EXHIBIT 2

DEFENDANT FEDERAL EXPRESS CORPORATION'S
RULE 26(a)(2) EXPERT DISCLOSURES
Roy, et al. v. FedEx Ground Package System, Inc.,
Case No.: 3:17-cv-30116-KAR

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

JORDAN ROY and JUSTIN TRUMBULL, on behalf of themselves and others similarly situated, Plaintiffs, v. FEDEX GROUND PACKAGE SYSTEM, INC., Defendant.	Civil Action No. 3:17-cv-30116

EXPERT REPORT OF DANIEL F. SPULBER

June 21, 2024

CONFIDENTIAL

CONTENTS

I. QUALIFICATIONS AND EXPERIENCE

1. My name is Daniel F. Spulber. I am the Elinor Hobbs Distinguished Professor of International Business and Professor of Strategy at the Kellogg School of Management, Northwestern University, where I have taught since 1990. I am also Professor of Law (by Courtesy) at the Northwestern University Pritzker School of Law. I received a Ph.D. in economics in 1979 and an M.A. in economics in 1976 from Northwestern University and a B.A. in economics in 1974 from the University of Michigan.

2. I previously taught at Brown University, the University of Southern California, and the California Institute of Technology. I have served as the Research Director of the Northwestern University Center on Law, Business, and Economics at the Pritzker School of Law. I also served as the founding Director of Kellogg's International Business & Markets Program. I am the founding editor of the Journal of Economics & Management Strategy.

3. I have published fourteen books and numerous articles in leading economics journals and law reviews. I have received 37 research grants, including grants from the National Science Foundation, Qualcomm, the Ewing Marion Kauffman Foundation, and the United States Patent and Trademark Office.

4. I have conducted economic research and published works in books and refereed journals dealing with the calculation of damages in antitrust and infringement and valuation of intellectual property, including patents. I have provided expert testimony regarding intellectual property (patents) in microprocessors, cellular communication devices, digital video receivers and hardware and software components, and communication equipment with power over ethernet before the International Trade Commission. I also have provided expert testimony regarding intellectual property (copyright) in songwriting and related music publishing before the Copyright Royalty Board of the Library of Congress. I coauthored a report on patents and technology standards for the Federal Trade Commission's Patent Standards Workshop, Washington, D.C.

5. My curriculum vitae and a list of cases in which I have testified as an expert within the preceding four years are attached hereto as **Appendix A**: *Curriculum Vitae* and **Appendix B**: *Testimony in the Past Four Years*.

II. CASE BACKGROUND AND ASSIGNMENT

6. This case was brought by two individuals, Jordan Roy and Justin Trumbull (collectively, "Plaintiffs") against FedEx Ground Package System, Inc. ("FedEx Ground," or "Defendant"), a company that operates a logistics and package pickup and delivery business serving customers throughout the United States, alleging that FedEx Ground failed to pay mandatory time-and-a-half compensation for their hours worked in excess of forty hours per week, in violation of the federal Fair Labor Standards Act ("FLSA"), 29 U.S.C. §§ 201, et seq.[1]

7. Plaintiffs were package delivery drivers who have worked for a company that FedEx Ground calls an "independent service provider" ("ISP") that contracted with FedEx Ground. According to the complaint, Plaintiffs worked more than forty hours per week driving, in whole or in part, vehicles with a gross vehicle weight rating of 10,000 pounds or less.[2]

8. Plaintiffs argued that "based on economic realities of the relationship between FedEx [Ground] and these drivers, it is clear that the delivery drivers working under the intermediary ISPs are also FedEx [Ground's] employees under the FLSA."[3] As a result, Plaintiffs asserted that FedEx Ground "is liable under the FLSA for unpaid overtime owed to Plaintiffs[.]"[4]

9. I was retained by FedEx Ground, through its counsel Wheeler Trigg O'Donnell, LLP, to analyze and opine on the economics of contracting in the U.S. package delivery industry and the broader economy and its economic implications for individuals employed to drive for ISPs.

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[1] Collective Action Complaint. *Roy, et al., v. FedEx Ground Package System, Inc.* (D. Mass. No. 3:17-cv-30116) (Aug. 29, 2017) ("Complaint") at 1.

[2] *Id.* ¶ 9.

[3] *Id.* ¶ 12.

[4] *Id.* at 9.

10. In preparing this report, I have relied upon my more than four decades of economics research and teaching experience and research work on contracts, the theory of the firm, intermediaries, innovation, and microeconomics described above, published data and research regarding these issues as well as other documents and data that were produced in discovery in this matter and are currently available for review. A complete list of the documents and data that I reviewed in reaching my conclusions in this matter is provided in **Appendix C**: *Materials Considered*.

11. The hourly rate for my work in this case is $1,000. I have been assisted in these matters by the staff of Vega Economics, who worked under my direction, and I received compensation from Vega Economics based on its collected staff billings for the support it provided to me. Neither my compensation in these matters nor my compensation from Vega Economics is dependent on the outcome of these matters or on any of the opinions expressed in these matters. All opinions expressed in this report are my own conclusions.

12. I reserve the right to amend or supplement my opinions and report, if appropriate, based on any additional discovery, or in response to opinions or reports of other experts in this matter.

III. SUMMARY OF OPINIONS

13. My full opinions are set forth in the body of this report. My primary findings can be summarized as follows:

- ISPs are for-profit corporations that make independent profit-maximizing decisions regarding employment, capital equipment, and operations, so that ISPs independently determine whom they employ and in what capacity.

- ISPs hire and manage their own employees.

- ISPs obtain and manage their own capital equipment, managing both capital and labor, which shows that ISPs hire and manage their own employees.

- ISPs manage their own operations, which shows that ISPs hire and manage their own employees.

- Most of FedEx Ground's competitors have contracted with ISPs to deliver packages, and FedEx Ground's contracting with ISPs thus conforms to industry norms.

- Outsourcing through contracts such as FedEx Ground business relationships with ISPs are fundamental to the efficient organization of business throughout the U.S. economy.

- The economic analysis of the make-or-buy decision establishes that the ISPs hire and manage their own employees, and making FedEx Ground a second employer would impede their ability to do so, increase transaction costs, be contrary to the ISPs' contractual arrangements with FedEx Ground, and ultimately create fewer jobs.

IV. OVERVIEW OF FEDEX GROUND

14. FedEx was founded in 1971 as Federal Express Corporation, specializing in express shipping. The company adopted the name "FedEx" as its official brand in 1994.[5] In January 1998, FedEx acquired Caliber System, Inc. as part of its efforts to "create a more diversified corporation of different but related businesses."[6] As related to this matter, this acquisition included Roadway Package System ("RPS"), a subsidiary of Caliber System, which offered small-package ground delivery services. In January 2000, RPS was rebranded as FedEx Ground.[7]

15. FedEx Ground operates a delivery network that connects shippers with recipients. As explained in FedEx Ground's contracts with ISPs, FedEx Ground "operates an information and distribution network throughout the United States and Canada and desires to contract with independent businesses to facilitate the physical package pickup and delivery services

[5] "FedEx History." *FedEx*. <https://web.archive.org/web/20210819040055/https://www.fedex.com/en-us/about/history.html> (accessed May 15, 2024).

[6] *Id.*

[7] *Id.*

it offers to its customers."[8] According to the company, "[t]he lifecycle of a package illustrates movement through the FedEx Ground delivery network[.]"[9] The key nodes of this delivery network include:

- "Shipper (customer): Packages are picked up at a customer location in a local geographic area and transported to the local station by a service provider."
- "Origin station: Packages that are picked up from local shippers are sorted for outbound transportation to a nearby hub."
- "Origin hub: At the origin hub, packages are unloaded and sorted, with loads consolidated onto trailers according to destination hub for the efficient movement of packages."
- "Destination hub: Trailers arrive at the destination hub, where packages are unloaded and sorted for transportation to the hub's satellite stations."
- "Destination station: Packages arrive at the destination station to be sorted for delivery in the station's service area."
- "Recipient (customer): Packages are delivered to the intended commercial or residential customer [by service providers]."[10]

16. FedEx acts as an intermediary between its customers and ISPs. FedEx provides services to its customers that ship packages and obtains services from its suppliers, the ISPs that deliver packages. Intermediaries in economics bring buyers and sellers together by purchasing from sellers for resale to buyers or by coordinating transactions between buyers

[8] "Independent Service Provider Agreement." (Sept. 3, 2016) (FXG_ROY_036581- FXG_ROY_036651) with Schedule of Amendments (FXG_ROY_036652 - FXG_ROY_036663 at FXG_ROY_036583) ("FXG-UFT Agreement").

[9] "Hub Network." *FedEx*. <https://www.buildagroundbiz.com/about-fedex-ground/hub-network> (accessed June 18, 2024).

[10] *Id*. (emphasis omitted).

and sellers.[11] Intermediaries perform many activities in addition to managing transactions. Intermediaries provide services that add value to transactions including transportation of goods.[12]

17. FedEx is an intermediary that uses digital technology such as information and communications technology ("ICT"). FedEx provides a digital platform that provides package delivery services.[13] As part of its intermediation activities, FedEx announced a digital platform named fdx in January 2024. According to the company, fdx is "the first data-driven commerce platform that connects the entire customer journey—making it easier for companies to grow demand, increase conversion, optimize fulfillment, and streamline returns. FedEx is the only logistics company to connect the entire customer journey by offering end-to-end e-commerce solutions for businesses of all sizes—all in one platform."[14] It is reported that fdx provides "an end-to-end commerce platform that helps businesses optimize their supply chains, sell to customers and manage deliveries."[15]

18. FedEx Ground competes in multiple dimensions: "FedEx Ground operates the fastest and most automated hub network in the ground package shipping industry, offering speed, efficiency and reliability to customers."[16] According to the company, "[n]early 10 million

[11] Spulber, Daniel F. "Market Microstructure and Intermediation." *Journal of Economic Perspectives* 10.3 (1996): 135-152 at 135; Spulber, Daniel F. *Market Microstructure: Intermediaries and the Theory of the Firm*. New York: Cambridge University Press (1999).

[12] Spulber, Daniel F. "Market Microstructure and Intermediation." *Journal of Economic Perspectives* 10.3 (1996): 135-152 at 136 ("In combination with managing transactions, intermediaries often transform products to add value: transporting, storing, repackaging, assembling, preparing for final use, and adding information and guaranties.").

[13] Spulber, Daniel F. "The Economics of Markets and Platforms." *Journal of Economics & Management Strategy* 28.1 (2019): 159-172.

[14] "FedEx Announces First-of-Its-Kind Data-Driven Commerce Platform." *FedEx* (Jan. 14, 2024). <https://newsroom.fedex.com/newsroom/global-english/fedex-announces-first-of-its-kind-data-driven-commerce-platform> (accessed June 16, 2024).

[15] "FedEx Plans Fall Launch of Revamped Delivery Platform." *PYMNTS* (Mar. 21, 2024). <https://www.pymnts.com/news/delivery/2024/can-fedexs-commerce-platform-challenge-amazon> (accessed June 16, 2024).

[16] "Hub Network." *FedEx*. <https://www.buildagroundbiz.com/about-fedex-ground/hub-network> (accessed June 18, 2024).

packages daily travel through a network of more than 600 distribution hubs and local pickup-and-delivery stations throughout the U.S. and Canada."[17]

19. FedEx Ground competes in the package delivery market in terms of the speed of delivery, geographic coverage, delivery days, and shipping costs. According to the company, "FedEx is faster to more location[s] than UPS Ground. It can also help you win with low-cost shipping," and "you'll improve your reach to residential customers with FedEx Home Delivery®. Stay ahead with residential delivery every day of the week—including to over 50% of the U.S. population on Sundays."[18] A research study found that providing speed of delivery to their customers is important to online retailers.[19]

20. FedEx announced on April 5, 2023 "that it will consolidate its operating companies into one organization, creating efficiencies that will enhance the company's ability to meet the evolving needs of customers and ultimately build a stronger, more profitable enterprise."[20] The implementation "will ultimately bring FedEx Express, FedEx Ground, FedEx Services, and other FedEx operating companies into Federal Express Corporation, becoming a single company operating a unified, fully integrated air-ground network under the respected FedEx brand."[21] According to the company, the reorganization is part of a program that seeks to increase efficiency. It is part of a "multi-year effort to improve the efficiency with which FedEx picks up, transports, and delivers packages in the U.S. and Canada."[22]

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[17] *Id.*

[18] "FedEx Ground Shipping." *FedEx.* <https://www.fedex.com/en-us/shipping/ground.html#> (accessed May 22, 2024).

[19] Fisher, Marshall L., Santiago Gallino, and Joseph Jiaqi Xu. "The Value of Rapid Delivery in Omnichannel Retailing." *Journal of Marketing Research* 56.5 (2019): 732-748.

[20] "FedEx Announces Planned Consolidation of Operating Companies." *FedEx* (Apr. 5, 2023). <https://investors.fedex.com/news-and-events/investor-news/investor-news-details/2023/FedEx-Announces-Planned-Consolidation-of-Operating-Companies/default.aspx> (accessed June 16, 2024).

[21] *Id.*

[22] *Id.*

V. ISPs Are For-Profit Corporations that Manage Their Companies Independently.

21. FedEx has agreements with about 5,900 ISPs.[23] These bilateral agreements reflect FedEx's set of contracting standards and standard contractual agreements.[24] In this section, I will examine FedEx's contracting standards.[25] I also will examine the agreement between FedEx Ground and UP FROM THE GROUND INC ('UFT'), hereafter, the "FXG-UFT Agreement."[26]

22. The bilateral contractual agreements between FedEx and ISPs have four main sets of economic features: (A) ISPs are for-profit corporations, (B) ISPs hire and manage their own employees, (C) ISPs obtain and manage their own capital equipment, and (D) ISPs manage their own operations. My economic analysis shows that FedEx's contracting standards and the provisions of these contractual agreements between FedEx and individual ISPs are sufficient for these service providers to be identified as independent businesses with their own employees.

A. ISPs Are For-Profit Corporations.

23. The economic analysis in this section shows that ISPs are profit-maximizing companies. FedEx contracts for the delivery services of the ISPs in exchange for payment by FedEx to the ISP. Economic analysis of contract provisions and market conditions show the ISPs are independent companies that make economic decisions to maximize their profit. Relatedly, ISPs independently determine who they employ and how they manage their employees.

FedEx's Contracting Standards Require ISPs to Be For-Profit Corporations.

24. The FedEx contracting standards require that the service providers are for-profit corporations. According to the company: "Federal Express Corporation contracts only with

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[23] "Company Structure and Facts." *FedEx*. <https://www.fedex.com/en-us/about/company-structure.html> (accessed May 22, 2024).

[24] "Contracting Standards." *FedEx*. <https://www.buildagroundbiz.com/contracting-with-fedex-ground/contracting-standards> (accessed June 19, 2024).

[25] *Id.*

[26] *See* FXG-UFT Agreement at FXG_ROY _036581.

businesses that are established under state/provincial law as for-profit corporations and not, for example, with LLCs, LLPs, sole proprietorships, partnerships or limited partnerships (LTDs)."[27]

25. FedEx also conducts regular verification of ISP business registrations. According to the testimony of Thomas Pierce, at the time of his testimony a Senior Manager in FedEx Ground's Department of Business Development Solutions, ISPs annually certify compliance with contracting standards to FedEx. During this process, "each service provider business needs to certify, among other things, that they are registered as a business in the state for which they are domiciled…and for any state in which they conduct business" and that "they are following all laws as it pertains to compensation, wage and hour, of their employees."[28] FedEx further conducts a "good-standing check" by visiting state websites to "verify by business name for [ISPs'] status with the state."[29]

26. Mr. Pierce gave an example of an ISP in the North Pitt station that has "several layers within [the] business," including "an HR department," "a safety department," and "a department strictly around recruiting."[30] He further noted that it "is more common now"[31] for ISPs to have a complex corporate structure.

FedEx's Contracts with ISPs Require ISPs to Be For-Profit Corporations.

27. FedEx's contracts with ISPs reflect its contracting standards, in particular the requirement that ISPs be for-profit corporations. The FXG-UFT Agreement states that "UFT is a corporate business entity that provides package pickup and delivery services with its own vehicles and its own employees. UFT agrees that, in addition to the services it provides to

[27] "Contracting Standards." *FedEx*. <https://www.buildagroundbiz.com/contracting-with-fedex-ground/contracting-standards> (accessed June 19, 2024).

[28] Pierce, Thomas. 30(b)(6) Deposition (Nov. 12, 2020) ("Pierce Dep.") 99:9-14. *See also* Rosales, Alison. 30(b)(6) Deposition (Jan. 21, 2021) ("Rosales Dep.") 132:1-4.

[29] Pierce Dep. 100:4-13.

[30] *Id.* 20:23-21:5.

[31] *Id.* 21:6-12.

FXG under this Agreement, it is free to or not to, separately contract with and provide services to other customers."[32]

28. The FXG-UFT Agreement further states "UFT represents and warrants that it is a corporation (and not some other form of business, such as a limited liability partnership ('LLP'), limited liability company ('LLC'), limited liability corporation, association, joint-stock company, joint-stock association, or similar entity), incorporated in MA, and that, as such, it is registered as a corporate business entity in good standing and as an employer in the states in which it does business."[33]

Economic Analysis of the FedEx-ISP Contractual Provision Requiring ISPs to Be For-Profit Corporations

29. Economic analysis demonstrates that firms, like ISPs, seek to maximize their economic profits.[34] This is because the owners of a firm obtain the firm's profits as part of their income.[35] The owners of the firm benefit from an increase in their income, so they prefer that the firm maximize its profits. The owners of the firm receive lower benefits if the firm's decisions about products or investments depart from the profit-maximizing decisions.

30. The consumption and saving decisions of a firm's owners generally are separate from the decisions of the firm about products and investment. The separation of the firm's decisions from the consumption and savings decisions of its owners means that owners benefit from the profit of the company whether through distribution of the firm's profit or appreciation

[32] FXG-UFT Agreement at FXG_ROY_036583.

[33] *Id.* at FXG_ROY_036584.

[34] Economic profit refers to the firm's revenue minus costs of inputs, which includes the costs of debt and equity. The cost of capital is the market rate of return on money, which is adjusted for risk. On the cost of equity capital, *see* Stewart III, G. Bennet. "How to Fix Accounting—Measure and Report Economic Profit." *Journal of Applied Corporate Finance* 15.3 (2003): 63-82.

[35] I use the economics term "firm" and the term "company" interchangeably to denote a business that maximizes profit. *See* Carlton, Dennis W. and Jeffrey M. Perloff. *Modern Industrial Organization, Fourth Edition.* Harlow: Pearson Education Limited (2015) at 35-36 ("A firm is an organization that transforms inputs (resources it purchases) into outputs (valued products that it sells). It earns the difference between what it receives as revenue and what it spends on inputs, which are used in manufacturing and selling. …Most firms are for-profit firms: They exist to make money.").

of the value of the firm. This separation implies that owners want the firm to maximize profit, whether owners also manage the firm or rely on others to do so.[36]

31. Corporations seek to maximize profit whether they are large or small. Former SEC Chairman David Ruder observes, "[t]he businessman who incorporates a small business or who incorporates to promote a large business does so with an expectation of making a profit."[37] Ruder adds that "[t]he traditional legal notion that the corporate manager owes fiduciary obligations to the shareholder-owners of the corporation is based on profit maximization."[38] The objective of the corporation is to maximize the long-term value of the company for its shareholders.[39]

32. Practically all microeconomics textbooks assert that firms maximize economic profits, whether in principles, intermediate, or graduate courses.[40] As a survey of microeconomics textbooks points out, "[i]n the simplest version of the theory of the firm, it is assumed that a firm's owner-manager attempts to maximize the firm's short-run profits (current profits and profits in the near future). More sophisticated models of profit maximization replace the

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[36] This is sometimes referred to as the Fisher Separation Theorem. *See* Smith, James E. "Fisher Separation and Project Valuation in Partially Complete Markets." *Fuqua School of Business, Duke University* (Aug. 8, 1996). ("The Fisher Separation Theorem (Fisher 1930) stands as one of the cornerstones of modern corporate finance, providing a justification for both the 'NPV rule' [Net Present Value rule] and the separation of ownership and management."). *See also* Fisher, Irving. *The Theory of Interest*. New York: Macmillan (1930).

[37] Ruder, David S. "Public Obligations of Private Corporations." *University of Pennsylvania Law Review* 114.2 (1965): 209-229 at 213; "Biography of Professor David S. Ruder." *U.S. Securities and Exchange Commission*. <https://www.sec.gov/spotlight/mutualrecognition/bio/druder.pdf> (accessed June 18, 2024).

[38] Ruder, David S. "Public Obligations of Private Corporations." *University of Pennsylvania Law Review* 114.2 (1965): 209-229 at 213.

[39] Friedman, Milton. "A Friedman Doctrine: The Social Responsibility of Business Is to Increase Its Profits." *New York Times* (Sept. 13, 1970). <https://www.nytimes.com/1970/09/13/archives/a-friedman-doctrine-the-social-responsibility-of-business-is-to.html> (accessed June 10, 2024); Bhagat, Sanjai and Glenn Hubbard. "Should the Modern Corporation Maximize Shareholder Value?" *AEI Economic Perspectives* (Sept. 2020). <https://www.aei.org/wp-content/uploads/2020/09/Should-the-Modern-Corporation-Maximize-Shareholder-Value.pdf?x85095> (accessed June 10, 2024) at 12 ("And altering the purpose of the corporation away from long-term shareholder value maximization risks vagueness that can disrupt the wealth-producing and job-creating power we take for granted from the modern corporate enterprise.").

[40] Carbaugh, Robert and Tyler Prante. "A Primer on Profit Maximization." *Journal for Economic Educators* 11.2 (2011): 34-45. *See, e.g.*, Mankiw, N. Gregory. *Principles of Microeconomics, Fifth Edition*. Mason, Ohio: South-Western Cengage Learning (2009) at 292 ("The goal of a competitive firm is to maximize profit, which equals total revenue minus total cost.").

goal of maximizing short-run profits with the goal of maximizing long-run profits, which reflect the present value of the firm's expected profits."[41]

33. Profit maximization by firms is consistent with the incentives and characteristics of firms. A U.S. Chamber of Commerce publication points out that "[a] for-profit organization is one that operates with the goal of making money. Most businesses are for-profits that serve their customers by selling a product or service. The business owner earns an income from the profit and may also pay shareholders and investors from the profits."[42]

34. If firms are not profitable, they cannot continue to operate or obtain investment, unless there is sufficient potential for future profits. As Forbes reports, "[t]he ultimate goal of any business is maximizing profits. Profits give a business the resources it needs to grow, expand, and remain competitive. This goal is not only vital for a firm's survival but also for its sustainability."[43]

35. Through agreements with FedEx, ISPs provide pickup and delivery ("P&D") services and linehaul services.[44] The ISPs are profit-maximizing businesses that operate independently of FedEx. The profit maximization of the ISPs and their organization as corporations implies that these businesses act in their own interests and operate businesses that are separate from FedEx. ISPs make decisions regarding employees, capital equipment, and operations that are in their interests as for-profit corporations. These decisions are intended to maximize their own profits.

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[41] Carbaugh, Robert and Tyler Prante. "A Primer on Profit Maximization." *Journal for Economic Educators* 11.2 (2011): 34-45 at 34-35.

[42] Heaslip, Emily. "Nonprofit vs. Not-for-Profit vs. For-Profit: What's the Difference?" *U.S. Chamber of Commerce* (Feb. 6, 2023). <https://www.uschamber.com/co/start/strategy/nonprofit-vs-not-for-profit-vs-for-profit> (accessed June 7, 2024).

[43] Houston, Melissa. "5 Proven Strategies to Maximize Profits for Business Owners." *Forbes* (May 2, 2023). <https://www.forbes.com/sites/melissahouston/2023/05/02/5-proven-strategies-to-maximize-profits-for-business-owners/?sh=457971f47cff> (accessed June 10, 2024).

[44] FedEx Ground defines P&D services as follows: "[u]sing vans or small trucks, packages are picked up from shippers and transported to the local FedEx Ground station; and, from the destination station, they are delivered to business and residential recipients[.]" FedEx Ground defines linehaul services as follows: "[u]sing tractors, trailers are pulled over-the-road from station to hub, hub to hub, and hub to station — and, in some cases, from customer locations to or from stations or hubs ('spotted trailers' or 'spots')[.]" "Hub Network." *FedEx*. <https://www.buildagroundbiz.com/about-fedex-ground/hub-network> (accessed June 18, 2024).

36. The interests and decisions of a for-profit corporation are distinct from those of its customers. FedEx is a customer of its ISPs, as the ISPs are suppliers to FedEx of package delivery services. FedEx Ground states, "[t]he transport of packages between stations, hubs and customers is performed by independent businesses with which FedEx Ground contracts."[45] According to FedEx, "[f]or more than 30 years, thousands of independent businesses have capitalized on the entrepreneurial dream, due in large part to the opportunities offered by FedEx."[46]

37. I conclude that because the ISPs are for-profit corporations, the ISPs are independent businesses that are separate and distinct from their customer, FedEx. Economic analysis of the objectives of the firm demonstrates that the ISPs make decisions to maximize their profits. The ISPs' decisions about employees and other economic choices are made to maximize their own profits and are not the decisions of their customer, FedEx. The ISPs' decisions are made in their own interests and are not directed at maximizing the profit of FedEx. As a result, the employment decisions are those of the ISPs.

B. ISPs Hire and Manage Their Own Employees.

38. The economic analysis in this section shows that ISPs hire and manage their own employees. FedEx contracts for the services of the ISPs. ISPs independently hire and manage their employees.

FedEx's Contracting Standards Regarding ISP Employees

39. Pursuant to the contractual relationship with the ISPs, FedEx neither hires nor manages the employees of the ISPs. This contractual relationship governs the provision of delivery services by the ISP in return for payment by FedEx. This economic transaction is clearly illustrated by FedEx's contracting standards that are accepted by the ISPs, as I will explain below.

[45] *Id.*

[46] "Contracting with FedEx." *FedEx*. <https://www.buildagroundbiz.com/contracting-with-fedex-ground> (accessed June 14, 2024).

40. The FedEx contracting standards specify that ISPs hire their own employees. The contracting standards further state that ISPs are responsible for managing their own employees. ISPs are also responsible for all expenses related to their employees, including "wages, salaries, benefits, employment taxes, unemployment insurance, [and] workers' compensation coverage."[47]

41. FedEx's contracting standards state that "[a]s independent businesses, service providers employ their own personnel[.]"[48] FedEx's contracting standards further state that the ISPs bear "all responsibilities" for the following:

- "Training their personnel[.]"
- "Ensuring employees are legally authorized to work in the U.S. (or Canada as appropriate)[.]"
- "Employer-related expenses, including wages, salaries, benefits, employment taxes, unemployment insurance, workers' compensation coverage, and any others mandated by local, state/provincial and federal governments[.]"
- "Payroll deductions, maintaining payroll and employment records, and complying with all applicable local, state and federal/provincial laws (including wages, deductions, overtime, rest and meal periods, etc.) including the U.S. Fair Labor Standards Act as applicable[.]"
- "A service provider may be asked to complete contract familiarization and related activities as a precondition to contracting with FedEx[.]"[49]

42. FedEx employees testified that ISPs hire and manage their own employees. According to FedEx corporate representative Thomas Pierce, FedEx is not involved in the ISPs' hiring or

[47] "Contracting Standards." *FedEx*. <https://www.buildagroundbiz.com/contracting-with-fedex-ground/contracting-standards> (accessed June 19, 2024).

[48] *Id.*

[49] *Id.*

managing of their employees[50] and FedEx does not provide feedback to ISPs about how to deal with performance issues with their employees.[51] Mr. Pierce further stated that the agreement between FedEx and ISPs has no "discussion or even mention of how many employees the service providers may have and what it may need to pay them"[52] and that FedEx does not advertise for, recruit, train, hire, or pay drivers, nor does it have any say into what service provider employees are paid.[53]

43. Mr. Pierce also stated that FedEx does not engage in conversations with ISP employees about business matters.[54] FedEx's station managers understand that "they shouldn't be talking to service provider employees about…how they go about performing the services on a day-to-day basis[.]"[55] According to Alison Rosales, a senior manager of a FedEx Ground station in Andover, Massachusetts, when there are customer complaints, FedEx will engage in conversations with an authorized officer ("AO") or business contact ("BC") of the ISP and ask the ISP to conduct investigations[56] and that she has "never instructed anyone [of the ISPs] to terminate or disqualify a driver."[57]

44. ISPs have the option to participate (or not) in FedEx's apparel brand promotion program.[58] If an ISP chooses to participate in the apparel program, it receives additional payments from FedEx and agrees to have its employees wear FedEx branded clothing when interfacing with customers.[59]

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[50] Pierce Dep. 84:20-23. ("Q. Let's talk about the ISPs' hiring of employees, Does—does FedEx Ground have any involvement with the ISPs' hiring of their employees? A. No.").

[51] *Id.* 62:1-11. ("Q. Would the station management ever give feedback to the ISPs about how to deal with employee issues, employees not performing adequately? A. No, they should not. Q: I know you said 'they should not,' but do they do that? A. I'm not aware that they do.").

[52] *Id.* 154:20-24.

[53] *Id.* 155:1-17.

[54] *Id.* 73:1-21.

[55] *Id.* 76:12-23.

[56] Rosales Dep. 31:21-32:14.

[57] *Id.* 52:1-9.

[58] Pierce Dep. 31:17.

[59] *Id.* 31:18-32:4.

FedEx's Contracts with ISPs State that ISP Employees Are Not FedEx Employees.

45. FedEx contracts with ISPs reflect FedEx's contracting standards, which are accepted by ISPs. The FXG-UFT Agreement specifies the "[r]esponsibility for Employer-Related Expenses and Legal Compliance."[60] According to the agreement:

> Subject only to the subcontracting exception under Section 7, UFT agrees to assign only Personnel, including officers and managers, that UFT ensures are treated as employees of UFT in the provision of Services under this Agreement ('UFT Personnel' or 'Personnel'). UFT agrees that neither it nor any of its Personnel are to be treated as or considered to be FXG's employees, directly, indirectly, or jointly, for any purpose, nor is UFT or its Personnel entitled to or eligible for any employee benefits from FXG or any FXG-sponsored benefit plans, even if subsequently reclassified as employees, under common law or otherwise, of FXG by a court, agency, or other adjudicative body. UFT agrees, upon request by FXG, to submit documentation to FXG, or to FXG's designee, establishing that all of its Personnel are treated as UFT's employees under Applicable Law.[61]

46. The FXG-UFT Agreement states that UFT agrees to "bear all expenses associated with the training of its Personnel under Schedule I to this Agreement[.]"[62] This indicates that the ISP invests in training its own employees and obtains the returns from that training. This indicates that the ISP manages its employees because it incurs the costs of training. In contrast, FedEx does not invest in the training of the employees of the ISP.

47. The FXG-UFT Agreement states that UFT agrees to "bear all expenses associated with the employment of such persons, including without limitation, wages, salaries, benefits, employment taxes, unemployment insurance, workers compensation coverage, and government mandated disability insurance, and, at the request of FXG, provide proof that these obligations and all related filings with federal, state and local authorities are being met, including but not limited to, collection and payment of withheld taxes and unemployment taxes, the procurement and maintenance of workers' compensation

[60] FXG-UFT Agreement at FXG_ROY_036585.

[61] *Id.*

[62] *Id.*

insurance and the satisfaction of any other obligations required by Applicable Law[.]"[63] This indicates that the ISP manages its employees because it incurs these employment costs. This further indicates that the ISP manages its employees because it incurs the administrative costs associated with managing its human resources. FedEx does not incur either the direct costs or administrative costs of managing the employees of the ISP.

48. The FXG-UFT Agreement states that UFT agrees to "assume sole responsibility for payroll deductions and maintenance of payroll and employment records, and for compliance with Applicable Law, including without limitation, wage payment, final payment of wages, required withholdings from wages, deductions, overtime, and rest and meal periods, and, at the request of FXG, provide evidence of such compliance[.]"[64] Again, this indicates that the ISP manages its employees because it incurs the administrative costs associated with managing its human resources. FedEx again does not incur either the direct costs or administrative costs of managing the employees of the ISP.

49. The FXG-UFT Agreement states that UFT agrees to "employ only persons who are legally authorized to work in the United States, maintain an I-9 employment authorization form, if required, for each person utilized, and, at the request of FXG, provide evidence of such compliance"[65] and "comply with Applicable Law and, at the request of FXG, provide evidence of such compliance."[66] According to the U.S. Citizenship and Immigration Services "[a]ll U.S. employers must properly complete Form I-9 for every individual they hire for employment in the United States."[67] These contractual requirements (as required by law) further confirm that the ISP hires and manages its own employees.

50. The FXG-UFT Agreement provides that the ISP is solely and completely responsible for hiring and managing its employees. The FXG-UFT Agreement in Section 6.4 states that

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[63] *Id.*

[64] *Id.*

[65] *Id.*

[66] *Id.*

[67] "I-9, Employment Eligibility Verification." *U.S. Citizenship and Immigration Services*. <https://www.uscis.gov/i-9> (accessed June 7, 2024).

"UFT has sole and complete discretion in the staffing, selection, hiring, training, supervision, assignment, hours and days worked, discipline, termination, compensation, benefits, and all other terms and conditions of employment of its Personnel assigned to provide Services under this Agreement[.]"[68]

Economic Analysis of the Contractual Provisions Regarding ISP Employees

51. The complaint alleges that Plaintiffs "have been employed by FedEx through intermediary employers to perform delivery services on FedEx's behalf[.]"[69] The complaint further alleges that "based on the economic realities of the relationship between FedEx and these drivers, it is clear that the delivery drivers working under the intermediary ISPs are also FedEx employees under the FLSA."[70]

52. The complaint's allegation that an ISP's employees also are employees of FedEx Ground is inconsistent with the economics of the industry. The "economic realities" mentioned in the complaint are little more than descriptions of the industry without any corresponding economic analysis of the companies and their contractual relationships.

53. Economic analysis shows that ISPs are the sole employers of their employees for multiple reasons.

54. First, as profit-maximizing firms, each ISP makes independent employment decisions. ISPs' employment decisions are subject to technological constraints, competitive conditions, and legal considerations. ISPs independently make employment decisions in the pursuit of profit maximization considering the effects of their decisions on their revenues, costs, and efficiency of output. As explained in the previous section, this establishes that the ISP's employment decisions are its own. FedEx is not involved in the ISP's employment decisions.

[68] FXG-UFT Agreement at FXG_ROY_036586.

[69] Complaint at 1.

[70] *Id.* ¶ 12.

55. In the study of the firm in economics, the firm generally is characterized as choosing its inputs efficiently.[71] Typically, these inputs are capital and labor. A survey of the economic literature on labor productivity states the following: "[i]ntuitively, the producer's optimal employment level … , which is set to equate marginal revenues and marginal costs, is pinned down by increasing marginal costs in perfectly competitive markets and a downward-sloping residual demand curve (and possibly increasing marginal costs as well) in imperfectly competitive markets."[72] All other things equal, a firm chooses the amount of labor service by maximization of profit.

56. At the margin, the firm tries to equate the marginal revenue product of an additional unit of labor services and the marginal cost of obtaining an additional unit of labor services. Because ISPs are for-profit corporations, they will try to hire and manage their employees to equate the marginal revenue product of labor with the marginal cost of an additional unit of labor services.

57. Second, ISPs make their own hiring and compensation decisions. In addition to the microeconomic analysis of employment decisions by the firm, economists study employment and labor markets. The economic study of employment and labor markets is referred to as the field of Labor Economics. This field studies the hiring and incentive decisions of individual firms, the matching of employers and employees, the interaction between supply and demand in the market for labor, and equilibrium in the market for labor.

58. ISPs participate in the market for labor, search for employees, contract with their employees, and manage working conditions. They maximize profits and pay wages to their employees. This is consistent with employers as studied in the field of labor economics. A textbook in labor economics states: "[l]abor economics is the study of the workings and outcomes of the market for labor. More specifically, labor economics is concerned primarily with the behavior of employers and employees in response to the general

[71] Pindyck, Robert S. and Daniel L. Rubinfeld. *Microeconomics Eighth Edition*. Pearson (2013) at 244 (stating that "a fundamental problem that all firms face [is] how to select inputs to produce a given output at minimum cost.").

[72] Syverson, Chad. "What Determines Productivity?" *Journal of Economic Literature* 49.2 (2011): 326-365.

incentives of wages, prices, profits, and nonpecuniary aspects of the employment relationship, such as working conditions."[73]

59. ISPs participate in the labor market to search for and hire their employees. ISPs contract with their employees and provide compensation to their employees. FedEx contracts with the ISP for the ISP's services. However, FedEx is not involved in either hiring or compensating the ISP's employees. FedEx is not involved in the ISP's labor market activities.

60. Third, ISPs make their own human resource management decisions. The ISP makes all the relevant economic decisions regarding human resource management of its personnel. The economic study of human resource management is referred to as the field of personnel economics. An overview of the field states that "[p]ersonnel economics drills deeply into the firm to study human resource management practices like compensation, hiring practices, training, and teamwork."[74] ISPs are responsible for human resource management activities regarding their employees, including wages, salaries, benefits, employment taxes, unemployment insurance, workers compensation coverage, and government mandated disability insurance. FedEx is not involved in the ISP's human resource management activities. The FedEx contracting standards and FedEx contracts with ISPs, as exemplified by the FXG-UFT Agreement, specify that ISPs are solely responsible for managing their employees. ISPs independently determine employee wages, benefits, and other compensation.

61. The economic analysis in this section demonstrates that the ISP's employees are their own. Analysis based on microeconomics, labor economics, and personnel economics implies that the ISP independently hires, compensates, and manages their own employees.

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[73] Ehrenberg, Ronald G., Robert S. Smith, and Kevin F. Hallock. *Modern Labor Economics: Theory and Public Policy*. Routledge (2021).

[74] Lazear, Edward P. and Kathryn L. Shaw. "Personnel Economics: The Economist's View of Human Resources." *Journal of Economic Perspectives* 21.4 (2007): 91-114 at 91.

C. ISPs Obtain and Manage Their Own Capital Equipment.

62. The economic analysis in this section shows that ISPs obtain and manage their own capital equipment. FedEx contracts for the services of the ISPs. In turn the ISPs provide the capital equipment, including purchase or leasing vehicles. FedEx neither provides nor manages the capital equipment of the ISPs, which has important economic implications. I conclude that economic efficiency requires a single company (in this case the ISP) to both provide and manage trucks and hire and manage drivers. In economic terms, delivery companies have many incentives to manage capital and labor together.

FedEx's Contracting Standards Regarding Capital Equipment

63. The complaint leaves out a key fact—ISPs provide the vehicles. The complaint states that "[p]laintiffs and other delivery drivers working under ISPs have typically worked full-time and exclusively as FedEx drivers, delivering FedEx's packages to FedEx customers while wearing FedEx uniforms and driving vehicles bearing FedEx's logos and color scheme."[75]

64. Continuity in uniforms, logos, and color schemes is related to customer service and branding.[76] This does not alter the economic reality that ISPs both employ the delivery drivers and provide the vehicles.

65. ISPs not only hire and manage their own employees, but ISPs also obtain and manage their own capital equipment. This is critical because of the need for delivery companies to manage capital and labor together.

66. FedEx and ISPs agree ISPs will "employ their own personnel, including drivers. They provide their own vehicles that they operate and maintain."[77] FedEx states that

[75] Complaint ¶ 14.

[76] ISPs can choose to participate or not in FedEx Ground's apparel or vehicle promotion programs for extra payments. Pierce Dep. 31:13-17.

[77] "Contracting Standards." *FedEx*. <https://www.buildagroundbiz.com/contracting-with-fedex-ground/contracting-standards> (accessed June 19, 2024).

"[c]ontracting with FedEx, these businesses use their own equipment and employees to provide services to FedEx and its customers."[78]

67. According to FedEx's contracting standards, which reference government laws and regulations, ISPs are responsible for maintaining their equipment and complying with safety standards: "[v]ehicle maintenance — Keep vehicles in safe operating condition pursuant to the U.S. Federal Motor Carrier Act and other applicable, government-mandated safety standards[.]"[79]

68. ISPs use their own vehicles to deliver packages.[80] ISPs can choose to participate (or not) in a vehicle brand promotion program.[81] If an ISP chooses to participate in this program, it receives additional payments from FedEx and agrees to display the FedEx logo on its vehicles.[82] ISPs also are responsible for purchasing or renting other equipment, such as scanners,[83] which their drivers use to provide package location information and collect customer signatures, among other things.

FedEx's Contracts with ISPs and Provisions Regarding Capital Equipment

69. The FXG-UFT contract is consistent with the contracting standards and states that "UFT is a corporate business entity that provides package pickup and delivery services with its own vehicles and its own employees."[84]

70. The FXG-UFT contract states that the ISP will provide "Maintenance and Inspection." According to the contract, "[r]egardless of the size or weight of the Equipment being used by UFT to provide Services under this Agreement, UFT agrees, at UFT's expense, to have

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[78] "Contracting with FedEx." *FedEx*. <https://www.buildagroundbiz.com/contracting-with-fedex-ground> (accessed June 14, 2024).

[79] "Contracting Standards." *FedEx*. <https://www.buildagroundbiz.com/contracting-with-fedex-ground/contracting-standards> (accessed June 19, 2024).

[80] Rosales Dep. 127:21-128:4 ("Q. Are all FedEx trucks at your station marked with FedEx's logo? A. Well, they're CSP vehicles, they are not FedEx vehicles.").

[81] Pierce Dep. 31:13-17.

[82] *Id.* 31:13-32:22; Rosales Dep. 128:5-19.

[83] Rosales Dep. 100:18-101:5.

[84] FXG-UFT Agreement at FXG_ROY_036583.

the Equipment maintained and inspected in accordance with the standards specified in 49 CFR Parts 393 and 396."[85] The FXG-UFT contract states the ISP will provide "[p]roof of [t]imely [m]aintenance and [i]nspection. UFT agrees to provide FXG monthly, or more frequently as required by Applicable Law, with documentation of timely maintenance and inspection of the Equipment in accordance with the periodic mandatory vehicle maintenance and inspection regulations required by Applicable Law, including but not limited to 49 CFR Part 396. The Parties agree that the periodic maintenance schedule recommended by the Equipment manufacturer will be deemed to meet the maintenance obligations of this Section 8, absent specific federal, state or municipal regulations to the contrary."[86]

71. Finally, the FXG-UFT contract states that the ISP is to bear operating expenses for its equipment. The agreement states with regard to "UFT Responsibility for Operating Expenses," that "UFT agrees to bear all costs and expenses related to operation of the Equipment, whether empty or loaded, including, without limitation, all risks of depreciation, all maintenance (including cleaning and washing), fuel, oil, tires, repairs, business taxes, consumption and sales taxes, personal property taxes, ad valorem taxes, fuel and road-use taxes, ton-mile taxes, insurance coverage as provided herein, detention and accessorial services, licenses, permits, vehicle inspection fees, vehicle registration renewal fees, base plates, and all highway, bridge and ferry tolls. UFT is responsible for and will pay all UFT's expenses related to the loading or unloading of the Equipment at FXG Stations where FXG does not perform the loading and/or unloading function. UFT acknowledges that the amount of Charges for the anticipated, but not guaranteed, amount of the Services under this Agreement is intended to fairly compensate UFT for all such incurred operating costs, and that UFT is responsible for payment of all its operating costs."[87]

[85] *Id.* at FXG_ROY_036589.

[86] *Id.*

[87] *Id.*

Economic Analysis of Provisions of FedEx Contracts with ISPs Regarding Capital Equipment

72. A key aspect of package delivery is that management of trucks and drivers go together. ISPs obtain and manage their own trucks and hire and manage their own drivers. There are multiple economic reasons for the management of both trucks and drivers.

73. First, capital equipment and labor should be managed together because truck inspection and maintenance are highly important for cost efficiency. Trucks are a capital investment for a package delivery company and efficient usage and management of the capital equipment affects costs. An industry report observes "[r]outine maintenance and checks are crucial for any vehicle, especially for trucks. Neglecting maintenance and inspections can lead to many problems."[88] Maintenance and checks are important for safety, increasing efficiency and lifespan, avoiding costly repairs, and meeting the U.S. Department of Transportation ("DOT") regulations.[89] As the study points out, "[r]egular truck maintenance and inspections can save you thousands of dollars by preventing costly repairs and downtime, increasing fuel efficiency, and more."[90]

74. Truck inspection and maintenance are closely connected to the capabilities and knowledge of the company's truck drivers. According to the industry report, truck inspection and maintenance are closely connected to hiring competent drivers and training drivers: "[e]nsuring that your truck drivers are knowledgeable about the vehicles in your fleet is crucial. Educate them on how to spot red flags while driving, such as warning lights and trouble codes. By doing so, they can alert you of any potential issues, allowing for vital repairs to be made before major damage occurs."[91] Drivers play an important role: "[r]egular preventative maintenance on heavy-duty vehicles can help drivers avoid unexpected breakdowns and delays. By checking tire pressures weekly and performing

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[88] Kovgunov, Nick. "The Importance of Regular Truck Maintenance and Inspections." *U.S. Trucking Service* (Feb. 6, 2023). <https://www.ustruckingservice.com/blog/tips-and-tools/the-importance-of-regular-truck-maintenance-and-inspections> (accessed June 7, 2024).

[89] *Id.*

[90] *Id.*

[91] *Id.*

routine maintenance, drivers can reduce the risk of tire blowouts while on the road. In turn, companies benefit from decreased repair costs and minimized vehicle downtime."[92]

75. Second, capital equipment and labor should be managed together because of the importance of driver training and behavior for safety. As an industry report observes, "[i]n the vast world of trucking, where massive vehicles traverse our highways, safety isn't just a priority – it's a shared responsibility between drivers and employers."[93] The study points out the importance of driver training for safety: "[i]n the realm of trucking, where safety is paramount, employers play a pivotal role in shaping the competency of their drivers. Investing in comprehensive driver training programs is a foundational pillar for ensuring safety on the road. This investment is not merely a financial one but a commitment to the well-being of drivers and the prevention of accidents. Recruits significantly benefit from thorough training, being equipped with the latest safety protocols, and being given guidance on consistently practicing safe driving behaviors."[94]

76. Third, capital equipment and labor should be managed together because managers and employees work together to promote safety. As the industry report observes, "[f]ostering a culture of open communication between employers and drivers is a cornerstone of promoting safety within a trucking company. Regular safety meetings and discussions create an environment where drivers feel heard and actively encouraged to report concerns and potential hazards. This open dialogue builds a foundation of trust where drivers feel valued, supported, and integral to the collective goal of ensuring safety on the road."[95]

77. Fourth, capital equipment and labor should be managed together because managers provide incentives to drivers to operate vehicles safely. This avoids the need for costly repairs and reduces accidents. ISP managers can reward safe operation of vehicles and they can also monitor their drivers' activities. ISPs can provide innovations that improve safety and help

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[92] *Id.*

[93] Kovgunov, Nick. "The Importance of Safety in Truck Driving: Best Practices for Drivers and Employers." *U.S. Trucking Service* (Feb. 20, 2024). <https://www.ustruckingservice.com/blog/tips-and-tools/the-importance-of-safety-in-truck-driving> (accessed June 19, 2024).

[94] *Id.*

[95] *Id.*

with monitoring.[96] As the industry report notes, "[i]ncorporating GPS technology and data analytics, Telematics provides employers with valuable information about driver behavior, route efficiency, and vehicle health. Monitoring driver behavior allows for targeted interventions, enabling employers to address potential safety concerns promptly. Additionally, telematics contribute to efficient fleet management, optimizing routes and schedules to minimize risks and enhance overall safety."[97]

78. For example, "GroundCloud is a 'Cloud' based software system you access through a manager console and a tablet mounted in your trucks," which delivers "a comprehensive platform to automate the management of your Safety, Drivers, Fleet, Routes, HR, Financial metrics, and Compliance requirements."[98] According to the company, "GroundCloud is a company built on safety; working hard to ensure you and your team get home every night. Automated multimedia content including quizzes, videos, and training modules ensures your drivers stay engaged. Driver profiles track behavior such as speeding, collisions and texting to give you the data you need to discuss safety. All of this on a [preferred] dash mounted tablet format proven safer than handheld devices[.]"[99] The company states that "GroundCloud was built from the ground up to meet the needs of delivery contractors. It combines navigation, fleet management, safety, vehicle event data recorders (VEDR), scheduling and timekeeping, and vehicle maintenance into one seamless platform."[100]

79. Fifth, capital equipment and labor should be managed together because the age and condition of an ISP's vehicles can affect the ISP's hiring of employees. KR Capital states that it is "the nation's leading FedEx brokerage firm."[101] According to KR Capital,

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[96] *Id.*

[97] *Id.*

[98] "Homepage." *Ground Cloud*. <https://groundcloud.com> (accessed June 16, 2024).

[99] *Id.*

[100] "Ground Cloud CSP." *Ground Cloud*. <https://groundcloud.com/wp-content/uploads/2023/09/GroundCloud_StandardCSP_SellSheet091223.pdf> (accessed June 18, 2024).

[101] "5 Key Benefits of Leasing vs. Buying Your Fleet Vehicles." *KR Capital* (May 12, 2021). <https://www.deliveryroutesforsale.com/2021/05/5-key-benefits-of-leasing-vs-buying-your-fleet-vehicles> (accessed June 19, 2024).

"[n]ewer vehicles are a big hiring incentive."[102] KR Capital observes "[d]elivery driver turnover rates are historically high when compared to those for other jobs in other industries, which means finding and retaining qualified, reliable drivers can be difficult. Leasing allows contractors to provide new, state-of-the-art vehicles with the latest technology, safety features, and even driver comfort add-ons to make working for your route business more attractive to potential and existing drivers."[103] KR capital notes "[i]f you are considering becoming a FedEx contractor, building a safe and reliable vehicle fleet is just as important as hiring a team of qualified drivers[.]"[104]

80. Sixth, capital equipment and labor should be managed together because ISPs are profit-maximizing firms that optimize their investment in capital equipment, including vehicles, and their hiring of employees, including drivers. In making investment and employment decisions at the same time, ISPs consider the tradeoffs between the contributions of capital and labor to revenues and the costs of investing in capital equipment and the costs of hiring, training, and managing labor.

81. These economic considerations highlight the significance of managing capital equipment and labor together in package delivery. This is yet another economic factor that confirms the ISPs are the sole employers of their drivers.

D. ISPs Manage Their Own Operations.

82. The economic analysis in this section shows that ISPs manage their own operations. FedEx contracts for the services of the ISPs and in turn the ISPs fulfill their contractual obligations through their operations. The ISPs have independence in how they choose to manage their operations.

FedEx's Contracting Standards Regarding Independent Operation

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[102] *Id*.

[103] *Id*.

[104] *Id*.

83. FedEx's contracting standards emphasize the independent operation of ISPs. According to the contracting standards, "[t]ransacting and dealing with FedEx" involves ISPs having two points of contact.[105] FedEx contracting standards state that "[t]o ensure that contractual and operational questions are addressed quickly and with the right people, service providers agree to designate the following representatives to communicate with FedEx[.]"[106] First, ISPs designate an "[a]uthorized officer: An officer of the corporation designated to address the business's contractual or financial issues[.]"[107] Second, ISPs designate a "[b]usiness contact: An individual designated to be the touch point for day-to-day operational issues[.]"[108]

84. In turn, "[a] Service Provider Solutions department at FedEx acts as an interface between FedEx and service providers. Service Provider Solutions specialists are available to answer questions regarding contract terms and conditions."[109]

85. FedEx's contracting standards rely on incentives and contractual provisions that allow ISPs independence in managing their operations. FedEx's contracting standards state that ISPs' "profits are determined in large part by how efficiently they operate and how well they satisfy customers."[110] The contracting standards specify that ISPs "are paid a contracted amount, based on the volume of packages delivered and/or contracted miles driven, along with other terms of the agreement."[111] FedEx's contracting standards further state that ISPs "have the opportunity to expand their business, diversify as appropriate to their business, and increase their income potential."[112]

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[105] "Contracting Standards." *FedEx*. <https://www.buildagroundbiz.com/contracting-with-fedex-ground/contracting-standards> (accessed June 19, 2024).

[106] *Id*.

[107] *Id*.

[108] *Id*.

[109] *Id*.

[110] *Id*.

[111] *Id*.

[112] *Id*.

86. FedEx describes the business relationship with ISPs in terms of independence of economic decision making. FedEx states "[t]hese independent businesses, or contracted service providers, retain authority to determine the best means to meet customer expectations and demands, including complete discretion over and responsibility for delivery work area configuration, route design, delivery sequence, type and number of equipment, and staffing and personnel decisions."[113] This long list of economic decisions can be summarized as independence of operations.

87. Once a service agreement has been negotiated with FedEx, ISPs manage their operations independently from FedEx. ISPs use a program called Dynamic Route Optimization[114] to submit to FedEx a delivery plan, which designates "where the packages go and what route and what work areas and how many" and "can make any adjustments they want."[115] Each ISP also "decides or directs where the packages for service area are loaded each day."[116] FedEx employees then "execute the plans that [ISPs] put in place."[117]

88. ISPs can and do provide their delivery services to companies other than FedEx , such as Amazon.[118] They also have the right to refuse delivery of certain packages within their contracted service areas, for example, packages beyond the contractual volume or packages made available after a certain point of the day.[119]

FedEx's Contracts with ISPs and Provisions Regarding Independent Operation

89. The FXG-UFT contract is consistent with the contracting standards in terms of the independent operations of ISPs. According to the FXG-UFT contract, "[t]he Parties desire to meet the expectations and demands of customers, which include both shippers and

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[113] "Frequently Asked Questions." *FedEx*. <https://www.buildagroundbiz.com/~/media/dc6ca02d43c24185924089a3d1786698.ashx> (accessed June 7, 2024).

[114] Rosales Dep. 19:12-15.

[115] *Id.* 19:22-20:6.

[116] *Id.* 136:5-8.

[117] *Id.* 17:24-18:7.

[118] Pierce Dep. 156:9-15.

[119] *Id.* 142:12-143:12.

recipients ('Customers'), by providing superior customer service and maintaining favorable brand identity."[120]

90. To emphasize the independence of operations, the contract states "[t]he Parties agree that UFT retains exclusive authority to determine the best means to meet such Customer expectations and demands, including complete discretion over and responsibility for delivery work area configuration, route design, delivery sequence, type and number of equipment, and staffing and personnel decisions."[121]

91. The FXG-UFT contract specifies the nature of their agreement as a business-to-business relationship. According to the contract, "[t]he Parties intend to create by this Agreement a business to business relationship and not one of employment. The Parties further agree that neither Party is, nor will be represented, alleged, or deemed to be a legal representative, joint venturer, joint employer, franchisor, franchisee, dealership, distributorship or legal partner of the other Party for any purpose."[122]

92. The FXG-UFT contract emphasizes the independence of the ISP in providing services. The contract provision states "[a]s a corporate entity and employer, UFT has the sole right and obligation to supervise, manage, direct, procure, perform or cause to be performed, all services to be provided by UFT under this Agreement."[123]

93. The FXG-UFT contract further stresses that FedEx has no authority to direct UFT personnel. According to the contract, "[n]o officer, agent or employee of FXG has authority to direct UFT or UFT's 'Personnel' (defined in Section 6.2) as to the methods, manner or means employed to provide the 'Contracted Services' (defined in Attachment A-2 to Schedule A) or achieve the 'Contracted Service Results' (defined in Attachment A-2 to Schedule A)."[124]

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[120] FXG-UFT Agreement at FXG_ROY_036583.

[121] *Id*.

[122] *Id*.

[123] *Id*.

[124] *Id*.

94. Also, the FXG-UFT contract is an agreement that compliance with the law does not indicate that either party controls the other. The contract states "[t]he Parties acknowledge their respective obligations to comply with Applicable Law, as defined below, governing the operation of businesses picking up, transporting and delivering packages and agree that neither Party shall allege that such compliance results in either Party exerting control over the other Party's business, business decisions, or Personnel."[125]

95. The FXG-UFT contract emphasizes the independent operation of the ISP by specifying the points of contact (Authorized Officers and Business Contacts), as discussed above.[126]

96. The FXG-UFT contract states that FedEx makes payments to the ISP for "customer service incentives."[127] These payments for customer service incentives are based on the ISP's output. The incentive payments are based on the number of Pickup Stops and cover the categories of Customer Service Incentive, Inbound Local Service, and Pickup Performance/Complaint Avoidance.[128] The FXG-UFT contract involves various "negotiated charges" such as service charge, stop charge, fuel surcharge, surge stop charge during peak, package charge, safety incentive, new account start-ups, and brand promotion charges.[129]

97. FedEx pays the ISP based on its output. As a result, the ISP makes independent decisions regarding capital, labor, and operations. This further establishes that the ISP's employees are entirely its own. FedEx does not make decisions regarding the ISP's capital, labor, or operations.

Declarations of Eleven ISPs Confirm the Analysis of FedEx Ground Contracting Standards.

98. I reviewed a set of declarations from eleven ISP owners. These declarations confirm the common findings from my analysis of FedEx Ground's contracting standards, the FXG-

[125] *Id.* at FXG_ROY_036583-84.

[126] *Id.* at FXG_ROY_036585.

[127] *Id.* at FXG_ROY_036622, FXG_ROY_036625.

[128] *Id.* at FXG_ROY_036625-26.

[129] *Id.* at FXG_ROY_036613.

UFT Agreement, and deposition testimonies of FedEx employees, namely, that ISPs are for-profit corporations,[130] and they manage their employees, capital investment, and operations independently from FedEx. I summarize the relevant portions of these declarations below:

- Brian Berger is an AO of BBJM Management Inc.,[131] which has contracted with FedEx Ground as an ISP since October 2019.[132] Mr. Berger notes that the company employs 11 drivers,[133] whose pay[134] is dictated by himself. Mr. Berger also notes that "FedEx Ground is not involved in [the] decision" of "how many and which trucks to purchase."[135] Additionally, the operations of the company, the driver schedules,[136] the timesheets,[137] and the decision to use FedEx branded trucks and apparel[138] are all determined by Mr. Berger and BBJM Management.

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[130] For some ISPs, their business names include either an "Inc." suffix or the term "corporation," indicating that the business is incorporated. For the others, state business registries confirm that they are indeed for-profit incorporated businesses. MNK Logistics is registered as "MNK Logistics, Inc." in the state of Massachusetts. *See* "Business Entity Summary – MNK Logistics Inc." *Secretary of the Commonwealth of Massachusetts*. <https://corp.sec.state.ma.us/CorpWeb/CorpSearch/CorpSummary.aspx?sysvalue=L4HoDLlDC6Vigo4RFnkQEUlapPiHStv3Rp6YLQG.iSM-> (accessed June 12, 2024). I.C Partnership is registered as "I.C. Partnership, Inc." in the state of Massachusetts. *See* "Business Entity Summary – I.C. Partnership Inc." *Secretary of the Commonwealth of Massachusetts*. <https://corp.sec.state.ma.us/CorpWeb/CorpSearch/CorpSummary.aspx?sysvalue=Siq67t0iHxxvwpdq0Z3E3Te_1nMES3lqJ03FgaE.iQc-> (accessed June 12, 2024). D L Delivery is registered as "D L Delivery, Inc." in the state of Massachusetts. *See* "Business Entity Summary – DL Delivery Inc*." Secretary of the Commonwealth of Massachusetts*. <https://corp.sec.state.ma.us/CorpWeb/CorpSearch/CorpSummary.aspx?sysvalue=rNWjalukT8oJdapr1LwwKUtVMr7e8QrB4vBsJ4QhGqA-> (accessed June 12, 2024).

[131] Declaration of Brian Berger. *Roy, et al., v. FedEx Ground Package System, Inc.* (D. Mass. No. 3:17-cv-30116) (Aug. 18, 2023) ("Berger Declaration") ¶ 1.

[132] *Id.* ¶ 3.

[133] *Id.* ¶ 5.

[134] *Id.* ¶ 8.

[135] *Id.* ¶ 4.

[136] *Id.* ¶ 8.

[137] *Id.* ¶ 9.

[138] *Id.* ¶ 10.

- Joseph Bracken is an AO and owner of Costal Package, Inc.,[139] a company which has contracted with FedEx Ground as an ISP since July 2021.[140] Mr. Bracken notes that employee management, employee hiring and firing,[141] pay,[142] discipline,[143] and training[144] are not controlled or determined by FedEx Ground and that the company manages its capital equipment, owning its own vehicles,[145] and in fact buying additional vehicles from another delivery company.[146] According to Mr. Bracken, "FedEx Ground does not, and never has, 'micromanaged' Coastal Package's business"[147] with the company determining its own routes,[148] uniforms and logos,[149] and company policies.[150]

- Neil Brahmbhatt is an AO and owner of MNK Logistics, a company which has contracted as ISP with FedEx Ground.[151] Mr. Brahmbhatt states that MNK employs around 25 drivers and has complete control of their employees training,[152] hiring,[153] and pay.[154] He further states that the company owns the 22 delivery vehicles it uses for its

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[139] Declaration of Jospeh Oliver Bracken. *Roy, et al., v. FedEx Ground Package System, Inc.* (D. Mass. No. 3:17-cv-30116) (Aug. 18, 2023) ("Bracken Declaration") ¶ 1.

[140] *Id.* ¶ 3.

[141] *Id.* ¶ 22.

[142] *Id.* ¶ 10.

[143] *Id.* ¶ 23.

[144] *Id.* ¶ 24.

[145] *Id.* ¶ 2.

[146] *Id.* ¶ 4.

[147] *Id.* ¶ 22.

[148] *Id.* ¶ 26.

[149] *Id.* ¶¶ 28, 29.

[150] *Id.* ¶ 9.

[151] Declaration of Neil Brahmbhatt. *Roy, et al., v. FedEx Ground Package System, Inc.* (D. Mass. No. 3:17-cv-30116) ("Brahmbhatt Declaration") ¶¶ 1, 2.

[152] *Id.* ¶ 4.

[153] *Id.* ¶ 4.

[154] *Id.* ¶ 6.

services[155] and that FedEx Ground has no control over the company's payroll management[156] or driver scheduling.[157]

- Sergio Esteireiro is an AO of Shocck Inc.,[158] which began working as a FedEx Ground ISP around May 2022.[159] Mr. Esteireiro states that "FedEx Ground does not employ my driver employees; it does not pay them, set their pay schedule or dictate the terms of their employment,"[160] and that, in fact, FedEx Ground "has no visibility into how or when my driver employees are paid."[161] He states further that Shocck uses its own vehicles for its pickup and delivery services for FedEx Ground,[162] and that, operationally, FedEx Ground does not assign or determine routes,[163] manage customer complaints,[164] or "force" the use of FedEx Ground logos or uniforms.[165]

- Robert Fonseca is a former AO and owner of RJ Fonseca Transport Inc., which he sold in 2021.[166] RJ Fonseca Transport Inc contracts as an ISP with FedEx Ground.[167] According to Fonseca, the company employed between 10 and 13 drivers,[168] which he decided independently from FedEx Ground to "hire, fire, and promote."[169] Additionally, he notes

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[155] *Id.* ¶¶ 2, 3.

[156] *Id.* ¶ 5.

[157] *Id.* ¶ 4.

[158] Declaration of Sergio Esteireiro. *Roy, et al., v. FedEx Ground Package System, Inc.* (D. Mass. No. 3:17-cv-30116) (Aug. 18, 2023) ("Esteireiro Declaration") ¶ 1.

[159] *Id.* ¶ 3.

[160] *Id.* ¶ 13.

[161] *Id.* ¶ 14.

[162] *Id.* ¶ 2.

[163] *Id.* ¶ 16.

[164] *Id.* ¶ 16.

[165] *Id.* ¶ 17.

[166] Declaration of Robert Fonseca. *Roy, et al., v. FedEx Ground Package System, Inc.* (D. Mass. No. 3:17-cv-30116) (Aug. 18, 2023) ("Fonseca Declaration") ¶ 1, 3.

[167] *Id.* ¶ 2.

[168] *Id.* ¶ 5.

[169] *Id.* ¶ 7.

that FedEx Ground was not involved in training[170] or determining driver payment.[171] When he was still with the company, they owned around 16 vehicles[172] to perform the ISP services. Regarding operations, Mr. Fonseca notes that "FedEx Ground did not direct the day-to-day operations of RJ Transport,"[173] with the company managing its own payroll methods,[174] safety training,[175] routes,[176] branding,[177] and package assignments.[178]

- Mark Haley is an AO and founder of I.C. Partnership, which began in 2010 as an ISP contracting with FedEx Ground.[179] The company currently employs 19 drivers, for which the hiring,[180] pay,[181] and benefits[182] are managed by I.C. Partnership, not FedEx Ground. Mr. Haley states that the company owns and operates its entire fleet of 30 vehicles in its package and delivery service[183] and that FedEx ground does not control the "day-to-day" operations of I.C. Partnership[184] as the company determines its own employee

[170] *Id.* ¶ 8.

[171] *Id.* ¶ 9.

[172] *Id.* ¶ 6.

[173] *Id.* ¶ 16.

[174] *Id.* ¶¶ 14, 15.

[175] *Id.* ¶ 12.

[176] *Id.* ¶¶ 16, 22.

[177] *Id.* ¶ 21.

[178] *Id.* ¶¶ 22, 26.

[179] Declaration of Mark Haley. *Roy, et al., v. FedEx Ground Package System, Inc.* (D. Mass. No. 3:17-cv-30116) (Aug. 18, 2023) ("Haley Declaration") ¶¶ 1, 3.

[180] *Id.* ¶ 4.

[181] *Id.* ¶¶ 11, 12.

[182] *Id.* ¶ 13.

[183] *Id.* ¶ 6.

[184] *Id.* ¶ 17.

handbook,[185] payroll services,[186] delivery routes and drivers,[187] and the use of FedEx Ground branding and logos.[188]

- Jeffery Hemmingway is an AO of Hemingway Couriers, Inc., a company which contracts as an ISP with FedEx Ground.[189] Mr. Hemmingway states that the company independently hires and fires,[190] trains,[191] and determines payment for its employees, noting "FedEx Ground does not determine the method or amount Hemingway Couriers pays its drivers."[192] He further states that the company owns 17 vehicles[193] and that the company's operations are also not directed by FedEx Ground, as payroll services,[194] benefits,[195] routes,[196] and handbook[197] are all determined by Hemingway Couriers.

- Dennis Leandres is an AO and founder of DL Delivery, which began contracting with FedEx Ground as an ISP in 2015.[198] Mr. Leandres states that the company, and not FedEx Ground, makes the decisions on "hiring and firing drivers,"[199] "how to train drivers,"[200] and "how and how much to pay DL Delivery's drivers."[201] He further states that the

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[185] *Id.* ¶ 10.

[186] *Id.* ¶ 14.

[187] *Id.* ¶¶ 5, 16.

[188] *Id.* ¶ 15.

[189] Declaration of Jeffery Hemmingway. *Roy, et al., v. FedEx Ground Package System, Inc.* (D. Mass. No. 3:17-cv-30116) (Aug. 18, 2023) ("Hemmingway Declaration") ¶¶ 1, 2.

[190] *Id.* ¶ 11.

[191] *Id.* ¶ 5.

[192] *Id.* ¶ 6.

[193] *Id.* ¶ 4.

[194] *Id.* ¶¶ 8, 9.

[195] *Id.* ¶ 10.

[196] *Id.* ¶ 13.

[197] *Id.* ¶ 15.

[198] Declaration of Dennis Leandres. *Roy, et al., v. FedEx Ground Package System, Inc.* (D. Mass. No. 3:17-cv-30116) (Aug. 18, 2023) ("Leandres Declaration") ¶¶ 1,3.

[199] *Id.* ¶ 5.

[200] *Id.* ¶ 6.

[201] *Id.* ¶ 8.

company independently owns nine vehicles[202] and that, operationally, FedEx Ground has "no involvement" in scheduling drivers or trucks,[203] nor did it create their employee handbook,[204] require participation in FedEx Ground's branding,[205] or determine how hours would be tracked.[206]

- Henry Medranoespinoza is an AO and owner of EJS Delivery Corporation, which has contracted as an ISP with FedEx Ground for the past two years.[207] Mr. Medranoespinoza states that he is the one who "determine[s] who to hire, who to fire or discipline, and who to promote, not FedEx Ground"[208] and that "FedEx Ground plays no role in determining compensation[.]"[209] He further states that the company owns the vehicles operated[210] and that operation decisions such as choosing drivers' routes[211] and determining to use FedEx Ground branded trucks and uniforms[212] are made by EJS Delivery, not FedEx Ground.

- Flaviano Oliveira is an AO and founder of Eagle Eye Inc., a company that has contracted as an ISP with FedEx Ground.[213] Mr. Oliveira states that FedEx Ground is not involved in their hiring,[214] training,[215] or pay.[216] He further states that the company owns 37 trucks and that "I decide which trucks to buy and how many. FedEx Ground has no involvement

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[202] *Id.* ¶¶ 2, 4.

[203] *Id.* ¶ 7.

[204] *Id.* ¶ 9.

[205] *Id.* ¶ 11.

[206] *Id.* ¶ 10.

[207] Declaration of Henrry Alberto Medranoespinoza. *Roy, et al., v. FedEx Ground Package System, Inc.* (D. Mass. No. 3:17-cv-30116) (Aug. 18, 2023) ("Medranoespinoza Declaration") ¶¶ 1,3.

[208] *Id.* ¶ 5.

[209] *Id.* ¶ 7. *See also id.* ¶ 9.

[210] *Id.* ¶ 2.

[211] *Id.* ¶ 16.

[212] *Id.* ¶ 12.

[213] Declaration of Flaviano Oliveira. *Roy, et al., v. FedEx Ground Package System, Inc.* (D. Mass. No. 3:17-cv-30116) (Aug. 18, 2023) ("Oliveira Declaration") ¶¶ 1, 2.

[214] *Id.* ¶ 4.

[215] *Id.* ¶ 5.

[216] *Id.* ¶ 10.

in these decisions."[217] Moreover, "FedEx Ground does not control the day-to-day operations"[218] of the business such as the routes taken,[219] safety bonuses,[220] and use of FedEx Ground branding.[221]

- Michael Ripley is an AO and owner of MJR Delivery.[222] Mr. Ripley notes that "I decide how to pay my company's employees"[223] and that the company "decid[es] which trucks to buy and how many" with "FedEx Ground ha[ving] no involvement in… truck purchasing decisions."[224] He further states that, operationally, he is the one who "decide[s] which drivers will be assigned to which trucks and which routes,"[225] as well noting that while "FedEx Ground does not require MJR to display FedEx Ground logos on its trucks or driver uniforms," he chose to do so for driver safety.[226]

99. These ISP declarations show that ISPs create employment in multiple occupations. As shown in **Table 1**: *Employees Hired and Vehicles Owned by ISPs*, these ISPs that contract with FedEx and whose AOs submitted declarations hire at least 124 drivers to deliver packages. They also hire non-driver employees for other functions such as management. For instance, Eagle Eye Inc. has three individuals that serve in managerial roles and one secretary.[227]

100. These declarations also show that ISPs own fleets of vehicles, with some owning as many as 37 vehicles. To follow FedEx's contracting standards, ISPs maintain their equipment and

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[217] *Id.* ¶ 7.

[218] *Id.* ¶ 15.

[219] *Id.* ¶ 8.

[220] *Id.* ¶ 11.

[221] *Id.* ¶ 6.

[222] Declaration of Michael Ripley. *Roy, et al., v. FedEx Ground Package System, Inc.* (D. Mass. No. 3:17-cv-30116) (Aug. 18, 2023) ("Ripley Declaration") ¶ 1.

[223] *Id.* ¶ 8.

[224] *Id.* ¶ 2.

[225] *Id.* ¶ 3.

[226] *Id.* ¶ 9.

[227] Oliveira Declaration ¶ 4.

ensure compliance with safety regulations.[228] To comply with these standards, ISPs likely obtain regular maintenance services for their vehicles and may purchase such services from the marketplace. This creates additional employment opportunities in the vehicle maintenance industry, for example, for mechanics.

Table 1: Employees Hired and Vehicles Owned by ISPs[229]

ISP	Number of Drivers Employed	Number of Other Employees	Number of Vehicles Owned
BBJM Management Inc.	11	2	8-10
Costal Package, Inc.	-	-	-
MNK Logistics	25	2	22
Shocck Inc.	-	-	-
RJ Fonseca Transport Inc.	10-13	2	around 16
I.C. Partnership	19	2	30
Hemingway Couriers, Inc.	14	2	17
DL Delivery	10	1	9
EJS Delivery Corporation	-	-	3
Eagle Eye Inc.	35	4	37
MJR Delivery Inc.	-	-	-

Economic Analysis of FedEx Contracts with ISPs Regarding Independent Operation

101. FedEx's contracting standards and its contracts with ISPs are a business-to-business contractual relationship. There are several ways that this relationship is implemented. First, FedEx pays the ISP by contractual incentives that reward the ISP's output. Second, FedEx deals with an ISP through an authorized officer for contractual or financial issues, and deals with an ISP through a business contact for daily operational issues. Third, the ISP "retains exclusive authority to determine the best means to meet such Customer expectations and demands[.]"[230]

[228] "Contracting Standards." *FedEx*. <https://www.buildagroundbiz.com/contracting-with-fedex-ground/contracting-standards> (accessed June 19, 2024).

[229] Berger Declaration ¶¶ 4, 5; Brahmbhatt Declaration ¶¶ 3, 4; Fonseca Declaration ¶¶ 5, 6; Haley Declaration ¶¶ 4, 6; Hemingway Declaration ¶¶ 3, 4; Leandres Declaration ¶ 4; Medranoespinoza Declaration ¶ 4; Oliveira Declaration ¶¶ 4, 7. An entry of "-" indicates that the corresponding number is not reported in the declaration.

[230] FXG-UFT Agreement at FXG_ROY_036583.

102. FedEx contracts with ISPs for delivery services. Rather than micromanaging capital equipment, employees, or operations, FedEx and the ISPs rely on their contractual relationships. The contracts reward the ISP's output rather than attempting to command and control the ISP's operational decisions or actions.

103. This contractual structure is related to the economic analysis of incentive contracts, which have been applied to regulation and procurement.[231] The economic analysis of incentive contracts considers situations in which a buyer contracts with another party, such as a supplier. The buyer wishes to obtain a product or service from the supplier, but the buyer and the supplier have asymmetric information. The buyer may not be able to observe the supplier's actions or effort in performing the relevant tasks. Alternatively, the buyer may not be able to observe information available to the supplier, such as the supplier's costs.

104. However, the buyer may be able to observe an outcome that the supplier's actions affect in some way. It may be costly for the buyer to monitor the supplier's actions or to observe the same information as the supplier. The outcome may be subject to some external effects that generate randomness in the outcome. The outcome can be a measure of the supplier's output or performance. In this setting, the buyer may choose to reward the supplier based on the measure of the supplier's performance rather than attempting to imperfectly control the supplier's actions.

105. Economic analysis of the incentive contract problem suggests that the parties will design a contract that makes efficient use of observed performance measures to reward the supplier. The incentive contract framework provides some insights into the relationship between FedEx and an ISP. FedEx will encounter difficulties and costs in monitoring the decisions, actions, or costs of the ISP associated with providing delivery services. FedEx would encounter difficulties and costs in gathering the same information as the ISP. It then

[231] *See* Laffont, Jean-Jacques. "Toward a Normative Theory of Incentive Contracts Between Government and Private Firms." *The Economic Journal* 97 (1987): 17-31; Laffont, Jean-Jacques. "The New Economics of Regulation Ten Years After." *Econometrica* 62.3 (1994): 507-537; Laffont, Jean-Jacques and Jean Tirole. "A Theory of Incentives in Procurement and Regulation." *MIT Press* (1993); Bolton, Patrick and Mathias Dewatripont. "Contract Theory." *MIT Press* (2004).

becomes necessary to design a contract that rewards the ISP based on measures of performance that are of interest to FedEx; rather than increasing unnecessary transaction costs related to monitoring of ISPs' decisions, actions, or costs.

106. The incentive contract framework suggests that FedEx and the ISP will enter into a contract that delegates authority to the ISP to make decisions, supply package delivery, and devote effort to improving performance. This is what the FedEx contracting standards and the contract provisions seek to do. Given the contract, ISPs make independent economic decisions about their operations.

107. As the preceding discussion of FedEx's contracting standards and contract provisions indicates, ISPs manage their own operations. The ISPs make decisions about operations to maximize their profits given their contractual incentives, their costs, and compliance with the law. Recall that the contract specifies that the ISP will "retain exclusive authority to determine the best means to meet [] Customer expectations and demands[.]"[232] Recall also that the contract specifies that the ISP has "complete discretion over and responsibility for delivery work area configuration, route design, delivery sequence, type and number of equipment, and staffing and personnel decisions."[233]

108. The FXG-UFT contract relies on incentives for output by the ISP. Recall that the FXG-UFT contract states that FedEx makes payments to the ISP for "customer service incentives" that are based on the number of Pickup Stops and cover the categories of Customer Service Incentive, Inbound Local Service, and Pickup Performance/Complaint Avoidance.[234] Recall also that the FXG-UFT contract involves various "negotiated charges" such as service charge, stop charge, fuel surcharge, surge stop charge during peak, package charge, safety incentive, new account start-ups, and brand promotion charges.[235]

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[232] FXG-UFT Agreement at FXG_ROY_036583.

[233] *Id*.

[234] *Id*. at FXG_ROY_036625.

[235] *Id*. at FXG_ROY_036613.

109. The economics of incentive contracts, FedEx's contracting standards, the FXG-UFT contract, and ISP declarations establish that the ISPs direct their own operations. The ISPs are responsible for obtaining and managing their capital equipment and hiring and managing their employees to meet the contracted-for output.

VI. FEDEX COMPETES WITH FIRMS THAT CONTRACT WITH INDEPENDENT SERVICE PROVIDERS IN THE U.S. PACKAGE DELIVERY INDUSTRY.

110. Economic analysis and empirical observation show that competition pressures lead firms to adopt more efficient ways of production and providing services, including industry best practices.[236] To determine whether FedEx's contracting with ISPs was consistent with the norm in the package delivery industry, I reviewed publicly available information on contracting with ISPs by FedEx's key competitors in the package delivery industry. I conclude that most of FedEx's competitors have contracted with ISPs to deliver packages, and that FedEx's contracting with ISPs conforms to industry norms.

111. FedEx competes with other firms in the package delivery industry. The leading carriers in the U.S. package delivery industry are the United States Postal Service ("USPS"), Amazon Logistics, United Parcel Service ("UPS"), and FedEx. Other leading carriers include OnTrac and DHL. Some other carriers are GLS, OnFleet, Lone Star Overnight, Spee-Dee Delivery Services, TFI International, Central Courier, Purolator, Aramex, Pace Couriers, ShipBob, and ZTO Express.[237]

112. Parcel volume provides a measure of output in this industry. According to an industry study, "U.S. parcel volumes reached 21.65 billion shipments in 2023, a 0.5% increase from

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[236] Porter, Michael E. "On Competition." *Harvard Business Press* (2008) at 113 ("Once a company establishes a new best practice, its rivals tend to copy it quickly. Best practice competition eventually leads to competitive convergence, with many companies doing the same things in the same ways.").

[237] Stahl, Aaron. "Top 10 Package Delivery and Courier Companies in the US." *P3 Cost Analysts* (Dec. 16, 2022). <https://www.costanalysts.com/top-package-delivery-companies> (accessed June 20, 2024); "The 10 Best Courier Companies in the USA." *ExpressPiegon* (Nov. 28, 2023). <https://expresspigeon.com/us-courier-companies> (accessed June 20, 2024); "TFI International – Who We Are." *TFI International*. <https://tfiintl.com/en/company> (accessed June 20, 2024); "About Purolator." *Purolator*. <https://www.purolator.com/en/about-purolator> (accessed June 20, 2024); "About Aramex – Unlimited Delivery." *Aramex*. <https://www.aramex.com/us/en/about-aramex2> (accessed June 20, 2024); "ZTO Express – About ZTO." *ZTO Express*. <https://en.zto.com/about.html> (accessed June 20, 2024).

the year prior."[238] The study also found that "parcel revenue fell slightly to $197.9 billion last year, down 0.3% from 2022."[239] As shown in **Table 2**: *U.S. Parcel Volumes Shipped Since 2015, by Carrier*, FedEx and UPS fell behind in 2023.[240]

Table 2: U.S. Parcel Volumes Shipped Since 2015, by Carrier[241]

Carrier	2023 Volume (Million)	Growth Since 2022 (%)	Growth Since 2015 (Million)
U.S. Postal Service	6,600	-0.9	2,700
Amazon Logistics	5,900	15.7	5,840
UPS	4,600	-10.3	900
FedEx	3,900	-6.1	1,200
Others	640	28.5	490

113. Leading carriers faced competition from smaller carriers, "[a]s legacy carriers shrank in 2023, smaller U.S. parcel carriers continued their blistering pace of growth. Volume and revenue for carriers outside of UPS, FedEx, the Postal Service, and Amazon grew by 28.5% and 32.5%, respectively, YoY [year over year]."[242] Amazon Logistics has gained market share as shown in **Figure 1:** *U.S. Parcel Market Share by Volume*.

[238] Garland, Max. "Amazon Leapfrogs UPS and 4 Other Takeaways from a Top Shipping Index." *Supply Chain Dive* (Apr. 17, 2024). <https://www.supplychaindive.com/news/amazon-ups-4-other-takeaways-from-shipping-index-pitney-bowes/713329> (accessed May 22, 2024).

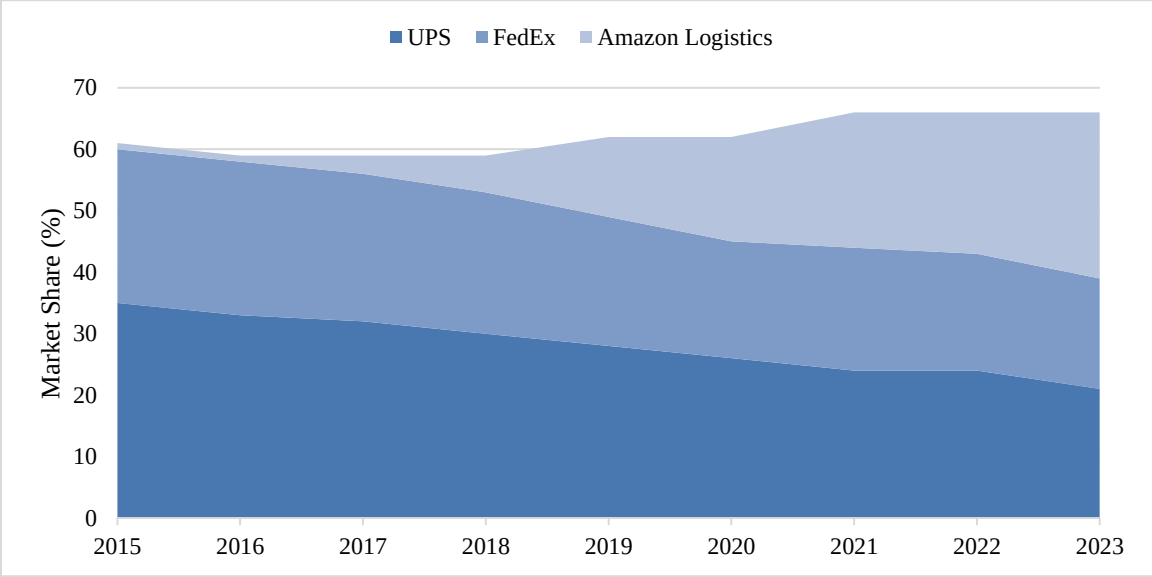
[239] *Id*.

[240] *Id*.

[241] *Id*.

[242] *Id*.

Figure 1: U.S. Parcel Market Share by Volume[243]



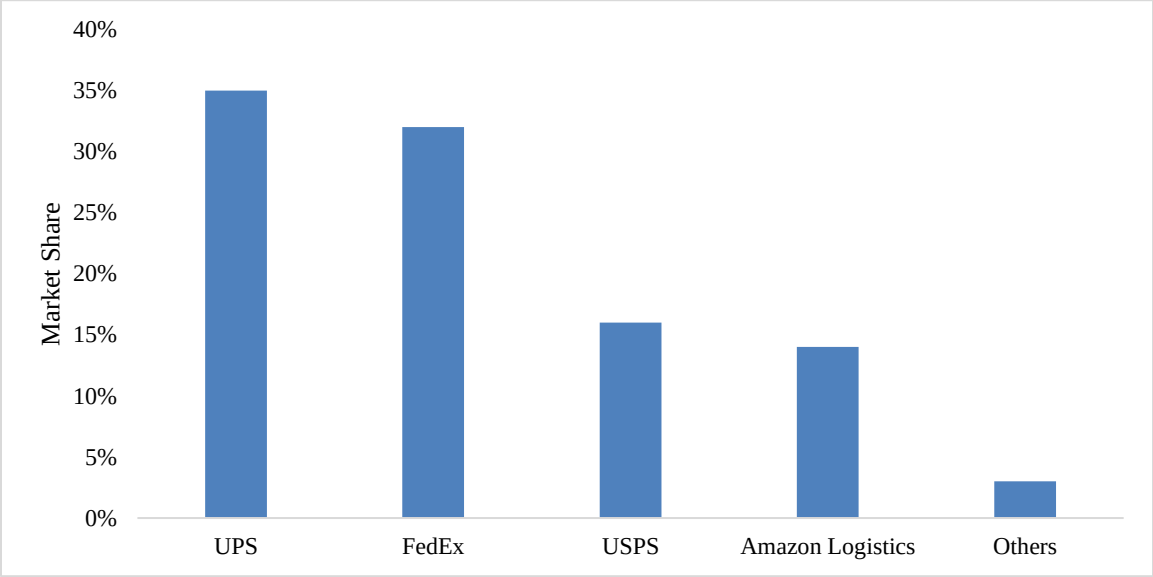
114. As shown in **Figure 2**: *Market Shares for the U.S. Package Delivery Industry in 2023 Based on Revenue*, FedEx's competitors include UPS, USPS, Amazon Logistics, and other firms such as regional carriers OnTrac[244] and DHL.[245]

[243] *Id*.

[244] Cosgrove, Emma. "2 of America's Biggest Regional Delivery Companies Are Combining to Create a New Competitor for UPS and FedEx." *Business Insider* (Oct. 13, 2021). <https://www.businessinsider.com/lasership-acquired-ontrac-logistics-delivery-acqusition-boom-2021-10> (accessed May 15, 2024).

[245] Other regional carriers include Courier Express, GLS, United Delivery Service, Hackbarth, Loan Star Overnight, IntelliQuick Delivery, Pitt Ohio, and Spee-Dee Delivery. *See* Kapadia, Shefali. "Mapping And Charting the Growth of Regional Parcel Carriers." *Supply Chain Dive* (Nov. 2, 2020). <https://www.supplychaindive.com/news/mapping-regional-parcel-carriers-peak-growth-lasership-ontrac-ups-fedex/587766> (accessed May 15, 2024).

Figure 2: Market Shares for the U.S. Package Delivery Industry in 2023 Based on Revenues[246]



USPS

115. USPS has agreements with ISPs for collection and delivery. USPS has regularly utilized ISPs. From October 1, 2022, to September 30, 2023, there were at least 150 independent service suppliers that have provided services to USPS that were valued $19 million or more.[247] According to an industry study by David Hendel, "[a]s it has for over 20 years, FedEx leads the list as the Postal Service's top supplier, with $1.6 billion in revenue."[248] Hendel points out "[p]ostal spending on outside suppliers shows that, at core,

[246] "Pitney Bowes Parcel Shipping Index." *Pitney Bowes*. <https://www.pitneybowes.com/content/dam/pitneybowes/us/en/shipping-index/24-mktc-00818-parcelshippingindex-infographic-rnd1.pdf> (accessed May 6, 2024).

[247] Hendel, David P. "Top U.S. Postal Service Suppliers for Fiscal Year 2023." *Culhane PLLC*. <https://www.postalcontractor.com/_files/ugd/fcdc61_0906fd06ac154c2a8b39507e2659c811.pdf> (accessed June 7, 2024).

[248] "Top U.S. Postal Service Suppliers in 2023: Transportation Suppliers Again Carry the Mail." *Culhane PLLC* (Apr. 16, 2024). <https://culhane.law/top-u-s-postal-service-suppliers-in-2023-transportation-suppliers-again-carry-the-mail> (accessed June 7, 2024).

the agency is a transportation and logistics business[.]"[249] **Table 3**: *Top Ten Suppliers of USPS* lists the top ten suppliers of the USPS.[250]

Table 3: Top Ten Suppliers of USPS[251]

2023 Rank	2022 Rank	Supplier Name	FY 2023 Revenue (USD Millions)	City	State
1	1	Federal Express Corporation	1,600.74	Memphis	TN
2	2	10 Roads Express	734.59	Carter Lake	IA
3	6	OEM Systems LLC	507.58	New York	NY
4	-	Utility and telecom payments	475.74	Chenny	WA
5	20	Oshkosh Defense, LLC	378.72	Oshkosh	WI
6	4	UPS Worldwide Forwarding, Inc.	339.87	Atlanta	GA
7	7	Victory Packaging	270.82	Northbrook	IL
8	9	Matheson Trucking Inc.	260.99	Sacramento	CA
9	10	ITS National, LLC	248.23	Reno	NV
10	13	Accenture Federal Services	243.26	Arlington	VA

116. According to the USPS, it "awards contracts to thousands of suppliers to procure a wide range of products and services. Purchases range from asphalt to snow removal, carrier satchels to communications satellites, and real estate to robotics and all forms of transportation services. The Postal Service depends on suppliers like you to provide top-quality equipment, facilities, services, and supplies to meet our needs."[252] The USPS notes that "Supply Management's mission is to deliver timely, lean, and sustainable supply chain solutions with our business partners to provide best value in support of the mission of the Postal Service."[253]

[249] *Id.*

[250] *Id.*

[251] The dollar amounts shown for FY 2023 represent payments made by the USPS between Oct. 1, 2022, and Sept. 30, 2023 to suppliers of goods, services, and facilities. Utility and Telecom payments are consolidated without a company name. "Top U.S. Postal Service Suppliers In 2023: Transportation Suppliers Again Carry the Mail." *Culhane PLLC* (Apr. 16, 2024). <https://culhane.law/top-u-s-postal-service-suppliers-in-2023-transportation-suppliers-again-carry-the-mail> (accessed June 7, 2024).

[252] "Let's Do Business-Supplier Diversity." *United States Postal Service* (Dec. 2018). <https://about.usps.com/publications/pub5.pdf> (accessed June 7, 2024).

[253] *Id.*

117. The USPS relies on outsourcing: "[t]o move the mail, we buy a large variety of goods and services. USPS groups its purchases into the following five portfolios to ensure that the Postal Service obtains products and services required for operational needs in a timely manner and at the best value[.]"[254] The five portfolios are as follows: Facilities Portfolio; Mail and Operational Equipment Portfolio; Commercial Products and Services Portfolio; Technology Infrastructure Portfolio; and Transportation Portfolio.[255] The Transportation Portfolio "manages the purchase of all transportation needs (domestic and international), including air, surface, fuel management, ancillary transportation services, equipment, and tax recoupment."[256]

118. USPS has agreements with Contract Delivery Service providers ("CDS"). A CDS "is a contractual agreement between the Postal Service and an individual or company for the delivery and collection of mail for customers."[257] According to the Office of Inspector General, "CDS suppliers are not Postal Service employees but independent contractors who provide delivery on specific routes not serviced by city or rural carriers."[258] The Office of Inspector General states "CDS suppliers' compensation is based on one delivery trip per day. If the supplier needs to make extra trips to deliver mail, they receive additional compensation from the Postal Service."[259] As of 2018, USPS contracted with CDS for services of 7,475 supplier routes.[260]

119. Prospective CDS suppliers "must register their organization in [USPS's] Supplier Registration eSource system."[261] The USPS points out that contracts with suppliers are

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[254] *Id*.

[255] *Id*. *See also* "What Is Contract Delivery Service?" *CDS Solutions*. <https://cdssolutions.org> (accessed June 7, 2024).

[256] "Let's Do Business-Supplier Diversity." *United States Postal Service* (Dec. 2018). <https://about.usps.com/publications/pub5.pdf> (accessed June 7, 2024).

[257] "Audit Report – Contract Delivery Service Costs." *Office of Inspector General* (Aug. 20, 2019). <https://www.uspsoig.gov/sites/default/files/reports/2023-01/CP-AR-19-002.pdf> (accessed May 22, 2024) at 4.

[258] *Id*.

[259] *Id.* at 5.

[260] *Id.* at 4.

[261] "Supplier Registration." *United States Postal Service*. <https://about.usps.com/what/business-services/suppliers/becoming/registration.htm> (accessed May 22, 2024).

necessary for remaining cost efficient and competitive: "[i]n order to keep our universal mail service at cost-effective and competitive prices, we do business with large and small suppliers that provide performance excellence." [262]

120. According to the USPS, CDS suppliers are responsible for "[c]asing, delivery, and collection of mail," "[d]eveloping and maintain the skills necessary to satisfactorily and safely perform all duties assigned," and managing "[s]upplier employees or replacements…to [perform] the same duties."[263] Suppliers are also expected to "provid[e] and maintain[] a vehicle of required size with necessary equipment[.]"[264] These descriptions indicate that CDS suppliers are expected to manage their own employees, capital investments, and daily operations.

121. An industry report finds "[a]s usual, transportation was the agency's biggest spend category at $9.7 billion. Of that amount, $6.6 billion was for highway transportation and $3.1 billion for air transportation. Highway transportation increased by nearly $500 million and air transportation decreased by $275 million as more mail was taken off planes and put on trucks."[265] The industry report further states, "[t]ransportation spending has increased every year since 2020, when it totaled just under $8 billion, notwithstanding the agency's recent efforts to insource more local transportation. While insourcing a route removes the expense from outside transportation spend, it increases overall USPS costs beyond the reduced spend. Insourcing costs more than outsourcing due to postal driver work-rule inflexibility and other agency expenses. Nonetheless, the agency plans to expand its insourcing of local transportation work."[266] The report indicates that contracting for long-haul services is substantial: "[t]he Postal Service's largest over-the-road carrier, 10 Roads Express, ranked

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[262] "How to Apply to be a Supplier." *United States Postal Service*. <https://about.usps.com/what/business-services/suppliers/becoming/welcome.htm> (accessed June 10, 2024).

[263] "Highway Contract Routes – Contract Delivery Service." *United States Postal Service*. <https://www.nalc.org/workplace-issues/resources/manuals/other/SP-1-July-2013-Highway-Contract-Routes.pdf> (accessed May 22, 2024) at 19.

[264] *Id.*

[265] "Top U.S. Postal Service Suppliers In 2023: Transportation Suppliers Again Carry the Mail." *Culhane PLLC* (Apr. 16, 2024). <https://culhane.law/top-u-s-postal-service-suppliers-in-2023-transportation-suppliers-again-carry-the-mail> (accessed June 7, 2024).

[266] *Id.*

second on the list, with $734 million in revenue, a $30 million increase from last year. But this is likely its high water mark as the Postal Service gives more work to transportation brokers."[267]

122. The USPS is turning to contracts with freight brokers, which are intermediaries between shippers and transportation service providers. The USPS contracts with independent transportation companies through freight brokers: "[u]nder a strategy implemented in 2021, USPS has been contracting freight brokers to handle mail transportation[.] … The USPS uses freight brokers like Carroll Fulmer Logistics, Total Quality Logistics, and Trinity Logistics to coordinate transportation of mail between various distribution sites."[268] In 2022, among these freight brokers were "ITS National, XPO Logistics, and EVE International, which saw a combined increase of over $200 million. Freight broker, Traffix USA, made its debut on the list as the 29th largest supplier, with over $100 million in contracts with the Postal Service."[269] It is reported that "[t]ransportation companies dominate the 2022 list of top U.S. Postal Service suppliers, accounting for more than half of the agency's outside spending."[270]

123. I reviewed publicly available information for a sample of these independent service suppliers and found that they all share the following common characteristics: they are independent companies; they hire and manage their own employees; they obtain and manage their own capital equipment; and they control their own operations. I summarize these key aspects for these sample suppliers below:

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[267] "Top U.S. Postal Service Suppliers In 2023: Transportation Suppliers Again Carry the Mail." *Culhane PLLC* (Apr. 16, 2024). <https://culhane.law/top-u-s-postal-service-suppliers-in-2023-transportation-suppliers-again-carry-the-mail> (accessed June 7, 2024).

[268] Jaroslawski, Paul-Bernard. "USPS Freight Brokers, A Risky Trade-Off." *The Wall Street Journal* (June 16, 2023). <https://www.freightcaviar.com/usps-cut-corners-with-freight-brokers> (accessed June 7, 2024). *See also* Weaver, Christopher. "U.S. Postal Service's Search for Savings Brings Riskier Drivers." *The Wall Street Journal* (June 15, 2023). <https://www.wsj.com/articles/u-s-postal-services-search-for-savings-brings-riskier-drivers-33d5bf6c> (accessed June 7, 2024).

[269] Hendel, David P. "Who Are the Top U.S. Postal Service Suppliers? Transportation Companies Lead the FY 2022 List." *Mailing System Technology* (May 1, 2023). <https://mailingsystemstechnology.com/article-5084-Who-are-the-Top-US-Postal-Service-Suppliers-Transportation-Companies-Lead-the-FY-2022-List.html> (accessed June 7, 2024).

[270] *Id*.

- *10 Roads Express*. 10 Roads Express is a trucking company founded in 1946,[271] based in Carter Lake, Iowa, employing over 4,400 drivers.[272] The company obtains business by "bid[ing] on and receiv[ing] [] publicly advertised contract[s] from the United States Postal Office for scheduled truck delivery of U.S. mail[.]"[273] Today, the company "operates from 36 terminals across the USA and has scheduled delivery points in 47 states,"[274] and operates and maintains "over 3,500 company-owned tractors and 5,000 company-owned trailers."[275] In 2023, the company provided services to USPS that totaled over $734 million.[276]

- *Victory Packing*. Victory Packing is a distribution division of WestRock, a public company based in Atlanta, Georgia.[277] Employing approximately 1,700 people, Victory Packaging applies "expertise and [] technology to deliver tailored, cost optimized solutions to every [] customer,"[278] including the USPS. According to Victory Packing, it "work[s] with customers to improve and facilitate the various aspects of packaging and distribution, including packaging design, creation, storage, delivery, and management."[279] It has more than 65 warehouses and distribution facilities in North America and operates

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[271] "About 10 Roads Express." *10 Roads Express*. <https://www.10roadsexpress.com/about> (accessed June 7, 2024).

[272] "Company Snapshot 10 Roads Express LLC." *U.S. Department of Transportation*. <https://safer.fmcsa.dot.gov/query.asp?searchtype=ANY&query_type=queryCarrierSnapshot&query_param=USDOT&query_string=3345061> (accessed June 7, 2024).

[273] "About 10 Roads Express." *10 Roads Express*. <https://www.10roadsexpress.com/about> (accessed June 7, 2024).

[274] *Id*.

[275] *Id*.

[276] Hendel, David P. "Top U.S. Postal Service Suppliers for Fiscal Year 2023." *Culhane PLLC*. <https://www.postalcontractor.com/_files/ugd/fcdc61_0906fd06ac154c2a8b39507e2659c811.pdf> (accessed June 7, 2024).

[277] "Company History." *Victory Packaging*. <https://www.victorypackaging.com/en/about/company-history> (accessed June 7, 2024).

[278] *Id*.

[279] *Id*.

400 delivery vehicles.[280] In 2023, the company provided services to USPS that totaled over $270 million.[281]

- *Insight Enterprises Inc*. Insight is a publicly traded Fortune 500 company that provides technology solutions to public sector organizations,[282] including USPS. The company employs over 3,700 "engineers, architects, and consultants." For the year ending December 31, 2023, the company reported over $6.2 billion in assets and over $9.1 billion in total net sales.[283] In 2023, the company provided services to USPS that totaled over $191 million.[284]

Amazon

124. Amazon has agreements with independent companies through its Delivery Service Partner ("DSP") program, which was launched in 2018. DSPs that contract with Amazon operate as business entities separate from Amazon. On its DSP brochure, Amazon states that it seeks "entrepreneurs throughout the country to launch and operate their own package-delivery businesses."[285]

125. Amazon emphasizes the independence of the DSPs: "[a]s a DSP, the success of your business is in your hands. You'll be responsible for managing the day-to-day delivery operations and supporting your delivery associates as they encounter challenges throughout their shifts."[286] Amazon contracts with independent companies to provide various delivery

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[280] *Id*.

[281] Hendel, David P. "Top U.S. Postal Service Suppliers for Fiscal Year 2023." *Culhane PLLC*. <https://www.postalcontractor.com/_files/ugd/fcdc61_0906fd06ac154c2a8b39507e2659c811.pdf> (accessed June 7, 2024).

[282] "Solutions for the Public Sector." *Insight*. <https://ips.insight.com/en_US/what-we-do/solutions-for-the-public-sector.html> (accessed June 19, 2024).

[283] Insight Enterprises, Inc. *Form 10-K* (Dec. 31, 2023).

[284] Hendel, David P. "Top U.S. Postal Service Suppliers for Fiscal Year 2023." *Culhane PLLC*. <https://www.postalcontractor.com/_files/ugd/fcdc61_0906fd06ac154c2a8b39507e2659c811.pdf> (accessed June 7, 2024).

[285] "Program Brochure." *Amazon*. <https://m.media-amazon.com/images/G/01/DSP2022/assets/desktop/DSP_Brochure_English_V7.pdf> (accessed May 13, 2024) at 2.

[286] "Your Opportunity." *Amazon*. <https://logistics.amazon.com/marketing/opportunity> (accessed May 10, 2024).

services: standard delivery services, specialized delivery services, rural delivery services, and same day delivery services.[287]

126. DSPs hire and manage their own employees. According to Amazon, the "most important responsibility [of a DSP] is recruiting and retaining solid drivers and helpers[.]"[288] Specific responsibilities for DSPs, as Amazon outlines in its brochure, include "background check, drug testing, payroll, and accounting services," as well as "determining how you will pay your employees and offer health benefits[.]"[289] According to Amazon, independent companies in the DSP program employ more than 275,000 drivers across more than 3,000 DSPs.[290] Contracts under this program have generated more than $26 billion in revenue for DSP owners.[291] For comparison, it is estimated that Amazon generated $24 billion in revenue from its own package delivery services in 2022 and $28.6 billion in 2023.[292]

127. Amazon summarizes the independent management responsibilities of DSPs: "[y]our team will deliver thousands of standard Amazon packages to your community every day, ensuring that customers get their packages on time and in good condition. They'll be responsible for not just delivering smiles, but delivering high-quality customer service. You'll motivate your associates by creating a supportive environment to help them solve problems, tackle new challenges, and deliver the best experience for our customers every day."[293]

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[287] "Service Types." *Amazon*. <https://logistics.amazon.com/marketing/service-types> (accessed June 7, 2024).

[288] "Program Brochure." *Amazon*. <https://m.media-amazon.com/images/G/01/DSP2022/assets/desktop/DSP_Brochure_English_V7.pdf> (accessed May 13, 2024) at 3.

[289] *Id.* at 4.

[290] "How Amazon's DSP Program Has Created $26 Billion in Revenue for Owners." *Amazon* (Aug. 19, 2022). <https://www.aboutamazon.com/news/transportation/how-amazons-dsp-program-has-created-26-billion-in-revenue-for-owners> (accessed May 10, 2024).

[291] *Id.*

[292] "Pitney Bowes Parcel Shipping Index." *Pitney Bowes*. <https://www.pitneybowes.com/content/dam/pitneybowes/us/en/shipping-index/24-mktc-00818-parcelshippingindex-infographic-rnd1.pdf> (accessed May 6, 2024).

[293] "Service Types." *Amazon*. <https://logistics.amazon.com/marketing/service-types> (accessed June 7, 2024).

128. To contract with Amazon, DSPs need to raise the necessary capital to start their business and make decisions with respect to how they invest their capital. According to Amazon, a DSP is responsible for "procuring delivery vehicles for its operations,"[294] as well as other startup costs related to business formation and licensing, supplies, and other assets.[295] Amazon states, "[m]aintaining a fleet with different types of vehicles and equipment is key for this type of service. Your fleet will include box trucks with lift gates and you'll ensure that your delivery associates have the specialized training and qualifications to drive them. Depending on package size, you may also add cargo vans for smaller packages, which are delivered on one-person routes."[296]

129. It is also expected that DSPs manage their own operations. As Amazon explains, DSPs "are heavily involved in their day-to-day operations[.]"[297] Daily tasks expected of a DSP includes (i) "reviewing and assigning routes, checking in your team, and coaching your delivery associates"; (ii) "hand[ing] out devices for [associates] to use during their deliveries, and inspect[ing] vehicles and equipment"; (iii) monitoring delivery progress through the day and "be[ing] ready to jump in to help with any questions or issues that come up"; and (iv) "help[ing] troubleshoot any undelivered packages and making sure all vehicles are refueled and parked for the night."[298] **Figure 3**: *Daily Operations of a DSP that Contracts with Amazon* describes some of the daily operations of a DSP that contracts with Amazon.[299]

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[294] "FAQ." *Amazon*. <https://logistics.amazon.com/marketing/faq> (accessed May 22, 2024).

[295] "Program Brochure." *Amazon*. <https://m.media-amazon.com/images/G/01/DSP2022/assets/desktop/DSP_Brochure_English_V7.pdf> (accessed May 13, 2024) at 7.

[296] "Service Types." *Amazon*. <https://logistics.amazon.com/marketing/service-types> (accessed June 7, 2024).

[297] "Your Opportunity." *Amazon*. <https://logistics.amazon.com/marketing/opportunity> (accessed May 10, 2024).

[298] *Id.*

[299] *Id.*

Figure 3: Daily Operations of a DSP that Contracts with Amazon.[300]

UPS

130. UPS is an exception among the top four package delivery companies because it employs package delivery drivers. According to the collective bargaining agreement between UPS and the Teamsters labor union, employees of UPS include "feeder drivers" (who transport shipments between UPS facilities) and "package drivers" (who deliver parcels to businesses

[300] *Id.*

and residential customers).[301] UPS employs approximately 65,000 delivery drivers in the U.S.[302]

OnTrac

131. OnTrac is the country's largest regional parcel carrier with a revenue of $1.6 billion.[303] OnTrac describes itself as a "logistics broker" that "hire[s] last-mile delivery and linehaul transportation companies that provide contracted services."[304] Its Delivery Service Providers ("DSPs") employ around 7,000 drivers, enabling coverage over 70 percent of the U.S. population, across 35 states and Washington D.C.[305]

132. OnTrac describes DSPs as "fully independent companies that manage their own business[.]"[306] According to the company, "[a]t OnTrac, our facilities have territories that are awarded after delivery businesses go through a bidding process. Our partners are fully independent companies that manage their own business and are given the opportunity to grow and succeed!"[307]

133. On its website, visitors interested in becoming a delivery driver are directed to a webpage to fill out personal information which OnTrac would send to the independent companies. Ontrac states: "[i]f you want to be a driver with a route, we will send your submitted

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[301] "National Master United Parcel Service Agreement: For the Period August 1, 2023 through July 31, 2028." *Teamsters*. <https://teamster.org/wp-content/uploads/2024/01/10424UPSNATIONALMASTERFINAL.pdf> (accessed May 9, 2024) at 2.

[302] Evans, Olivia. "UPS Teamsters Strike Threat: How Company Plans to Combat Worker Shortage, Disruptions." *Courier Journal* (July 14, 2023). <https://www.courier-journal.com/story/money/companies/2023/07/13/ups-teamsters-strike-threat-how-it-would-impact-non-union-jobs/70403133007> (accessed May 21, 2024).

[303] Cosgrove, Emma. "2 Of America's Biggest Regional Delivery Companies Are Combining to Create a New Competitor for UPS and FedEx." *Business Insider* (Oct. 13, 2021). <https://www.businessinsider.com/lasership-acquired-ontrac-logistics-delivery-acqusition-boom-2021-10> (accessed May 15, 2024).

[304] "Deliver OnTrac Packages." *OnTrac.* <https://logistics.ontrac.com/driver> (accessed May 16, 2024).

[305] "Frequently Asked Questions." *OnTrac.* <https://www.ontrac.com/faq> (accessed May 22, 2024).

[306] "Delivery Service Providers Needed." *OnTrac.* <https://www.ontrac.com/drivers> (accessed May 22, 2024).

[307] *Id.*

information to all the delivery companies in your desired area. The local delivery companies will contact you directly."[308]

134. According to the company's vendor summary form, "OnTrac contracts with outside businesses to perform a variety of transportation services, including local delivery and pickup. While OnTrac contracts with businesses of all sizes, a business must establish itself as a registered entity with the state of residence (as an LLC, LLP, or C & S-Type Corp) along with maintaining all operating authorities."[309]

135. OnTrac's service providers obtain and manage their own capital equipment. OnTrac states "[b]e your own boss and provide delivery services using your own vehicle(s)."[310]

DHL

136. DHL is a leading company in the global express delivery market but has a distinctly smaller presence in the U.S. package delivery market. For U.S. domestic shipping, DHL partners with USPS to handle "both final-mile delivery and return pickups[.]"[311]

137. In 2018, DHL launched Parcel Metro in seven U.S. cities to provide package delivery services.[312] This service utilizes DHL's "'virtual delivery network' of local and regional vendors and crowd-sourced providers" to offer same-day and next-day delivery services.[313] According to industry observers, this service does "not utilize any DHL vans or drivers, but will rely instead on regional and local firms…with private vehicles."[314]

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[308] "Deliver OnTrac Packages." *OnTrac.* <https://logistics.ontrac.com/driver> (accessed May 16, 2024).

[309] "Vendor Summary Form." *OnTrac*. <https://logistics.ontrac.com/heartland> (accessed June 7, 2024).

[310] "Delivery Service Providers Needed." *OnTrac.* <https://www.ontrac.com/drivers> (accessed May 22, 2024).

[311] "International and Domestic Shipping Services." *DHL* (Mar. 16, 2018). <https://www.dhl.com/us-en/home/ecommerce/shipping-services.html> (accessed May 22, 2024).

[312] "DHL Introduces New Technologies and Delivery Solutions in US to Meet Evolving Demands of the Urban Consumer." *DHL*. <https://group.dhl.com/en/media-relations/press-releases/2018/dhl-introduces-new-technologies-delivery-solutions-us-meet-evolving-demands-urban_consumer.html> (accessed June 10, 2024).

[313] *Id*.

[314] Solomon, Mark B. "With 'Parcel Metro' Service, DHL Looks to Be Big Fish in Fast-Growing Delivery Pond." *DC Velocity* (Mar. 26, 2018). <https://www.dcvelocity.com/articles/29601-with-parcel-metro-service-dhl-looks-to-be-big-fish-in-fast-growing-delivery-pond> (accessed May 24, 2024).

138. In Europe, DHL operates a Service Partner program for delivery & collections drivers. According to DHL, this program is "suitable whether you're an experienced owner of an established delivery business, or you're looking to take the next step and become your own boss by setting up your own delivery business from scratch."[315] Service Partners can "explore further opportunities for commercial growth, whether with DHL or by providing services to other customers" by "employing people to perform the services[.]"[316] A Service Partner must have "at least one commercial vehicle[.]"[317]

139. Both DHL's Parcel Metro service in the U.S. and its Service Partner program in Europe require contracting ISPs to operate as registered business entities. Furthermore, in both programs, the contracting ISPs are expected to make independent decisions with respect to hiring employees and capital investments.

140. In sum, most companies in package delivery have adopted similar business models to that of FedEx, with ISPs providing all or some of their delivery services. This suggests that contracting with independent suppliers is a profitable and efficient business model. UPS's employee-based business model is an exception, not the rule, in package delivery. Competing companies can have different business models, however, depending on their customers, costs, technology, and competitive strategies.

VII. CONTRACTING WITH INDEPENDENT PRODUCT OR SERVICE PROVIDERS IS COMMON IN MANY INDUSTRIES IN THE U.S.

141. Companies contract with other businesses to outsource the production of many types of goods and services, including essential inputs and technologies. By outsourcing the production of goods and services, companies obtain economic benefits from division of labor. The division of labor among firms generates economic benefits because both the company engaged in outsourcing and suppliers that provide goods and services benefit from

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[315] "Delivery & Collections Driver - Service Partner (self-employed)." *DHL*. <https://careers.dhl.com/global/en/job/DPDHGLOBALAV213807ENGLOBALEXTERNALAVATURE/Delivery-Collections-Driver-Service-Partner-self-employed> (accessed May 22, 2024).

[316] *Id*.

[317] *Id*.

specialization. Such specialization allows outsourcing companies and their suppliers to focus on producing different goods and services, allowing them to gain expertise, increase productivity, and improve their technologies. Through outsourcing of goods and services, companies and their suppliers thus generate cost efficiencies, improvements in product quality, new products, and increased innovation.

142. In this section, I show that reliance on contracts for outsourcing of goods and services has expanded significantly throughout the U.S. economy. I observe that many companies outsource essential business manufacturing and services that otherwise would be provided internally by the outsourcing companies' employees, not just secondary or tertiary business operations. I will explain some of the economic forces behind the expansion of contracting for goods and services and the reduction of the vertical integration of firms. Companies throughout many U.S. industries contract with independent suppliers of products and services, as opposed to producing the required products and services internally.

143. Because the purpose of outsourcing is to obtain the economic benefits of division of labor through specialization, suppliers independently manage their own employees and the suppliers' employees are distinct from the employees of the companies that engage in outsourcing. This establishes that outsourcing through contracts, such as FedEx business relationships with ISPs, are fundamental to the efficient organization of business throughout the U.S. economy. This analysis demonstrates that contracts with ISPs in the package delivery industry are consistent with broader trends in the U.S. economy. I will present additional economic analysis of contracts and the implication for the organization of firms and economic welfare later in this report.[318]

A. Division of Labor and Contracting Among Firms

144. Nearly two hundred and fifty years ago, Adam Smith, a founder of the field of economics, emphasized the central importance of the division of labor. According to Smith, "[t]he greatest improvements in the productive powers of labour, and the greater part of the skill,

[318] *See infra* Section VIII.

dexterity, and judgment, with which it is anywhere directed, or applied, seem to have been the effects of the division of labour."[319]

145. Smith pointed out that by dividing labor into multiple tasks, different individuals can perform different tasks. This would result in great increases in total output produced by the group of individuals in comparison to what they could produce without dividing up the tasks.

146. Consider for example a company that assembles cars. Suppose that each employee in the company is given a full set of parts and asked to assemble an entire car. It is likely that the company would produce very few cars per year. Suppose instead that the company formed an assembly line in which each employee was asked to add one or two parts to the assembly process. This would divide the labor needed to assemble a car into multiple tasks. Employees would become skilled in their task. It is likely that the company then would produce more cars per year simply by having divided the tasks.

147. Efficiencies resulting from the division of labor provide a key economic explanation for the division of tasks within firms. These efficiencies also explain the division of tasks among companies through outsourcing contracts with suppliers of goods and services. Companies often outsource production of goods and services to suppliers in the domestic economy.

148. Smith observed that there are three reasons why the division of labor vastly improved production. First, workers were able to specialize, which increased their dexterity and skills at their task. Second, workers avoided the waste of time that would accompany switching between different tasks. Finally, the division of labor allowed for the invention and introduction of machinery, that would further increase the productivity of labor.[320]

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[319] Smith, Adam. *An Inquiry into the Nature and Causes of the Wealth of Nations*. Eds. R.H. Campbell, A.S. Skinner, and W.B. Todd. Indianapolis: Liberty Classics (1981) at 13.

[320] *Id.* at 17. ("This great increase in the quantity of work, which, in consequence of the division of labour, the same number of people are capable of performing, is owing to three different circumstances; first, to the increase of dexterity in every particular workman; secondly, to the saving of the time which is commonly lost in passing from one species of work to another; and, lastly, to the invention of a great number of machines which facilitate and abridge labour, and enable one man to do the work of many.")

149. The economic benefits of the division of labor are significant. The wealth of nations, as Smith observed, arises in large part from the extent of the division of labor and the resulting benefits from specialization. Within firms, the division of labor increased productivity and explained economies of scale. Smith's analysis foresaw the vast improvements in productivity in the Industrial Revolution and the later efficiencies from the assembly line introduced at the Ford Motor Company.

150. Smith also pointed out that the division of labor further explained increases in productivity in the national economy as different companies took on more specialized tasks. Firms improve their cost efficiency and increase their invention and innovation through specialization and contracting with other firms. Contracting thus allows a division of labor across firms that generates economies of scale that improve cost efficiency.

151. Finally, Smith pointed out that the division of labor was international, allowing countries and regions to specialize and achieve even greater economies of scale through international trade. This has led to the creation of global supply chains that improve cost efficiencies and increase product variety. The growth of the global economy has been driven by division of labor and outsourcing contracts. Ronald Jones et al. observe "[t]he advantages of international fragmentation in the textile, clothing and automobile industries spread to other production sectors. And what was good for the United States could also be advantageous for other countries. Outsourcing soon characterized trade around the globe."[321]

152. Companies in many industries have reduced their vertical integration and contract with other firms to obtain parts and components, services, and technology. A U.S. Department of Labor report by David Dorn et al. states "[t]he nature of the employer-employee relationship is drastically changing in the United States, with lead employers employing

[321] Jones, Ronald, Henryk Kierzkowski, and Chen Lurong. "What Does Evidence Tell Us About Fragmentation and Outsourcing?" *International Review of Economics & Finance* 14.3 (2005): 305-316 at 307.

fewer workers directly and instead relying on intermediaries and contracting firms for providing labor services."[322]

153. Contracting among firms sometimes is referred to as "outsourcing."[323] By outsourcing the production of products or services, companies take advantage of the division of labor. FedEx, USPS, Amazon, and OnTrac use contracts to outsource various transportation services. In the package delivery industry as well as others, outsourcing "usually involves the transfer of operational control to the suppliers."[324]

154. FedEx and ISPs operate independently. As already noted, the ISPs independently maximize their own profits, hire and manage their own employees, obtain and manage their own capital equipment, and manage their operations. The division of labor between FedEx and ISPs increases cost efficiency in the package delivery business.

155. The division of labor functions as follows. FedEx and other companies in the package delivery industry benefit from specialization by contracting with ISPs. ISPs specialize in hiring and managing employees, obtaining and managing capital equipment, applying knowledge of local delivery routes, and providing customer service. This specialization allows ISPs to develop expertise, improve the quality of customer service, and operate efficiently.

156. In turn, FedEx specializes in brand awareness, sales to customers, facilities, logistics, and information technology, among other activities. The FedEx contracting standards state "FedEx: Continuously invests in brand awareness throughout North America; Obtains and maintains a diverse customer base, with a local and national sales force that stimulates growth; Creates and maintains facilities and information systems to ensure packages are

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[322] Dorn, David, Johannes F. Schmieder, and James R. Spletzer. "Domestic Outsourcing in the United States." *U.S. Department of Labor Technical Report 14* (2018). <https://www.dol.gov/sites/dolgov/files/OASP/legacy/files/Domestic-Outsourcing-in-the-United-States.pdf> (accessed June 6, 2024).

[323] Lankford, William M. and Faramarz Parsa. "Outsourcing: A Primer." *Management Decision* 37.4 (1999): 310-316 at 310.

[324] *Id*.

transported efficiently throughout the network[.]"[325] This specialization allows FedEx to increase expertise in logistics, improve the quality of service to shippers, operate more efficiently, and develop innovations.

157. One type of outsourcing, Business Process Outsourcing ("BPO"), refers to "contracts with an external service provider to perform an essential business function or task."[326] BPO includes a wide range of critical services, such as payroll and accounting, administration, customer support, IT management and services, manufacturing, marketing, research, sales, shipping and logistics, and data analytics.[327] Grandview Research states "BPO refers to the process of outsourcing operations and responsibilities of many business functions to external service providers. These services find prominent demand due to their benefits such as increased flexibility, reduced costs, and enhanced service quality."[328]

158. According to a Grandview Research estimate, the global BPO market "was valued at USD 280.64 billion in 2023 and is projected to grow at a Compound Annual Growth Rate (CAGR) of 9.4% from 2023 to 2030."[329] Forbes reports that the size of the BPO marketplace is $68 billion in the U.S. and $260 billion worldwide.[330] The BPO industry employs 657,000 people in the U.S.[331]

159. Although much outsourcing occurs within the U.S. economy, some outsourcing involves foreign suppliers, which is referred to as offshoring. This has led to the development of global supply chains. A World Bank report found that "[t]rade is shifting from a stark

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[325] "Contracting Standards." *FedEx*. <https://www.buildagroundbiz.com/contracting-with-fedex-ground/contracting-standards> (accessed June 19, 2024).

[326] Gillis, Alexander S., Mary K. Pratt, and Emily McLaughlin. "Business Process Outsourcing (BPO)." *TechTarget*. <https://www.techtarget.com/searchcio/definition/business-process-outsourcing> (accessed June 7, 2024).

[327] *Id*.

[328] "Business Process Outsourcing Market Size Report." *Grandview Research*. <https://www.grandviewresearch.com/industry-analysis/business-process-outsourcing-bpo-market> (accessed June 7, 2024).

[329] *Id*.

[330] Lazarevic, Nenad. "Outsourcing: The Key to The Next Generation of Business Success?" *Forbes* (Jan. 18, 2023). <https://www.forbes.com/sites/forbescommunicationscouncil/2023/01/18/outsourcing-the-key-to-the-next-generation-of-business-success/?sh=6552ccbd2cb0> (accessed June 7, 2024).

[331] *Id*.

version of comparative advantage based on differential labor costs and labor arbitrage, toward something that more closely resembles the intra-industry model of trade among developed economies based on product and technological differentiation."[332]

160. Outsourcing contracts for goods and services and specialization has increased international trade. According to the Organization for Economic Cooperation and Development and the World Bank, "[a] prominent feature of world trade during the last two decades is the rise of global value chains (GVCs), with goods and services being processed—and value being added in the multiple countries that are part of the chain. This has increased the interconnectedness of economies and led to a growing specialization in specific activities and stages in value chains, rather than in entire industries. Over 70 percent of global trade is in intermediate goods and services and in capital goods."[333]

161. The benefits of the division of labor and specialization have played a central role in the reorganization of industry in the U.S. Companies took advantage of the division of labor by relying on contracting with other companies. This division of labor allows companies to obtain the benefits of specialization by improving their skills and organizational competencies. The division of labor also allows companies to improve their technologies through greater focus on invention and innovation.

162. Historically, many large firms made practically everything within the organization. Changes in the organization of Ford illustrate changes in the organization of many industries. A century ago, reliance on vertical integration was exemplified by Henry Ford's statement "From Mine to Finished Car; One Organization[.]"[334] A historical account notes

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[332] "Technological Innovation, Supply Chain Trade, and Workers in a Globalized World." *World Bank Group*. <https://documents1.worldbank.org/curated/en/384161555079173489/pdf/Global-Value-Chain-Development-Report-2019-Technological-Innovation-Supply-Chain-Trade-and-Workers-in-a-Globalized-World.pdf> (accessed June 7, 2024) at v.

[333] Cusolito, Ana Paula, Raed Safadi, and Daria Taglion. "Inclusive Global Value Chains." *World Bank Group, The Organization for Economic Co-operation Development* (2016). <https://www.oecd-ilibrary.org/docserver/9789264249677-en.pdf?expires=1716780993&id=id&accname=guest&checksum=E3D6DE7562B01F7768CEBA089516DCB0> (accessed June 7, 2024) at ix.

[334] Thompson, George V. "Intercompany Technical Standardization in the Early American Automobile Industry." *The Journal of Economic History* 14.1 (1954): 1-20.

"Henry Ford's ultimate goal was to achieve total self-sufficiency by owning, operating and coordinating all the resources needed to produce complete automobiles. His Ford Motor Company once owned 700,000 acres of forest, iron mines and limestone quarries in northern Michigan, Minnesota and Wisconsin. Ford mines covered thousands of acres of coal-rich land in Kentucky, West Virginia and Pennsylvania. Ford even purchased and operated a rubber plantation in Brazil. To bring all these materials to the Rouge, Ford operated a fleet of ore freighters and an entire regional railroad company."[335]

163. Ford Motor's Rouge plant in Deaborn, Michigan, which was the world's largest manufacturing facility through the 1920s and 1930s, "had its own power, engine, casting, steel, glass and tire plants[.]"[336] The Rouge plant was "Henry Ford's vision of vertical integration, where raw materials would be turned into finished vehicles[.]"[337]

164. Today, however, Ford relies on outsourcing and is much less vertically integrated. Ford's supply chain involves contracting with "around 1,200 Tier 1 production suppliers who provide vehicle parts composed of nearly 1,000 different materials."[338] This reflects a vastly different way of organizing production, compared to the Rouge plant of the 1920s.

165. Now, companies in many industries rely on contracts in sophisticated supply chains. Firms source diverse products and services from the marketplace through contracts with independent products or services suppliers. An industry report observes that major companies use contract manufacturing in industries such as "marine, automotive, aerospace, food and beverage, chemical, pharmaceuticals, military and defense, medicine and healthcare, and electronics."[339] According to the report, "[e]xamples of contract

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[335] "Henry Ford's Rouge." *The Henry Ford*. <https://www.thehenryford.org/visit/ford-rouge-factory-tour/history-and-timeline/fords-rouge> (accessed June 7, 2024).

[336] "The Historic Birthplace of Ford's Iconic '32." *Autoweek* (Aug. 13, 2007). <https://www.autoweek.com/news/a2057506/historic-birthplace-fords-iconic-32> (accessed May 22, 2024).

[337] *Id*.

[338] Douris, Emily, Heather Canigiani, Chris Kelly, Gabby Hasson, and Denise Evans. "Ford Motor Company's Supply Chain." *ArGis StoryMaps* (Dec. 9, 2021). <https://storymaps.arcgis.com/stories/c3c47f3bfd05429099080fdbdd6a29c4> (accessed May 22, 2024).

[339] "More Contract Manufacturing Companies." *Contract Manufacturers*. <https://www.contract-manufacturers.org> (accessed June 20, 2024).

manufacturing variations include contract machining, contract assembly, contract packaging, nearshoring, outsource manufacturing, industrial contract manufacturing, military contract manufacturing, electronic contract manufacturing, PCB assembly, aerospace contract manufacturing, pharmaceutical contract manufacturing, medical device contract manufacturing, chemical contract manufacturing, and contract sewing."[340]

166. According to the industry study, contract manufacturing provides several benefits. First, contract manufacturing "allows businesses to focus on their core competencies and strategic activities while entrusting the manufacturing aspects to specialized contract manufacturers. This frees up internal resources, reduces operational complexities, and enables companies to allocate more time and effort to areas such as product development, marketing, and sales."[341] Second, contract manufacturing "provides access to specialized expertise and technologies that may not be available in-house. Contract manufacturers often possess extensive industry knowledge, experience, and state-of-the-art equipment, which can lead to improved product quality, efficiency, and innovation."[342] Finally, contract manufacturing "offers flexibility and scalability, allowing companies to adapt production volumes based on market demand. This eliminates the need for significant upfront investments in manufacturing facilities and equipment, making it a cost-effective option."[343]

167. Outsourcing is not limited to private business. Outsourcing contracts in transportation and other areas of the economy provides a way for the federal government to achieve various policy objectives. According to DOT, "[p]ursuant to Public Law 95-507, and subsequent legislative mandates, large prime contractors receiving Federal contract awards valued over $750,000 ($1.5 million for construction) are required to establish plans and goals for subcontracting with small businesses, veteran-owned small businesses, service disabled veteran-owned small businesses, HUBZone small businesses, small disadvantaged

[340] *Id.*

[341] *Id.*

[342] *Id.*

[343] *Id.*

businesses and women-owned small business concerns."[344] The DOT points out that subcontracting benefits small businesses: "[s]ubcontracting can present small businesses with opportunities that might otherwise be unattainable because of limited resources, staffing, capital, or experience."[345]

168. The division of labor in supply chains helps drive the modern economy. Companies rely on outsourcing contracts with suppliers for many types of essential business activities that otherwise would be performed by the companies' employees. Companies engaged in BPO turn to independent suppliers for many critical business processes. As I will show later in this report, leading companies in the automobile industry obtain most of their parts, components, and technologies from independent suppliers, focusing instead on marketing and assembly. Leading companies in consumer electronics including mobile phones and computers rely on independent suppliers for essential parts, components, technologies, product design, and assembly.

169. Even when companies outsource essential business activities to suppliers, the employees of contracting supplier firms are their own, and not those of the outsourcing firms. Imposing regulations and legal restrictions on outsourcing that limit the division of labor would severely constrain the modern economy and lose the benefits from the division of labor. The benefits of the division of labor, that support efficiency, innovation, and economic growth in the U.S. economy, depend on supplier independence in hiring and management of labor.

B. Freight Transportation and Independent Service Providers

170. As in package delivery, many companies in freight transportation rely on contracts with independent suppliers. A study by LaneAxis Virtual Freight Management found that in

[344] "Subcontracting with DOT." *U.S. Department of Transportation* (Mar. 5, 2024). <https://www.transportation.gov/osdbu/procurement-assistance/subcontracting-with-dot> (accessed June 7, 2024).

[345] *Id*.

2015, "13 of the largest publicly-traded motor carriers outsource an average of 42.29% of their freight shipments[.]"[346]

171. For example, companies contract with third-party logistics ("3PL") providers to outsource various essential logistics activities. According to a report by Allied Market Research, companies contract with 3PL providers for "warehousing, inventory control, fulfillment services, shipping, freight forwarding, and handling reverse logistics."[347] The report estimated that "[t]he global logistics business outsourcing market was valued at $1.3 trillion in 2022[.]"[348] In addition to 3PL providers, the report notes that outsourcing includes "Fourth-Party Logistics (4PL), inbound logistics, outbound logistics, reverse logistics, green logistics, military logistics, and other logistics services. This process provides efficient and effective transport & storage of goods and services."[349]

172. According to the U.S. Department of Transportation, "[t]rucking maintained its status as the dominant mode of freight transportation in both weight and value in 2022, moving 12.6 billion tons of cargo valued at over $13.6 trillion. This represented 64.5 percent of the total freight weight and 72.5 percent of the total value."[350]

173. An owner-operator is someone who owns and operates their own trucking business company.[351] An owner-operator is "[r]esponsible for everything that goes into owning/operating a business, including: Finding loads to haul. Managing business expenses. Making employment decisions. Doing the books. Maintaining truck(s). Making

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[346] "Study: Biggest Trucking Firms Outsource Over 42% of Their Freight." *Fleet Owner* (May 3, 2016). <https://www.fleetowner.com/operations/article/21693460/study-biggest-trucking-firms-outsource-over-42-of-their-freight> (accessed June 7, 2024).

[347] "Logistics Business Outsourcing Market Size, Share, Competitive Landscape and Trend Analysis Report by Mode of Transport, by End-user: Global Opportunity Analysis and Industry Forecast, 2023-2032." *Allied Market Research*. <https://www.alliedmarketresearch.com/logistics-business-outsourcing-market-A283616> (accessed June 7, 2024).

[348] *Id*.

[349] *Id*.

[350] "Transportation Statistics Annual Report 2023." *United States Department of Transportation* (Dec. 1, 2023). <https://rosap.ntl.bts.gov/view/dot/72943> (accessed June 7, 2024) at 3-1.

[351] "What Is an Owner-Operator? Everything You Need to Know." *Schneider* (Jan. 29, 2024). <https://schneiderowneroperators.com/owner-operator-tips/what-is-an-owner-operator> (accessed June 7, 2024).

revenue and earnings decisions."[352] An owner-operator managing a team of multiple employees sometimes is referred to as a "driver-dispatcher"[353] or "fleet owner."[354] Approximately 14% of the truck drivers in the freight transportation industry function as suppliers, as estimated by the non-profit organization Truckers Integral to Our Economy.[355]

174. Like ISPs that contract with FedEx, fleet owners and owner-operators in the freight transportation industry hire and qualify employees, find loads to haul, buy equipment, and cover their other operating expenses.[356] Additionally, owner-operators can and do supply their services to multiple competing companies,[357] just as FedEx agreements with ISPs specify that ISPs can contract with other package delivery companies.

175. An indication of division of labor and specialization of tasks in trucking is the number of small trucking companies. Of the over 500,000 trucking companies in the US, "[o]nly 2.6% of fleets comprise more than 20 vehicles, 91.3% operate with six trucks or less, 97.4% operate with 20 trucks or less."[358] The American Trucking Associations observe "[a]ccording to the U.S. Department of Transportation, as of April 2023, there were over 750,000 active US motor carriers that own or lease at least one tractor. Out of those carriers: 95.8% operate 10 or fewer trucks, 99.7% operate 100 or fewer trucks."[359]

176. Outsourcing by the USPS also indicates the division of labor in trucking. According to a report, "USPS maintains more than 1,700 contracted suppliers that primarily drive longer-

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[352] *Id.*

[353] "Who's Behind the Wheel? An Owner-Operator Deep Dive." *Coyote Logistics*. <https://resources.coyote.com/source/owner-operator-deep-dive> (accessed May 20, 2024).

[354] "How to Become a Fleet Owner: 6 Steps for Owner-Operators." *Schneider* (Mar. 29, 2023). <https://schneiderowneroperators.com/owner-operator-tips/how-to-become-fleet-owner> (accessed May 20, 2024).

[355] "Homepage." *Truckers Integral to our Economy.* <https://www.truckerchoice.org> (accessed May 16, 2024).

[356] "How to Become a Fleet Owner: 6 Steps for Owner-Operators." *Schneider* (Mar. 29, 2023). <https://schneiderowneroperators.com/owner-operator-tips/how-to-become-fleet-owner> (accessed May 20, 2024).

[357] "Owner Operator vs. Company Driver: Which is Right for You?" *Truckstop.* <https://truckstop.com/blog/owner-operator-vs-company-driver> (accessed May 20, 2024).

[358] "Trucking Statistics and Facts for Fleet Managers." *Lytx* (Nov. 23, 2021). <https://www.lytx.com/blog/trucking-statistics-and-facts-for-fleet-managers> (accessed June 7, 2024).

[359] "Economics and Industry Data." *American Trucking Associations.* <https://www.trucking.org/economics-and-industry-data> (accessed June 7, 2024).

haul 'highway contract routes.'"[360] The report adds that the USPS's "outsourced operation is much larger in scale: The Postal Service spends almost $5 billion annually on its highway contracts, nearly four times what it spends on its internal trucking operation."[361]

177. Below, I briefly summarize several leading trucking companies that contract with owner-operators:

- *J.B. Hunt*. J.B. Hunt contracts with independent owner-operators in intermodal, regional and over-the-road services.[362] Owner-operators that wish to contract with J.B. Hunt are expected to obtain an Employer Identification Number,[363] which the Internal Revenue Service uses to "identify a business entity."[364] Owner-operators obtain their own trucks.[365] Owner-operators also manage their own operations, such as to "plan their own schedule to pick up loads"[366] without forced dispatch from J.B. Hunt.[367]

- *Schneider*. Schneider disclosed in 2023 that its owner-operators "represented approximately 15% of driver capacity[.]"[368] Schneider offers several options for its owner-operators with varied revenue splits and opportunities to "boost your business' bottom line by saving up to thousands of dollars each year on things like fuel, tires, maintenance and more."[369] Schneider also offers advice on its website for "an experienced owner-operator" to expand their business into being a fleet owner, noting

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[360] Katz, Eric. "USPS Eyes Expansion of a Potentially Major Insourcing Initiative." *Government Executive* (Aug. 28, 2023). <https://www.govexec.com/management/2023/08/usps-evaluating-expansion-potentially-major-insourcing-initiative/389801> (accessed June 7, 2024).

[361] *Id*.

[362] "Owner Operator Jobs." *J. B. Hunt.* <https://owneroperators.jbhunt.com/business-units> (accessed June 19, 2024).

[363] "FAQ." *J.B. Hunt*. <https://owneroperators.jbhunt.com/faq> (accessed May 22, 2024).

[364] "Employer ID Numbers." *Internal Revenue Service*. <https://www.irs.gov/businesses/small-businesses-self-employed/employer-id-numbers> (accessed May 22, 2024).

[365] "FAQ." *J.B. Hunt*. <https://owneroperators.jbhunt.com/faq> (accessed May 22, 2024).

[366] *Id*.

[367] *Id.*

[368] Schneider National, Inc. *Form 10-K* (Dec. 31, 2023) at 4.

[369] "Dry Van." *Schneider*. <https://schneiderowneroperators.com/lease-options/van-truckload> (accessed May 16, 2024).

that the fleet owner will hire and qualify employees, find loads to haul, buy equipment, and cover other operating expenses.[370]

- *Landstar*. Landstar disclosed that in 2023 the company had approximately 9,809 drivers for its BCO Independent Contractors programs.[371] According to the company, "[a]ll agents and capacity providers [including owner-operators] operating their businesses within the Landstar network are independent business owners"[372] and that "[t]hese entrepreneurs have the freedom to run their businesses their way, with the support of a reputable leader in the industry."[373] Owner-operators that contract with Landstar pay "all of the expenses of operating his/her equipment, including driver wages and benefits[.]"[374] Landstar further notes "[w]hen independent owner-operators lease to Landstar, they choose the freedom to run when and where they want to travel."[375]

- *Hub Group*. Hub Group provides third-party logistics (3PL) services. According to the company, "[w]ith full outsource multimodal offerings, supply chain management capabilities and advanced transportation optimization strategies, we enhance your supply chain's performance, construct a scalable model and help reduce costs with our continuous improvement analysis."[376] Hub Group states: "[w]e know trucking is a tough job. At Hub Group, we want to give Owner-Operator drivers the opportunity and resources to align your business with a stable and growing carrier."[377] According to Hub Group, "[t]aking care of our truckload and less-than-truckload carriers is of the highest

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[370] "How To Become a Fleet Owner: 6 Steps for Owner-Operators." *Schneider* (Mar. 29, 2023). <https://schneiderowneroperators.com/owner-operator-tips/how-to-become-fleet-owner> (accessed May 20, 2024).

[371] Landstar System, Inc. *Form 10-K* (Dec. 31, 2023) at 12.

[372] "Entrepreneurs." *Landstar System Inc*. <https://www.landstar.com/why-landstar/entrepreneurs> (accessed May 22, 2024).

[373] *Id.*

[374] Landstar System, Inc. *Form 10-K* (Dec. 31, 2023) at 7.

[375] "Entrepreneurs." *Landstar System Inc*. <https://www.landstar.com/why-landstar/entrepreneurs> (accessed May 22, 2024).

[376] "Complete Outsource Logistics." *Hub Group*. <https://www.hubgroup.com/logistics-management/managed-solutions/complete-outsource-logistics> (accessed June 7, 2024).

[377] "Owner-Operators." *Hub Group*. <https://www.hubgroup.com/drive-with-hub-group/owner-operators> (accessed June 7, 2024).

importance to us. As a regional or long haul carrier you will benefit from our online carrier tool providing better opportunities, consistent demand, reduced deadhead miles, flexible volume, higher bill counts, committed business opportunities, competitive rates, predictable payment terms and corporate managed carrier relations."[378]

C. Automobile Manufacturing and Independent Parts Suppliers

178. Automobile manufacturers, while retaining certain core design and manufacturing capabilities, are also "outsourcing the design and manufacturing of many other vehicle systems."[379] Automobile manufacturers have drastically diminished their vertical integration, relying instead on outsourcing contracts. This means that automobile manufacturers obtain economic benefits from the division of labor with suppliers. The suppliers of the automobile companies are independent companies that hire and manage their own employees.

179. Independent suppliers of parts and components for automobile manufacturers include many large corporations. For the year 2019, there were over 60 independent parts suppliers with North America sales of over $1 billion.[380] Many are publicly traded for-profit corporations. These companies make business decisions independently, including the hiring and management of employees, making capital investments, and management of other operating activities.

180. Just like FedEx's ISPs can offer their services to other package delivery companies besides FedEx, in the automobile industry, independent parts suppliers can and do supply their products to multiple, competing auto makers.

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[378] "Carriers." *Hub Group.* <https://www.hubgroup.com/drive-with-hub-group/carriers> (accessed June 7, 2024).

[379] Donovan, Dean. "The Dawn of the Mega-Supplier." *Bain & Company*. <https://www.bain.com/contentassets/c850acac8f3a474baa4385cdf78a3552/bsb_dawn_of_mega_supplier.pdf> (accessed May 20, 2024) at 2.

[380] "NORTH AMERICA - Top 100 Parts Suppliers to North America, Ranked by Sales of Original Equipment Parts in 2020." *Auto News*. <https://s3-prod.autonews.com/2021-12/Top%20100%20parts%20suppliers%202020.pdf> (accessed May 22, 2024).

181. Some of the leading parts suppliers in the automobile industry include:

- *Magna International Inc.* Magna is the largest auto part supplier in North America.[381] It offers a wide range of automotive products including body structures, exteriors, and powertrains, as well as complete vehicle manufacturing.[382] According to the company, it supplies 58 OEMs [Original Equipment Manufacturers], including Ford Motors, General Motors, and Toyota, noting its "products and systems are on two out of every three vehicles launched around the world through 2019[.]"[383]

- *Continental Automotive Systems U.S. Inc*. Continental manufactures and sells automotive products across the globe. Its automotive sector "offers technologies for safety, brake, chassis, motion and motion-control systems"[384] and serves some of the largest auto makers in the world including Mercedes-Benz, Stellantis, BMW, Ford, and VW.[385]

- *Aptiv*. Aptiv, listed on the New York Stock Exchange, "design[s] and manufacture[s] vehicle components and provide[s] electrical, electronic and active safety technology solutions to the global automotive and commercial vehicle markets[.]"[386] With its 22,200 employees across 138 manufacturing facilities in 50 countries, the company serves the "25 largest automotive original equipment manufacturers ('OEMs') in the world."[387] In 2023 the company had revenues of $20.05 billion [388] with its products featured in 17 of the top 20 vehicle models in the US.[389]

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[381] *Id*.

[382] *Id*.

[383] "Customers." *Magna International Inc*. <https://www.magna.com/company/company-information/customers> (accessed May 22, 2024).

[384] Continental Group. *2023 Annual Report* (2023) at 29.

[385] *Id.* at 99.

[386] Aptiv PLC. *Form 10-K* (Dec. 31, 2023) at 5.

[387] *Id.*

[388] *Id.* at 39.

[389] *Id.* at 6.

- *Lear Corp*. Lear Corp. specializes in seating and electronic systems. According to the company, it is "a world leader in luxury and performance automotive seating, providing craftsmanship, elegance in design, use of innovative materials and industry-leading technology" to more than 12 of the most recognizable automotive brands.[390]

D. Construction and Independent Contracting Companies

182. Just like manufacturing cars, constructing a home, high-rise apartment, office building, or sports arena involves thousands of products and services, including architectural design, materials, and equipment. Many independent contracting companies supply numerous products and services used by general contracting companies in construction. Examples of leading independent contracting companies in the construction industry include:

- *AECOM*. AECOM is "a leading global provider of professional infrastructure consulting services for governments, businesses and organizations throughout the world."[391] The company provides its services to "public and private clients worldwide in major end markets such as transportation, facilities, water, environmental, and energy."[392] As of 2023, the company employed 18,000 people in the U.S.[393] and had a revenue of more than $14 billion.[394]

- *EMCOR*. EMCOR is "one of the largest specialty contractors" in the United States, providing "electrical and mechanical construction and facilities services, building services, and industrial services" across the U.S.[395] They offer their services both directly to property owners, tenants, and governmental agencies; as well as indirectly as a subcontractor to general contractors, suppliers, property managers and other

[390] Lear Corporation. *Form 10-K* (Dec. 31, 2023) at 8.

[391] AECOM. *Form 10-K* (Sept. 30, 2023) at 3.

[392] *Id.* at 34.

[393] *Id*. at 9.

[394] *Id*. at 11.

[395] EMCOR Group, Inc. *Form 10-K* (Dec. 31, 2023) at 1.

subcontractors.[396] In 2023, the company employed around 35,000 people in the U.S.,[397] while generating U.S. revenues of over $12 billion.[398]

- *APi Group*. APi Group provides safety and specialty services for the "commercial, education, healthcare, high tech, industrial, and special-hazard settings."[399] For their safety services, they offer fire protection, heating ventilation and air conditioning (HVAC) and entry systems, covering "design, installation, inspection, and service[.]"[400] The specialty services they provide mainly cover the industrial market, providing "engineering and design, fabrication, installation, maintenance service and repair, retrofitting and upgrading, pipeline infrastructure, access and road construction, supporting facilities, and performing ongoing integrity management and maintenance[.]"[401] The company generated revenues of $6.93 billion[402] in 2023 while employing approximately 29,000 people.[403]

E. Computer and Consumer Electronics Manufacturing and Independent Parts Suppliers

183. The computer and consumer electronics manufacturing industry have a long history of outsourcing production through contracts with independent parts suppliers. IBM, for example, outsourced the assembly of its personal computers to contract manufacturers ("CMs") as early as 1981.[404] According to a report, "[c]ontract manufacturers are rapidly taking over the manufacturing end of things for PC makers, consumer device designers, and

[396] *Id*.

[397] *Id*. at 5.

[398] *Id*. at 25.

[399] APi Group Corporation. *Form 10-K* (Dec. 31, 2023) at 4.

[400] *Id*.

[401] *Id*.

[402] *Id*. at 35.

[403] *Id*. at 9

[404] Feng, Qi, and Lauren Xiaoyuan Lu. "Outsourcing Design to Asia: ODM Practices." *Managing Supply Chains on the Silk Road*. Eds. Çağrı Haksöz, Ananth Iyer, and Sridhar Seshadri. CRC Press (2012): 169-184.

communication equipment providers."[405] Today, "most electronics and computer OEMs outsource all or part of their manufacturing activities to CMs."[406]

184. Examples of the leading independent parts suppliers in the computer and consumer electronics manufacturing industry include:

- *Flex Ltd*. Flex is a "end-to-end" manufacturer which helps companies "design, build, deliver, and manage products that improve the world."[407] The company covers the full process, from design, to engineering, to managing the supply chain, to manufacturing, all the way to post-production and post-sale.[408] Their customers range across industries, covering markets as varied as automotive, healthcare, industrial, cloud, communications, lifestyle, and consumer devices.[409] The company, listed on the NASDAQ, generated revenues of $26.4 billion in the fiscal year ended March 31, 2024[410] employing around 160,000 people.[411]

- *Celestica*. Celestica is a "leader in high-reliability design, manufacturing and supply chain solutions that brings global expertise at every stage of product development"[412] with manufacturing in 42 locations across Asia, North America, and Europe.[413] The company serves two primary segments, Advanced Technology Solutions (including Aerospace and Defense, Industrial, HealthTech and Semiconductors and displays) and Connectivity and Cloud Solutions (including communications, servers, and cloud storage), and offers a full complement of services including design, engineering,

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[405] Shankland, Stephen. "Who Really Makes PCs?" *CNET* (Jan. 2, 2002). <https://www.cnet.com/tech/tech-industry/who-really-makes-pcs> (accessed June 16, 2024).

[406] Feng, Qi, and Lauren Xiaoyuan Lu. "Outsourcing Design to Asia: ODM Practices." *Managing Supply Chains on the Silk Road*. Eds. Çağrı Haksöz, Ananth Iyer, and Sridhar Seshadri. CRC Press (2012): 169-184.

[407] "About Flex." *Flex*. <https://flex.com/company#about-us> (accessed May 22, 2024).

[408] *Id*.

[409] "Homepage." *Flex*. <https://flex.com> (accessed June 20, 2024).

[410] Flex Ltd. *Form 10-K* (Mar. 31, 2024) at 39.

[411] "About Flex." *Flex*. <https://flex.com/company#about-us> (accessed May 22, 2024).

[412] "Who We Are." *Celestica*. <https://www.celestica.com/about-us/who-we-are> (accessed June 20, 2024).

[413] "Locations." *Celestica*. <https://www.celestica.com/about-us/locations> (accessed May 22, 2024).

sourcing, assembly, order fulfillment, and aftermarket repair and return.[414] The company generated $7.96 billion in revenue for 2023,[415] while employing 26,554 people.[416]

F. Mobile Phone Manufacturing and Independent Parts Suppliers

185. Like computer manufacturers, mobile phone manufacturers commonly outsource the production of parts and components through contracts with independent suppliers. Apple produces its iPhone, for example, through contracts with thousands of businesses in more than fifty countries.[417]

186. Examples of the leading independent parts suppliers in the mobile phone manufacturing industry include:

- *Pegatron*. Pegatron is a Taiwanese electronics manufacturing company which "develop[s], design[s] and manufactur[es]" products such as PCs, Smartphones, Gaming Consoles, Tablets, IoT devices, Wearable Devices and more.[418] The company also provides and develops software and hardware to "provide customers with total solutions and high value-added services."[419] Pegatron's customers include several of the largest electronics brands in the world including Apple, Sony, Microsoft, and ASUS.[420] The company (not including subsidiaries) employs 7,668 people,[421] with manufacturing

[414] Celestica Inc. *Form 20-F* (Dec. 31, 2023) at 30.

[415] *Id*. at F-6.

[416] *Id.* at 139.

[417] "Supply Chain Innovation." *Apple Inc*. <https://www.apple.com/supply-chain> (accessed May 22, 2024).

[418] Pegatron Corp. *2023 Annual Report* (Mar. 8, 2024) at 112.

[419] *Id*.

[420] Cheng-hui, Chen. "Pegatron's Profit Soars on Rising Product Sales." *Taipei Times* (Nov. 15, 2023). <https://www.taipeitimes.com/News/biz/archives/2023/11/15/2003809173> (accessed May 22, 2024).

[421] Pegatron Corp. *2023 Annual Report* (Mar. 8, 2024) at 139.

centers across Asia, Australia, Europe, and America[422] and generated a revenue of NT$1,256.8 billion in 2023.[423]

- *Benchmark Electronics*. Benchmark Electronics provides "advanced manufacturing services" across aerospace and defense, HealthTech, industrials, semiconductor equipment, communications, and computing.[424] They offer services ranging from "design, engineering, automation, test, manufacturing, and fulfillment solutions that support our customers' products from initial concept and design through prototyping, design validation, testing, ramp-to-volume production, worldwide distribution, and aftermarket support."[425] In 2023, Benchmark employed 12,703 people in 2023 across manufacturing facilities in the Americas, Asia, and Europe,[426] and generated sales of $2.8 billion.[427]

G. Semiconductor Industry and Independent Suppliers

187. The semiconductor industry is "one of the most globally integrated industries, spanning dozens of nations with thousands of suppliers."[428] According to the Semiconductor Industry Association, for "each U.S. worker directly employed by the semiconductor industry, an additional 5.7 jobs are supported in the wider U.S. economy, either in the supply chains of the semiconductor industry or through the wage spending of those employed by the firms themselves of their supply chains."[429]

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[422] "Global Deployment." *Pegatron Corp*. <https://www.pegatroncorp.com/about/view/id/4> (accessed May 22, 2024).

[423] Pegatron Corp. *2023 Annual Report* (Mar. 8, 2024) at 1.

[424] Benchmark Electronics, Inc. *Form 10-K* (Dec. 31, 2023) at 1.

[425] *Id.* at 4.

[426] *Id*. at 14.

[427] *Id*. at 33.

[428] "State of the U.S. Semiconductor Industry 2023." *Semiconductor Industry Association*. <https://www.semiconductors.org/wp-content/uploads/2023/07/SIA_State-of-Industry-Report_2023_Final_072723.pdf> (accessed May 22, 2024) at 14.

[429] *Id.* at 9.

188. According to a report by the U.S. Semiconductor Industry Association ("SIA"), "[w]hile both IDMs [Integrated Device Manufacturers] and fabless firms design semiconductors, fabless firms choose to focus exclusively on design and outsource fabrication, as well as assembly, packaging, and testing. Fabless firms typically outsource fabrication to pure-play foundries and outsourced assembly and test (OSAT) firms."[430] The report notes that "[a]s technical difficulty and upfront investment soared with the migration to smaller manufacturing nodes, total semiconductor sales accounted for by fabless firms increased from less than 10% in 2000 to almost 30% in 2019."[431]

189. Division of labor through contracts and outsourcing is critical for employment and the success of the semiconductor industry. As the SIA report observes, "[t]he U.S. semiconductor industry is a leader in chip design. U.S. fabless firms account for roughly 60% of all global fabless firm sales, and some of the largest IDMs, which do their own design, are also U.S. firms."[432] The SIA points out that "the U.S. accounts for the largest share of the global design workforce, which highlights the strength of the U.S. industry and academic ecosystem for chip design. Given the importance of semiconductor design in terms of value added in the manufacturing process, it is critical that the U.S. industry has – and maintains – leadership in this stage of production."[433]

190. Examples of the leading fabless semiconductor companies are as follows:

- *Qualcomm*. Qualcomm develops technology and hardware for the "wireless industry" with use in telecommunications, automotives, and the internet of things ("IoT").[434] The company has two main business segments, the first being integrated circuit products,

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[430] "State of the U.S. Semiconductor Industry 2021." *Semiconductor Industry Association*. <https://www.semiconductors.org/wp-content/uploads/2021/09/2021-SIA-State-of-the-Industry-Report.pdf> (accessed June 7, 2024) at 16.

[431] *Id.*

[432] *Id.*

[433] *Id.*

[434] Qualcomm Incorporated. *Form 10-K* (Sept. 24, 2023) at 6.

which it produces primarily through a "fabless" model,[435] and the second being the licensing of the company's "intellectual property, including patents and other rights."[436] For the fiscal year ending in September 2023, Qualcomm employed around 50,000 people[437] in over 30 countries,[438] and generated $35.8 billion in revenue[439] with $51 billion in total assets.[440]

- *Broadcom*. Broadcom is a "a global technology leader that designs, develops and supplies a broad range of semiconductor and infrastructure software solutions."[441] The majority of their semiconductor products (covering broadband, networking, wireless, storage, and industrial end markets)[442] are outsourced "utilizing third-party foundry and assembly and test capabilities."[443] The company serves some of the largest technology companies in the world, including Apple, who alone represented 20% of Broadcom's nearly $36 billion revenue for the fiscal year ending October 2023.[444] Broadcom has global reach with its nearly 20,000 employees employed across North America, Asia, Europe, the Middle East, Africa, and Europe[445] and had assets totaling $72.8 billion.[446]

- *Nvidia*. Nvidia creates "full-stack computing infrastructure" through their proprietary programming model and their graphics processing units ("GPUs") which offer "accelerated computing for computationally intensive workloads such as artificial intelligence, or AI, model training and inference, data analytics, scientific computing, and

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[435] The company defines fabless as "we do not own or operate foundries for the production of silicon wafers from which our integrated circuits are made." *Id.* at 11.

[436] *Id.* at 6.

[437] *Id.* at 16.

[438] "Locations." *Qualcomm.* <https://www.qualcomm.com/company#locations> (accessed June 6, 2024).

[439] Qualcomm Incorporated. *Form 10-K* (Sept. 24, 2023) at F-4.

[440] *Id.* at F-3.

[441] Broadcom Inc. *Form 10-K* (Oct. 29, 2023) at 3.

[442] *Id.* at 4.

[443] *Id.* at 9.

[444] *Id.* at 42.

[445] *Id.* at 11.

[446] *Id.* at 50.

3D graphics."[447] Their GPUs are manufactured on a fabless basis, whereby they employ third-parties to manufacture, test, assemble and package their products with uses across various industries including data centers, gaming, professional visualization, and automotives.[448] The company generated nearly $61 billion in revenue and reported $65 billion in total assets for the fiscal year ending in January 2024,[449] while employing 29,600 people across 36 countries.[450]

- *MediaTek*. MediaTek is the fifth largest fabless semiconductor globally, offering "industry-leading core technologies in computing, AI, broadband networking, and multimedia."[451] Their integrated circuits have uses across "smart home applications, broadband networking, smart IoT, Bluetooth audio, automotive electronics, ASICs, and smart mobile devices" and are manufactured, tested and packaged all by external suppliers.[452] In 2023, the company had assets totaling approximately NT$635 billion and generated over NT$433 billion in revenue[453] while employing over 22,000 people.[454]

191. Examples of foundries that manufacture semiconductors are as follows:

- *Texas Instruments*. Texas Instrument is a public company that "design[s], manufacture[s], test[s] and sell[s] analog and embedded semiconductors that are the essential building blocks of electronic systems."[455] The company's broad portfolio includes "approximately 80,000 products that are integral to almost every type of electronic equipment."[456] It sells

[447] Nvidia Corporation. *Form 10-K* (Jan. 28, 2024) at 4.

[448] *Id.* at 5, 8.

[449] *Id.* at 52.

[450] *Id.* at 11.

[451] MediaTek Inc. *2023 Annual Report* (Feb. 29, 2024) at 6.

[452] *Id.* at 6, 44.

[453] *Id.* at 106, 108.

[454] *Id.* at 83.

[455] "What We Do." *Texas Instruments*. <https://www.ti.com/about-ti/company/what-we-do.html> (accessed June 6, 2024).

[456] Texas Instruments. *Form 10-K* (Dec. 31, 2023) at 3.

its products to over 100,000 customers,[457] including "companies in a wide range of end markets and sectors within those markets,"[458] including industrial, automotive, personal electronics, communications equipment, and enterprise systems.[459] For example, the company is a supplier for Apple[460] and Microsoft.[461] For the fiscal year ending December 2023, Texas Instruments employed about 34,000[462] employees worldwide and had over $32 billion[463] in total assets, while generating $6.51 billion in revenue.[464]

- *Micron Technology, Inc.* Micron is a public company that "designs, develops and manufactures industry-leading memory and storage products."[465] It is the largest U.S. manufacturer of memory chips.[466] When describing its business, Micron states that it manufactures its products "at wholly-owned facilities"[467] and sells its products to customers in many industries including "healthcare, automotive, and communications."[468] For example, Micron supplies its products to personal computer manufacturers such as Apple,[469] Dell,[470] and Hewlett-Packard.[471] For the fiscal year

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[457] *Id*. at 6.

[458] *Id*. at 10.

[459] *Id*. at 19.

[460] "Supplier List." *Apple, Inc*. <https://images.apple.com/mideast/supplier-responsibility/pdf/Apple-FY21-Supplier-List.pdf> (accessed June 6, 2024).

[461] "Microsoft Top 100 Production Suppliers." *Microsoft*. <https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RE4Q31p> (accessed June 10, 2024).

[462] Texas Instruments. *Form 10-K* (Dec. 31, 2023) at 8.

[463] *Id*. at 27.

[464] *Id*. at 26.

[465] Micron Technology, Inc. *Form 10-K* (Aug. 31, 2023) at 2.

[466] King, Ian. "Micron Posts Strong Forecast as Data Centers Fuel Chip Sales." *Bloomberg* (Mar. 29, 2022). <https://finance.yahoo.com/news/micron-posts-rosy-forecast-sign-202049742.html> (accessed June 6, 2024).

[467] Micron Technology, Inc. *Form 10-K* (Aug. 31, 2023) at 7.

[468] *Id*. at 2.

[469] "Supplier List." *Apple, Inc*. <https://images.apple.com/mideast/supplier-responsibility/pdf/Apple-FY21-Supplier-List.pdf> (accessed June 6, 2024).

[470] "Public Supplier List." *Dell*. <https://i.dell.com/sites/doccontent/corporate/corp-comm/en/Documents/dell-suppliers.pdf> (accessed June 6, 2024).

[471] "HP Supplier List." *HP*. <https://h20195.www2.hp.com/V2/GetPDF.aspx/c03728062.pdf> (accessed June 6, 2024).

ending August 2023, Micron employed about 43,000[472] employees worldwide and had over $15 billion in revenue[473] with $64 billion[474] in total assets.

- *Global Foundries*. Global Foundries is a semiconductor manufacturer that serves as "the only scaled pure-play foundry[475] with a global footprint that is not based in China or Taiwan" focusing on "Smart Mobile Devices, Home and Industrial IoT, Communications Infrastructure & Datacenter, Automotive and Personal Computing."[476] They serve nearly 250 customers including some of the largest semiconductor brands globally, notably AMD, Qualcomm, Samsung, and Sony.[477] They have manufacturing sites in Germany, Singapore, and the U.S., employing around 12,000 people[478] and generating $7.39 billion in 2023 revenue.[479]

H. Pharmaceutical Industry and Supply Chain Manufacturers

192. Companies in the pharmaceutical industry engage three types of contract organizations: contract research organizations ("CROs"), contract manufacturing organizations ("CMOs"), and contract development and manufacturing organizations ("CDMOs").[480] These contract organizations allow the pharmaceutical industry to benefit from division of labor in invention, innovation, and commercialization. These contract organizations "provide specialized capabilities and operational infrastructure when it comes to drug development

[472] Micron Technology, Inc. *Form 10-K* (Aug. 31, 2023) at 2.

[473] *Id*. at 57.

[474] *Id*. at 59.

[475] Global Foundries defines a scaled pure-play foundry as "a company that specializes in producing ICs [integrated circuits] for other companies, with annual foundry revenue exceeding $2.5 billion." *See* GlobalFoundries Inc. *Form 20-F* (Dec. 31, 2023) at 36.

[476] *Id*. at 36-37.

[477] *Id*. at 36.

[478] *Id*. at 35.

[479] *Id*. at 47.

[480] "CROs vs CMOs, and CDMOs: What's the Difference Between the Three?" *Pantheon Pharma Services* (Aug. 10, 2023). <https://www.patheon.com/us/en/insights-resources/blog/cdmo-vs-cmo-vs-cro.html> (accessed June 7, 2024).

and manufacturing."[481] As a consequence, outsourcing by companies in the pharmaceutical industry helps companies innovate, improves the quality of medicines, and can help to reduce prices.

193. According to an industry report, "[a] contract research organization, or CRO, supports biotechnology and pharmaceutical companies by providing a wide range of early-stage research and development (R&D) offerings. Specifically, CROs help with clinical trial services including clinical research, regulatory affairs, clinical trial planning, site selection and initiation, recruitment support, clinical monitoring, data management, trial logistics, biostatistics, medical writing, and project management."[482] As the report notes, "[b]y outsourcing a comprehensive range of clinical trial services to a quality CRO, pharmaceutical, biotechnology and medical device companies can leverage their knowledge, capabilities, infrastructure, and resources while simultaneously working on other important tasks."[483]

194. In addition, the report observes "[a] contract manufacturing organization, or CMO, helps pharmaceutical and biotechnology companies manufacture their innovative drug substances. Their offerings can include commercial production, drug development, formal stability, formulation development, method development, pre-formulation, and registration batches."[484] Pharma companies benefit from the division of labor: "[b]y partnering with a CMO, pharmaceutical and biotechnology companies can effectively scale up their operations and limit financial risks while focusing on other tasks, including drug discovery and drug marketing."[485] Contracting with CMOs provides benefits from the division of labor: "CMOs can help save pharmaceutical and biotechnology companies money, since they provide the cutting-edge equipment and highly trained employees that are essential when it comes to manufacturing new drugs, whether from small or large molecules.

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[481] *Id.*

[482] *Id.*

[483] *Id.*

[484] *Id.*

[485] *Id.*

Additionally, quality CMOs help pharmaceutical and biotechnology companies stay compliant with quality standards and regulatory requirements, helping to avoid any roadblocks on the drug development and manufacturing journey."[486]

195. CDMOs are companies who contract with large drug manufacturers to provide "comprehensive, end-to-end capabilities that support the entire pharmaceutical development and manufacturing process."[487] This full-service operation can include all stages of drug development, manufacturing, and distribution from "drug substance and drug product development, clinical trial logistics, product labeling, supply chain management, commercial packaging, and more."[488] In addition, "the wide range of CDMO offerings include formulation development, regulatory support, clinical trial services, product packaging, supply chain management, quality assurance, and technology transfer solutions. In recent years, certain CDMOs are also offering clinical research services — either through mergers and acquisitions or by expanding their in-house capabilities."[489]

196. The CDMO market is large, with over 500 companies globally serving a market of nearly $90 billion in 2022.[490] As primarily public for-profit companies, their investments, employees, management decisions, and operations are under the purview of the respective company's managements and board of directors. Additionally, CDMOs service a variety of competing customers, just as FedEx ISPs may serve a variety of package delivery companies.

197. The top ten CDMOs are Lonza Group, Thermo Fisher Scientific, Catalent, WuXi Biologics, Samsung Biologics, Siegfried, Fujifilm Diosynth Biotechnologies, Recipharm, Boehringer

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[486] *Id.*

[487] "What Is a CDMO?" *Pantheon Pharma Services* (July 19, 2023). <https://www.patheon.com/us/en/insights-resources/blog/what-is-a-cdmo.html> (accessed May 20, 2024).

[488] *Id.*

[489] "CROs vs CMOs, and CDMOs: What's the Difference Between the Three?" *Pantheon Pharma Services* (Aug. 10, 2023). <https://www.patheon.com/us/en/insights-resources/blog/cdmo-vs-cmo-vs-cro.html> (accessed June 7, 2024).

[490] "2022 Global Pharmaceutical CDMO Outlook." *Marwood Group* (Feb. 14, 2022). <https://www.marwoodgroup.com/wp-content/uploads/2022/02/2022.02.14-Pharma-CDMO-Whitepaper.pdf> (accessed May 20, 2024) at 1, 3.

Ingelheim, and MilliporeSigma.[491] The following examples of CMDOs in the pharmaceutical industry illustrate division of labor and specialization.

- *Catalent*. Catalent is a CDMO that focuses on "development sciences, delivery technologies, and multi-modality manufacturing" for "personalized medicines, blockbuster drugs and consumer health brand extensions."[492] They partner with some of the largest pharmaceutical brands in the world including "Bayer, Bristol-Myers Squibb, GlaxoSmithKline, Haleon, Johnson & Johnson, Moderna, Pfizer, and Sarepta Therapeutics" to support their products as well as maintain reliable supply.[493] In 2023, Catalent produced around 70 billion doses over nearly 8,000 products, in their 52 manufacturing facilities spanning four continents.[494] Catalent employed 17,800 people[495] and generated revenues of $4.26 billion in the fiscal year ending June 30, 2023.[496]

- *Lonza*. Lonza is a Swiss company whose services range from "supporting early-phase discovery to custom development and manufacturing of active pharmaceutical ingredients, as well as innovative dosage forms for the pharma and consumer health and nutrition industries."[497] Lonza is one of the largest CDMOs with sales of CHF 6.7 billion in 2023,[498] and employed around 18,000 people to serve more than 770 customers.[499]

I. Health Care Industry and Independent Service Providers

198. Contracts with ISPs are common in the health care industry. Health Care providers contract with service providers for a wide variety of services. A Healthcare Weekly article in 2024

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[491] Philippidis, Alex. "Top 10 Contract Development and Manufacturing Organizations." *Genetic Engineering and Biotechnology News* (Sept. 15, 2023). <https://www.genengnews.com/topics/bioprocessing/top-10-contract-development-and-manufacturing-organizations> (accessed June 7, 2024).

[492] "Who We Are." *Catalent.* <https://www.catalent.com/about-us/overview> (accessed May 20, 2024).

[493] Catalent, Inc. *Form 10-K* (June 30, 2023) at 7.

[494] *Id.* at 7, 18.

[495] *Id.* at 18.

[496] *Id.* at 57.

[497] "About Us." *Lonza.* <https://www.lonza.com/about-us> (accessed May 20, 2024).

[498] Lonza. *Annual Report 2023* (2023) at 6.

[499] *Id.* at 10-11.

found based on various studies that the healthcare BPO market will reach nearly $500 billion by 2026.[500]

199. Many of the services outsourced by health care providers are BPO services. The service providers operate independently, and they hire and manage their own employees. Restricting the ability of health care providers to contract with service providers would severely constrain health care and would result in higher industry costs, lower patient access to health care, lower quality of care, and higher insurance costs.

200. Unity Communications observes that healthcare BPO "involves hiring an external contractor to handle non-clinical or non-core activities of a healthcare organization. Hospitals, clinics, and other medical facilities outsource work instead of performing the tasks in-house."[501] Unity Communications adds "[t]he healthcare process in BPO enables healthcare organizations to focus on their core competencies. Delegating services to a third party allows medical providers to concentrate on treating patients."[502]

201. According to Unity Communications, the main areas of healthcare BPO include Medical Coding and Billing, Claims Processing, Data Entry (patient insurance details, tests and lab reports, prescription and drug inventory, other hospital records), Telehealth, Medical Transcription, Human Resources, and Payroll Management.[503] HealthCare Weekly lists areas of BPO as Medical Claims Processing, Hospital Infrastructure Management, Human Resource Management, Medical Billing, Clinical and Patient Care Services, IT Integration, Data Entry Services, and Payroll Management and Data Collection.[504]

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[500] "Healthcare BPO Will Hit Nearly $500 Billion by 2026." *Healthcare Weekly* (Mar. 20, 2024). <https://healthcareweekly.com/healthcare-bpo> (accessed June 7, 2024).

[501] Delos Santos, Allie. "Everything You Need to Know About the Healthcare BPO Process." *Unity Communications* (Mar. 11, 2024). <https://unity-connect.com/our-resources/blog/healthcare-process-in-bpo> (accessed June 7, 2024).

[502] *Id.*

[503] *Id.*

[504] "Healthcare BPO will Hit Nearly $500 Billion by 2026." *Healthcare Weekly* (Mar. 20, 2024). <https://healthcareweekly.com/healthcare-bpo> (accessed June 7, 2024).

202. A study of outsourcing by hospitals found that "[o]utsourcing is an increasingly popular strategy that healthcare organisations can use to control the rising costs of providing services. With outsourcing, an external contractor assumes responsibility for managing one or more of a healthcare organisation's business, clinical, or hospitality services."[505] The study noted that "[b]ecause the contractor specialises in providing a specific service and can achieve economies of scale, he/she may be able to provide a service more efficiently and less expensively than the healthcare organisation."[506]

203. An empirical analysis of hospitals in California found that "private nonprofit, public, and for-profit hospitals consistently and significantly differ in the extent to which they outsource services. Controlling for a variety of potential confounders, nonprofit and district hospitals outsource less than for-profits, and local hospitals outsource least of all."[507]

204. Insurance companies and other payors also use ISPs to source medical care services from healthcare professionals such as doctors, nurses, and physician assistants. Examples of large ISPs that supply services of medical care professions include:

- *Transcarent*. Transcarent is a healthcare company that serves as an employee benefits vendor and aids self-insured employers to connect "employers and their employees with high-quality providers, helping increase engagement and deliver high-value care with reduced hassle, costs, and administrative burden."[508] The Company's platform, available to more than 4.3 million people nationwide, was recently valued at nearly $2.2 billion.[509] By partnering with some of the largest health systems in the U.S., Transcarent combined

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[505] Moschuris, Socrates J. and Michael N. Kondylis. "Outsourcing in Hospitals." *E-Hospital* 10.1 (2008): 28-29 at 28.

[506] *Id.*

[507] Dalton, Christina Marsh and Patrick L. Warren. "Cost Versus Control: Understanding Ownership Through Outsourcing in Hospitals." *Journal of Health Economics* 48 (2016): 1-15 at 13.

[508] "Providers & Health Systems." *Transcarent*. <https://transcarent.com/providers> (accessed May 20, 2024). *See also* "Transcarent Launches National Independent Provider Ecosystem." *Transcarent* (Sept. 26, 2023). <https://transcarent.com/press-releases/transcarent-launches-national-independent-provider-ecosystem> (accessed May 22, 2024).

[509] "Digital Health Startup Transcarent Valued at $2.2 bln After Latest Funding Round." *Reuters* (May 2, 2024). <https://www.reuters.com/business/healthcare-pharmaceuticals/digital-health-startup-transcarent-valued-22-bln-after-latest-funding-round-2024-05-02/?trk=public_post_comment-text> (accessed May 22, 2024).

"the ease of a consumer app with a modular, best-in-class ecosystem of virtual point solutions, care professionals, and local facilities, with a diverse and trusted care team[.]"[510] On its website, the company advertises its career availability and the values that drive its employees.[511]

- *AlignMed Partners*. AlignMed Partners is a "national medical group dedicated to improving health outcomes among residents of skilled nursing and senior living facilities."[512] The company's physicians, nurse practitioners, and physician assistants "enhance the clinical capabilities of skilled nursing facilities and senior living communities with expert medical care, individualized care plans, and leading-edge technology."[513] AlignMed Partners' network is extensive, serving healthcare providers nationwide.[514] The company notes its employees can offer comprehensive services to support an existing clinical team, noting their expertise in medical leadership, primary care, palliative care, wound care, occupational health, and leading-edge medical technology.[515]

VIII. ECONOMIC ANALYSIS OF CONTRACTS AND IMPLICATIONS FOR THE ORGANIZATION OF FIRMS IN TRANSPORTATION

205. This section presents an economic analysis of outsourcing contracts and examines the implications for the agreements between FedEx and ISPs. To obtain efficiencies from division of labor and specialization, companies outsource production of goods and services to suppliers. Companies can outsource activities when the cost savings from outsourcing are greater than the transaction costs of outsourcing. FedEx can outsource package delivery to ISPs when the cost savings from outsourcing are greater than the transaction costs of outsourcing. Rules that would force FedEx to be a dual employer of ISP employees would

[510] "One Place for Health & Care." *Transcarent.* <https://transcarent.com/about-us#our-company> (accessed May 22, 2024).

[511] "Careers." *Transcarent.* <https://transcarent.com/careers> (accessed May 22, 2024).

[512] "About." *AlignMed Partners*. <https://www.alignmedpartners.com/about> (accessed June 20, 2024).

[513] "Partnerships." *AlignMed Partners*. <https://www.alignmedpartners.com/partnerships> (accessed May 20, 2024).

[514] "About." *AlignMed Partners*. <https://www.alignmedpartners.com/about> (accessed June 20, 2024).

[515] "Partnerships." *AlignMed Partners*. <https://www.alignmedpartners.com/partnerships> (accessed May 20, 2024).

change the contractual bargain with ISPs and increase transaction costs, which would result in inefficient organization of the industry and higher costs of transportation. This outcome would cause harm to both ISP employees, including drivers, and consumers.

A. Outsourcing Contracts and the Division of Labor

206. It has long been recognized that division of labor improves economic efficiency in the production of goods and services, as I have noted previously. Division of labor lowers costs of production and services by allowing specialization of labor in performing particular tasks. Division of labor is not limited to individuals performing tasks. It can refer to the division of tasks among entire organizational units within a firm. It can also refer to the division of tasks among firms. Division of labor can also refer to division of tasks among firms located in different regions or countries, as Adam Smith understood.

207. Division of labor lowers costs per unit of output within a firm. Because larger firms have greater opportunities to divide tasks, division of labor results in economies of scale. The term "economies of scale" refers to the situation in which an increase in output results in lower costs per unit of output.[516] Larger firms may have lower costs per unit of output because operating at a larger output allows firms greater opportunities for division of labor. A larger firm can divide tasks more readily allowing for more specialization. When the division of labor lowers costs due to the returns from specialization, firms can lower their costs per unit of output. So, when companies grow and divide tasks, they can obtain economies of scale.

208. The key question is whether the cost savings from division of labor require the relevant tasks to be performed within a firm or whether tasks can be divided across firms through

[516] The concept of economies of scale also extends to companies that produce multiple types of output. Operating with greater levels of outputs generates cost efficiencies. *See* Panzar, John C. and Robert D. Willig. "Economies of Scale in Multi-Output Production." *The Quarterly Journal of Economics* 91.3 (1977): 481-493; Pokharel, Krishna P. and Allen M. Featherstone. "Estimating Multiproduct and Product-Specific Scale Economies for Agricultural Cooperatives." *Agricultural Economics* 50.3 (2019): 279-289; Farsi, Mehdi, Aurelio Fetz, and Massimo Filippini. "Economies of Scale and Scope in Multi-Utilities." *The Energy Journal* 29.4 (2008): 123-144.

market transactions. The economic analysis of whether production should be organized in a firm or through markets was first addressed by Ronald Coase in 1937.[517]

209. The choice between conducting an activity within the firm and outsourcing the activity to another firm also is referred to as the "make-or-buy" decision. The choice to make a good or service means conducting an activity within the firm. The choice to buy a good or service means relying on the marketplace for either spot purchases or contracts. The decision to make a good or service increases the extent of vertical integration of the firm. The choice to buy goods or services sometimes is referred to as outsourcing.

210. The make-or-buy decision helps to determine what activities take place within or outside the boundaries of the firm, that is, within or outside the firm's organization. There is a large literature in economics on the boundaries of the firm and the firm's decision whether to make or buy a good or service. A survey by Francine Lafontaine and Margaret Slade observes "[t]he empirical literature on vertical integration has focused on two main, interrelated questions: First, what types of transactions are best brought within the firm or, put differently, under what circumstances do we observe that an input or service is produced in house? And second, what are the consequences of vertical integration for economic outcomes such as prices, quantities, investment, and profits?"[518]

211. Consider an example that illustrates the make-or-buy decision. Let K denote the incremental cost of producing a product (good or service) inside a firm. This is an incremental cost because it is the additional cost of producing a product given that the firm engages in other productive activities. Let C denote the stand-alone cost of producing the product by an independent supplier.

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[517] Coase, Ronald. "The Nature of the Firm." *Economica* 4.16 (1937): 386-405. *See also* Coase, Ronald. "The New Institutional Economics." *Zeitschrift Für Die Gesamte Staatswissenschaft / Journal of Institutional and Theoretical Economics* 140.1 (1984): 229-231; Coase, Ronald. "The Nature of the Firm: Origin, Meaning, Influence." *Journal of Law, Economics and Organization* 4.1 (1988): 3-47; Coase, Ronald. *The Firm, the Market, and the Law*. Chicago: University of Chicago Press (2012).

[518] Lafontaine, Francine and Margaret Slade. "Vertical Integration and Firm Boundaries: The Evidence." *Journal of Economic Literature* 45.3 (2007): 629-685 at 629.

212. Let T^B and T^S denote the transaction costs of outsourcing for the firm as buyer and the independent supplier. These transaction costs can include the costs of negotiating contracts, monitoring contractual performance, communication between the firm and the supplier, and related management costs.

213. The cost to make the product is the incremental cost K. The total cost to buy the product is the supplier's stand-alone cost C plus the total transaction cost $T^B + T^S$. The cost savings from outsourcing is the incremental cost to make the product internally minus the stand-alone cost to the supplier minus transaction costs, $K - C - T^B - T^S$. The firm will make the product if cost savings from outsourcing are negative, $K - C - T^B - T^S < 0$. The firm will buy the product if cost savings from outsourcing are positive, $K - C - T^B - T^S > 0$. The firm will be indifferent if cost savings are zero, which is unlikely.

214. In the present matter, K is FedEx's incremental cost of delivery to a particular set of routes, C is the stand-alone cost of delivery for an ISP serving that set of routes, and $T^B + T^S$ are the transaction costs incurred by FedEx and the ISP. FedEx and the ISP will have an economic incentive to contract if the cost savings are positive, $K - C - T^B - T^S > 0$.

215. The agreement between the firm and its supplier reflects cost savings from outsourcing, including both production costs and transaction costs. Let R denote the payment made by the buyer to the supplier. Then, to induce participation by the supplier, the payment must cover the stand-alone cost to the supplier plus the supplier's transaction cost, $R > C + T^S$. Outsourcing limits the payment to be less than the cost savings to the buyer net of the buyer's transaction cost, $R < K - T^B$. The payment by the buyer to the supplier divides the cost savings $K - C - T^B - T^S$ between them.

216. In the context of the package delivery industry, by hiring drivers as employees, FedEx would internally produce the package delivery services. By contracting with ISPs, FedEx would purchase package delivery services from the marketplace and both parties incur transaction costs.

217. The cost of contract negotiation is one type of transaction cost. Scott Masten finds that "[e]vidence from a survey of truck drivers shows both the general structure of contracts

between freight carriers and drivers and the manner in which hauls are priced to be consistent with the goal of economizing on renegotiation costs."[519] Steven Tadelis examines a specific transaction cost in trucking, "haggling and friction due to *ex post* changes and adaptations when contracts are incomplete."[520]

218. Transaction costs associated with coordination are present in freight hauling. According to an empirical analysis of the trucking industry by Francine Lafontaine and Scott Masten, "the central substantive problem in freight hauling is logistical — the coordination of a large number of small, heterogeneous transactions[.]"[521] Lafontaine and Masten point out that "the efficient assignment of hauls often depends on characteristics of consumers and suppliers of freight services as well as of cargos and routes."[522] Lafontaine and Masten note "[o]n the demand side, shippers and receivers differ with respect to, among other things, the premium they place on speed or on-time performance relative to price, their reliability in meeting schedules, the predictability of their shipments and flexibility in accommodating pickups and deliveries, and their staffing of, and congestion at, loading docks."[523] Lafontaine and Masten further note that "[o]n the supply side, drivers, who, in the first instance, bear the costs of hauling freight, differ in their preferences over such things as routes, night driving and haul lengths as well as in their ability and dependability. Last but

[519] Scott Masten notes that problems associated with transaction-specific assets may not be significant in this context: "[t]he primary physical assets used in trucking—trucks and trailers—are obviously mobile and are largely general purpose in function. Although some trailer types are better suited to some products than others—tank trailers for liquids and flatbed trailers for oversize loads, for instance—a given trailer can generally be used to serve a large number of shippers. Trailers, moreover, can be hitched to and pulled by almost any truck tractor. Finally, cargo-handling skills and the knowledge required to operate trucking equipment, however specialized, are rarely specific to a shipper or carrier. Because of this fungibility in use and mobility, trucks have often been held out as quintessential nonspecific assets—literally assets on wheels." Masten, Scott E. "Long-Term Contracts and Short-Term Commitment: Price Determination for Heterogeneous Freight Transactions." *American Law and Economics Review* 11.1 (2009): 79-111 at 94.

[520] Tadelis, Steven. "Complexity, Flexibility, and the Make-or-Buy Decision." *American Economic Review* 92.2 (2002): 433-437 at 433.

[521] Lafontaine, Francine and Scott Masten. "Contracting in the Absence of Specific Investments and Moral Hazard: Understanding Carrier-Driver Relations in U.S. Trucking." *NBER Working Paper Series w8859* (2002): 1-44 at 11.

[522] *Id.*

[523] *Id.* at 11-12.

not least, the matching of hauls, clients, and drivers must be performed and continually revised in light of ever-changing weather, traffic, equipment and road conditions."[524]

219. Lafontaine and Masten observe that "[v]iewed in the aggregate, the scheduling of transportation services so that the right commodities arrive at the right location at the right time and at the lowest possible cost is a coordination problem of enormous proportions. Each year, truckers carry millions of hauls over millions of miles for millions of customers between thousands of locations. Even under the assumption that all cargos and suppliers of transportation services are interchangeable, determining the optimal route structure and assignment of hauls constitutes a classic logistical problem requiring considerable time and expertise to solve. In actuality, however, hauls vary significantly in size, weight, distance, route, back-haul potential, and the extent to which they require special care (because of fragility or perishability, for example) or special equipment (such as car carriers, refrigerated trailers, or oversize or flat bed trailers)."[525]

220. Advances in ICT and other digital technologies have lowered transaction costs throughout the economy.[526] By lowering transaction costs, these technological advances reduce the costs of contracting. This allows companies to outsource goods and services that might not have been efficient otherwise.

221. Because digital economies lower transaction costs, there are more opportunities to realize cost savings from division of labor across companies. Companies can realize cost savings from outsourcing, which increases economic efficiency. These efficiencies lower overall production costs, which increases the demand for labor. The results are more job opportunities and higher wages. In addition, outsourcing provides opportunities for entrepreneurs.

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[524] *Id.* at 12.

[525] *Id.* at 11.

[526] *See, e.g.*, Goldfarb, Avi and Catherine Tucker. "Digital Economics." *Journal of Economic Literature* 57.1 (2019): 3-43.

222. FedEx Ground resolved the make-or-buy decision by contracting with ISPs to "buy" package delivery services rather than to "make" package delivery services itself. Put differently, FedEx Ground chose contracts with ISPs to outsource package delivery rather than vertical integration to supply its own package delivery services.

223. The make-or-buy analysis establishes that FedEx Ground chose contracts over vertical integration because the economic returns to contracts are greater than the economic returns to production within its organization. Based on economic analysis of the make-or-buy decision, the observed business-to-business contracts between FedEx and ISPs have several important implications.

224. First, the observed business-to-business contracts between FedEx and ISPs indicate that there are cost savings from ISPs supplying package delivery in comparison to FedEx internally supplying package delivery. Because FedEx and the ISPs are profit-maximizing companies, the parties would not have chosen such agreements without such cost savings.

225. Second, the observed business-to-business contracts between FedEx and ISPs indicate that the agreements yield cost savings that are greater than the transaction costs of contracting. Because FedEx and the ISPs are profit-maximizing companies, the parties would not have chosen such agreements without cost savings being greater than the total transaction costs of the agreements.

226. Third, the observed business-to-business contracts between FedEx and around 5,900 ISPs indicate that the cost savings are greater than transaction costs in a robust way. The number of ISPs and the widespread use of these agreements indicate that the companies realize economic benefits in many different geographic locations, with different characteristics of ISPs, and different economic conditions over time.

227. Fourth, the observed business-to-business contracts between FedEx and ISPs indicate that the agreements yield overall cost savings that are sufficient for FedEx to compete in this market. Competitive pressures in a market require cost efficiency, and such competitive pressures are present in package delivery. The contracts between FedEx and ISPs must be

competitive in terms of cost and the quality of customer service to attract business to FedEx Ground.

228. Fifth, the observed business-to-business contracts between FedEx and around 5,900 ISPs indicate that establishing an ISP and contracting with FedEx are profitable for the ISPs. This indicates that there are opportunities for entrepreneurship for the owners of ISPs. This substantial number of ISPs would not have occurred unless the ISPs generated economic profit. As discussed above, the ISPs are for-profit businesses. The owners of the ISPs chose to provide package delivery services through contracts with FedEx rather than (or sometimes in addition to) pursuing competing opportunities.

229. Sixth, the observed business-to-business contracts between FedEx and ISPs indicate that ISPs offer payments to their employees, including drivers, that are sufficient to attract those employees in a competitive labor market. The contracts between FedEx and 5,900 ISPs have generated tens of thousands of jobs, which further suggests the cost efficiency of those agreements.

230. Seventh, the make-or-buy decision establishes that FedEx chose contracting over vertical integration. This means that FedEx chose to contract with ISPs that hire and manage their own employees, including drivers. FedEx chose the outsourcing option over vertical integration and hiring and managing its own drivers.

231. Economic analysis of the make-or-buy decision shows that FedEx and the ISPs chose a business-to-business outsourcing agreement. FedEx and the ISPs did not choose an arrangement that would somehow combine outsourcing with additional FedEx management of ISP employees. This would be inconsistent with the current system of outsourcing in which ISPs solely hire and manage their own employees.

232. From an economic perspective such an arrangement necessarily would increase transaction costs (as detailed below), which then would increase the cost of shipping to consumers. When that occurs, we would expect to see consumers decrease their online orders because of the cost of delivery services and, instead, go to stores to buy products. This necessarily would result in a reduction in package delivery driving jobs.

233. FedEx announced that it would consolidate some of its operating companies including FedEx Express and FedEx Ground into "a single company operating a unified, fully integrated air-ground network."[527] This organizational change would "allow FedEx to provide customers with even greater value, offering the most advanced data-driven insights to help them make smarter decisions for their business."[528] One advantage of this consolidation is to unify pickups from shippers across services: "[a] unified FedEx network means shippers using both the company's Ground and Express units no longer have to fret about juggling separate pickup times[.]"[529] The consolidation is expected to yield cost savings by applying new technologies.[530]

234. The consolidation facilitates greater reliance by FedEx on its business relationships with ISPs. This implies that FedEx will increase outsourcing of package delivery. It was reported that "FedEx will transfer select residential Express parcels to its Ground network for the last mile[.]"[531] According to the report, "[i]ntegrating Express packages into Ground delivery operations is part of FedEx's strategy to innovate for efficiency. Higher parcel density means drivers can run more deliveries with fewer trucks, thereby saving costs and optimizing routes."[532]

235. Accordingly, the consolidation will yield cost efficiencies by increased reliance on ISPs. This should help FedEx operate more efficiently. An industry discussion states that "[u]nlike rival UPS, FedEx Ground and Amazon rely heavily on independent contractors

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[527] Berman, Jeff. "FedEx Announces Major Company Consolidation for June 2024." *SupplyChain247* (May 31, 2024). <https://www.supplychain247.com/article/fedex-company-consolidation-june-2024> (accessed June 17, 2024).

[528] *Id*.

[529] Garland, Max. "FedEx Charges Ahead with Network 2.0, Rolling Out to Dozens More Locations in 2024." *Supply Chain Dive* (Mar. 22, 2024). <https://www.supplychaindive.com/news/fedex-express-ground-network-consolidation-q3-2024-earnings/711011> (accessed June 17, 2024).

[530] *Id*. *See also* Berman, Jeff. "FedEx Announces Major Company Consolidation for June 2024." *SupplyChain247* (May 31, 2024). <https://www.supplychain247.com/article/fedex-company-consolidation-june-2024> (accessed June 17, 2024).

[531] Forde, Morgan. "FedEx to Transfer Some Express Parcels to Ground for Last Mile." *Supply Chain Dive* (Feb. 10, 2020). <https://www.supplychaindive.com/news/fedex-to-transfer-some-express-parcels-to-ground-for-last-mile/572000> (accessed June 17, 2024).

[532] *Id*.

for their delivery workforce. Going forward, it seems that FedEx will double down on that model, reducing the employee drivers in the FedEx Express division and expanding the contractor model currently in use with FedEx Ground."[533] The report quotes John Smith (FedEx President and Chief Executive Officer U.S. & Canada Ground Operations) stating: "[i]f you have ever seen a FedEx Ground truck and a FedEx Express truck in your neighborhood on the same day, or even pass each other on the street, you'll understand what we are trying to change."[534] This is a "part of the company's 'one truck, one neighborhood' initiative."[535]

236. The FedEx consolidation of divisions, including FedEx Express and FedEx Ground, is consistent with widespread outsourcing in package delivery, freight transportation, and many other industries throughout the U.S. economy. FedEx's consolidation of divisions allows the company to pursue a "make-and-buy" strategy overall, by internal delivery of packages on some routes and by outsourcing of package delivery. A "make-and-buy" strategy allows FedEx to make the best use of its internal package delivery system and outsourcing to ISPs, allowing greater cost savings by operating these divisions together in comparison to operating these divisions separately.

237. The FedEx consolidation in part reflects competitive pressures from other companies including Amazon. The consolidation responds to changing market conditions, such as variations in demand for package delivery related to the rise of e-commerce and increases in transportation costs.

238. The shift by FedEx to greater outsourcing also reflects technological change that reduces transaction costs related to outsourcing. Improvements in ICT and other cost reductions related to digital economics decrease the costs of coordination in outsourcing contracts.[536] This implies that FedEx is better able to handle the complex coordination problems

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[533] "FedEx Ground and Express: The Future of FedEx." *Route Advisors* (Aug. 10, 2023). <https://www.routeadvisors.com/fedex-ground-and-express-the-future-of-fedex> (accessed June 17, 2024).

[534] *Id*.

[535] *Id*.

[536] *See* Goldfarb, Avi and Catherine Tucker. "Digital Economics." *Journal of Economic Literature* 57.1 (2019): 3-43.

associated with shifting more package delivery to ISPs, including time-sensitive packages. These technological changes make it possible for FedEx to improve efficiency by coordinating the operation of its internal express service and its outsourced ISP service.

239. FedEx realizes additional returns from division of labor and specialization by shifting some of its internal package deliveries to outsourcing with ISPs. This provides additional cost savings because it takes advantage of specialization. Also, the company can realize cost savings by avoiding duplication, as summarized by its 'one truck, one neighborhood' initiative.

B. Cost Efficiencies from Contracting Increase Employment and Entrepreneurship.

240. Plaintiffs propose that FedEx should be considered a dual employer of the employees of the ISPs, and that FedEx should make payments to the employees of the ISPs for their overtime work.[537] This section further considers the consequences of requiring FedEx to be a "second" employer to ISP employees.

241. First, making FedEx a dual employer of ISP employees is inconsistent with existing contractual agreements. The economic analysis of the make-or-buy decision establishes that the ISPs hire and manage their own employees. Making FedEx have to also hire and manage ISP employees would increase transaction and operating costs for both FedEx and the ISPs. This would also reduce flexibility for ISP owners, managers, and employees. Owners of ISPs would lose some of their independence. ISP managers and employees would be in the difficult situation of working for two companies. ISP managers and employees also would lose the advantages of working for smaller companies.

242. Second, transaction costs would increase even more for both FedEx Ground and ISPs, because the contracts between them would be made more complex. This would require additional transaction costs associated with negotiation and monitoring of contractual

[537] Complaint ¶¶ 12, 25-29.

output. The companies would experience greater transaction costs because of the need for increased coordination.

243. Transaction costs for both FedEx and ISPs would increase in other ways. Requiring FedEx to make wage payments would involve FedEx in the ISPs' human resource management, wage costs aside. FedEx would be required to track the work schedules of ISP employees, and the ISPs would be required to provide such information, which would be a significant transaction cost for both parties to the contracts. To compensate employees, FedEx would be required to know wages and other information about ISP employees and the ISPs would be required to provide this information, further adding to transaction costs for both parties to the contracts.

244. Such an arrangement also would lead to significant inefficiencies. For example, FedEx and the ISPs would incur duplicative costs of human resource management. Such duplicative costs would be wasteful and would create an economic burden for FedEx and the ISPs.

245. By increasing transaction costs for both parties, requiring FedEx to be a dual employer of ISP employees would change FedEx's make-or-buy decision. Increases in transaction costs would tilt the make-or-buy decision away from outsourcing and toward vertical integration. The cost savings from outsourcing might not be sufficient to cover the extensive transaction costs of a dual employer arrangement. The result would be that some or all ISP relationships no longer would be viable economically. This would put some or all ISPs out of business, which would harm their owners and their employees, including the drivers themselves.

246. Making FedEx a dual employer also would reduce cost savings from the combination of the Express and Ground divisions. As already noted, the dual employer approach increases the transaction costs of outsourcing. Such an increase in the transaction costs of outsourcing would give FedEx incentives to reduce its reliance on outsourcing, which would diminish the shift of packages from internal production to outsourcing with ISPs. By decreasing the cost savings from consolidation of its divisions, making FedEx a dual employer would make FedEx less competitive. This also would harm the ISPs by reducing the increased outsourcing that would result from consolidation of FedEx divisions.

247. If enough outsourcing arrangements no longer would be viable economically, the entire set of outsourcing arrangements would no longer be viable. This is because there are returns to choosing to either contract for all package delivery or internally supply all package delivery. The result would be a shift from outsourcing to vertical integration for package delivery. This would put most ISPs out of business. This policy outcome would end up harming FedEx and the owners of the ISPs. This policy outcome also would harm the drivers it was intended to help. This would be an unintended but unfortunate consequence of such a misguided approach.

248. Plaintiffs may assume that if FedEx did not outsource, it would simply hire the ISPs' drivers itself and directly employ them. A shift to vertical integration would increase costs for FedEx in comparison to existing arrangements. Such an increase in costs would result in increased shipping costs for consumers. This would result in less usage of these services by consumers, decreasing the number of package delivery driver jobs available.

249. Additionally, the contracts between FedEx and the almost 6,000 ISPs allow ISPs substantial discretion as to their hiring criteria. This suggests that more driver candidates will be eligible to be hired when faced with different criteria from competing ISPs in contrast to being eligible to be hired under standard criteria set by only one company.

250. Also, omitting ISPs from the arrangement substantially decreases competition for drivers, which necessarily would result in lower wages overall for drivers. Rather than having almost 6,000 ISPs competing for drivers among each other (in addition to other businesses, like UPS and USPS), it would simply be one entity—FedEx—competing for drivers against those other larger companies. This reduces drivers' flexibility in movement across different employers and significantly limits their options for compensation and other benefits. The result of diminished competition likely would be higher prices or lower quality of service, which would harm consumers. The result of diminished competition would also be lower employment and lower wages, which would harm ISP drivers.

251. ISPs that contract with FedEx create employment and promote entrepreneurship. The declarations of eleven ISP owners considered previously show that FedEx's contracting with ISPs promotes entrepreneurship. Contracting with FedEx as ISPs provides

opportunities for entrepreneurs to enter the industry and start their own business. For example, the owners of I.C. Partnership[538] and DL Delivery[539] both took advantage of the opportunity and started their own companies after years of working with FedEx Ground on an individual basis as contractors. Thus, ISPs also offer drivers opportunities for career advancement.

252. Because ISPs independently manage their businesses, including hiring and managing employees, making capital investments, and managing operations, business owners can gain invaluable experience. Business owners have opportunities to grow their businesses further increasing employment of drivers. For example, Flaviano Oliveira, the owner of Eagle Eye Inc., went from "contract[ing] with FedEx Ground for a single route" to "acquiring more routes, vehicles, and employees, ultimately forming Eagle Eye as the controlling entity that contracts with FedEx Ground."[540]

253. FedEx's contracts with ISPs support competition for drivers among ISPs. Competition for drivers among ISPs provides employment for drivers and increases wages for drivers in comparison to a situation with few or no ISPs. The growth of ISPs increases competition for drivers, increases employment of drivers, and increases wages for drivers. Increasing the costs of contracting with ISPs would diminish competition for drivers, which would negatively impact employment and wages for drivers.

Dated: June 21, 2024

Daniel F Spulber

Daniel F. Spulber

[538] Haley Declaration ¶ 3.

[539] Leandres Declaration ¶ 3.

[540] Oliveira Declaration ¶ 3.

Appendix A

Curriculum Vitae

June 14, 2024

DANIEL F. SPULBER BIO

Daniel F. Spulber is the Elinor Hobbs Distinguished Professor of International Business and Professor of Strategy at the Kellogg School of Management, Northwestern University, where he has taught since 1990. He is also Professor of Law (Courtesy) at the Northwestern University Pritzker School of Law. Spulber received his Ph.D. in economics in 1979 and his M.A. in economics in 1976 from Northwestern University and his B.A. in economics in 1974 from the University of Michigan. Prior to Northwestern University, Spulber taught at Brown University, the University of Southern California, and Cal Tech.

Spulber's economics expert witness consulting experience is in Antitrust, Platforms and Two-Sided Markets, Intellectual Property, Technology and Innovation, and Industrial Organization. Spulber has provided economics expert witness testimony before the Federal Trade Commission (FTC), the International Trade Commission (ITC), the Copyright Royalty Board, the Federal Communications Commission (FCC), the Federal Energy Regulatory Commission (FERC), the Postal Rate Commission, and state regulatory agencies including the Illinois Commerce Commission (ICC), the California Public Utilities Commission (CPUC), the Indiana Utility Regulatory Commission, the Washington Utilities and Transportation Commission, and the Wisconsin Public Service Commission. Spulber provided expert testimony before the Superior Court for the State of California for the County of Los Angeles, the U.S. District Court for the Western District of Texas, and the U.S. District Court for the District of Columbia. Spulber's research has been cited by the Supreme Court of the United States.

Spulber has published numerous articles in leading economics journals and law reviews. He is the author of fourteen books including The Case for Patents, World Scientific Publishing, 2021. Spulber is the founding editor of the Journal of Economics & Management Strategy, Wiley. He has received 37 research grants, including the National Science Foundation, the Ewing Marion Kauffman Foundation, and the USPTO. Spulber has organized 33 law and economics conferences on innovation and entrepreneurship. He has spoken at events organized by USPTO, The Ewing Marion Kauffman Foundation, The General Accountability Office (GAO), The National Academies of Sciences, Engineering, and Medicine, The Federal Reserve Bank of Chicago, The Technology Policy Institute, Oracle, and The Global Competition Review.

Spulber served as the Research Director of the Northwestern University Center on Law, Business, and Economics at the Pritzker School of Law. He also served as the founding Director of Kellogg's International Business & Markets Program.

Spulber is the winner of the 2023 Antitrust Writing Awards: Academic Articles, Economics. Spulber was ranked 147th among economists by number of journal pages weighted by number of authors, as of May 2024, https://ideas.repec.org/top/top.person.anbpages.html. He was highly ranked for 1979-2003 adjusted appearances in The Most Frequent Contributors to the Elite Economics Journals: Half Century of Contributions to the 'Blue Ribbon Eight', J. L. Heck and P. A. Zaleski, Journal of Economics and Finance, 9, Spring, 2006, pp. 1-37. Spulber was ranked 6th among economists in the United States in Trends in Rankings of Economics Departments in the U.S.: An Update, L. C. Scott and P. M. Mitias, Economic Inquiry, 34, April 1996, pp. 378-400.

CURRICULUM VITAE

DANIEL F. SPULBER

Department of Strategy
Kellogg School of Management
Northwestern University
Global Hub, 2211 Campus Dr.
Evanston, IL 60208-2013

E-mail: jems@kellogg.northwestern.edu
Mobile (847) 651-6503

EDUCATION

Ph.D., Economics, Northwestern University, 1979
Dissertation: Studies in Adaptive Investment Planning: Research and Development, Rolling Plans and Renewable Resources.

Ph.D. Advisor: Dale Mortensen, Nobel Memorial Prize in Economic Sciences, 2010

M.A., Economics, Northwestern University, 1976
B.A., Economics, University of Michigan, 1974

CURRENT PROFESSIONAL APPOINTMENTS

Elinor Hobbs Distinguished Professor of International Business, Kellogg School of Management, September 2000 to present.

Professor, Strategy Department, Kellogg School of Management, Northwestern University, June 1990 to present.

Professor of Law, Courtesy, Northwestern University Pritzker School of Law, October 2000 to present.

Professor of Managerial Economics and Decision Sciences, Kellogg School of Management, Northwestern University, Courtesy, June 1993 to present.

PREVIOUS PROFESSIONAL APPOINTMENTS

Research Director of the Searle Center on Law, Regulation, and Economic Growth, and Northwestern University Center on Law, Business, and Economics at the Pritzker School of Law, September 2010 to June 2020.

Research Director: Program on Innovation, Entrepreneurship, and Economic Growth, Searle Center on Law, Regulation, and Economic Growth, Northwestern University Pritzker School of

Law, Fall 2007 to Fall 2010.

Founding Director of International Business & Markets Program and Research Center, Kellogg School of Management, Northwestern University, July 2001 to July 2006.

Chair in Energy Resource Management, Kellogg School of Management, Northwestern University, June 1990 to September 2000.

Visiting Professor of Economics, California Institute of Technology, September 1989 to December 1989.

Professor of Economics and Law, University of Southern California Law School, September 1988 to May 1990.

Professor of Economics, University of Southern California, September 1988 to May 1990.

Visiting Associate Professor of Economics, California Institute of Technology, January 1988 to June 1988.

Associate Professor of Economics, with tenure, University of Southern California, September 1984 to August 1988.

Research Associate, Institute for Marine and Coastal Studies, University of Southern California, July 1982 to June 1984.

Assistant Professor of Economics, University of Southern California, July 1982 to August 1984.

Assistant Professor of Economics, Brown University, September 1978 to June 1982.

HONORS

Winner, 2023, Antitrust Writing Awards: Academic Articles, Economics, Concurrences and The George Washington University Law School's Competition Law Center, https://awards.concurrences.com/en/awards/2023/academic-articles/antitrust-and-innovation-competition

Bayard Wickliffe Heath Memorial Lecture, University of Florida Law School, March 20, 2019, https://www.infotechconsulting.com/lecture-series/

The 12 Best Papers on Antitrust & the Digital Economy, The Technology Liberation Front, #4 Daniel F. Spulber, Unlocking Technology: Antitrust and Innovation, 4 (4) Journal of Competition Law & Economics, 2008: 915, 2012, http://techliberation.com/2012/09/06/the-12-best-papers-on-antitrust-the-digital-economy/

Highly ranked for 1979-2003 adjusted appearances in "The Most Frequent Contributors to the

Elite Economics Journals: Half Century of Contributions to the 'Blue Ribbon Eight'," J. L. Heck and P. A. Zaleski, Journal of Economics and Finance, 9 Spring, 2006, pp. 1-37.

152nd in the world in the listing of top economists by publications in Tom Coupé, Revealed Performances: Worldwide Rankings of Economists and Economics Departments, 1990-2000, Journal of the European Economic Association, 2004.

The Bonser Distinguished Lecture at the Kelley School of Business, Indiana University, Famous Fables of Economics: Myths of Market Failures, March 27, 2003.

Co-Winner, Maggie Award for Business 2.0 Series, Daniel F. Spulber, Clock Wise: Customer Convenience is the Key to e-Commerce; Rule 3: Time, in 10 Driving Principles of the New Economy, Business 2.0, Special Supplement, February, 1999, pp.15-18.

Ranked 6th in the listing of top 50 economists in the United States by pages published in leading journals, 1984-1993, Trends in Rankings of Economics Departments in the U.S.: An Update, Loren C. Scott and Peter M. Mitias, Economic Inquiry, v. XXXIV, April, 1996, pp. 378-400.

AFFILIATIONS AND MEMBERSHIPS

Member, American Economic Association

Member, Expert Network, Vega Economics, https://vegaeconomics.com/

WEB PAGES

Daniel F. Spulber, GOOGLE SCHOLAR, 13,497 citations. Accessed June 14, 2024, https://scholar.google.com/citations?user=Nvs1ixIAAAAJ.

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Current teaching:

International Business Strategy STRT 460 (MBA)

Technology and Innovation Economics I, MECS 549-1 (PhD)

Research in Economics, MECS 560-3 (PhD)

Other management courses taught:

Strategy and Organization 460 (MBA)
Public Policy and Management Strategy (MBA and Executive Management Program)

Economics courses taught:

Microeconomic Theory (Undergraduate and PhD)
Law and Economics (Undergraduate and PhD)
Industrial Organization (Undergraduate and PhD)
Regulation (PhD)
Energy and Resource Economics (Undergraduate and PhD)
Environmental Economics (Undergraduate)

Law courses taught:

Regulated Industries (University of Southern California Law School)

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Founding Editor, Journal of Economics & Management Strategy, Wiley-Blackwell Publishers, 1991 to present.

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37. Daniel F. Spulber and David Besanko, Delegation, Commitment, and the Regulatory Mandate, Journal of Law, Economics, and Organization, 1992, 8, pp. 126-154.

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35. David Besanko and Daniel F. Spulber, Are Treble Damages Neutral? Sequential Equilibrium and Private Antitrust Enforcement, American Economic Review, 1990, 80 September, pp. 870-887.

34. Sudipto Dasgupta and Daniel F. Spulber, Managing Procurement Auctions, Information Economics and Policy, 4, 1989/90, pp. 5-29.

33. Paul W. MacAvoy, Bruce E. Stangle, and Daniel F. Spulber, Is Competitive Entry Free?: Bypass and Partial Deregulation in Natural Gas Markets, Yale Journal on Regulation, 6 Summer, 1989, pp. 209-247.

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32. David Besanko and Daniel F. Spulber, Delegated Law Enforcement and Noncooperative Behavior, Journal of Law, Economics and Organization, 5, Spring 1989, pp. 25-52.

31. David Besanko and Daniel F. Spulber, Antitrust Enforcement under Asymmetric Information, Economic Journal, 99, June 1989, pp. 408-425.

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28. Daniel F. Spulber, Optimal Environmental Regulation under Asymmetric Information, Journal of Public Economics, 35, 1988, pp. 163-181.

27. Daniel F. Spulber, Products Liability and Monopoly in a Contestable Market, Economica, 55, 1988, pp. 333-341.

26. Daniel F. Spulber, Bargaining and Regulation with Asymmetric Information about Demand and Supply, Journal of Economic Theory, 44, April, 1988, pp. 251-268.

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19. Daniel F. Spulber, Risk Sharing and Inventories, Journal of Economic Behavior and Organization, 6, 1985, pp. 55-68.

18. Daniel F. Spulber, Effluent Regulation and Long Run Optimality, Journal of Environmental Economics and Management, 12, 1985, pp. 103-116.

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15. Robert A. Becker and Daniel F. Spulber, The Cost Function with Imperfectly Flexible Capital, Economic Letters, 16, 1984, pp. 197-204.

14. Leonard J. Mirman and Daniel F. Spulber, Uncertainty and Markets for Renewable Resources, Journal of Economic Dynamics and Control, 8(3), 1984, pp. 239-264.

13. Paul Calem and Daniel F. Spulber, Multiproduct Two Part Tariffs, International Journal of Industrial Organization, 2, 1984, pp. 105-115.

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10. Daniel F. Spulber, Competition and Multiplant Monopoly with Spatial Nonlinear Pricing, International Economic Review, 25, June 1984, pp. 425-439.

9. Robert A. Becker and Daniel F. Spulber, Regulatory Lag and Deregulation with Imperfectly Adjustable Capital, Journal of Economic Dynamics and Control, 6, June, 1983, pp. 137-151.

8. Daniel F. Spulber, Pulse Fishing and Stochastic Equilibrium in the Multicohort Fishery, Journal of Economic Dynamics and Control, 6, 1983, pp. 309-332.

7. Daniel F. Spulber, Adaptive Harvesting of a Renewable Resource and Stable Equilibrium, in L. J. Mirman and D. F. Spulber, eds., Essays in the Economics of Renewable Resources, North-Holland, 1982, pp. 117-139.

6. Daniel F. Spulber, Renewable Resources: A Selective Survey, in L. J. Mirman and D. F. Spulber eds., Essays in the Economics of Renewable Resources, North-Holland, 1982, pp. 3-26.

5. Daniel F. Spulber, Daniel F. Spulber, Spatial Nonlinear Pricing, American Economic Review, Vol. 71, No. 5, December 1981, pp. 923-933.

4. Daniel F. Spulber, Capacity, Output and Sequential Entry, American Economic Review, Vol. 71, No. 3, June 1981, pp. 503-514.

3. David Easley and Daniel F. Spulber, Stochastic Equilibrium and Optimality with Rolling Plans, International Economic Review, Vol. 22, February 1981, pp. 79-103.

2. Daniel F. Spulber, Research and Development of a Backstop Energy Technology in a Growing Economy, Energy Economics, Vol. 2, No. 4, October 1980, pp. 199-207.

1. Daniel F. Spulber, Noncooperative Equilibrium with Price Discriminating Firms, Economic Letters, 4, 1979, pp. 221-227.

OTHER WRITINGS

Daniel F. Spulber, Antitrust Policy and Standard Setting Organizations, Public Domain, Newsletter of the Antitrust Section's (ABA) Intellectual Property Committee, 2018, April, pp. 13-22.

Daniel F. Spulber, The Future of Patents and the Fork in the Road, IPWatchdog, http://www.ipwatchdog.com/2015/03/22/the-future-of-patents-and-the-fork-in-the-road/id=55950/, March 22, 2015.

Daniel F. Spulber, The Innovation Act Will Harm Income, Employment, and Economic Growth, IPWatchdog, http://www.ipwatchdog.com/2015/02/24/the-innovation-act-will-harm-income-employment-and-economic-growth/id=55035/, February 24, 2015, also on Technology/Academics/Policy, http://www.techpolicy.com/Blog/March-2015/Innovation-Act-Will-Harm-Income,-Employment,-and-E.aspx, March 4, 2015.

Richard Epstein, F. Scott Kieff, and Daniel F. Spulber, FTC Proposal for Regulating IP Will Harm Consumers, IPWatchdog, http://www.ipwatchdog.com/2011/08/11/ftc-proposal-for-regulating-ip-will-harm-consumers/id=18735/, August 11, 2011.

GRANTS AND AWARDS (PRINCIPAL INVESTIGATOR)

37. Qualcomm, Research Project, Antitrust Policy toward Patent Licensing, Grant to Northwestern University, FY 2020 and FY 2021, $572,209.

36. United States Patent and Trademark Office, Research Conference on Innovation Economics, 2020 Conference on Innovation Economics (June, 2020), Grant to Northwestern University, 2020, $62,830.65 (Cumulative budget to date $281,523.96).

35. United States Patent and Trademark Office, Research Conference on Innovation Economics, 2019 Conference on Innovation Economics (June, 2019), Grant to Northwestern University, 2019, $64,893.

34. Qualcomm, Research Project, Innovation Law and Economics: Public Policy Implications, with Matthew Spitzer, Searle Center for Law, Regulation and Economic Growth, Northwestern University, FY 2018-2019 and FY 2019-2020, $1,671,155.13.

33. United States Patent and Trademark Office, Research Conference on Innovation Economics, 2018 Conference on Innovation Economics (June 22-23, 2018), Grant to Northwestern University, 2018, $61,334.

32. United States Patent and Trademark Office, Research Conference on Innovation Economics 2017, Tenth Annual Conference on Innovation Economics (June 22-23, 2017), Grant to Northwestern University, 2017, SP0038417, $65,846.

31. Ewing Marion Kauffman Foundation, Entrepreneurship Effects of the Sharing Economy: Peer-to-Peer Networks, Mobile Communications, and the Internet of Things, Northwestern University, Summer Research Project, January 1, 2016 – December 1, 2017, $181,990.

30. United States Patent and Trademark Office, Research Conference on Innovation Economics 2016, Ninth Annual Conference on Innovation Economics (June 23-24, 2016), Grant to Northwestern University, $45,483.

29. Microsoft, Seventh Annual Conference on Internet Commerce and Innovation, Searle Center on Law, Regulation and Economic Growth, Conference organizer, no PI on grant, 2016, $60,000.

28. Qualcomm Research Project, Innovation Economics, with Matthew Spitzer, Northwestern University, Grant renewal to Searle Center for Law, Regulation and Economic Growth, FY 2016, FY 2017, and FY 2018, $3,654,892.

27. United States Patent and Trademark Office, Eighth Annual Conference on Innovation Economics (June 18-19, 2015), Grant to Searle Center for Law, Regulation and Economic Growth, Northwestern University, 2015, $68,601.

26. United States Patent and Trademark Office, Roundtable on Patents and Technology Standards, April 9-10, 2015, Grant to Searle Center for Law, Regulation and Economic Growth, Northwestern University, 2015, $47,980, May 14, 2015 to September 30, 2015.

25. Qualcomm Research Project, Innovation Economics: Technology Standards, Market Power, and Public Policy,, with Matthew Spitzer, Grant to Searle Center for Law, Regulation and Economic Growth, Northwestern University, May 1, 2013 to August 31, 2015, $2.1 million.

24. Ewing Marion Kauffman Foundation, Conference and Research on Intellectual Property and Entrepreneurship, Grant to Searle Center for Law, Regulation and Economic Growth, Northwestern University, December 1, 2012 through September 13, 2013.

23. United States Patent and Trademark Office, Conference on Intellectual Property and Entrepreneurship, Grant to Searle Center for Law, Regulation and Economic Growth, Northwestern University, December 1, 2012 through September 30, 2013.

22. Qualcomm Research Project, Searle Center Research Initiative in Innovation: Technology Standards and Market Coordination, with Max M. Schanzenbach, Director Searle Center, Northwestern University, Grant to Searle Center for Law, Regulation and Economic Growth, Research Roundtable February 2013 and Research Conference, June, 2014.

21. Ewing Marion Kauffman Foundation, Conference and Research on Intellectual Property and Entrepreneurship, Grant to Searle Center for Law, Regulation and Economic Growth, Northwestern University, June 2012 through December 1, 2012.

20. United States Patent and Trademark Office, Conference and Research on Intellectual Property and Entrepreneurship, Grant to Searle Center for Law, Regulation and Economic Growth, Northwestern University, June 1, 2012 through December 1, 2012.

19. Ewing Marion Kauffman Foundation, Conference and Research on Intellectual Property and Entrepreneurship, Grant to Searle Center for Law, Regulation and Economic Growth, Northwestern University, July 1, 2011 to December 1, 2012.

18. United States Patent and Trademark Office, Conference and Research on Intellectual Property and Entrepreneurship, Grant to Searle Center for Law, Regulation and Economic Growth, Northwestern University, July 1, 2011 to December 1, 2012.

17. Ewing Marion Kauffman Foundation, Entrepreneurship, Investment and Financial Capital: Establishment of Firms, Incentives, and Contracts, Northwestern University, Research Project, May 1, 2011 through December 1, 2012.

16. Microsoft, Antitrust and Competition in Two-Sided Markets, Northwestern University, Research Project, January 1, 2011 to December 13, 2011.

15. Ewing Marion Kauffman Foundation, Microeconomic Foundations of Entrepreneurship: Establishment of Firms: Competition, Innovation, and Economic Growth, Northwestern

University, Research Project, March 1, 2008 through February 28, 2011.

14. Ewing Marion Kauffman Foundation, The Central Role of the Entrepreneur in the Establishment of Firms: A Fundamental Analysis of the Theory of the Firm, Northwestern University, Research Project, February 14, 2006 through July 15, 2008.

13. The Searle Fund, Access to Networks in the United States: Economic and Constitutional Connections, Northwestern University, Research Project, June 2004 to May 2005.

12. The Searle Fund, The Economic Functions of the Firm in the Contemporary Economy and in Economic Development, Northwestern University, Research Project, June 2002 to May 2004.

11. The Searle Fund, The Role of Trust in Private Contracts, Northwestern University, Research Project, Research Project, June 2000 to May 2002.

10. Ameritech Foundation Grant, Competitive Strategy and Shakeouts in Telecommunications, Northwestern University, Research Project, June-August 1995.

9. National Science Foundation, Grant No. SES-90-96205, Sequential Models of Regulation with Limited Commitment, Northwestern University, Research Project, January 1990-June 1992.

8. National Science Foundation, Grant No. SES-86-08115 Project Renewal, Government Regulation and Procurement Under Incomplete Information, University of Southern California, Research Project, July 1987-June 1988.

7. National Science Foundation, Grant No. SES-86-08115, Government Regulation and Procurement Under Incomplete Information, University of Southern California, Research Project, July 1986 to June 1987.

6. Sea Grant, Economic Analysis for Resource Regulation, University of Southern California, Research Project, October, 1983 to October, 1985.

5. National Science Foundation, Grant No. SES-82-19121, Risk Sharing and Retail Inventories, University of Southern California, Research Project, September 1983 to June 1985.

4. National Science Foundation, Grant No. SES-82-09219, Competition and Welfare with Nonlinear Pricing, Project Renewal, University of Southern California, Research Project, August 1982 to January 1984.

3. National Science Foundation, Grant No. SES-81-05852, Competition and Welfare with Nonlinear Pricing, Brown University and University of Southern California, Research Project, August 1981 to January 1983.

2. National Science Foundation, Grant No. SES-79-14386, The Economics of Renewable Resource Management, Conference Grant, Brown University, Research Project, October 1979 to March 1981.

1. National Science Foundation, Grant No. SES-79-07201, Stochastic Optimization and Economic Dynamics, Brown University, Research Project, July 1979 to July 1980.

CONFERENCES ORGANIZED

33. Daniel F. Spulber, Fourteenth Annual USPTO/Kellogg School of Management, Conference on Innovation Economics, Virtual conference, August 20, 2021.

32. Daniel F. Spulber, Thirteenth Annual USPTO/Kellogg School of Management/Center on Law, Business, and Economics Conference on Innovation Economics, August 27-28, 2020, Virtual conference, https://www.law.northwestern.edu/research-faculty/clbe/events/innovation/documents/innovation_economics_2020_agenda.pdf

31. Daniel F. Spulber, Twelfth Annual USPTO/Searle Center Conference on Innovation Economics, Searle Center on Law, Regulation and Economic Growth, June, 2019, http://www.law.northwestern.edu/research-faculty/searlecenter/events/innovation/documents/2019_innovation_economics_june_2019_agenda.pdf

30. Daniel F. Spulber, Eleventh Annual USPTO/Searle Center Conference on Innovation Economics, Searle Center on Law, Regulation and Economic Growth, June, 2018, http://www.law.northwestern.edu/research-faculty/searlecenter/events/innovation/documents/searle_11th_innovation_economics_2018_agenda.pdf

29. Daniel F. Spulber, Sixth Annual Research Roundtable on Patents and Technology Standards, Searle Center on Law, Regulation and Economic Growth, May, 2018, http://www.law.northwestern.edu/research-faculty/searlecenter/events/roundtable/documents/searle_sso_patent_2018_agenda.pdf

28. Daniel F. Spulber, Tenth Annual USPTO/Searle Center Conference on Innovation Economics, Searle Center on Law, Regulation and Economic Growth, June 22-23, 2017. http://www.law.northwestern.edu/research-faculty/searlecenter/events/innovation/documents/Searle_10th%20Annual_Innovation_Economics_2017_agenda.pdf

27. Daniel F. Spulber, Eighth Annual Conference on Internet Commerce and Innovation, Searle Center on Law, Regulation and Economic Growth, June 8-9, 2017. http://www.law.northwestern.edu/research-

faculty/searlecenter/events/internet/documents/Searle_8th_Internet_Commerce_2017_Agenda.pdf.

26. Daniel F. Spulber, Fifth Annual Research Roundtable on Patents and Technology Standards, Searle Center on Law, Regulation and Economic Growth, May 4-5, 2017. http://www.law.northwestern.edu/research-faculty/searlecenter/events/roundtable/, http://www.law.northwestern.edu/research-faculty/searlecenter/events/roundtable/documents/Searle_Center_Patent_Roundtable_2017_Agenda.pdf

25. Daniel F. Spulber, Ninth Annual USPTO/Searle Center Conference on Innovation Economics, Searle Center on Law, Regulation and Economic Growth, June 23-24, 2016, http://www.law.northwestern.edu/research-faculty/searlecenter/events/innovation/documents/Searle_Center_9th_Innovation_Economics_2016_agenda.pdf.

24. Daniel F. Spulber, Seventh Annual Conference on Internet Commerce and Innovation, Searle Center on Law, Regulation and Economic Growth, June 9-10, 2016, http://www.law.northwestern.edu/research-faculty/searlecenter/events/internet/documents/Searle_Center_7th_Annual_Internet_Commerce_Innovation_2016_Agenda.pdf.

23. Daniel F. Spulber, Fourth Annual Research Roundtable on Patents and Technology Standards, Searle Center on Law, Regulation and Economic Growth, May 5-6, 2016, http://www.law.northwestern.edu/research-faculty/searlecenter/events/roundtable/documents/Searle_Center_Technology_Standards_Roundtable_2016_Agenda.pdf.

22. Daniel F. Spulber, Eighth Annual USPTO/Searle Center Conference on Innovation Economics, Searle Center on Law, Regulation and Economic Growth, June 18-19, 2015, http://www.law.northwestern.edu/research-faculty/searlecenter/events/innovation/documents/Searle_Center_8th_Innovation_Economics_2015_agenda.pdf.

21. Daniel F. Spulber, Sixth Annual Conference on Internet Search and Innovation, Searle Center on Law, Regulation and Economic Growth, June 4-5, 2015, http://www.law.northwestern.edu/research-faculty/searlecenter/events/internet/documents/Searle_Center_6th_Internet_Search_Innovation_2015_Agenda.pdf.

20. Daniel F. Spulber, Third Annual Research Roundtable on Patents and Technology Standards, Data Sets, with Stuart Graham, Cosponsored by the USPTO, Searle Center on Law, Regulation and Economic Growth, April 9-10, 2015, http://www.law.northwestern.edu/research-faculty/searlecenter/events/roundtable/documents/Searle_Center_Patents_Technology_St

andards_2015_Agenda.pdf.

19. Daniel F. Spulber, Seventh Annual USPTO/Searle Center Conference on Innovation Economics, Searle Center on Law, Regulation and Economic Growth, June, 2014, http://www.law.northwestern.edu/research-faculty/searlecenter/events/entrepreneur/documents/Searle_Center_Seventh_Annual_Innovation_Economics_2014_agenda.pdf.

18. Daniel F. Spulber, Fifth Annual Conference on Internet Search and Innovation, Searle Center on Law, Regulation and Economic Growth, June, 2014, http://www.law.northwestern.edu/research-faculty/searlecenter/events/internet/documents/Searle_Center_Fifth_Annual_Internet_Search_Innovation_2014_Agenda.pdf.

17. Daniel F. Spulber, Research Roundtable on Software and Business Method Patents, Searle Center on Law, Regulation and Economic Growth, with Emerson Tiller, April 24-April 25, 2014, http://www.law.northwestern.edu/research-faculty/searlecenter/events/roundtable/documents/Searle_Center_Software_Business%20Method%20Patents_Roundtable_2014_Agenda.pdf.

16. Daniel F. Spulber, Research Roundtable on Innovation Economics, Searle Center on Law, Regulation and Economic Growth, October, 2013, http://www.law.northwestern.edu/faculty/programs/searlecenter/events/roundtable/index.html#innovationroundtable

15. Daniel F. Spulber, Sixth Annual Conference on Innovation and Entrepreneurship, Searle Center on Law, Regulation and Economic Growth, June 6-7, 2013, http://www.law.northwestern.edu/searlecenter/conference/entrepreneur/index.html

14. Daniel F. Spulber, Fourth Annual Conference on Internet Search and Innovation, Searle Center on Law, Regulation and Economic Growth, June 20-21, 2013, http://www.law.northwestern.edu/searlecenter/conference/internet/index.html

13. Daniel F. Spulber, Research Roundtable on Technology Standards, Innovation, and Market Coordination, Searle Center on Law, Regulation and Economic Growth, February 7-8, 2013, http://www.law.northwestern.edu/searlecenter/conference/roundtable/#standards

12. Daniel F. Spulber, Fifth Annual Conference on Innovation and Entrepreneurship, Searle Center on Law, Regulation and Economic Growth, June, 2012, http://www.law.northwestern.edu/searlecenter/conference/entrepreneur/index.html

11. Daniel F. Spulber, Third Annual Conference on Internet Search and Innovation, Searle Center on Law, Regulation and Economic Growth, June, 2012, http://www.law.northwestern.edu/searlecenter/conference/internet/index.html

10. Daniel F. Spulber, Book Preview Roundtable, Daniel F. Spulber's The Innovative Entrepreneur, Searle Center on Law, Regulation and Economic Growth, April 26-27, 2012, http://www.law.northwestern.edu/searlecenter/conference/roundtable/#entrepreneurship

9. Daniel F. Spulber, Fourth Annual Conference on Entrepreneurship and Innovation, Searle Center on Law, Regulation and Economic Growth, June, 2011, http://www.law.northwestern.edu/searlecenter/conference/entrepreneur/index.html

8. Daniel F. Spulber, Second Annual Conference on Internet Search and Innovation, Searle Center on Law, Regulation and Economic Growth, June, 2011, http://www.law.northwestern.edu/searlecenter/conference/internet/index.html

7. Daniel F. Spulber, Research Roundtable on Innovation Policy, Intellectual Property, and Entrepreneurship, Searle Center on Law, Regulation and Economic Growth, 2011, http://www.law.northwestern.edu/searlecenter/conference/roundtable/#innovation

6. Daniel F. Spulber, Third Annual Conference on The Economics and Law of the Entrepreneur, Searle Center on Law, Regulation and Economic Growth, June, 2010, http://www.law.northwestern.edu/searlecenter/conference/entrepreneur/index.html

5. Daniel F. Spulber, First Annual Conference on The Economics and Law of Internet Search, 2010, http://www.law.northwestern.edu/searlecenter/conference/internet/index.html

4. Daniel F. Spulber, Second Annual Conference on The Economics and Law of the Entrepreneur, Searle Center on Law, Regulation and Economic Growth, June, 2009, http://www.law.northwestern.edu/searlecenter/conference/entrepreneur/index.html

3. Daniel F. Spulber, Book Preview Roundtable, Daniel F. Spulber and Christopher Yoo, Networks in Telecommunications, 2008, http://www.law.northwestern.edu/academics/searle/conference/roundtable/Networks_agenda.pdf

2. Daniel F. Spulber, First Annual Conference on The Economics and Law of the Entrepreneur, Searle Center on Law, Regulation and Economic Growth, June, 2008, http://www.law.northwestern.edu/searlecenter/conference/entrepreneur/index.html

1. Daniel F. Spulber, Book Preview Roundtable, Daniel F. Spulber's The Theory of the Firm, Searle Center on Law, Regulation and Economic Growth, 2008, http://www.law.northwestern.edu/academics/searle/conference/roundtable/theory_agenda.pdf

DOCTORAL STUDENTS

1. Paul Calem
2. Sudipto Dasgupta
3. Anindya Sen
4. Sarbajit Sengupta
5. Yossi Spiegel
6. Hon Sing Lee
7. Deepa Kumar
8. Pedro Mendi
9. Ramon Casadesus-Masanell
10. Alexei Alexandrov
11. Nolan Miller
12. Joaquin Poblete
13. Francisco Ruiz Aliseda

OUTSIDE ACTIVITIES

Daniel F. Spulber, Comments on Draft USPTO, NIST, & DOJ Policy Statement on Licensing Negotiations and Remedies for Standard-Essential Patents Subject to Voluntary F/RAND Commitments, Docket ATR-2021-0001, Submitted February 3, 2022.

Comments of Scholars of Law, Economics, and Business Draft USPTO, NIST, & DOJ Policy Statement on Licensing Negotiations and Remedies for Standard-Essential Patents Subject to Voluntary F/RAND Commitments, Docket ATR-2021-0001, Submitted February 4, 2022.

Daniel F. Spulber, Member of the Jury, 2021 Antitrust Writing Award, Concurrences.

Daniel F. Spulber, 2017, Reviewer for 2018 Kauffman Dissertation Fellows, Ewing Marion Kauffman Foundation.

Daniel F. Spulber, Interview for the Global Antitrust Economics Conference, interviewed by Managing Principal Jeffrey Cohen (Analysis Group). https://www.eventbrite.com/e/interview-with-daniel-spulber-the-global-antitrust-economics-conference-tickets-26910829014, Concurrences + Searle Center on Law, Regulation, and Economic Growth at Northwestern Pritzker School of Law, Friday, October 7, 2016, Chicago, IL.

SELECTED PRESENTATIONS

2023

Speaker, Book Roundtable, Technology, Innovation, and Intellectual Property Program, Classical Liberal Institute, New York University, American Patent Law: A Business and Commercial History by Robert P. Merges, December 7, 2023.

Coauthor presentation, Daniel F. Spulber and Xizhao Wang, Knowledge as Output and as Input: Artificial Intelligence and Quantum Computing, Quantum Information Technologies Conference, University of Southern California, May 4-5, 2023.

Coauthor presentation, Daniel F. Spulber and Xizhao Wang, Knowledge as Output and as Input: Artificial Intelligence and Quantum Computing, The 21st Annual International Industrial Organization Conference, Washington, D.C., April 21 – 23, 2023.

Participant, Roundtable, IP Licensing and Policy Discussion, Center for Intellectual Property and Innovation Policy (C-IP2), George Mason University, Antonin Scalia Law School, Arlington, VA, Tuesday, April 18, 2023.

Coauthor presentation, Daniel F. Spulber and Xizhao Wang, Knowledge as Output and as Input: Artificial Intelligence and Quantum Computing, AI@NU Research Series, April 12, 2023.

2022

Keynote Speaker, Incentives to Invent when Innovators Make "New Combinations" of Inventions, Taiwan Symposium on Innovation Economics and Entrepreneurship, a collaboration of the Center for Research in Econometric Theory and Applications (CRETA) of National Taiwan University (NTU) and Office of Interdisciplinary Research (OIR) of National Tsing Hua University (NTHU), March 25, 2022.

Participant, Book Roundtable, on Thibault Schrepel's Blockchain + Antitrust: The Decentralization Formula, Edward Elgar Publishing, 2021, Technology, Innovation, and Intellectual Property Program, Classical Liberal Institute, New York University, March 11, 2022.

Seminar Speaker, Patent Policy for the 5G Era: The Role of Licensing Standard Essential Patents, ITS webinar, International Telecommunications Society, March 1, 2022, https://www.itsworld.org/wp-content/uploads/2021/12/ITS-Webinar-Patent-Policy-for-the-5G-Era.pdf

Seminar Speaker, Incentives to Invent When Innovators Make "New Combinations" of Inventions, Nottingham University Business School (NUBS), University of Nottingham, UK, February 22, 2022.

2021

Keynote Speaker, Licensing Standard Essential Patents and Incentives to Innovate, Conference on Transatlantic Relationships in Innovation Policies: Converging Agendas?, European University Institute, Florence School of Regulation, Communications & Media, Florence, Italy, November 11, 2021.

Participant, Book Roundtable, on Zorina Khan's Inventing Ideas: Patents, Prizes, and the Knowledge Economy, Oxford University Press, Technology, Innovation, and Intellectual Property Program, Classical Liberal Institute, New York University, October 28, 2021.

Speaker and organizer, Fourteenth Annual USPTO/Kellogg School of Management, Conference on Innovation Economics, Virtual conference, August 20, 2021.

Speaker, Book Roundtable, The Case for Patents, by Daniel F. Spulber, Technology, Innovation, and Intellectual Property Program, Classical Liberal Institute, New York University, May 11, 2021, https://www.youtube.com/watch?v=gSZCtbaZ6-c

Speaker, The Case for Patents, Annual conference on Intellectual Property Rights, Intellectual Property 2021: New Risks, New Challenges & Emerging Solutions, April 26-28 2021, World IP Forum, https://www.worldipforum.com/wipf-speakers.php?login=success.

Speaker, The Case for Patents, Podcast, Mercatus Institute, with Alden Abbott, George Mason University, Washington, D.C., April 6, 2021, https://www.mercatus.org/podcasts/04062021/economic-benefits-patent-system.

Speaker, Chief Economist Speaker Series, Antitrust and Innovation Competition, United States Patent and Trademark Office (USPTO), Washington, D.C., April 1, 2021.

Speaker, Seminar, "The Case for Patents," Lazarides Institute, Wilfred Laurier University, Waterloo, Canada, Thursday, March 25, 2021.

Speaker, Panel, Digital Platforms: Innovation, Antitrust, Privacy & the Internet of Things, Center for intellectual Property, Information, and Privacy Law, John Marshall Law School, University of Illinois, Chicago. March 12, 2021.

Speaker, LeadershIP Roundtable, IP, Antitrust and Standards: Have We Reached Global Convergence?, February 2, 2021.

Book Roundtable, Innovators, Firms, and Markets: The Organizational Logic of Intellectual Property by Jonathan M. Barnett, Technology, Innovation, and Intellectual Property Program, Classical Liberal Institute, New York University, January 14, 2021.

2020

Speaker, Panel, FRAND and the Automotive Value Chain, SEP2020 Conference, IPWatchdog, November 17, 2020.

Speaker, Panel, AI and IP, Conference, Joint program with the Giles S. Rich Inn, Pauline Newman IP American Inn of Court, October 20, 2020.

Speaker, Panel, The Antitrust IP Interface: How Antitrust Affects IP Implementation, online broadcast at World Intellectual Property Review/ Life Sciences Intellectual Property Review, Newton Media Ltd, Kingfisher House, 21-23 Elmfield Road, Bromley BR1 1LT United Kingdom, October 22, 2020, https://www.lspnconnect.com/

Speaker, Panel, Using Data to Inform Policy: Empirical Evidence on SEPs, SSOs and FRAND Royalties, 5G at the Nexus of IP, Antitrust, and Technology Leadership, Eighth Annual Fall Conference hosted by the Center for the Protection of Intellectual Property (CPIP) at Antonin Scalia Law School, George Mason University, Arlington, Virginia. Wednesday, October 7 and Thursday, October 8, 2020.

Speaker, Making IP Markets, IP Licensing Roundtable, Center for the Protection of Intellectual Property (CPIP) at Antonin Scalia Law School, George Mason University, Thursday, September 17th, 2020.

Coauthor speaker, Paper Session, TIM Conversations - Technology Acquisitions, Firm Matching in the Market for Technology: Harnessing Creative Destruction, with Pere Arque-Castells, University of Groningen, Academy of Management, Vancouver, BC, Canada, August 10, August 7-11, 2020.

Speaker, Panel on Antitrust Issues, Digital Platforms: Innovation, Antitrust, and Privacy, Center for intellectual Property, Information, and Privacy Law, John Marshall Law School, University of Illinois, Chicago, IL, March 13, 2020.

Speaker, Antitrust Policy toward Patent Licensing: Why Negotiation Matters, Sponsored by the National Science Foundation (NSF), 2020 Future of IP Conference, Orlando Florida, February 28, 2020.

2019

Speaker, Licensing Standard Essential Patents: What is Fair, Reasonable, and Non-Discriminatory?, Bayard Wickliffe Heath Memorial Lecture, University of Florida Law School, March 20, 2019.

Speaker, Panel on Economics of Intellectual Property, USPTO Conference on Artificial Intelligence: Intellectual Property Policy Considerations, January 31, 2019, USPTO, Alexandria, VA.

2018

Speaker, Panel, Session on Competition and Performance: The Role of Technology and Innovation Strategies, Academy of Management, Chicago, IL, August 13, 2018.

Speaker, Panel, Session on Organization Design and Industry Dynamics, Ecosystem Design and Industry Dynamics, Annual Organization Design Conference Chicago, IL, August 12, 2018.

Speaker, Panel, ABA Antitrust Section - IP Committee: Teleconference on Essential Patents and the Agencies – Incentives to Standardize, March 6, 2018.

2017

Coauthor presentations of Pere Arqué-Castells and Spulber, Daniel F., The Market for Technology: Harnessing Creative Destruction: Fifth Annual Research Roundtable on Patents and Technology Standards, May 4-5, 2017, Chicago; 7th ZEW/MaCCI Conference on the Economics of Innovation and Patenting, May 9, 2017, Manheim, Germany; European Policy for Intellectual Property (EPIP) 2017 Conference, September 4-7 2017, Bordeaux, France; Barcelona GSE workshop on the Economics of Science and Innovation, June 15-16, 2017, Barcelona, Spain; 2017 Intellectual Property Statistics for Decision Makers (IPSDM) conference, November 14-15 in Mexico City; Workshop on challenges of innovation policy, November 24, 2017, Reus, Spain.

Speaker, The Internet of Things: Economic Effects and Public Policy Implications, Cyber-physical Technologies to Enable the Internet of Things, Office of Research Development LINC Series: Launching Interdisciplinary Connections, February 15th, 2017, Cook Hall room 2058, Evanston Campus, Northwestern University.

2016

Speaker, Economics of Fostering Innovation and Open Standards in Payment Markets, Federal Reserve Bank of Chicago (FRBC), Chicago Payment Symposium, Chicago, IL, October 12-13, 2016.

Speaker, Panel on “Innovation Economics and New Business Models: Which Consequences for Antitrust Policy?” Global Antitrust Conference, Concurrences Review, Chicago, IL, October 7, 2016.

Speaker, Panel on Patent Holdup, Royalty Stacking, and Standards: Theory and Evidence, Conference on Patent Holdup Theory Implications for The Courts, Government, and the Legislature, Stanford University's Hoover Working Group on Intellectual Property, Innovation, and Prosperity (Hoover IP2), Washington, D. C., October 4, 2016.

Speaker, Standard Setting Organizations and Standard Essential Patents: Voting Power versus Market Power, Ninth Annual Searle Center Conference on Antitrust Economics and Competition Policy, September 16-17, 2016, Northwestern Pritzker School of Law.

Speaker, Session on Consequences of the IoT: Economic Implications, General Accountability Office (GAO) Meeting of Experts on Internet of Things, National Academies of Sciences, Engineering, and Medicine, Washington, D. C., May 24-25, 2016.

Keynote speaker, "What Can We Learn From Technology Standards?," Fourth Annual Research Roundtable on Patents and Technology Standards, Searle Center on Law, Regulation and Economic Growth**,** Northwestern University, May 5-6, 2016.

Seminar speaker, "Standard Setting Organizations and Standard Essential Patents: Voting Power versus Market Power," Managerial Economics and Decision Sciences (MEDS), Kellogg School of Management Northwestern University, April 1, 2016.

Seminar speaker, "Standard Setting Organizations and Standard Essential Patents: Voting Power versus Market Power," Technology & Operations Management, Harvard Business School, March 28, 2016.

ECONOMICS EXPERT WITNESS CONSULTING EXPERIENCE

Spulber has provided economics expert witness testimony in oral and written form in matters concerning Antitrust, Platforms and Two-sided Markets, Intellectual Property (IP) (Patents, Copyrights), Telecommunications, Cable and Satellite Television, Postal Services, Natural Gas, and Network Industries.

Spulber has provided expert testimony before the Federal Trade Commission (FTC), the International Trade Commission (ITC), the Copyright Royalty Board, the Federal Communications Commission (FCC), the Federal Energy Regulatory Commission (FERC), the Postal Rate Commission, and state regulatory agencies including the Illinois Commerce Commission (ICC), the California Public Utilities Commission (CPUC), the Indiana Utility Regulatory Commission, the Washington Utilities and Transportation Commission, and the Wisconsin Public Service Commission.

Spulber has testified or prepared written testimony before the Superior Court for the State of California for the County of Los Angeles, the U.S. District Court for the Western District of Texas, and the U.S. District Court for the District of Columbia.

Spulber's research has been cited by the Supreme Court of the United States.[1] Spulber's research also has been cited by the Federal Communications Commission.[2]

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[1] See 535 U. S. 467 (2002), p. 499, p. 514, p. 534, p. 549, p. 551; 525 U. S. 366 (1999), pp. 426-7.

[2] See for example Tariff Investigation Order and Further Notice of Proposed Rulemaking, In the

ECONOMICS EXPERT WITNESS CONSULTING – SELECTED ENGAGEMENTS

Daniel F. Spulber, 2023, Economics Expert Witness, on behalf of Certain Pharmacies certain pharmacies, versus Surescripts, RelayHealth, and Allscripts Healthcare Solutions, In Re Surescripts Antitrust Litigation, Civil Action No. 1:19-cv-06627, United States District Court, Northern District of Illinois, Expert Report, Rebuttal Report, and Oral Deposition.

Daniel F. Spulber, 2023, Economics Expert Witness, on behalf of DAEDALUS PRIME LLC, versus Samsung Electronics, Initial Expert Report, In the Matter of: Certain Semiconductor Devices, Mobile Devices Containing the Same, and Components Thereof, Inv. No. 337-TA-1335**,** United States International Trade Commission, Washington, D.C., Expert Report, Oral Deposition, and Oral Testimony, September 29, 2023.

Daniel F. Spulber, 2023, Economics Expert Witness, on behalf of DAEDALUS PRIME LLC, versus Samsung Electronics and Taiwan Semiconductor Manufacturing Company (TSMC), Initial Expert Report, In the Matter of: Certain Semiconductor Devices, Mobile Devices Containing the Same, and Components Thereof, Inv. No. 337-TA-1336**,** United States International Trade Commission, Washington, D.C., Expert Report and Oral Deposition.

Daniel F. Spulber, 2023, Economics Expert Witness, Declaration of Daniel F. Spulber, FLO & EDDIE, INC., a California Corporation, individually and on behalf of all other similarly situated, Plaintiff, v. PANDORA MEDIA, LLC, a Delaware corporation, Civil Action No. 2:14-cv-07648-PSG-GJS United States District Court, Central District of California.

Daniel F. Spulber, 2022, Economics Expert Witness, Representing Plaintiffs, Douglas Bernstein, Elaine Ingulli, Terry Halbert, Edward Roy, Louis Penner, and Ross Parke, as Personal Representative of the Estate of Alison Clarke-Stewart, On Behalf of Themselves and Others Similarly Situated Plaintiffs vs. CENGAGE LEARNING, Inc. Defendant, Civil Action No. 19-Cv-7541-ALC-SLC, First Amended Class Action Complaint, United States District Court Southern District of New York, Expert Class Certification Report, October 14, 2022, and Oral Deposition, December 2, 2022, Expert Class Certification Rebuttal Report, February 14, 2023.

Daniel F. Spulber, 2022, Economics Expert Witness, Written Rebuttal Testimony, In the Matter

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Matter of Business Data Services in an Internet Protocol Environment Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans Special Access for Price Cap Local Exchange Carriers AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, WC Docket No. 16-143, WC Docket No. 15-247, WC Docket No. 05-25 RM-10593, Comment Date: June 28, 2016 Reply Comment Date: July 26, 2016 Adopted: April 28, 2016 Released: May 2, 2016.

of: Determination of Rates and Terms for Making and Distributing Phonorecords IV (Phonorecords IV), DOCKET NO. 21-CRB-0001-PR (2023-2027), Representing the National Music Publishers' Association (NMPA) and the Nashville Songwriters Association International (NSAI), versus Amazon, Google/YouTube, Apple, and Spotify, before the Copyright Royalty Board Library of Congress, Washington, D.C.

Daniel F. Spulber, 2022, Economics Expert Witness, Additional Written Direct Testimony, In the Matter of: Determination of Rates and Terms for Making and Distributing Phonorecords III (Phonorecords III), DOCKET NO. 16–CRB–0003–PR (2018–2022) (Remand), Representing the National Music Publishers' Association (NMPA) and the Nashville Songwriters Association International (NSAI), versus Amazon, Google/YouTube, Apple, and Spotify, before the Copyright Royalty Board Library of Congress, Washington, D.C., January 24, 2022.

Daniel F. Spulber, 2021, Economics Expert Witness, Initial Expert Report, On behalf of Evolved Wireless, versus Samsung Electronics and Motorola Mobility, In the Matter of: Certain LTE-Compliant Cellular Communication Devices, Inv. No. 337-TA-1253**,** United States International Trade Commission, Washington, D.C., Report, October 26, and Oral Deposition, December 3, 2021.

Daniel F. Spulber, 2021, Economics Expert Witness, Written Direct Testimony, In the Matter of: Determination of Rates and Terms for Making and Distributing Phonorecords IV (Phonorecords IV), DOCKET NO. 21-CRB-0001-PR (2023-2027), Representing the National Music Publishers' Association (NMPA) and the Nashville Songwriters Association International (NSAI), versus Amazon, Google/YouTube, Apple, and Spotify, for the Copyright Royalty Board Library of Congress, Washington, D.C., October.

Daniel F. Spulber, 2021, Economics Expert Witness, Remand Written Rebuttal Testimony, In the Matter of: Determination of Rates and Terms for Making and Distributing Phonorecords III (Phonorecords III), Docket No. 16–CRB–0003–PR (2018–2022) (Remand), Representing the National Music Publishers' Association (NMPA) and the Nashville Songwriters Association International (NSAI), versus Amazon, Google/YouTube, Apple, and Spotify, for the Copyright Royalty Board Library of Congress, Washington, D.C., July.

Daniel F. Spulber, 2019, Economics expert analysis and consulting, Research Project on Licensing Standard Essential Patents (SEPs), Nokia Technologies.

Daniel F. Spulber, 2018, Economics expert analysis and consulting, Research project, Nokia Technologies.

Daniel F. Spulber, 2017, Economics expert witness, Economic Analysis for Rovi Corporation (TiVo Corporation), versus respondents Comcast, ARRIS, and Technicolor, In the Matter of Certain Digital Video Receivers and Hardware and Software Components Thereof, Inv. No. 337-TA-1001, Statement before the United States International Trade Commission, Washington, D.C., https://www.usitc.gov/publications/337/pub4931.pdf, Rebuttal Statement, Oral Deposition.

Daniel F. Spulber, 2017, Economics expert analysis for Congressional Requestors, GAO-17-75, Technology Assessment, Internet of Things: Status and Implications of an Increasingly Connected World, United States Government Accountability Office, Washington, D.C., Oral presentation.

Daniel F. Spulber, 2017, Economics expert analysis and consulting, Research project, Nokia Technologies.

Daniel F. Spulber, 2016, Economics expert witness. Economic Analysis for Razor, In the Matter of Certain Motorized Self-balancing Vehicles, Investigation no. 337-ta-1000, Complaint under section 337 of the tariff act of 1930, as amended, Expert analysis of Alibaba.com. Before the United States International Trade Commission, Washington, D.C., December.

Daniel F. Spulber, 2014, Brief of Amicus Curiae, The Intellectual Property High Court of Japan, Apple v. Samsung, March.

Daniel F. Spulber, 2014, Brief of Amici Curiae Trading Technologies International, Inc., Cantor Fitzgerald, L.P., Cummins Inc., Scientific Games Corporation, Align Technology, Inc., et al., in Support of Petitioner, Alice Corporation Pty. Ltd., Petitioner, v. CLS Bank International and CLS Services Ltd., Respondents, Supreme Court of the United States, January.

Daniel F. Spulber with J. Gregory Sidak, 2013, Declaration on Behalf of América Móvil, S.A.B. de C.V. before the Comisión Federal de Telecomunicaciones, Mexico, January.

Daniel F. Spulber, 2012, Served as Economics Expert Witness, Economic Analysis for ChriMar Systems, Inc., In the matter of Certain Communication Equipment, Components Thereof, and Products Containing the Same, Including Power Over Ethernet Telephones, Switches, Wireless Access Points, Routers and Other Devices Used in LANS, and Cameras, before the United States International Trade Commission, Washington, D.C.. Oral Deposition.

Daniel F. Spulber, with Richard A. Epstein and F. Scott Kieff, 2011, Prepared report titled "The FTC's Proposal for Regulating IP through SSOs Would Replace Private Coordination with Government Hold-Up," August 5, White paper submitted at the Request of Qualcomm for the Federal Trade Commission's (FTC) Patent Standards Workshop, Washington, D.C.

Declaration of Economists and Antitrust Scholars on Behalf of Radiomóvil Dipsa S.A. de C.V. (Telcel), Reconsideration Recourse, RA-007-2011, Case File No. DE-37-2006, Comisión Federal de Competencia (United Mexican States) (Oct. 14, 2011), co-authored with Robert H. Bork, Michael J. Boskin, Kenneth G. Elzinga, Paul W. MacAvoy, George L. Priest, Pablo T. Spiller, Daniel F. Spulber, and David J. Teece.

Daniel F. Spulber, 2010, Amicus Brief of Distinguished Economists on Rehearing *en banc* in Support of the Appellee TiVo Inc, in favor of Affirmance, TiVo v. EchoStar, Court of Appeals for the Federal Circuit.

Daniel F. Spulber, 2009, Prepared Economic Expert report on Securities and Exchange Commission policies toward High Frequency/Flash Trading.

Daniel F. Spulber, 2009, Prepared Economic Expert report on behalf of three independently-licensed television channels that are telecast on the two subscriber platforms in Israel: Channel 9 Israel Plus; Channel 24, the Israeli Music Channel; and Channel 21, the Shopping Channel, Statement before the Israeli Ministry of Communication.

Supreme Court of the United States, 2008, No. 07-512 (filed September 4), Brief of Amici Curiae Professors and Scholars in Law and Economics in Support of the Petitioners, Pacific Bell Telephone Co. v. linkLine Communications, Inc., (brief on behalf of William J. Baumol, Robert H. Bork, Robert W. Crandall, George Daly, Harold Demsetz, Jeffrey A. Eisenach, Kenneth G. Elzinga, Richard A. Epstein, Gerald Faulhaber, Franklin M. Fisher, Charles J. Goetz, Robert Hahn, Jerry A. Hausman, Keith N. Hylton, Thomas M. Jorde, Robert E. Litan, Paul W. MacAvoy, Sam Peltzman, J. Gregory Sidak, Pablo T. Spiller, and Daniel F. Spulber), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1264103.

Supreme Court of the United States, 2007, No. 07-512 (filed Nov. 16, 2007) Brief of Amici Curiae Professors and Scholars in Law and Economics in Support of the Petitioners, Pacific Bell Telephone Co. v. linkLine Communications, Inc., (brief on behalf of William J. Baumol, Robert H. Bork, Robert W. Crandall, George Daly, Harold Demsetz, Jeffrey A. Eisenach, Kenneth G. Elzinga, Gerald Faulhaber, Franklin M. Fisher, Charles J. Goetz, Robert Hahn, Jerry A. Hausman, Thomas M. Jorde, Robert E. Litan, Paul W. MacAvoy, J. Gregory Sidak, Pablo T. Spiller, and Daniel F. Spulber), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1030990.

Daniel F. Spulber, 2001, Prepared economics expert witness testimony on pole attachments for Georgia Power Company in Teleport Communications Atlanta, Inc. v. Georgia Power Company, PA No. 00-006 before the Federal Communications Commission, February.

Daniel F. Spulber, 1998, Prepared economics expert witness testimony on behalf of GTE in Joint Application of AT&T Corp. and Tele-Communications, Inc. for Transfer of Control to AT&T of Licences and Authorizations Held by TCI and its Affiliates or Subsidiaries, Federal Communications Commission, CS Docket No. 98-178.

Daniel F. Spulber, 1998, Prepared economics expert report on Contribution of Windows Complements Providers in the Silicon Valley, Microsoft, September.

Daniel F. Spulber, 1997, Provided economic consulting to Enova Corporation (San Diego Gas and electric and Enova energy) and Pacific Enterprises (Southern California Gas) regarding their merger to form Sempra Energy.

Daniel F. Spulber, 1997, Economics expert report on securitization of stranded costs, Detroit Edison, November.

Daniel F. Spulber, 1997, Prepared economics expert witness testimony before the Surface Transportation Board, for Union Pacific Railroad Company and Southern Pacific Transportation Company in the matter of the Application of the National Railroad Passenger Corporation under 49 U.S.C. 24308a-Union Pacific and Southern Pacific Transportation Company, November 10.

Daniel F. Spulber, 1997, Prepared extensive local exchange competition study regarding the Telecommunications Act checklist and prepared written testimony for Pacific Bell, before the Federal Communications Commission in the Matter of Applications for Authority Under Section 271 of the Communications Act to Provide In-Region InterLATA Service in the State of California, March.

Daniel F. Spulber, 1997, with Michael Doane, Prepared study "Renegotiating the Regulatory Contract: Opportunism, Municipalization, and Bypass in the U.S. Electric Power Industry," for the Edison Electric Institute, February.

Daniel F. Spulber, 1997, Economics expert witness testimony for GTE Arbitration of interconnection agreements pursuant to the Telecommunications Act of 1996, before the Illinois Commerce Commission, the Indiana Utility Regulatory Commission, the Washington Utilities and Transportation Commission, and the Wisconsin Public Service Commission. Written statement presented in 28 states.

Daniel F. Spulber, 1997, Economics expert witness testimony, GTE Arbitration of interconnection agreements, Illinois Commerce Commission, Oral testimony.

Daniel F. Spulber, 1997, Economics expert witness testimony, GTE Arbitration of interconnection agreements, Indiana Utility Regulatory Commission, Oral testimony.

Daniel F. Spulber, 1997, Economics expert witness testimony, GTE Arbitration of interconnection agreements, Washington Utilities and Transportation Commission, Oral testimony.

Daniel F. Spulber, 1997, Economics expert witness testimony, GTE Arbitration of interconnection agreements, Wisconsin Public Service Commission, Oral testimony.

Daniel F. Spulber, with J. Gregory Sidak, 1997, Affidavit, appended to Comments of the United States Telephone Association in Usage of the Public Switched Network by Information Service and Internet Access Providers, Notice of Inquiry, Federal Communications Commission, CC Docket No. 96-263 (filed Mar. 24, 1997).

Daniel F. Spulber, with J. Gregory Sidak, Reply Affidavit of, appended to Reply Comments of the United States Telephone Association in Access Charge Reform; Price Cap Performance Review for Local Exchange Carriers; Transport Rate Structure and Pricing; Usage of the Public Switched Network by Information Service and Internet Access Providers, Notice of Proposed Rulemaking, Third Report and Order, and Notice of Inquiry, CC Docket Nos. 96-262, 94-1, 91-213, 96-263 (filed Feb. 14, 1997), Federal Communications Commission.

Daniel F. Spulber, with J. Gregory Sidak, Reply Affidavit, In the Matter of Access Charge Reform, CC Docket No. 96-262, Price Cap Performance Review, CC Docket No. 94-1 for Local Exchange Carriers, Transport Rate Structure, CC Docket No. 91-213 and Pricing, Usage of the Public Switched, CC Docket No. 96-263 Network by Information Service and Internet Access Providers, Federal Communications Commission.

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Affidavit of Michael J. Doane, J. Gregory Sidak, and Daniel F. Spulber, "An Empirical Analysis of Pricing Under Sections 251 and 252 of the Telecommunications Act," appended to Reply Comments of GTE Service Corporation in Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Federal Communications Commission, CC Docket No. 96-98 (filed May 30, 1996).

Daniel F. Spulber, 1996, Economics expert witness testimony and accompanying statement on "Achieving Competition Fairly in California Telecommunications Markets," Prepared for Pacific Bell, in the Califormia Public Utilities Commission hearings on local exchange competition, January 1996. Oral testimony. October 9, 1995.

Daniel F. Spulber, 1996, Economics expert witness testimony, Prepared Direct Testimony and Reply Testimony for Pacific Bell, "Pricing Resale Services and Unbundled Services in California Telecommunications," in the Matter of Rulemaking on the Commission's Own Motion to Govern Open Access to Bottleneck Services and Establish a Framework for Network Architecture Development of Dominant Carrier Networks, R. 93-04-003, and in the Matter of the Investigation on the Commission's Own Motion into Open Access and Network Architecture Development of Dominant Carrier Networks, I. 93-04-002, before the Public Utilities Commission on the State of California, June 14.

Daniel F. Spulber, 1996, An Empirical Analysis of the Efficient Component-Pricing Rule and Sections 251 and 252 of the Telecommunications Act of 1996, appended to Comments of GTE Service Corporation in Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Federal Communications Commission, CC Dkt. No. 96-98 (filed May 16, 1996), co-authored with Michael J. Doane.

Daniel F. Spulber, 1996, Economics expert witness testimony, Affidavit for the United States Telephone Association, In the Matter of Implementation of the Non-Accounting Safeguards of Sections 271 and 272 of the Communications Act of 1934 as amended; (Docket No. 96-149) and Regulatory Treatment of LEC Provision of Interexchange Services Originating in the LEC's Local Exchange Area, December, Federal Communications Commission.

Daniel F. Spulber, 1995, Affidavit, for counsel for the Bell Operating Companies (BOCs), (Reply of Bellsouth Corporation, Nynex Corporation, and SBC Communications to initial comments on their motion to vacate the Modified Final Judgement consent decree), United States of America v. Western Electric Co., Inc. and American Telephone and Telegraph Company, Civil Action No. 82-0192, United States District Court for the District of Columbia, June.

Daniel F. Spulber, 1995, Report on proposals for Ramsey pricing by the United States Postal Service, prepared for United Parcel Service for submission to the Subcommittee on the Postal Service of the House committee on Government Reform and Oversight, June.

Daniel F. Spulber, 1994, Testimony with Pablo Spiller and George Schink, "Competition and Stranded Cost Recovery in the Electricity Sector," part of Commonwealth Edison comments in Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, Federal Energy Regulatory Commission Docket No. RM94-7-000, December 9.

Daniel F. Spulber, 1994, Economics expert witness testimony and expert report prepared on behalf of the Advertising Mail Marketing Association, the Direct Marketing Association, and the Mail Order Association of America, before the United States Postal Rate Commission, in the Matter of Postal Rate and Fee Changes, August. Oral testimony.

Daniel F. Spulber, 1994, Economics expert witness report and deposition, Protectoseal, Oral deposition.

Daniel F. Spulber, 1994, Developed an auction bidding strategy for Ameritech in the Federal Communications narrowband PCS spectrum auctions.

Daniel F. Spulber, 1994, Developed an auction bidding strategy for Ameritech in the Federal Communications Commission broadband PCS spectrum auctions.

Daniel F. Spulber, 1993, Prepared direct testimony on behalf of Stingray Pipeline, Midcon Corp. regarding In the Matter of Stingray Pipeline Company, Docket No. RP91-212-000, before the Federal Energy Regulatory Commission, March.

Daniel F. Spulber, 1993, Prepared economics expert report on The Market for Electric Power in Niagara Mohawk Corporation's Territory, for Niagara Mohawk Power Corp., July.

Daniel F. Spulber, 1993, Prepared expert report on regulatory pricing recommendations for Niagara Mohawk Power Corp..

Daniel F. Spulber, 1993, Economics expert witness testimony, Prepared answering and rebuttal testimony on behalf of Texas Eastern Transmission Corp. before the Federal Energy Regulatory Commission, Great Lakes Gas Transmission Limited Partnership, Docket No. RP91-143-000, February 16, 1993 and April 29, 1993.

Daniel F. Spulber, 1992, Keynote Speaker, En Banc Hearing on Natural Gas Procurement, State of California Public Utilities Commission, San Francisco, Ca, February. Oral testimony.

Daniel F. Spulber, 1991, Economics expert witness testimony, Prepared direct testimony on behalf of Texas Eastern Transmission Corp. before the Federal Energy Regulatory Commission, Great Lakes Gas Transmission Limited Partnership, Docket No. RP91-143-000, pursuant to Commission Orders of May 31 and June 14, 1991, August 30.

Daniel F. Spulber, 1991, Economics expert consulting, Report on Regulation of Health Care, California Association of Catholic Hospitals.

Daniel F. Spulber, 1991, Economics expert witness testimony, Testimony on behalf of Pacific Refining Co. in the City of Long Beach v. Pacific Refining Co., Superior Court for the State of California for the County of Los Angeles, January. Oral testimony.

Daniel F. Spulber, 1989, Economics expert consulting, Design of Interruptible Pricing Program, Niagara Mohawk Power Corp.

Daniel F. Spulber, 1988, Economics expert witness, Expert Report for Enron Corp., in JJCC Limited vs Transwestern Pipeline Corp., An Enron Corporation, U.S. District Court, Western District of Texas.

Daniel F. Spulber, Economics expert witness testimony, Prepared testimony on behalf of Southern California Gas, Hearing on the Certification of Mojave and Kern River Natural Gas Pipelines.

Daniel F. Spulber, 1986, Economics expert witness testimony, Prepared testimony on behalf of Santa Fe and Southern Pacific Railroads, supporting their merger proposal, Interstate Commerce Commission.

Daniel F. Spulber, 1985, Economics expert witness testimony, Prepared testimony on Regulation-Induced Distortions in Natural Gas Markets and Take-or-Pay Contracts, for Oklahoma Natural Gas Pipeline, May.

Daniel F. Spulber, Economics expert witness testimony, Prepared written testimony on behalf of Southern California Gas, Hearing on the sale of its headquarters building.

Appendix B

Testimony in the Past Four Years

Testimony in the Past Four Years

1. *In Re Surescripts Antitrust Litigation* (N.D. Ill. No. 1:19-cv-06627) (Expert Report August 17, 2023, Rebuttal Report October 19, 2023, and Oral Deposition October 30, 2023).

2. *In the Matter of Certain Semiconductor Devices, Mobile Devices Containing the Same, and Components Thereof.* (Inv. No. 337-TA-1336) (Expert Report June 9, 2023, and Oral Deposition June 29, 2023). United States International Trade Commission, Washington, D.C.

3. *In the Matter of Certain Semiconductor Devices, Mobile Devices Containing the Same, and Components Thereof.* (Inv. No. 337-TA-1335) (Expert Report May 26, 2023, Oral Deposition June 23, 2023, and Oral Testimony, September 29, 2023). United States International Trade Commission, Washington, D.C.

4. *Flo & Eddie, Inc. v. Pandora Media, LLC, et al.* (C.D. Cal. No. 2:14-cv-07648-PSG-GJS).

5. *Douglas Bernstein, et al. v. Cengage Learning, Inc.* (S.D.N.Y. No. 19-cv-7541-ALC-SLC) (Expert Class Certification Report, October 14, 2022, and Oral Deposition, December 2, 2022, Expert Class Certification Rebuttal Report, February 14, 2023).

6. Written Rebuttal Testimony. *Determination of Rates and Terms for Making and Distributing Phonorecords IV (Phonorecords IV)*. (No. 21-CRB-0001-PR (2023-2027)) (2022). Copyright Royalty Board Library of Congress, Washington, D.C.

7. Additional Written Direct Testimony. *Determination of Rates and Terms for Making and Distributing Phonorecords III (Phonorecords III)*. (No. 16–CRB–0003–PR (2018–2022) (Remand)) (2022). Copyright Royalty Board Library of Congress, Washington, D.C.

8. Initial Expert Report. *Certain LTE-Compliant Cellular Communication Devices*. (Inv. No. 337-TA-1253) (Report October 26, 2021, and Oral Deposition December 3, 2021). United States International Trade Commission, Washington, D.C.

9. Written Direct Testimony. *Determination of Rates and Terms for Making and Distributing Phonorecords IV (Phonorecords IV)*. (No. 21-CRB-0001-PR (2023-2027)) (2021). Copyright Royalty Board Library of Congress, Washington, D.C.

10. Remand Written Rebuttal Testimony. *Determination of Rates and Terms for Making and Distributing Phonorecords III (Phonorecords III)*. (No. 16–CRB–0003–PR (2018–2022) (Remand)) (2021). Copyright Royalty Board Library of Congress, Washington, D.C.

Appendix C

Materials Considered

Materials Considered[1]

Legal

Collective Action Complaint. *Roy, et al., v. FedEx Ground Package System, Inc.* (D. Mass. No. 3:17-cv-30116) (Aug. 29, 2017).

Declaration of Brian Berger. *Roy, et al., v. FedEx Ground Package System, Inc.* (D. Mass. No. 3:17-cv-30116) (Aug. 18, 2023).

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Declaration of Flaviano Oliveira. *Roy, et al., v. FedEx Ground Package System, Inc.* (D. Mass. No. 3:17-cv-30116) (Aug. 18, 2023).

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