impose consequences for a low score in a single quarter, others impose no consequences unless the violations continue for a specified number of quarters. *See, e.g.,* Littlefuse, Supplier Quality Manual, at 15-16 (2017) (explaining how the buyer will react to A, B, and C scorecard grades depending on how many consecutive months they are earned); Kohler Engines, Supplier Quality Requirements, at 3 (2013) (setting out a variety of objective metrics and the ways that "[l]ow quality scores (based on a rolling 12 month average) will affect the supplier's ability to do business with Kohler," depending on the type of component); Johnson Controls Inc., Supplier Requirements Manual, (2d ed. 2015) at 8.5.2 (presenting a chart listing the various type of supplier problems and production outcomes that will lead Johnson to impose a level 1, level 2 or level 3 type "Management Quality Review," or in the case of the worst problems, a new business hold); Richard Menhorn, *NCR Supplier Scorecard Procedure* (2010), Document Number 497-0469929, at 6 (setting out the consequences in terms of new business, new business holds, and required corrective action steps for different scorecard ratings). Milsco takes a very hard line when it comes to the way it will respond to bad scorecard ratings, warning suppliers that those "who do not meet targets [relating to 'PPM, delivery, cost innovations, response time and quality of documentation'] for either 3 consecutive months or show a 4-month alternating spike will be placed on a developmental QIP process. (Quality Improvement Process). This *will not be discretionary*, but based purely on the performance of the supplier," and setting out a long list of outcomes that might "adversely hurt [the supplier]." (2014) at 1.8 and 1.3 (emphasis added). *See also,* Gibbons & Henderson, *infra* at 219 (providing a game theoretic framework for thinking about buyer-supplier cooperation that highlights the importance to the emergence of stable equilibria of each of the transactors having a sense of the strategy the other will play in response to various outcomes or problems, a consideration they call "relational knowledge" which they define as "what each party could do, either to break a promise or to punish someone who did, and what the payoffs from all these possible actions are."). *Id.* at 1352.

and demonstrating that the problem has been solved.[219] By clearly and publicly revealing the ways that a buyer will respond to particular types of problems, as well as by identifying the conditions that must be met for the buyer to continue to cooperate (like the supplier submitting a remedial plan), these provisions further decrease the likelihood that a generally cooperative contracting relationship will mistakenly devolve into a series of echoing defections when a bad outcome or other problem occurs. And, as discussed further below, when scorecard and other announced policies are administered consistently and discussed openly at quarterly business reviews, they also contribute to the growth of process-based trust which can, in turn, enhance the stability of commercial relationships.[220]

Two other practices further reduce the risk of cooperation breaking down due to misperception or mistaken classification of outcomes either in the parties' work-a-day interactions or in the formal ranking the buyer gives the supplier. First, some buyers give suppliers weekly, monthly, or even real-time information about any problems or concerns they detect, thereby reducing the likelihood that a supplier will be surprised by its quarterly rating or fail to understand why the buyer is dissatisfied.[221] Second, the quarterly business review meetings between buyers and suppliers provide a forum for discussing the results of scorecards and the reasons that bad outcomes or problems occurred. Suppliers are again given the opportunity to respond and present additional information. While these meetings cannot guarantee agreement, they may help buyers get a better idea of whether the outcome was or was not due to willful misbehavior or a problem that cannot be solved expeditiously.

219 *See, e.g.,* NCR Corp., Supplier Scorecard Procedure (2015); Ariston Thermo, Supplier Quality Handbook, at 6.4 (spelling out the Business Warning Procedure that is activated when a supplier's performance falls to a specified level and noting that it entails a "supply stoppage for six month[s]"). Conceptually, the strategies communicated as part of the supplier scorecard process can be understood as contributing to what Gibbons and Henderson have called "relational knowledge." That is, an understanding of "what each party could do, either to break a promise or to punish someone who did, and what the payoffs from all these possible actions are." Robert Gibbons & Rebecca Henderson, *Relational Contracts and Organizational Capabilities*, 23 Org. Sci. 1350, 1352 (2012). There are other managerial provisions that require the revelation of relational knowledge. For example, Deere requires its suppliers who are designing products to engage in a "competitor analysis," Deere, Supplier Handbook at 8.3.3.5.2 (2020), which means "Identifying your **competitors** and evaluating their strategies to determine their **strengths** and **weaknesses** relative to those of your **own product** or **service**." *See* A Product Designers Guide to Competitive Analysis at https://www.toptal.com/product-managers/freelance/product-designer-guide-to-competitive-analysis.

220 *See infra* text accompanying notes 235-253 (discussing inter-organizational process-based trust).

221 All of the suppliers to the Focal Firm, *see supra* note 33, said they felt that their scorecard scores were quite predictable, even with respect to the one highly subjective rating category the Focal Firm used. *See* Interviews with Focal Firm Suppliers #1-6.

Finally, economic theory suggests that cooperation becomes more likely to endure as the parties see the "shadow of the future" as getting longer.[222] Some of the rating systems that buyers use to evaluate their suppliers give additional points to suppliers who take steps today that are viewed as a sufficiently credible signal that they are contemplating a longer-term relationship. One buyer, for example, gives extra points to suppliers who: take demonstrable steps to align their long-term strategy to the buyer's strategy; spend the time to "build[] deep understanding of [buyer's] business… [and] anticipate [the buyer's] needs"; and make sure their "R&D budget is aligned to match [buyer's] technology needs," while "intergrat[ing] lessons leaned into new technology."[223] A similar effect is created when parties co-brand products with a long lifetime, as John Deere does with engine maker Briggs & Stratton. Knowing that their reputations will be intertwined for years to come makes it more likely that both transactors will choose to behave cooperatively.[224]

4.2 Network Governance

If the parties to a contract are part of a market in which market participants are connected in such a way that information about bad behavior can become known either through the market as a whole or a relevant subset of it and change the way others will act towards the misbehaving party, multilateral reputation-based sanctions can be an important force in commercial relationships. This force is known as network governance.[225] How strongly it will affect the behavior of a particular firm or pair of firms will depend where in a network (that is, the pattern of ties between and among firms in a relevant market) the firm or firms are located, as well as the ways that each firm is connected to other firms and the ways these firms, in turn, are connected to other firms in the market.

Network governance will be a more powerful force to the extent that market participants, other than the contracting parties, have better information about

222 Benjamin Klein and Keith B. Leffler, *The Role of Market Forces in Assuring Contractual Performance*, 89 J. Pol. Econ, 615, 616 (1981) ("[T]he value of future exchange can motivate fulfillment of all types of contractual promises.").

223 Supplier Scorecard Rating Matrix of a US buyer.

224 Some John Deere Tractor advertisements mention that they contain Briggs & Stratton Engines, *see, e.g.,* Lowes, "John Deere 22-HP V-Twin Hydrostatic 48—in Riding Mover with Briggs and Stratton Motor." The inclusion of a Briggs engine is also mentioned in Deere's sales and operators' manuals, *see, e.g.,* Deere, JS25 (emphasizing that the tractor includes a Briggs & Stratton engine manufactured to John Deere Standards for quality and reliability) and can also be seen if the tractor hood is lifted because Briggs puts its name on its engines. This helps to ensure that Briggs' reputation is at risk every time that a Briggs engine is used in a Deere machine. This creates strong incentives for Briggs to deliver high-quality parts to Deere.

225 For an overview of network governance and the many roles it plays in supply contracts in America's rust belt, *see* Bernstein, *Beyond Relational Contracts, supra* note 12.

both what a firm was supposed to do and what it actually did.[226] The fact that most buyers standardize their managerial terms across their supply-base and many publicly post their supplier handbooks on the web[227] reduces the information transmission burden on the network ties whose existence gives multilateral reputation sanctions their power. When terms are both standardized across a firm's suppliers and widely known, the network need only transmit information about what happened. Recipients of this information will then be able to match the reported behavior to the posted terms, and thereby assess whether this was conforming behavior or nonconforming behavior, making network governance a more powerful force than it would be if managerial terms varied contract-to-contract. In addition, as part of the supplier qualification process, some buyers require their suppliers to report the ratings they have received from their other customers, further strengthening the force of network governance.[228]

In some procurement markets, network governance may also be a constraint on the actions taken by buyers.[229] In the automotive parts market for example, a yearly survey asks parts suppliers to rate sixteen areas of their "working

226 In some relatively small, closed networks with deep interpersonal connections among traders with strong and longstanding ties, like members of the New York Diamond Dealers Club in the early 1990s, it may be enough for a wronged transactor to simply spread the word that in his view X wronged him, in order for other transactors to be wary of dealing with X. *See* Lisa Bernstein, *Opting Out of the Legal System: Extralegal Contractual Relations in the Diamond Industry*, 21 J. Legal Stud. 115 (1992).

227 It is important to note that even when handbooks are only accessible to the buyer's own suppliers, they can have an important effect on contract governance, *see infra* note 229.

228 *See supra* note 102 (discussing DAF Questionaire).

229 The effect of network governance in the automotive market is further strengthened by two additional practices. Some buyers have created supplier associations that bring key suppliers together on a regular basis. Toyota, for example, created the Blue Grass Automotive Manufacturing Association whose "members are core suppliers, representing more than 65% of Toyota's annual purchases and accounting for 60% of the total vehicle cost." *See* Bluegrass Automotive Manufacturing Association, *About BAMA,* https://bluegrassautomotivemanufacturersassociation.wordpress.com/ (last visited. Nov. 21, 2022). Its goal is to "provide[] expanded opportunities for direct communications with Toyota executives and access to Toyota training programs, while giving members the opportunity to share best practices and collectively raise issues and communicate problems affecting the way we do business." *Id.* Toyota knows that any supplier it treats poorly will likely share that information with other suppliers at the group's many meetings and events. This, in turn, makes it less likely that Toyota will treat a supplier poorly since it realizes that its actions will become widely known through core areas of its supply base. Similarly, when Honda likes a supplier, it sometimes recommends that supplier to other of its suppliers. This increases the recommended supplier's revenue but also strengthens the effect of network governance on its behavior. The supplier knows that if it treats Honda poorly, Honda will be well positioned to mention it to the other Honda suppliers its sells to, an action that is likely to lead to a loss of customers or a destabilization of its contractual relationships with these customers. Liker & Choi, *supra* note 173 at 6. *See also* Bernstein, *Beyond Relational Contracts*, *supra* note 12 at 608 (describing the way that the Harley Davidson Supplier Council increases the force of network governance and giving several additional examples of firms that take advantage of this effect).

relations" with each of the big six OEM automakers.[230] The results are aggregated into a Working Relations Index® (the "WRI®"), which is published and widely discussed in the business press. Studies based on the index reveal that suppliers "respond in kind,"[231] to the way they are treated by buyers, "providing benefits to each OEM typically in proportion to the working relations they are experiencing."[232] Buyers with higher scores on the WRI® get "greater price concessions"[233] and "greater non-price benefits… such as [more] advanced technology, more supplier resources committed to their business, and higher quality parts" than buyers with a lower scores on the WRI®.[234]

4.3 Interorganizational Process Based Trust

Managerial contract provisions may also play a role in contributing to the emergence of interorganizational process-based trust. Process-based trust arises from the existence of "institutionalized processes or routines for fairly and reliably dealing with a partner organization"[235] that succeed in creating stable and predictable expectations about how one's contracting partner is likely to carry

230 *See* John W. Henke Jr, *13*th *North American Automotive OEM-Tier 1 Supplier Working Relations Index Study: Domestic and Japanese Domestic OEM Participant Report* (May 16, 2013) (the WRI aggregates information about "[s]upplier trust of buyer, [s]upplier perception of the overall working relations with buyer, [b]uyer [engaging in] open and honest communication, [b]uyer communicates timely information, buyer communicates adequate amounts of information, [b]uyer [gives] help to suppliers to reduce costs, [b]uyer help to suppliers to improve quality, [b]uyer late, [e]xcessive engineering changes, [c]onflicting objective across [b]uyer function areas, [s]upplier given flexibility to meet cost objectives, [s]upplier involvement in [b]uyer development processes, [b]uyer shares savings from supplier cost reduction proposals, [b]uyer rewards high performing suppliers with new or continued business, [b]uyer covers sunk costs on cancelled or delayed programs, [b]uyer concern for supplier profits when asking price reductions, [s]upplier opportunity to make acceptable return over long term."). The WRI was created in 2000 by Planning Perspectives, Inc. and since 2019 has been compiled by Plante Moran.

231 *Id.* at 11.

232 *Id.*

233 Press Release, Planning Perspectives Inc., New Study Shows Automakers Could Increase Profits by Improving Their Supplier Relations (Aug. 4, 2014).

234 *Id. See generally* Matthew J. Milas, *The Economic Value of Supplier Working Relations with Automotive Original Equipment Manufacturers* (2005) (Master's Thesis, EMU); Dave Andrea & Daron Gifford, *Auto Supplier Working Relations: Top 10 Takeaways from the 2020 WRI® Study*, available at https://www.plantemoran.com/explore-our-thinking/insight/2020/06/auto-supplier-working-relations-takeaways-2020-wri-study. ("The WRI® Supplier Benefit Index™, an important area of the study, shows that suppliers are more willing to invest in new technologies, share ideas for development, and provide other nonprice benefits to OEMs with which they have deeper, better working relationships. Vehicle manufacturers with the highest WRI® scores tend to have a broader base of suppliers willing to invest in innovation and new technology.").

235 Jeffrey H. Dyer & Wujin Chu, *The Determinants of Trust in Supplier-Automaker Relationships in the US, Japan, and Korea*, 31 J. Int'l Bus. Stud. 259, 261 (2000) [hereinafter "*Determinants of Trust*"].

out its obligations and respond to unanticipated situations.[236] This type of trust is associated with "enhanced supplier performance,"[237] greater information sharing (a needed predicate for supplier-led innovation),[238] and the growth of interpersonal trust.[239] It is considered to be a potentially "important source of competitive advantage" whose effect has been carefully documented in buyer–supplier relationships in both the automotive and electronics sectors.[240] It has been cited by American automotive suppliers as a key reason that they prefer dealing with Japanese car makers. As one automotive supplier executive noted, with American buyers "[t]he rules of the game are constantly changing. With Japanese companies we don't seem to have the same problems because their policies and personnel are consistent and stable."[241]

Managerial provisions together with the contract administrative mechanisms that have been developed to support their implementation contribute to the creation of process-based trust in straight-forward ways. Managerial provisions create and/or reference[242] detailed iterative multi-step processes governing numerous aspects of the ways these contracts are to be implemented and performed. These processes cover most stages in the lifecycle of a project from design to prototype to production part approval to mass production and rework. As noted above, they also detail the ways suppliers must respond to corrective action requests, the ways that buyers must respond to supplier change requests, and the ways that root cause analysis and other problem-solving techniques are to be used. The platforms that administer managerial provisions guide the transactors through these multistep

236 *See* Zaheer et al., *supra* note 34 at 143 (defining trust in the context of buyer-supplier relationships "as the expectation that an actor (1) can be relied on to fulfill obligations… (2) will behave in a predictable manner, and (3) will act and negotiate fairly when the possibility for opportunism is present."). This definition might be extended to include the expectation that an actor will act and negotiate fairly when business needs or technological change so require.

237 *Id.* at 157 ("[E]nhanced supplier performance… [is] shown to be related to high levels of interorganizational trust[.]").

238 Jeffrey H. Dyer & Wujin Chu, *The Role of Trustworthiness in Reducing Transaction Costs and Improving Performance: Empirical Evidence form the United States, Japan, and Korea*, 14 Org. Sci. 57, 57 (2003) [hereinafter "*Trustworthiness*"].

239 Zaheer et al., *supra* note 34, at 142 (noting that process-based trust arising from "practices and routines for dealing with a partner organization creates a stable context within which inter-organizational and interpersonal trust develop.").

240 Dyer & Chu, *Trustworthiness, supra* note 238 (concluding based on a study of "344 supplier-automaker exchange relationships," that "trustworthiness lowers transaction costs and may be an important source of competitive advantage."); Dyer & Chu, *Determinants of Trust, supra* note 235, at 259. *See also,* Zaheer et al., *supra* note 34 at 155 (concluding based on a "sample of 107 buyer-supplier interfirm relationships in the electrical equipment manufacturing industry," that "firms in exchange relationships may derive competitive advantage from relationships imbued with high levels of interorganizational trust," and speculating that the gains come by way of "cooperation in the exploration of new information and coordination technologies, new market opportunities, and product and process innovation.").

241 Dyer & Chu, *Determinants of Trust*, *supra* note 235 at 277.

242 *See, e.g.,* Cummins, Supplier Handbook, (2014) at 32, (directing supplier to follow the processes set out in the "AIAG reference manuals for APQP, SPC, PPAP, FMEA and MSA processes.").

processes and provide a uniform interface for documenting process steps that have been taken to comply with requirements and solve problems. Since the same processes are followed for every change requested or problem that arises, and because the platforms enable transactors to see how their counterparties have responded to various types of complications that have occurred in the past, transactors are better able to predict how their counterparty will react to a wide variety of situations, thereby further contributing to the stability of cooperation.[243]

In sum, the contract governance regime created by managerial provisions and the contract administration mechanisms developed to implement them have enabled buyers and suppliers in this market to structure their relationships using not only traditional contract provisions but also legally unenforceable written provisions and relational understandings that become clearer and better adapted to their needs over time. Using these governance tools, transactors have created transactional structures that not only facilitate the adoption of productivity-enhancing best practices but also support the growth of the types of cooperative contracting relationships that enable the parties to make the types of relational adaptions that are needed if these types of relationships are to endure in the modern economy.

5. CONCLUSION

Managerial provisions, together with the implicit relational contracts and contract administration mechanisms that support their operation, have created an economic hybrid that lies between markets and hierarchies.[244] This set of relatively standard institutional arrangements gives buyers the right (but not the obligation) to exercise a package of quasi-integration rights that enables them to obtain many of the most important benefits of vertical integration while simultaneously reaping most of the core benefits of outsourcing. It is a widely used form of exchange that many integrated product manufacturers, including those who expect high levels of joint or supplier-led innovation,[245] prefer to both arms-length contracting and vertical integration.[246]

243 *See* Gibbons & Henderson, *supra* note 219 at 1352 (explaining how knowledge of the way one's counterparty will respond to particular outcomes (as well as information about her outside options), a type of knowledge they call "relational knowledge" can, together with "task clarity" (that is, common knowledge of what is to be done), contribute to the stability of cooperation).

244 Oliver E. Williamson, The Economic Institutions of Capitalism (1985).

245 *See* Walter W. Powell, *Neither Market Nor Hierarchy*, 12 Rsch. in Org. Behav. 295 (1990) ("Firms pursue cooperative arrangements in order to gain fast access to new technologies or new markets, to benefit from economies of scale in joint research and/or production, to tap into sources of know-how located outside the boundaries of the firm, and to share the risks for activities that are beyond the scope of a single organization… [T]he basic thrust… is… to pursue new strategies of innovation without abrogating the separate identity and personality of the cooperating partners.").

246 For an overview of the theory of such hybrid organizational forms *see* Claude Menard, *Hybrid Modes of Organization: Alliances, Joint Ventures, Networks, and Other Strange Animals, in* The Handbook, *supra* note 56 at 1066.

Indeed, the ability of OEMs to use managerial provisions to get most of the benefits of vertical integration, while retaining the many benefits of non-integration,[247] may be at least a partial explanation for the finding that in the US manufacturing sector the "make or buy' decision… can explain only a fraction of the vertical ownership structures in the economy," because "most vertical ownership does *not* appear to be primarily concerned with facilitating physical goods movements along a production chain within the firm."[248]

As the outsourcing revolution surges ahead, adopting a managerial contracting perspective[249] should enable lawyers to create more value for their clients. Such a perspective has the potential to reorient their thinking in ways that should help them to deploy the contract governance techniques they have long used, but in ever more powerful ways—particularly as they come to focus on implementing them with a sensitivity to their dependence on the internal organizational structures and relational contracts within both firms. It may also encourage them to develop new provisions that draw on and adapt more of the core governance techniques of intra-firm hierarchy that have long been part of the managerial toolbox.

More generally, the rise of managerial contracting, together with a growing recognition of the limitations of fiat/intra-firm authority,[250] raises questions

247 *See supra* notes 151-153 and accompanying text. This is not to say that the adoption of managerial provisions has been universal or that it is equally well suited to all contracting relationships or product classes. IPG Photronics, for example, has largely rejected outsourcing. Its website explains that "dissatisfied with the performance and quality of available components IPG embarked on a comprehensive strategy of vertical integration."

248 *See* Enghin Atalay, Ali Hortacsu and Chad Syverson, *Vertical Integration, and Input Flows*, 104 Am. Econ. Rev. 1120 (2014). MacDuffie & Helper, Diffusing, *supra* note 66 ("[V]ertical integration has fallen out of favor, due in part to the advantages of long-term relationships with separate supplier companies[.]").

249 The managerial approach outlined here might also be usefully combined with other approaches to thinking about contract governance that also deemphasize the role of legal enforcement and can therefore be viewed as potentially complementary to the approach. These include the formal relational contract/vested approach, *see* David Frydlinger, Oliver Hart and Kate Vitasek, *A New Approach to Contracts*, Harv. Bus. Rev. (2019) and David Frydlinger, Oliver Hart, and Kate Vitasek, *An Innovative Way to Prevent Adversarial Supplier Relationships*, Harv. Bus. Rev. (2020) and David Frydlinger & Oliver Hart, *Overcoming Contractual Incompleteness: The Role of Guiding Principles*, J. Law Econ. Org. 1 (2023); the braided approach, *see* Ronald J. Gilson, Charles F. Sabel and Robert E. Scott, *Braiding: The Interaction of Formal and Informal Contracting in Theory, Practice, and Doctrine,* 110 Colum. L. Rev. 1377 (2010); and the scaffolding approach developed by Hadfield and Bozovic, *see* Hadfield and Bozovic *supra* note 13 (suggesting that formal contracts, as interpreted by lawyers who take on the role of a classification institution, play a key role in clarifying parties' respective obligations in contracts involving innovation, thereby scaffolding the creation and maintenance of cooperative contracting relationships).

250 A burgeoning empirical and theoretical literature suggests that the "Williamsonian" view of the power of fiat (often referred to as authority) might have been overstated, *see* Oliver E. Williamson, *The Vertical Integration of Production: Market Failure Considerations*, 61 Am. Econ. Rev., 112, 114 (1971). *See, e.g.,* Magelssen et al., *supra* note 50 at 1 ("[E]mphasis on authority often understates the

about the determinants of the boundary of the firm.[251] It reveals that governance provisions based on fiat, role definition, monitoring, and low-powered

costs of aligning interests and resolving conflicts within the firm."); Robert G. Eccles & Harrison C. White, *Price and Authority in Inter-Profit Center Transactions*, 94 Am. J. of Socio. S17, S18 (1988) (concluding based on qualitative case studies of "exchanges between profit centers in… multidivisional or multi-profit center firm[s]" in thirteen manufacturing firms, that "the transactions costs of these of these internal exchanges are, in fact, greater than the cost of external exchanges[,]" and suggesting that the findings present a challenge to Williamson's idea that authority (fiat) means that transactions costs within a firm are lower than transactions cross between firms); Sumantra Goshal & Peter Moran, *Bad for Practice: A Critique of the Transaction Cost Theory*, 21 Acad. of Mgmt. Rev. 13, 20 (1996) (critiquing fiat from a social science perspective suggesting that fiat has "negative effects on individual attitudes toward the specific behavior that is targeted."); Nickerson & Zenger, *supra* note 152 at 1429, 1431 (exploring the limits of fiat within the firm that arise from "social comparison costs"—that is, the costs that arise when "individual employees invidiously compare their rewards with others they deem to be in the referent group," and upon "perceiv[ing] inequality," respond with "reduced effort, influence activities, [or] non-cooperativeness"—costs that have the effect of "hinder[ing] the capacity of managers to optimally structure incentive and production," a problem that becomes ever more serious as "a firm[] expands its scope," because of "the cost of differentially structuring compensation.")

251 The rise of managerial contracting may also have implications for some of the building blocks of knowledge-based theories of the firm. *See* Robert M. Grant, *Toward a Knowledge-Based Theory of the Firm*, 17 Strat. Mgt. J. 109, 111-113 (1996) (focusing on the role of the firm as an integrator of tacit knowledge held by its employees, rather than merely a way to avoid, "the transactions costs associated with market exchange," and suggesting that the "inability of markets to contract over transfers of tacit knowledge" is attributable to the fact that "tacit knowledge … cannot be directly transferred it can only be appropriated through its application to productive activity."). *See also* Jack A. Nickerson and Todd R. Zenger, *A Knowledge-Based Theory of the Firm: The Problem-Solving Perspective*, 15 Org. Sci. 617, 623 (2004) ([D]evelop[ing] a theory of the firm that focuses on the "efficiency of alternative organizational forms in generating knowledge or capability," and suggesting that to engage in the requisite type of "knowledge sharing [needed for generating certain types of knowledge] requires the formation of a common language by which to communicate… [and] markets provide weak incentives to invest in the formation of such language," making such problems appropriate for internal firm governance, using either authority or consensus-based hierarchy).

Nothing about firms' decisions to use managerial contracting contradicts the basic notion that transmitting tacit information within a group (firm) is easier, cheaper, and more effective than it is likely to be across groups. *See* Ronald S. Burt, *Structural Holes Capstone, Cautions, and Enthusiasms*, 384-416, 385-86 in Personal Networks: Classic Readings and New Directions in Egocentric Analysis, edited by Mario L. Small, Brea L. Perry, Bernice Pescosolido, and Edward B. Smith. Cambridge University Press (2021). However, some managerial provisions and the contract administration mechanisms used to implement them, suggest that buyers and suppliers are at least attempting to move this type of information across firm boundaries using methods that closely parallel methods that theorists suggest are widely used within firms.

Consider, for example, the "four mechanisms [that are used in firms] for integrating specialized knowledge," identified by Grant. Grant, *supra* note 251 at 114. These include: (1) "[r]ules and directives… [including] plans, schedules, forecasts rules, policies and procedures and standardized information and communication," *id* at 114; (2) "sequencing… [that is,] organiz[ing] production activities in a time-patterned sequence such that each specialist input occurs independently through being assigned a separate time slot," *id.* at 115; (3) "routines," *id.* at 115; and (4) "group problem solving and decision making," *id.* at 115. All four of these mechanisms for integrating knowledge are employed across firms as well. Supplier handbooks are replete with detailed rules and directives relating to plans, schedules, forecasts, policies, information sharing and mandated regular communication. In addition, they contain detailed sequences of

incentives can be effectively used not only within firms but across them as well.[252] It also highlights practices—such as the creation of "supplier champion" roles and employee exchanges—that make it possible for buyers and suppliers to exchange (across formal firm boundaries) the types of difficult-to-codify tacit information, informal understandings, and "intangible inputs,"[253] whose sharing

activities to be undertaken as part of the new product design, approval, and manufacturing process. There are also cross-firm practices that can be understood as attempts to transfer or integrate tacit knowledge embedded in routines. For example, the creation of cross-firm contractual teams to work on particular tasks or to govern the overall relationship (much as the board of company would), both have the potential to facilitate knowledge sharing, coordination and the emergence of common language. *See, e.g.,* Special Business Provisions between The Boeing Company and Spirit Aerosystems, Inc, BCA-MS-65530-0019 (2012) at 3.3.5 (requiring Spirit to station a "Life Cycle Product Team" at Boeing's facilities, and providing for the creation of other teams as well and giving Boeing the right to specify the qualifications and education of acceptable team members); *Agreement for the Manufacturing and Supply of VLU5 Products* between Plextek Limited and LoJack Operating Company, L.P. (01/01/2008) at 4.6 (setting up an "Executive Steering Committee whose processes are to communicate high level issues related to services and products," as well as a "Operating team.. [that will] meet on a weekly basis to address ongoing operational issues"). For a discussion of the use and functions of these Steering Committees in the biopharma context, *see* Jeffrey J. Reuer and Shivram V. Devarakonda, *Mechanisms of Hybrid Governance: Administrative Committees in Non-Equity Alliances,* 59 Acad. of Mgt. J 510 (2016) (describing the roles that joint steering committees play in facilitating coordination, adaptation, and information transfer). Similarly, employee exchange programs, like Harley-Davidson's resident engineer program, *see* Bernstein, *Beyond Relational Contracts*, *supra* note 12 at 608, or Polaris' employee exchange program, *supra* text accompanying note 137, where buyer and supplier employees work together at the same location for a period of time, are also well-designed to facilitate the "formation of a common language by which to communicate" that Nickerson and Zenger view essential for knowledge sharing, but not available across firms. *See also supra* note 65 (describing cross firm practices that might contribute to knowledge sharing); and *supra* note 157 (discussing the dynamic capabilities view of the firm). More broadly, the use of these and other managerial practices that are designed to facilitate the sharing of tacit knowledge across firm boundaries, suggest that it may be possible to capture at least some the knowledge-based benefits of vertical integration through contract.

252 The use of low-powered incentives in these contracts may be due, in part, to the fact that the shadow the law casts over these contracts is highly attenuated. *See supra* note 13. In addition, the Master Supply Agreements used to structure many procurement relationships play a role that (at least with respect to the operational aspects of these relationships discussed here) is conceptually akin to the role that is played by firm boundaries in the Coase–Williamson theory of the firm in that "they clear a space for other, extralegal modes of contract governance to work." Bernstein, *Beyond Relational Contracts*, *supra* note 12 at 562. *See also* Harley-Davidson, Doing Business with Harley-Davidson, *Master Supply Agreement* (2015) ("Th[is] MSA… describes in general terms how we work together with our suppliers…. [It] is not a long-term commitment; rather it is a commitment about how we will operate in the long-term.") and Polaris, Supplier Business Practice Manual, Rev. 8 at 10-11 ("In Polaris terms, the intent of a Master Supply Agreement shall be to define the general terms of the business relationship as well as high level expectations for the relationship between Polaris and the supplier.")

253 Atalay et al., *supra* note 248 at 1121-2 and Part IVa (exploring vertical integration in the US manufacturing sector and concluding that a "primary purpose of ownership may be to mediate efficient transfers of intangible inputs within firms," including "[m]anagerial oversight… planning… marketing know-how, intellectual property, and R&D capital," all of which, as the analysis presented here suggests, can also be transferred (to greater or lesser extents) across buyers' networks of supply relationships using the core tools of managerial contracting.). *See also* note 251 *supra* (discussing the knowledge-based theory of the firm) and note 157 *supra* (discussing the dynamic capabilities view of the firm).

within a firm are widely seen as core benefits of vertical integration.[254] At the present time, however, the full extent to which managerial contracting can in fact produce functional integration between buyers and suppliers, the considerations that will drive buyers' decisions about the extent to which they wish to exercise their "quasi-integration rights" in particular relationships or markets,[255] and the efficiency gains or losses that result from the use of this hybrid form of organization, are largely unknown and deserving of further empirical inquiry.

254 *Id.* (and sources cited therein).

255 The six suppliers interviewed all described the OEM taking a more hands-off approach as they proved their abilities over time, but they all also noted that the OEM would respond by increasing its oversight when problems occurred. One supplier described the intense oversight the OEM gave when the supplier opened a factory about a decade ago and compared it to the oversight given when it opened a factory a few years ago where the OEM waived its right to do an initial audit and asked the supplier to submit a self-assessment instead. *See* Interview with Focal Firm Supplier #3.

Appendix 1: Studied Firms Adopting Managerial Terms‡

ABC Technologies; Air Products and Chemicals Inc.; AJ Rose Manufacturing; Alcoa; Allison Transmission Holdings Inc.; AMETEK Inc.; Amphenol Corp.; Ariston Thermo Group; Automated Dynamics; Avnet; Avery Dennison; Avient Corp.; BAE Systems; Baker Hughes; Bastion Technologies; Batesville Tool & Die; Baxter International; Berry Global Group; BMW Group; Boeing; Borg Warner; Bosch; Boston Scientific; Bridgestone Americas; Carlisle Interconnect Technologies; Carrier Global; Casco; Caterpillar; Chemring Ordnance; Chrysler; Cintas; Cleveland Cliffs Inc.; Coherent Inc.; Columbia Sportswear Co.; Comet AG; Cirrus Logic; CommScope Holding Co. Inc (Andrew Corp).; ConocoPhillips; Cooper Standard; Cooper Tires; Crane Co.; Cummins; Curtiss-Wright Corp.; Dell, Dana; Danaher (Videojet and Beckman Coulter); DME; Donaldson Company, Inc.; Diodes; Douglas Autotech Corporation; Ecolab; Elkay; Elliott Group; Emicol Electro; Emerson Electric; Enovation Controls; Ericsson; Evoqua Water Tech; Faurecia; First Solar; Flexlink; Fluke Networks; Ford Motor; FormFactor Inc.; Fort Wayne Metals; Franklin Electric Co.; Gates Corporation; Gems Sensors & Controls; Generac Power Systems, Inc.; General Atomics Aeronautical Systems, Inc.; General Dynamics; General Electric; General Motors; Gil-Mar Manufacturing Co.; GLE Precision; Goodyear Tire and Rubber Co.; Inc. Greene, Tweed & Co., Inc.; Harley Davidson; Harman; H.B. Fuller; Helmer Scientific Inc.; Hengst SE; Honda; Howmet Aerospace; HP; Huntington Ingalls; Hypertherm; i3 Electronics, Inc.; Ichor Systems Inc.; II-VI Inc.; Illinois Tool Works; Ingersoll Rand; Inmotion Technologies AB; InSinkErator; Intel Corporations; Inter Dyne Systems, Inc.; Illumina; Jabil; John Deere; Johnson Controls; Johnson Electric; JWF Industries; Kaman Aerospace.; KARLEE Company, Inc.; KEBA AG; Keysight Technologies Inc.; Knoll, Inc.; Kohler Co.; KSR International; Lam Research Corporation; Lear Corp; Leggett

‡ All firms on this list are product manufacturers who incorporate a significant number of managerial contracting practices into their contracts with their suppliers. Firms in parentheses are subsidiaries whose practices are cited in the text. For three firms, the use of managerial provisions was verified other than by direct reading of the terms themselves. These are: Cintas (https://risnews.com/cintas-takes-control-quality); Occidental Petroleum ("OxyChem's Supply Chain Performance Management process improves supply chain efficiency through performance monitoring. This entails reviewing data and metrics with customers to identify possible supply chain improvements. The cornerstone of this program is our Supply Chain Scorecard, a custom report on supply chain efficiency between our company and the customer.) *See* https://www.oxy.com/operations/essential-chemistry/doing-business-with-oxychem/) and Huntington Ingalls HII's subsidiary Newport News ("NNS subscribes to and administers industry best practices and tenants from the bodies of work in the Baldrige Criteria for Performance Excellence, Lean Manufacturing, American Production and Inventory Control Society (APICS), International Organization for Standardization (ISO) and Association for Manufacturing Excellence (AME) Criteria. From this and other bodies of work, NNS developed several tool sets to administer the SD Program.") *See* https://supplier.huntingtoningalls.com/sourcing/supplier-development-and-assessments/. For its other subsidiary Ingalls Shipbuilding Quality, *see* Ingalls Shipbuilding Requirements Instructions.

and Platt; Lilium, Lincoln Electric Holdings, Inc.; Littelfuse, Inc.; Lockheed Martin; Lotus Cars Limited; Lumentum Holdings; Magna; Manitowoc Co.; Meritor; Micron Technology; Micron Corp.; Microchip Technology; Milsco; Modern Industries Inc.; Modine Manufacturing; Moog; Motherson, MSA Safety; National Oilwell Varco; Navistar, Inc.; NCR Corporation; Newell Brands; New Hampshire Ball Bearings; Nexteer Automotive Group Ltd.; NI; Northrup Grumman; Northwire Inc.; Occidental Petroleum; On Semiconductor; Oshkosh Corp; OSRAM Sylvania Inc.; Otis Worldwide Corp.; PACCAR Inc.; Parker Hannifin Corporation; PCC Structurals; PerkinElmer Inc.; Philips; Pirelli & C. S.p.A.; Plexus Corp; Polaris; PPG; Precision Machine, Inc.; Ranir, LLC; Raytheon; Red Spot Paint & Varnish Co., Inc.; Regal Beloit; Rexnord; Rotork plc; Royal Technologies; Sanmina Corp.; Schafer Gear Works; Schneider Electric SE; Setex; Snap-on Inc,; SL America (SL Tennessee); Sleep Number; Solvay SA; Stanley Black & Decker, Inc.; Stratec; Stryker Corp.; SUMCO Corporation; TE Connectivity; TT Electronics; Tenneco; Tesla; Texas Instruments; Textron Inc. (Polaris); Thermo Fisher Scientific; Thomson Industries, Inc.; Topsil GlobalWafers A/S; Toyota; Trane; Triumph Group, TTM Technologies Machine & Tool, Valmont Industries; Vertiv Corp.; Vishay Intertechnology Inc.; Vossloh; Wabash National; Wärtsilä Corporation; Watts Water Technologies; Woodward Governor Corp.; Worthington Industries; Wurth; Spectrum Plastics Group; Xilinx Inc.; Zimmer Biomet.

REFERENCES

Aberdeen Group. 2002. The Supplier Performance Measurement Benchmarking Report. http://www.lyonsinfo.com/_ resources/aberdeen_spms_report.pdf.

Aghion, Phillipe, Nicholas Bloom & John Van Reenen. 2013. Incomplete Contracts and the Internal Organization of Firms. NBER. Working Paper No. 18842.

AIAG. 2006. *Production Part Approval Process*.

Albers, Sascha, Franz Wohlgezogen & Edward J. Zajac. 2013. Strategic Alliance Structure: An Organization Design Perspective. 42 *J. Mgt*. 582–614.

Alfaro, Laura, Nick Bloom, Paola Conconi, Harald Fadinger, Patrick Legros, Andrew F. Newman, Raffaella Sadun & John Van Reenen. 2020. Come Together: Firm Boundaries and Delegation. NBER. Working Paper No. 24603.

Andrea, Dave & Daron Gifford. 2012. Auto Supplier Working Relations: Top 10 Takeaways from the 2020 WRI® Study. https://www.plantemoran.com/explore-our-thinking/insight/2020/06/auto-supplier-working-relations-takeaways-2020-wri-study.

Argos Multilingual. 2014. Argos Subsidiary Earns Recognition as a John Deere "Partner-Level Supplier." https://www.argosmultilingual.com/blog/argos-subsidiary-earns-recognition-as-a-john-deere-partner-level-supplier

Atalay, Enghin, Ali Hortacsu & Chad Syverson. 2014. Vertical Integration, and Input Flows. 104 *Am. Econ. Rev*. 1120–1148.

Beil, Damian. 2010. Supplier Selection. In James J. Cochran, ed., *Wiley Encyclopedia of Operations Research and Management Science*. New York, NY: John Wiley & Sons, Inc.

Bernstein, Edward A. 2003. Structural Conflicts of Interest: How a Law Firm's Compensation System Affects Its Ability to Serve Clients. 2003 *U. Ill L. Rev.* 1261–1274.

Bernstein, Lisa. 1992. Opting Out of the Legal System: Extralegal Contractual Relations in the Diamond Industry. 21 *J. Legal Stud*. 115–157.

Bernstein, Lisa. 2015. Beyond Relational Contracts: Social Capital and Network Governance in Procurement Contracts. 7 *J. Leg Anal.* 561–621.

Bernstein, Lisa & Omri Ben-Shahar. 2000. The Secrecy Interest in Contract Law. 109 *Yale L.J*. 1885–1925.

Bix, Brian H. 2023. *An Advanced Introduction to Contract Law and Theory*. Chelttenham: Elgar.

Blader, Steven, Claudine Garternberg & Andrea Prat. 2020. The Contingent Effect of Management Practices. 87 *Rev. Econ. Stud*. 721–749.

Bloom, Nicholas, Erik Brynjolfsson, Lucia Foster, Ron Jarmin, Megha Patnaik, Itay Saporta-Ekstein & John Van Reenen. 2019. What Drives Differences in Management Practices. 109 *Am. Econ. Rev*. 1648–1683.

Bloom, Nicholas & John Van Reenen. 2010. Why Do Management Practices Differ Across Firms and Countries? 24 *J. Econ. Perspect.* 203–224.

Bloom, Nicholas, Raffaella Sadun & John Van Reenen. 2017. Management as a Technology? *Nat'l Bureau of Econ. Rsch*., Working Paper No. 22327.

Burt, Ronald S. 2010. *Neighbor Networks: Competitive Advantage Local and Personal*. Oxford: Oxford University Press.

Burt, Ronald S. 2021. Structural Holes Capstone, Cautions, and Enthusiasms. In Mario L. Small, et al., eds., *Personal Networks: Classic Readings and New Directions in Egocentric Analysis*, 384–416. New York: Cambridge University Press.

Burt, Ronald S. & Ray Reagans. 2022. Team Talk: Learning, Jargon, and Structure Versus the Pulse of the Network. 70 *Soc Netw.* 375–392.

Cadden, Trevor, Guangming Cao, Ying Yang, Alan McKittrick, Ronan McIvor & George Onofrei. 2021. The Effect of Buyers' Socialization Efforts on the Culture of Their Key Strategic Supplier and Its Impact on Supplier Operational Performance. 32 *Prod. Plan. Control* 1102–1118.

Campbell, Alexandra J. 1998. Do Internal Departmental Relationships Influence Buyers' Expectations About External Supply Partnerships? 13 *J. Bus. & Indus. Marketing* 199–214.

Centre for Econ. Performance. World Management Survey Instrument for Manufacturing. https://worldmanagementsurvey.org/survey-data/methodology/.

Chambers, Elizabeth G., Mark Foulon, Helen Handfield-Jones, Steven N. Hankin & Edward G. Michaels II. 1998. The War for Talent. 3 *McKinsey Q*. 44–57.

Cole, Robert E. 1998. Learning from the Quality Movement: What Did and Didn't Happen and Why? 41 *Cal. Mgmt. Rev*. 43–73.

Cui, Zhijian, Christoph H. Loch, Bernd Grossmann & Ru He. 2009. Outsourcing Innovation. 52 *Rsch.-Tech. Mgmt*. 54–53.

Dong, Yan, Keith Skowronski, Sining Song & Sriram Venkataraman. 2020. Supply Base Innovation and Firm Financial Performance. 66 *J. Oper. Mgmt.* 768–796.

Dyer, Jeffrey H. 1996. How Chrysler Created an American Keiretsu. 74 *Harv. Bus. Rev.* 42–46.

Dyer, Jeffrey & Wujin Chu. 2000. The Determinants of Trust in Supplier- automaker Relationships in the U.S., Japan, and Korea. 31 *J. Int. Bus. Stud*. 259–334.

Dyer, Jeffrey H. & Wujin Chu. 2003. The Role of Trustworthiness in Reducing Transaction Costs and Improving Performance: Empirical Evidence from the United States, Japan, and Korea. 14 *Org. Sci*. 57–68.

Dyer, Jeffrey H., Prashant Kale & Harbir Singh. 2001. How to Make Strategic Alliances Work. 42 *Sloan Mgmt. Rev*. 37–43.

Dyer, Jeffrey H., Prashant Kale & Harbir Singh. 2002. Alliance Capability, Stock Market Response, and Long- term Alliance Success, the Role of the Alliance Function. 23 *Strat. Mgmt. J*. 747–767.

Eccles, Robert G. & Harrison C. White. 1988. Price and Authority in Inter-profit Center Transactions. 94 *Am. J. Socio*. S17–S51.

Engardio, Pete & Bruce Einhorn. Mar. 21, 2005. Outsourcing Innovation. *Business Week Online*.

Faems, Dries, Mady Janssens, Anoop Madhok, Bart Van Looy, Maddy Janssens, Anoop Madhok & Bart Van Looy. 2008. Towards an Integrative Perspective on Alliance Governance: Connecting Contract Design, Trust Dynamics, and Contract Application. 51 *Acad. Mgmt. J*. 1053–1078.

Finchman, Mark & Daniel A. Levinthal. 1991. Honeymoons and the Liability of Adolescence: A New Perspective on Duration Dependence in Social and Organizational Relationships. 16 *Acad. Mgmt. Rev*. 442–468.

Frydlinger, David, Oliver Hart & Kate Vitasek. September-October 2019. A New Approach to Contracts. *Harv. Bus. Rev*. 116–126.

Frydlinger, David, Oliver Hart & Kate Vitasek. October 8, 2020. An Innovative Way to Prevent Adversarial Supplier Relationships. *Harv. Bus. Rev. Digital Article*.

Frydlinger, David & Oliver Hart. 2023. Overcoming Contractual Incompleteness: The Role of Guiding Principles. *J. Law Econ. Organ.* 1–23.

Gibbons, Robert & Rebecca Henderson. 2012a. What Do Managers Do? Exploring Persistent Performance Differences Among Seemingly Similar Enterprises. In Robert S. Gibbons & John Roberts, eds., *The Handbook of Organizational Economics*, 680–731. Princeton: Princeton University Press.

Gibbons, Robert & Rebecca Henderson. 2012b. Relational Contracts and Organizational Capabilities. 23 *Org. Sci*. 1350–1364.

Gilson, Ronald J., Charles F. Sabel & Robert E. Scott. 2009. Contracting for Innovation: Vertical Disintegration and Interfirm Collaboration. 109 *Colum. L. Rev*. 431–502.

Gilson, Ronald J., Charles F. Sabel & Robert E. Scott. 2010. Braiding: The Interaction of Formal and Informal Contracting in Theory, Practice, and Doctrine. 110 *Colum. L. Rev*. 1377–1447.

Gordon, Sherry R. 2008. *Supplier Evaluation and Performance Excellence: A Guide to Meaningful Metrics and Successful Results*. Fort Lauderdale, FL: J. Ross Publishing.

Goshal, Sumantra & Peter Moran. 1996. Bad for Practice: A Critique of the Transaction Cost Theory. 21 *Acad. Mgmt. Rev*. 13–47.

Gulati, Ranjay & Harbir Singh. 1998. The Architecture of Cooperation: Managing Coordination Costs and Appropriation Concerns in Strategic Alliances. 43 *Admin. Sci. Q*. 781–814.

Griffin, Abbie. 1997. Modeling and Measuring Product Development Cycle Time Across Industries. 14 *J. Eng'g Tech. Mgmt*. 1–24.

Hadfield, Gillian K. & Iva Bozovic. 2016. Scaffolding Using Formal Contracts to Support Informal Relations in Support of Innovation. 2016 *Wisc. L. Rev.* 981–1032.

Handfield, Robert B., Daniel R. Krause, Thomas V. Scannell & Robert M. Monczka. 2000. Avoid the Pitfalls in Supplier Development. 41 *Sloan Mgmt. Rev*. 37–49.

Helper, Susan & Rebecca Henderson. 2014. Management Practices, Relational Contracts, and the Decline of General Motors. 28 *J. Econ. Persp*. 49–72.

Helper, Susan & Janet Kiehl. 2004. Developing Supplier Capabilities: Market and Non-market Approaches. 11 *Ind Innov* 89–107.

Helper, Susan, John Paul MacDuffie & Charles Sabel. 2000. Pragmatic collaborations: advancing knowledge while controlling opportunism. 9 *Indus. Corp. Change* 443–487.

Henke Jr., John W. 2013. *13th North American Automotive OEM-Tier 1 Supplier Working Relations Index Study: Domestic and Japanese Domestic OEM Participant Report*.

Hillebrand, Bas & Wim G. Biemens. 2003. The Relationship Between Internal and External Cooperation: Literature Review and Propositions. 56 *J. Bus. Res.* 735–743.

Holmstrom, Bengt. 2017. Pay for Performance and Beyond. 107 *Am. Econ. Rev.* 1753–1777.

IndustryWeek U.S. 500 America's Largest Manufacturers, IndustryWeek.com (Summer 2021). https://www.industryweek-digital.com/industryweekmag/summer_2021/MobilePagedReplica.action?pm=2&folio=10#pg12.

Int'l Org. for Standardization. 2015. *ISO 9001: Quality Management Systems – Requirements*.

Jones, Jamie N., Jeff Cope & Andy Kintz. 2016. Peering into the future of innovation management. 59 *Rsch.-Tech. Mgmt*. 49–58.

Kaplan, Sarah & Rebecca Henderson. 2005. Inertia and Incentives: Bridging Organizational Theory and Organizational Economics. 16 *Org. Sci*. 509–521.

Karten, Naomi. 2003. How to Establish Service Level Agreements. http://www.nkarten.com/ExcerptSLAHandbook.pdf.

Keller, Maryanne. 1990. *Rude Awakening: The Rise and Fall and Struggle for Recovery at General Motors*. New York, NY: William Morrow & Co.

Klein, Benjamin & Keith B. Leffler. 1981. The Role of Market Forces in Assuring Contractual Performance. 89 *J. Pol. Econ*. 615–641.

Knoppen, Desiree & Ellen Christiaanse. 2007. Interorganizational Adaptation in Supply Chains: A Behavioral Perspective. 18 *Int. J. Logist. Manag*. 217–237.

Krafcik, John F. 1988. The Triumph of the Lean Production System. *Sloan Mgt. Rev*. 41.

LaFontaine, Francine & Margaret Slade. 2012. Interfirm Contracts. In Robert S. Gibbons & John Roberts, eds., *Handbook of Organizational Economics*, 958–1013. Princeton: Princeton University Press.

Liker, Jeffrey K. & Thomas Y. Choi. December 2004. Building Deep Supplier Relationships. *Harv. Bus. Rev*. 104–115.

Lloyd, Robert M. 2010. The Reasonable Certainty Requirement in Lost Profits Litigation: What It Really Means. 12 *Tenn. J. Bus. Law* 11–62.

Macaulay, Stewart. 1963. Non-contractual Relations in Business: A Preliminary Study. 28 *Am. Socio. Rev*. 55–67.

MacDuffie, John Paul & Susan Helper. 1997. Creating Lean Suppliers: Diffusing Lean Production Through the Supply Chain. 39 *Cal Mgmt. Rev*. 118–151.

Magelssen, Catherine. 2019. Allocation of Property Rights and Technological Innovation Within Firms. *Strategic Mgmt J*. 758–787.

Magelssen, Catherine, Beverly Richand & Kyle Mayer. 2002. The Contractual Governance of Transactions between Firms Org. Sci. https://doi.org/10.1287/ORSC.2021.1536.

Martic, Kristin. 2018. Employee Value Proposition (EVP): Magnet for Attracting Candidates, TalentLyft. https://www.talentlyft.com/en/blog/article/105/employee-value-proposition-evp-magnet-for-attracting-candidates.

Menard, Claude. 2012. Hybrid Modes of Organization: Alliances, Joint Ventures, Networks, and Other Strange Animals. In Robert S. Gibbons & John Roberts, eds., *The Handbook of Organizational Economics*, 1106–1108. Princeton, NJ: Princeton University Press.

Menhorn, Richard. 2010. *NCR Supplier Scorecard Procedure. Document Number 497-0469929*.

Milas, Matthew. 2005. EMU. Thesis: the economic value of supplier working relations with automotive original equipment manufacturers.

Moore, Nancy Y., Laura H. Baldwin, Frank Camm & Cynthia R. Cook. 2002. Implementing best purchasing and supply management practices: lessons from innovative commercial firms. RAND Documented Briefing.

Motwani, Jaideep. 2003. A Business Process Change Framework for Examining Learning. 103 *Indus. Mgmt. & Data Sys*. 339–346.

Nickerson, Jack A. & Todd R. Zenger. 2008. Envy, Comparison Cost, and the Economic Theory of the Firm. 29 *Strat. Mgt J*. 1429–1449.

Pence, John L. & P. Saacke. 1988. A Survey of Companies that Demand Supply Quality. 42 *Ann. Quality Cong*. 715–722.

Pfeffer, Jeffrey. 1995. Producing Sustainable Competitive Advantage Through the Effective Management of People. 9 *Acad. Mgt. Exec*. 55–72.

Planning Perspectives Inc. 2014. *Press Release: New Study Shows Automakers Could Increase Profits by Improving Their Supplier Relations*.

Powell, Walter W. 1990. Neither Market nor Hierarchy. 12 *Rsch. Org. Behav*. 295–336.

Quinn, James Brian. 1992. *Intelligent Enterprise*. New York, NY: Simon & Schuster.

Quinn, James Brian. 2003. Outsourcing Innovation: The New Engine of Growth. 41 *Sloan Mgmt. Rev*. 13–28.

Rauterberg, Gabriel. 2016. *Contracting Within the Firm*. Colum. L. Rev. Working Paper.

Reuer, Jeffrey J. & Shivram V. Devarakonda. 2016. Mechanisms of Hybrid Governance: Administrative Committees in Non-equity Alliances. 59 *Acad. Mgt. J.* 510–533.

Rickert, Jeffrey, Jowel Rogers, Darya Vassina, Josh Whitford & Jonathan Zeitlin. 2000. *Common Problems and Collaborative Solutions: OEM-Supplier Relationships and the Wisconsin Manufacturing Partnership's Supplier Training Consortium*. Center on Wisconsin Strategy paper.

Rooney, James J. & Lee N. Vanden Heuvel. 2004. Root Cause Analysis for Beginners. 37 *Qual Prog* 45–53.

Sako, Mari. 1992. *Prices, Quality and Trust: Interfirm Relations in Britain and Japan*. Cambridge: Cambridge University Press.

Sadun, Raffaella Nicholas Bloom & John Van Reenen. 2017. Why Do We Undervalue Competent Management? 95 *Harv. Bus. Rev*. 120–127.

Schein, Edgar H. 1996. Culture: The Missing Concept in Organizational Studies. 41 *Admin. Sci. Q*. 229–240.

Schein, Edgar Schein. 2016. *Organizational Culture and Leadership*. New York, NY: John Wiley & Sons, Inc.

Schwartz, Alan. 1992. Relational Contracts in the Courts: An Analysis of Incomplete Agreement and Judicial Strategies. 21 *J. Legal Stud*. 271–318.

Shah, Rachna & Peter T. Ward. 2003. Lean Manufacturing: Context, Practice Bundles, and Performance. 21 *J. Operations Mgmt*. 129–149.

Stegner, Jon R., Bill Butterfield & Craig T. Evers. 2002. John Deere Supplier Development Program. 87 *Ann. Intl. Conf. for the Inst. of Supply Mgmt*.

Stinchcombe, Arthur L. 1990. *Information and Organizations*. Berkeley, CA: University of California Press.

Syverson, Chad. 2001. What Determines Productivity? 49 *J. Econ. Literature* 326–365.

Takeishi, Akira. 2001. Bridging Inter-and Intra-firm Boundaries: Management of Supplier Involvement in Automobile Product Development. 22 *Strategic Mgmt. J*. 403–433.

Teece, David & Gary Pisano. 1994. Dynamic Capabilities of Firms: An Introduction. 3 *Indus. Corp. Change*. 537–556.

The Economist. 2008. Outsourcing. https://www.economist.com/news/2008/09/29/outsourcing.

The Economist. 2009. Just-in-time. https://www.economist.com/news/2009/07/06/just-in-time.

Thomas Reuters. 2011-2012. Special Study for Corporate Counsel on Major Supply Agreements.

Thomson-Reuters. 2022. *Joint Employment: Overview, Practical Law Practice Note Overview* 9-523–4928.

Thompson, Loren B. 2016. The New Landscape in American Manufacturing: What it Takes to Succeed Today. https://www.lexingtoninstitute.org/wp-content/uploads/2016/01/New-Landscape-in-American-Manufacturing.pdf.

Van Iwaarden, Jos & Ton van der Wiele, 2012. The Effects of Increasing Product Variety and Shortening Product Life Cycles on the Use of Quality Management Systems. 29 *Int'l J. Quality & Reliability Mgmt*. 470–500.

Widiaja, Myra Micheline. 2008. Wageningen University & Research Center. *Thesis: Management Studies, Factors that Enhance the Post Merger Integration Process in Relation to Innovation Performance* 49–68.

Womack, James P. & Daniel T. Jones, 1994. From Lean Production to the Lean Enterprise. *Harv. Bus. Rev*.

Womack, James P., Daniel T. Jones & Daniel Roos. 2007. *The Machine That Changed the World*. New York, NY: Simon and Schuster.

Williamson, Oliver E. 1971. The Vertical Integration of Production: Market Failure Considerations. 61 *Am. Econ. Rev*. 112–123.

Williamson, Oliver E. 1985. *The Economic Institutions of Capitalism*. New York: Simon and Schuster.

Zaheer, Akbar, Bill McEvily & Vincenzo Perrone, 1998. Does Trust Matter? Exploring the Effects of Interorganizational and Interpersonal Trust on Performance. 9 *Org. Sci*. 141–159.