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CHRISTIAN M. DIPPON

VICE PRESIDENT

Mr. Dippon is a Vice President in NERA's Communications and Intellectual Property Practices. He specializes in the economics, business, and regulation of the communications and high-tech industries, and the evaluation of economic damages in intellectual property and commercial litigation disputes. He advises his clients in complex communications litigation and policy matters and provides strategic advice to cope with changes in competition, regulation, and technology. Mr. Dippon serves on the Board of Directors of the International Telecommunications Society (ITS) and the International Intellectual Property Institute (IIPi) and is a member of the American Economic Association, and the Federal Communications Bar Association.

Mr. Dippon has extensive testimonial experience, including depositions, expert testimonies before state and federal courts, the Federal Communications Commission, the International Trade Commission, numerous state commissions, and an antitrust authority. Recently, Mr. Dippon testified in a jury trial in US state court where his testimony was a key component of his client's win in a major wireless class action lawsuit. Mr. Dippon has consulted to clients in the United States, Canada, Japan, the United Kingdom, China, Brazil, Singapore, Hong Kong, Spain, Israel, the Dominican Republic, Korea, Indonesia, and Australia.

With over 12 years of experience, Mr. Dippon is an expert in telecommunications specializing in wireline, wireless, cable, and emerging technologies. His clients call on Mr. Dippon for his expertise with local exchange carriers, wireless operators, long distance carriers, Internet service providers (ISPs), cable operators, mobile network operators (MNOs), virtual mobile network operators (MVNOs), VoIP providers, and emerging players of WiFi, WiMax, video broadcasting. He has worked on a wide range of issues in the communications sector, including mergers and acquisitions, spectrum auctions, the evaluation of IP damages, allegations of antitrust violations, regulatory matters, assessment of competitive market conditions, consumer class action lawsuits, breach of contract disputes, convergence and business strategies, demand forecasting, pricing, and other complex commercial disputes.

Mr. Dippon has authored a book on mobile virtual network operators (MVNOs) and numerous articles on wireless and wireline competition and strategies and frequently lectures in these areas at industry conferences, continuing education programs for lawyers, and at universities. Most recently, he was the co-editor of *The K&L Gates-NERA Global Telecom Review*, a book by

NERA and law firm K&L Gates that presents insights from a diverse range of legal, economic, and industry professionals from markets around the globe, highlighting some key aspects and debates that shape the ever-evolving telecommunications industry. Mr. Dippon's works have been cited by national and international newspapers and magazines, including *Financial Times*, *Business Week*, *Forbes*, the *Chicago Tribune*, *Competition Law 360*, and the *Sydney Morning Herald*.

Mr. Dippon has completed substantial PhD coursework in economics and received an MA in economics, with a concentration in microeconomics and econometrics, from the University of California. Prior to joining NERA, Mr. Dippon was an analyst at BMW in Bangkok, Thailand.

Education

University of California, Santa Barbara
M.A., Economics, 1995

California State University, Hayward
B.S., *cum laude*, Business Administration, 1993

Professional Experience

2004- **NERA Economic Consulting**
Vice President

2000-2004 Senior Consultant

1998-2000 Consultant

1997-1998 Senior Analyst

1996-1997 Analyst

1993-1994 **Bavarian Motor Works (BMW), Bangkok, Thailand**
Analyst

Honors and Professional Activities

Board of Directors, International Telecommunications Society (ITS)

Board of Directors, International Intellectual Property Institute (IIPI)

Member, American Economic Association

Member, Federal Communications Bar Association

Member, American Bar Association, IP Law and Communications Chapter

Member, Licensing Executives Society USA and Canada Inc.

Member, Golden Key Honor Society, 1993

Book Publications

K&L Gates – NERA 2007 Global Telecoms Review, A Legal and Economic Examination of Current Industry Issues, Christian Dippon and Martin Stern, Editors, April 16, 2008

“Regulation under Fixed Mobile Convergence, Examining Recent Developments in Hong Kong,” by Keith Lee, Wendy Lo, Christine Yam, and Christian Dippon, publication forthcoming in *K&L Gates – NERA 2007 Global Telecoms Review, A Legal and Economic Examination of Current Industry Issues,* April 16, 2008.

“Size Matters, Relevant Market Definition and Competition Review in a World with Intermodal Competition,” by Christian Dippon and Christopher Huther, publication forthcoming in *K&L Gates – NERA 2007 Global Telecoms Review, A Legal and Economic Examination of Current Industry Issues,* April 16, 2008.

“Mobile Virtual Network Operators: Blessing or Curse? An Economic Evaluation of the MVNO Value Proposition,” by Christian Dippon and Aniruddha Banerjee, National Economic Research Associates, ISBN 0-9748788-2-0, 2006.

“Convergence in Telecommunications, Implications for Regulation and Competition Law Enforcement,” by Christian Dippon and Timothy Tardiff. Published in *The Preston Gates Guide to Telecommunications in Asia*, 2006 Edition, Asia Law & Practice, 2006, ISBN 962-936-155-8, pages 31-40.

“When East Meets West –Converging Trends in the Economics of Intellectual Property Damages Calculation,” by Christian Dippon and Noriko Kakihara. Published in *Economic Approaches to Intellectual Property Policy, Litigation, and Management*, edited by Dr. Gregory Leonard and Dr. Lauren J. Stiroh, National Economic Research Associates, Inc., 2005, ISBN 0-9748788-1-2, pages 277-291.

“Marketing Research,” Chapter 4 in *Internet Marketing: Building Advantage in a Networked Economy*, an MBA coursework textbook by Rafi Mohammed, Robert J. Fisher, Bernard Jaworski, Aileen M. Cahill, published by McGraw-Hill Higher Education, ISBN 0-07-251022-6, pages 127-167.

Paper and Article Publications

“Voluntary Relationships Among Mobile Network Operators and Mobile Virtual Network Operators – An Economic Explanation,” with Dr. Aniruddha Banerjee, published in *Information Economics and Policy*, Volume 21, Issue 1, February 2009, p. 72-84.

“Innocent Until Proven Guilty – Or Not, an Economic Review of Market Power and Price Fixing Allegations For Text Messaging Services,” October 23, 2008, published in *Telecommunications Industry Litigation Reporter*.

“Access Charges, Universal Service, and Competition,” with Dr. William Taylor, and Dr. Harold Ware, August 1, 2008.

“United States: The Economics Of Mobile Virtual Network Operators,” published on *Free Press*, April 5, 2007 and available at: <http://www.freepress.net/news/22196>.

“The Economics of Mobile Virtual Network Operators,” *Perspectivas en Telecomunicaciones*, a NERA publication on recent communication industry developments, January 2007.

“Is the MVNO Model Doomed?” *Phone+* (a premier magazine for VoIP, data, wireless, Internet and content solutions), December 2006.

“Price Elasticities and Market Definition, An Econometric Study of Fixed-Mobile Convergence,” with Dr. Kenneth Train, Working Paper, 2006.

“Application of Empirical Methods in Merger Analysis,” with Dr. Gregory Leonard and Dr. Lawrence Wu, Published in *CPRC Report Series, Competition Policy Research Center, Fair Trade Commission of Japan*, CR 05-05 November, 2005, available online at <http://www.jftc.go.jp/cprc/reports/reports.html>.

“Local Loop Unbundling: Flaws of the Cost Proxy Model,” *The Journal of Policy, Regulation, and Strategy for Telecommunications Information and Media*, Info Volume 3, Number 2, April 2001.

“The Cost of the Local Communication Network: A Comparison of Minimum Spanning Trees and the HAI Model,” with Dr. Kenneth Train, University of California at Berkeley, *Telecommunications Policy*, Volume 24, No. 3, April 2000.

Testimony in Regulatory and Judicial Proceedings

Declaration of Christian Dippon on Behalf of Sprint Nextel Corporation and Sprint Spectrum L.P. d/b/a Sprint Nextel, United District Court, District of New Jersey, *Judy Larson, Barry Hall, Joe Milliron and Tessie Robb, individually and on behalf of all others similarly situated, Plaintiffs, vs. AT&T Mobility f/k/a Cingular Wireless LLC and Sprint Nextel Corporation and Sprint Spectrum L.P. d/b/a Sprint Nextel and Nextel Finance Company, Defendants*, March 1, 2009.

Direct Testimony of Christian M. Dippon on Behalf of United Telephone Company of New Jersey, Inc., d/b/a Embarq, Before the New Jersey Board of Public Utilities, In the Matter of the Board Investigation and Review of Local Exchange Carrier Intrastate Exchange Access Rates, Docket No. TX08090830, February 13, 2009.

Affidavit of Christian M. Dippon on Behalf of Sprint Nextel Corporation and Sprint Spectrum L.P. d/b/a Sprint Nextel, *Yunis Sampgang, et al. v. AT&T Mobility LLC f/k/a Cingular Wireless LLC and Sprint Nextel Corporation and Sprint Spectrum L.P. d/b/a Sprint Nextel*, United States District Court of New Jersey, Civil Action No., November 21, 2008.

Oral Testimony of Christian M. Dippon on Behalf of Central Telephone Company of Virginia and United Telephone Southeast LLC (aka Embarq), Before the Commonwealth of Virginia State Corporation Commission, Petition of Sprint Nextel For Reductions in the Intrastate Carrier Access Rates of Central Telephone Company of Virginia and United Telephone – Southeast, Inc., Case No. PUC-2007-00108, September 29-30, 2008.

Rebuttal Testimony of Christian M. Dippon on Behalf of Central Telephone Company of Virginia and United Telephone Southeast LLC (aka Embarq), Before the Commonwealth of Virginia State Corporation Commission, Petition of Sprint Nextel For Reductions in the Intrastate Carrier Access Rates of Central Telephone Company of Virginia and United Telephone – Southeast, Inc., Case No. PUC-2007-00108, September 19, 2008.

Direct Testimony of Christian M. Dippon on Behalf of Central Telephone Company of Virginia and United Telephone Southeast LLC (aka Embarq), Before the Commonwealth of Virginia State Corporation Commission, Petition of Sprint Nextel For Reductions in the Intrastate Carrier Access Rates of Central Telephone Company of Virginia and United Telephone – Southeast, Inc., Case No. PUC-2007-00108, August 1, 2008.

Jury Testimony of Christian M. Dippon on Behalf of Sprint Spectrum LP and Wireless Co. LP, Nextel Communications Inc., and Nextel California Inc, *Ayyad, et al. v. Sprint Spectrum Limited Partnership, et. al.*, Cellphone Termination Fee Cases, Superior Court of the State of California, County of Alameda, JCCP No. 4332, Case No. RG03114147, June 1-3, 2008.

Deposition Testimony of Christian M. Dippon on Behalf of Sprint Spectrum LP and Wireless Co. LP, Nextel Communications Inc., and Nextel California Inc, *Ayyad, et al. v. Sprint Spectrum Limited Partnership, et. al.*, Cellphone Termination Fee Cases, Superior Court of the State of California, County of Alameda, JCCP No. 4332, Case No. RG03114147, May 6, 2008.

Declaration of Christian M. Dippon on Behalf of Sprint Spectrum LP and Wireless Co. LP, Nextel Communications Inc., and Nextel California Inc, *Ayyad, et al. v. Sprint Spectrum Limited Partnership, et. al.*, Cellphone Termination Fee Cases, Superior Court of the State of California, County of Alameda, JCCP No. 4332, Case No. RG03114147, May 2, 2008.

Declaration of Christian M. Dippon on Behalf of Sprint Spectrum LP and Wireless Co. LP, Nextel Communications Inc., and Nextel California Inc, *Ayyad, et al. v. Sprint Spectrum Limited Partnership, et. al.*, Cellphone Termination Fee Cases, Superior Court of the State of California, County of Alameda, JCCP No. 4332, Case No. RG03114147, April 28, 2008.

Deposition Testimony of Christian M. Dippon on Behalf of Sprint Spectrum LP and Wireless Co. LP, Nextel Communications Inc., and Nextel California Inc, *Ayyad, et al. v. Sprint Spectrum*

Limited Partnership, et. al., Cellphone Termination Fee Cases, Superior Court of the State of California, County of Alameda, JCCP No. 4332, Case No. RG03114147, April 1, 2008.

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Expert Report of Christian Michael Dippon on Behalf of Nokia Corporation and Nokia Inc., Before the United States International Trade Commission, In the Matter of Certain 3G Mobile Handsets and Components, Investigation No. 337-TA-613, February 1, 2008.

Rebuttal Expert Report on Behalf of Singapore Telecommunications Limited and Singapore Telecom Mobile Pte. Ltd, filed before the Indonesian Business Competition Supervisory Commission (KPPU), Case No. KPPU-L/2007, December 23, 2007 (with Dr. William Taylor, Mr. Nigel Attenborough, and Dr. Agustin Ros).

Expert Report on Behalf of Singapore Telecommunications Limited and Singapore Telecom Mobile Pte. Ltd, "Competitive Assessment of the Indonesian Mobile Sector, Economic Assessment and Examination of Alleged Anticompetitive Behavior," Indonesian Business Competition Supervisory Commission (KPPU), Case No. KPPU-L/2007, October 25, 2007 (with Dr. William Taylor, Mr. Nigel Attenborough, and Dr. Agustin Ros).

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Response Declaration of Christian M. Dippon on Behalf of Sprint Spectrum LP and Wireless Co. LP, Cellular Termination Fee Cases, *Zill, et al. v. Sprint Spectrum Limited Partnership, et. al.* Superior Court of the State of California, County of Alameda, JCCP No. 4332, Case No. RG03114147, December 18, 2006.

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Superior Court of the State of California, County of Alameda, JCCP No. 4332, Case No. RG03114147, December 6, 2006.

Panel Rebuttal Testimony of Dr. Timothy J. Tardiff, Francis J. Murphy and Christian M. Dippon on Behalf of Verizon California Inc., before the Public Utilities Commission of the State of California, Rulemaking in the Commission's Own Motion to Govern Open Access to Open Bottleneck Services and Establish a Framework for Network Architecture Development of Dominant Carrier Networks (Rulemaking 93 04 003). Investigation on the Commission's Own Motion into Open Access and Network Architecture Development of Dominant Carrier Networks (Investigation 93 04 002). November 9, 2004.

Reply Testimony of Christian M. Dippon Filed on Behalf of Verizon California Inc., before the Public Utilities Commission of the State of California, Rulemaking in the Commission's Own Motion to Govern Open Access to Open Bottleneck Services and Establish a Framework for Network Architecture Development of Dominant Carrier Networks (Rulemaking 93 04 003). Investigation on the Commission's Own Motion into Open Access and Network Architecture Development of Dominant Carrier Networks (Investigation 93 04 002). August 6, 2004.

Supplemental Reply Testimony of Christian M. Dippon on Behalf of Verizon Northwest Inc., before the Washington Utilities and Transportation Commission, In the Matter of the Review of Unbundled Loop and Switching Rates; the Deaveraged Zone Rate Structure; and Unbundled Network Elements, Transport and Termination, June 18, 2004.

Oral Testimony of Christian M. Dippon on Behalf of Verizon Northwest Inc., before the Washington Utilities and Transportation Commission, In the Matter of the Review of Unbundled Loop and Switching Rates; the Deaveraged Zone Rate Structure; and Unbundled Network Elements, Transport and Termination, June 3, 2004.

Reply Testimony of Christian M. Dippon on Behalf of Verizon Northwest Inc., before the Washington Utilities and Transportation Commission, In the Matter of the Review of Unbundled Loop and Switching Rates; the Deaveraged Zone Rate Structure; and Unbundled Network Elements, Transport and Termination, April 27, 2004.

Testimonial Workshop in Support of SBC Pacific's Comments, before the Public Utilities Commission of the State of California, Joint Application of AT&T Communications Inc. and WorldCom, Inc. for the Commission to Reexamine the Recurring Costs and Prices of Unbundled Loops in its First Annual Review of Unbundled Network Element Costs Pursuant to Ordering Paragraph 11 of D.99-11-050, June 25, 2003.

Reply Declaration of Christian M. Dippon in Support of SBC Pacific's Comments, before the Public Utilities Commission of the State of California, Joint Application of AT&T Communications Inc. and WorldCom, Inc. for the Commission to Reexamine the Recurring Costs and Prices of Unbundled Loops in its First Annual Review of Unbundled Network Element Costs Pursuant to Ordering Paragraph 11 of D.99-11-050, February 7, 2003.

Oral Testimony, on behalf of Verizon New England Inc. d/b/a Verizon Massachusetts, before the Commonwealth of Massachusetts Department of Telecommunication and Energy, Investigation by the Department on its own Motion into the Appropriate Pricing, based upon Total Element Long-Run Incremental Costs for Unbundled Network Elements, D.T.E. 01-20 (Part A) February 6, 2002.

Surrebuttal Testimony of Christian M. Dippon On Behalf of Verizon New England Inc. d/b/a Verizon Massachusetts, before the Commonwealth of Massachusetts Department of Telecommunication and Energy, Investigation by the Department on its own Motion into the Appropriate Pricing, based upon Total Element Long-Run Incremental Costs for Unbundled Network Elements, D.T.E. 01-20 (Part A) December 17, 2001.

Reply Testimony of Christian M. Dippon On Behalf of GTE Northwest, Inc., before the Public Utility Commission of Idaho in the Matter of the Investigation to Determine an Appropriate Cost Model Using Forward-looking Economic Costs for Calculating the Costs of Basic Telecommunication Services in Idaho, GNR-T-97-22, May 24, 2000.

Oral Testimony, on behalf of GTE Northwest, Inc. at arbitration hearing in the Matter of the Investigation into Universal Service in the State of Oregon, UM 731, Phase IV, Salem, OR, February 7, 2000.

Rebuttal Testimony of Christian M. Dippon On Behalf of GTE Northwest, Inc., before the Public Utility Commission of Oregon in the Matter of the Investigation into Universal Service in the State of Oregon, UM 731, Phase IV, January 12, 2000.

Affidavit of Harold Ware and Christian Michael Dippon On Behalf of Bell Atlantic Incorporated, before the Federal Communications Commission, CC Docket Nos. 96-45, 97-160, July 23, 1999.

Response Affidavit of Christian Michael Dippon On Behalf of GTE North Incorporated, before the Michigan Public Service Commission, Case No. U-11832, May 18, 1999.

Supplemental Affidavit of Christian Michael Dippon In Support of GTE's Petition for Reconsideration of the Fifth Report and Order, before the Federal Communications Commission, CC Docket Nos. 96-45, 97-160, January 25, 1999.

Supplemental Testimony of Christian Michael Dippon on Behalf of GTE Midwest Incorporated, before the Public Service Commission State of Missouri, January 19, 1999.

Affidavit of Christian Michael Dippon In Support of GTE's Application for Review and Review of Freedom of Information Action, before the Federal Communications Commission, CC Docket Nos. 96-45, 97-160, January 15, 1999.

Affidavit of Christian Michael Dippon In Support of GTE's Petition for Reconsideration of the Fifth Report and Order, before the Federal Communications Commission, CC Docket Nos. 96-45, 97-160, December 18, 1998.

Affidavit of Christian Michael Dippon In Support of the Motion of Contel of Minnesota, Inc. d/b/a GTE Minnesota for Reconsideration of the Commission's Decision to Recommend HAI 5.0a, before the Minnesota Public Utilities Commission, May 10, 1998.

News Citations

Erin Coe, "Expert Doubts Antitrust Claims Over Text Messaging," *Competition Law 360*, Portfolio Media Inc., October 27, 2008.

Paul Kirby, "Paper: No Evidence of Text Messaging Price Fixing," *Telecommunications Reports, TRDaily*, October 24, 2008.

Kevin Fitchard, "Are MVNOs banding together?" *Telephony's Wireless Review*, May 13, 2008.

Interview, "Legal, regulatory and property rights issues in the telecommunications industry," with Martin Stern, www.vontv.net, Pulvermedia, March 18, 2008.

Lynn Stanton, "Focus Of Telecom Policy Debates Challenged At VONx," *Telecommunications Report Daily*, March 17, 2008.

Paul Taylor, "Mobile Phone Resellers Forced to Take Stock," *Financial Times*, October 3, 2007.

Ronald Grover and Olga Kharif, "Like Father, Like Son at Qualcomm, As the lawsuits pile up, Paul Jacobs is proving every bit as feisty as the chipmaker's founder," *Business Week*, October 30, 2006, page 72-76.

Bruce Meyerson, "Niche cellular companies stay optimistic," Associated Press, October 16, 2006, published in:

- Baltimore Sun, United States – Oct 16, 2006
- Belleville News-Democrat, IL – Oct 15, 2006
- Biloxi Sun Herald, USA – Oct 15 and 16, 2006
- Bradenton Herald, United States – Oct 15, 2006
- BusinessWeek - Oct 15 and 16, 2006
- Centre Daily Times, PA – Oct 15 and 16, 2006
- Charlotte Observer, NC - Oct 16, 2006
- Chicago Tribune, United States – Oct 16, 2006
- CIO Today, CA – Oct 16, 2006

- Columbus Ledger-Enquirer, GA – Oct 15 and 16, 2006
- Contra Costa Times, CA – Oct 15, 2006
- Daily Press, VA – Oct 16, 2006
- Durham Herald Sun, NC – Oct 15, 2006
- Euro2day, Greece – Oct 15, 2006
- Forbes, NY - Oct 15 and 16, 2006
- Fort Wayne Journal Gazette, IN – Oct 15, 2006
- Fort Wayne News Sentinel, IN – Oct 15, 2006
- Fort Worth Star Telegram, TX – Oct 15, 2006
- FOX News - Oct 15, 2006
- Hartford Courant, United States – Oct 16, 2006
- Hemscott, UK – Oct 15, 2006
- Houston Chronicle, United States - Oct 15, 2006
- Kansas City Star, MO – Oct 16, 2006
- Kansas.com, KS – Oct 16, 2006
- Kentucky.com, KY – Oct 15, 2006
- Los Angeles Times, CA - Oct 16, 2006
- Macon Telegraph, GA – Oct 15 and 16, 2006
- Miami Herald, FL – Oct 15, 2006
- Monterey County Herald, CA – Oct 15, 2006
- Montgomery Advertiser, AL – Oct 16, 2006
- MSN Money – Oct 15, 2006
- Myrtle Beach Sun News, SC – Oct 15, 2006
- Newsday, NY – Oct 15, 2006

- NewsFactor Network, CA – Oct 16, 2006
- Orlando Sentinel, FL – Oct 16, 2006
- phillyBurbs.com, PA – Oct 15, 2006
- Pioneer Press, MN – Oct 15 and 16, 2006
- Sacramento Bee, USA – Oct 15, 2006
- San Francisco Chronicle, USA - Oct 15, 2006
- San Jose Mercury News, USA - Oct 15 and 16, 2006
- San Luis Obispo Tribune, CA – Oct 16, 2006
- Seattle Times, United States - Oct 16, 2006
- SiliconValley.com, CA – Oct 15 and 16, 2006
- Sun-Sentinel.com, FL – Oct 16, 2006
- Sydney Morning Herald, Australia – Oct 15, 2006
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- The State, SC – Oct 15, 2006
- Times Daily (subscription), AL – Oct 15, 2006
- Town Hall, DC – Oct 15, 2006
- Tuscaloosa News (subscription), AL – Oct 15 and 16, 2006
- USA Today – Oct 16, 2006
- Wilmington Morning Star, NC – Oct 15, 2006
- WJLA, DC Oct 15, 2006
- WRAL.com, NC – Oct 15, 2006
- Wyoming News, WY – Oct 15 and 16, 2006

Martin Villaboy, “MVNO Still a Go,” *IP Business*, November 1, 2006

Staff Report, “Market Update: MVNO 2006 Market Report,” *The Prepaid Press*, November 15, 2006

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Consulting Reports

“Mobile Virtual Network Operators (MVNOs) in Israel, An Economic Assessment and Policy Recommendation,” with Mr. Nigel Attenborough, prepared for the State of Israel, Ministry of Communications and Ministry of Finance, August 1, 2007.

“Mobile Virtual Network Operators: Blessing or Curse, An Economic Evaluation of the MVNO Value Proposition,” with Dr. Aniruddha Banerjee, prepared for NTT DoCoMo, January 26, 2006.

“Preparing for the Future: Fixed-Mobile Convergence in Telecommunications,” with Dr. Agustin Ros and Dr. Timothy J. Tardiff. Prepared for [Confidential], December 20, 2004.

“Competitive Aspects of SFPP’s Operations in California,” with Dr. Alan Cox. Report on the competitive assessment of the light petroleum product markets in California. Prepared for SFPP L.P., July 28, 2003.

“Economic Analysis of the Regulated Fee Check Cashing Services in New York,” with Dr. Russ O’Haver. Prepared for the Check Cashing Association of New York, July 22, 2003.

“The Telecommunications Industry in the Dominican Republic: An Assessment of [Confidential] and the Competitive Environment,” with Dr. William Taylor, Dr. Agustin Ros, and Wayne Olson. Prepared for [Confidential], May 23, 2003.

“3G Mobile Network in Singapore – Revenue forecasts 2001” (used to determine the reserve price for the auction of 3G spectrum in Singapore) with Dr. David Salant, November 1, 2001.

“Competitive Pricing Methodologies for ATM Networks,” with Leonard Waverman. Prepared for British Telecommunications plc. May 4, 2001.

“The United States Court of Appeals for the Eighth Circuit,” with Dr. Gregory Duncan. Economic Reading of the July 18, 2000, Iowa Utilities Board v. FCC Decision.

“International Trends in Telecommunications Competition and Regulation.” Overview of the regulatory efforts to facilitate competition in selected countries. Prepared for GTE Corporation, April 8, 1999.

“Evaluation of HAI Consulting Inc.’s implementation of actual average loop length into HM 3.1.” Prepared for GTE Northwest, Inc. in response to a bench request by the Washington Public Utilities Commission.

“Evaluation of the Hatfield Model, Release 5.0,” with Dr. Gregory Duncan, Dr. Timothy Tardiff, Dr. Rafi Mohammed, Mr. Francis Murphy, and Mr. Robert Cellupica. Expert report prepared for GTE Corporation for interconnection arbitrations in various states.

“Economic and Algorithmic Errors in the Hatfield Model,” Release 4.0, with Dr. Gregory Duncan, Dr. Timothy Tardiff, and Dr. Rafi Mohammed. Expert report prepared for GTE Corporation in interconnection arbitrations in various states.

“Economic and Algorithmic Errors in the Hatfield Model, Release 3.1,” with Dr. Gregory Duncan, Dr. Timothy Tardiff, and Dr. Rafi Mohammed. Expert report prepared for GTE Corporation for interconnection arbitrations in various states.

Speeches and Presentations

Communications and High-Tech

“Applied Econometrics – the Valuation of Mobile Spectrum,” Guest Lecture, University of California, Santa Barbara, March 3, 2009.

Broadband Deployment and Take Up, Experiences from the EU and developing countries, Federal Communications Bar Association, Washington DC, February 6, 2008.

“Expanding Broadband Connectivity,” Panel Discussant, 2008 Telecommunications Invitational Forum, Cambridge, Ontario, Canada, April 30, 2008.

“Competition Policy: Seismic Eruptions and Disruptions in an Internet-Enabled World,” Panel Discussant, *Spring 2008 VON.x Conference & Expo*, Hosted by Pulvermedia, San Jose, CA, March 17, 2008.

“Broadband Deployment and Take-up: What Are the Experiences of Various Countries?” Panel Discussant, Federal Communications Bar Association, Washington D.C., February 6, 2008.

“I want your iPhone, An Economic Perspective on the Debates Surrounding the Device and the Industry,” Prepared for Wiley Rein LLP, December 18, 2007.

“The Race to Quadruple Play, Who will Rule the Telecommunications Kingdom?” Law Seminars International, Advanced Conference on Wireless Telecommunications, Seattle, Washington, November 8, 2007.

“Mobile Broadband Issues and Convergence, Economic Development and Regulatory Questions,” Lecture, University of Florida, Warrington College of Business Administration, Public Utility Research Center, September 11, 2007.

“The Economics and Future of Mobile Virtual Network Operators, Economic Assessment Methods and Policy Framework,” Lecture, University of Florida, Warrington College of Business Administration, Public Utility Research Center, September 11, 2007.

“Antitrust Issues in Today’s Telecommunications Industry, Examining the Relationship between Predatory Pricing and Public Policy,” NERA Antitrust Seminar, Tokyo, Japan, March 15, 2007.

“Mobile Trends,” Panel Discussant, Pacific Telecommunications Council (PTC) Annual Conference, “PTC ’07 Beyond Telecom,” Honolulu, Hawaii, January 16, 2007.

“VoIP and Broadband Developments in Europe and Asia,” Panel Discussant, Federal Communications Bar Association, Washington, DC, November 2, 2006.

“Communications Regulation and Policy under Convergence, Advancing the State of the Debate,” with Dr. Aniruddha Banerjee, prepared for the 16th Biennial Conference of the International Telecommunications Society, Beijing, China, June 15, 2006.

“Econometric Methods for Market Definition,” prepared for the International Telecommunications Society, Africa-Asia-Australasia Regional Conference, Perth, Australia, August 29, 2005.

“Fixed-Mobile Convergence” prepared for the International Telecommunications Society, Africa-Asia-Australasia Regional Conference, Perth, Australia, August 29, 2005.

“Fixed-Mobile Convergence, Economic Motivations and Market Implications,” prepared for the Center for Research in Regulated Industries, 18th Annual Western Conference, San Diego, CA, June 23, 2005.

“The Coming Transition Away from the Traditional Public Switched Network,” prepared for Law Seminars International, Telecommunications Carrier Contracts, Atlanta, Georgia, November 18, 2004.

“Economic and Regulatory Challenges in Telecommunications: The Case of VoIP,” prepared for the Center for Research In Regulated Industries, 17th Annual Western Conference, San Diego, CA, June 23, 2004.

“The Pace of the Transition Away From the Public Switched Telephone Network,” prepared for Law Seminars International, Ninth Annual Telecommunications Law Conference, Seattle, WA, May 20, 2004.

“Unverifiable and Inaccurate: A Summary of HM 5.3 Clustering Errors,” presentation to the California Public Utilities Commission and SBC Pacific, San Ramon, CA, June 11, 2003.

“Competitive Pricing Methodologies For Wholesale Broadband Services,” Prepared for the 12th ITS-Europe Regional Conference, Dublin, Ireland, 2-3 September 2001, Presented by Dieter Elixmann, Head of Research Group, WIK GmbH Germany.

“Competitive Pricing Methodologies For Wholesale Broadband Services,” Prepared for the 14th Annual Western Conference, Advanced Workshop in Regulation and Competition, Rutgers University, San Diego, CA, June 27, 2001.

“Implementing Local Loop Unbundling in Europe. Are Cost Proxy Models accurate estimators of forward-looking costs?” presented at the 11th International Telecommunications Society Regional Conference, Lausanne, Switzerland, September 23-25, 2000.

“Estimating the Cost of Local Telephone Service. Where are the customers?” presented at the Advanced Workshop in Regulation and Competition, Rutgers University, The Sagamore, Lake George, Bolton Landing, NY, May 25, 2000.

“The Cost of the Local Telecommunications Network: A Comparison of Minimum Spanning Trees and the HAI Model,” presented with Dr. Kenneth Train, at the Telecommunications Policy Research Conference, Alexandria, VA, October 1998.

“Economic And Engineering Errors in HM 3.1,” presented with F. Murphy before the Hawaiian Public Utilities Commission, Honolulu, HI, February 1998.

Intellectual Property and Commercial Litigation

“The Economic Impact of Counterfeiting, an Economic Perspective of the 2007 OECD Report on Counterfeiting,” American Intellectual Property Law Association, Annual Meeting, Washington DC, October 18, 2007.

“Current Issues in Lost Profits, Using Economics to Determine Lost Profits,” Law Seminar International, *Calculating and Proving Patent Damages* Conference, San Francisco, California, February 26, 2007.

“When East Meets West II, Economic Principles of US Style Patent Litigation,” prepared for the Japan Intellectual Property Institute, Tokyo, Japan, August 4, 2004.

“When East Meets West II, Economic Principles of US Style Patent Litigation,” prepared for Jones Day, Reavis & Pogue, Tokyo, Japan, August 3, 2004.

“When East Meets West II, Economic Principles of US Style Patent Litigation,” prepared Nishimura & Partners, Tokyo, Japan, August 3, 2004.

“Show Me The Money – Market based intellectual property valuation for strategy and litigation.” Prepared for [Confidential], March 25, 2003.

“IP Monetization,” Intellectual property asset management presentation with Dr. Russ O’Haver, prepared for Hewlett-Packard, February 27, 2003.

“When East Meets West, Converging Trends in Japanese IP Litigation.” Prepared for the Intellectual Property Institute, Tokyo, Japan, December 11, 2002.

“When East Meets West, Converging Trends in Japanese IP Litigation.” Prepared for Yokogawa Electric Corporation, Tokyo, Japan, December 10, 2002.

“When East Meets West, Converging Trends in Japanese IP Litigation.” Prepared for Jones Day, Reavis & Pougé, Tokyo, Japan, December 9, 2002.

“Basic Economics of Rigorous Intellectual Property Damages Calculation,” Presentation with Kenneth Train and Alan Cox given at Marsh in San Francisco, CA on December 3, 2002.

“Basic Economics of Rigorous Intellectual Property Damages Calculation,” Presentation with Kenneth Train and Alan Cox given at Covington & Burling, LLP in San Francisco, CA on November 11, 2002.

Selected Project Experience

Communications and High-Tech

Evaluate the economic impact on rural customers in response to a change in intercarrier compensation regime

Derived an econometric model for the valuation of wireless spectrum

Evaluated the economic impact of an injunction in a patent licensing dispute in the mobile handset market.

Assisted in settlement negotiations in a major telecommunications dispute.

Assessed the level of competition faced by mobile providers in the State of Israel. Developed regulatory recommendation regarding mobile virtual network operators.

Assessed the level of competition faced by a US local exchange carrier in providing local residential and business services.

Evaluated the business case, the level of competition and designed a policy framework for an international regulator in its effort to encourage the entry of mobile virtual network operators.

Analyzed and rebutted antitrust claims brought against a US local exchange carrier by a long distance carrier in an interconnection charges dispute.

Analyzed and rebutted allegations of anticompetitive (collusive behavior) behavior against mobile carrier SingTel brought on by the Indonesian competition authority.

Evaluated the economic damages in an antitrust dispute between two US telecommunication carriers regarding intrastate switched and special access interconnection rates.

Evaluated the economic damage in a contractual dispute between a US local exchange carrier and its contractor for telecommunications IT systems.

Evaluated the economic value proposition of mobile virtual network operators (MVNOs) in the US and in Europe.

Computed an economically justifiable early termination fee (ETF) for mobile phone service term contracts.

Evaluated the impact of early termination fees (ETFs) on mobile phone rates.

Analyzed and rebutted the class action claims made by plaintiff in a suit involving the software locking of mobile phones, making them inoperable on third party networks.

Estimated the price and cross price elasticity of fixed phone service and evaluated the competitive impact of inter- and intra-modal competition.

Researched and analyzed local telecommunications competition in New Jersey to support an incumbent local exchange carrier's proposal to reclassify local multiline business telephone services as competitive.

Researched and analyzed local telecommunications competition in New York and discussed the policy implications of the findings.

Analyzed the competitive impact of the Verizon / MCI merger in nine jurisdictions.

Constructed a bottom-up long-run incremental cost model for universal service fund entitlements for a local incumbent exchange carrier.

Analyzed the competitive impact of emerging technologies, such as VoIP, Wi-Fi, WiMax, and Broadband over Power Lines (BPL).

Analyzed and economically justified the acquisition of mobile carrier by a fixed line carrier in a dispute before the International Arbitration Court in London.

Economic valuation of GSM mobile carrier in Latin America, as part of a dispute before the International Arbitration Court in London.

Economically assessed three long-run incremental cost models proposed for setting the prices of unbundled networks element in California.

Economically assessed a long-run incremental cost model proposed for setting the prices of unbundled network elements in Massachusetts.

Economically assessed a long-run incremental cost model proposed for setting the price of unbundled network elements in Washington.

Estimated the demand for and the value of 3G spectrum to set the reservation price for the 3G spectrum auction in Singapore.

Estimated the demand for and the value of 3G spectrum to set the reservation price for the 3G spectrum auction in Hong Kong.

Estimated the demand for and the value of 3G spectrum to set the reservation price for the 3G spectrum auction in Australia.

Reviewed the pricing methodology for pole attachment rates in the US and Australia.

Reviewed international gateway charges for China Mobile.

Calculated long-run incremental cost charges for fixed line service in Korea.

Analyzed the economic necessity (or lack thereof) of unbundling fiber-to-the-home and fiber-to-the-curb.

Analyzed the economic necessity (or lack thereof) of unbundling entrance facilities for mobile operators.

Analyzed and critically assessed a cost model assessing the impact of foregoing access charges for Voice over Internet Protocol calls.

Analyzed and critically assessed a cost model designed to measure the long-run incremental costs of Verizon in proceedings in Washington, Oregon, Kentucky, Hawaii, Virginia, North Carolina, South Carolina, Missouri, Minnesota, California, Maryland, and Nevada.

Analyzed and calculated the long-run incremental costs of a telephone loop in New York.

Analyzed the alleged anticompetitive behavior of an incumbent local exchange carrier in an allegation brought on by a competitive local exchange carrier.

Evaluated competitive conditions of local phone service in New Jersey in support of Verizon's 271 applications seeking permission to enter the long distance market segment.

Developed a model used to assess the economic damage and necessary penalty for Operation Support System (OSS) performance metric violations.

Evaluated and testified on a long run incremental cost model proposed by the Federal Communications Commission for setting the size of the universal service fund.

Reviewed and assessed the validity of company-specific input parameters for the long run incremental cost model proposed by the Federal Communications Commission for setting the size of the universal service fund.

Reviewed and assessed the accuracy of a long run incremental cost model proposed by an incumbent local exchange carrier in Alaska.

Performed essential facility tests to assess the need (or lack thereof) of local loop unbundling.

Reviewed regulatory pricing models and established a proper model for ATM services.

Assessed the financial, regulatory, competitive, managerial and technical conditions of the telecommunications industry in the Dominican Republic.

Calculated the total factor productivity adjustment in a price cap proceedings in Wisconsin and North Carolina.

Estimated the financial benefits derived from bundling various phone services in light of increased competition from competitive local exchange carriers.

Analyzed issues related to collocation complaints brought on by competitive local exchange carriers.

Analyzed alleged discrimination in transmission provisioning -- a long distance reseller claimed that its clients' calls were transmitted via two satellite connections, rather than submarine cable, causing inferior service quality, which led to their financial demise.

Evaluated fiduciary breach claims in a claim against a public utility that entered the business for broadband over power lines (BPL).

Reviewed cost estimation methods for unbundled network elements of an incumbent local exchange carrier and an opposing competitive local exchange carrier.

Advised an Australian Mobile carrier on pricing methodologies for termination and analyzed draft report on mobile termination and alternative methods.

Analyzed the economic conditions of intercarrier roaming in Australia.

Analyzed a mobile carrier's study on PCS costs and reciprocal compensation and provided economic rebuttal points.

Analyzed the regulatory risk of an incumbent local exchange carrier in Korea.

Intellectual Property and Commercial Litigation

Analyzed the competitive impact of declaring a patent as essential to a telecommunications industry standard.

Analyzed the lost profit damages and direct and indirect cost claims of a telephone company from an alleged breach of contract in constructing an IT infrastructure.

Analyzed and calculated the economic damages in an ADSL chipset patent infringement lawsuit before the United States District Court for the District of New Jersey.

Calculated and justified an economically appropriate prejudgment interest rate and amount in an ADSL chipset infringement matter before the United States District Court for the District of New Jersey.

Analyzed and calculated the economic damages in a patent dispute involving blue LED patents in Japan.

Analyzed and calculated the economic damage (business interruption and replacement cost) of a semiconductor equipment breach of contract lawsuit against a major insurance company.

Analyzed and calculated economic damages in a breach of contract dispute brought against a wholesaler of herbal nutritional products.

Analyzed and calculated the economic damages claims of former executives of a telecommunications carrier, who claimed breach of contract when they were reassigned to other job positions.

Analyzed and calculated the economic damages of a bankrupt competitive local exchange carrier, who claimed that its bankruptcy was caused by sub-par service received from the wholesaler.

Analyzed and calculated economic damages issues in a pharmaceutical patent infringement matter.

Analyzed and calculated economic damages issues in a patent dispute on golf balls.

Analyzed a liability and damages claim against a major local exchange carrier in a commercial litigation claiming overbilling.

Evaluated the appropriateness of a claim relating to below cost pricing in the tour bus industry under California Business and Professions Code Section 17043.

Analyzed liability claims in breach of contract case involving telecommunication contracts used by cruise ship companies.

Estimated damages due to theft of intellectual property and trade secrets by departing employees.

Analyzed issues related to a breach of contract matter involving a mobile telecommunications carrier.

Analyzed and calculated the economic damages in a breach of contract matter between a bankrupt communications provider and a mobile carrier.

Analyzed and calculated the economic damages in a breach of contract (non-performance) matter involving a pharmaceutical product.

Antitrust

Described the empirical methods for merger analyses employed in the US and the EU.

Analyzed and rebutted the class action claims made by insurance agencies against various health care providers.

Analyzed and rebutted the class action claims made by plaintiff in a suit involving the anti-depressant drug, Paxil.

Analyzed and rebutted the class action claims made by plaintiff in a suit involving the anti-depressant drug, Remeron.

Analyzed and justified the merger of two major petroleum companies.

Directed and reviewed the second request efforts in a major petroleum company merger.

Provided a preliminary assessment of the competitive impact of a proposed petroleum merger.

Analyzed and justified the horizontal merger of two bagel companies.

Assessed the competitive conditions of the light petroleum market in California.

Analyzed the size of the regulated fee for check cashing services in New York.

Other Cases

Conducted a market survey for a home mortgage company, identifying the characteristics of individuals that would be most likely to purchase home mortgage insurance.

Estimated the (Black-Scholes) option values in a marital dispute.

Analyzed issues related to a class and shareholder derivative action brought on behalf of a web and application hosting company and its minority shareholders against a telecommunications firm.

Analyzed the competitive and regulatory conditions in the natural gas pipeline industry in California in support of an energy company's application for market-based pipeline rates.

02/11/09