

## **Daniel Kelley**

### **PROFESSIONAL EXPERIENCE**

#### **Senior Vice President, HAI Consulting, Inc., Boulder Colorado, current position.**

Conducting economic and applied policy analysis of domestic and international telecommunications issues. Recent assignments include investigation of broadband competition and interconnection, antitrust analysis of local telephone company mergers, and costing and interconnection studies in Australia and New Zealand. Other assignments have included analysis of competitive conditions in wireless markets, the economics of cable television regulation, analysis of the prospects for local telephone competition, and measuring the economic cost of local service.

#### **Director of Regulatory Policy, MCI Communications Corporation, 1984-1990.**

Responsible for developing and implementing MCI's public policy positions on issues such as dominant carrier regulation, Open Network Architecture, accounting separations and Bell Operating Company line of business restrictions. Also managed an interdisciplinary group of economists, engineers and lawyers engaged in analyzing AT&T and local telephone company tariffs.

#### **Senior Economist and Project Manager, ICF Incorporated, 1982-1984.**

Telecommunications and antitrust projects included: forecasting long distance telephone rates; analysis of the competitive effects of AT&T's long distance rate structures; a study of optimal firm size for cellular radio markets; analysis of the FCC's Financial Interest and Syndication Rules, and competitive analysis of mergers and acquisitions in a variety of industries.

#### **Senior Economist, Federal Communications Commission, 1979-1982.**

Served as Special Assistant to the Chairman during 1980-1981. Advised the Chairman on proposed regulatory changes in the broadcasting, cable television and telephone industries; analyzed legislation and drafted congressional testimony. Coordinated Bureau and Office efforts on major common carrier matters such as the Second Computer Inquiry and the Competitive Carrier Rulemaking. Also held Senior Economist positions in the Office of Plans and Policy and the Common Carrier Bureau.

#### **Staff Economist, U.S. Department of Justice, 1972-1979.**

Analyzed proposals for restructuring the Bell System as a member of the economic staff of U.S. v. AT&T; investigated the competitive effects of mergers and business practices in a wide variety of industries.

## EDUCATION

1976	Ph.D. in Economics	University of Oregon
1971	M.A. in Economics	University of Oregon
1969	B.A. in Economics	University of Colorado

## PAPERS AND COMPLETED RESEARCH

"New Zealand Telecommunications: The State of Competition" (1998). with Todd Telecommunications Consortium.

"Cable and Wireless Alternatives to Residential Local Exchange Service." Berkeley Conference on Convergence and Digital Technology (1997). with Alan J. Boyer and David M. Nugent.

"A General Approach to Local Exchange Carrier Pricing and Interconnection Issues." Telecommunications Policy Research Conference. Solomons. Md., (1992).

"Gigabit Networks: Is Access a Problem?" IEEE Gigabit Networking Workshop (1992).

"Advances in Network Technology" in Barry Cole, ed., After the Break-Up: Assessing the New Post-AT&T Divestiture Era (1991).

"Alternatives to Rate of Return Regulation: Deregulation or Reform?" in Alternatives to Rate Base Regulation in the Telecommunications Industry. NARUC (1988).

"AT&T Optional Calling Plans: Promotional or Predatory" in Harry M. Trebing, ed., Impact of Deregulation and Market Forces on Public Utilities: The Future Role of Regulation (1985).

"The Economics of Copyright Controversies in Communications" in Vincent Mosco, ed., Policy Research in Telecommunications (1984).

"Deregulation After Divestiture: The Effect of the AT&T Settlement on Competition." FCC, OPP Working Paper No. 8 (1982).

"The Transition to Structural Telecommunications Regulation." in Harry M. Trebing, ed., New Challenges for the 1980's (1982). with Charles D. Ferris.

"Social Objectives and Competition in Common Carrier Communications: Incompatible or Inseparable?" in Harry M. Trebing ed., Communications and Energy in Transition (1981). with Nina W. Cornell and Peter R. Greenhalgh.

"An Empirical Survey of Price Fixing Conspiracies." Journal of Law and Economics (1974). with George A. Hay. Reprinted in Siegfried and Calvari, ed., Economic Analysis and Antitrust Law (1978) and the Journal of Reprints for Antitrust Law and Economics (1980).

## **TESTIMONY BEFORE REGULATORY AGENCIES**

Federal Communications Commission. Application of Cellular Communications of Cincinnati. July 25, 1983 (with Robert J. Reynolds): Optimum firm size in the cellular radio market.

Maryland Public Service Commission. Case No. 0450-Phase II. May 31, 1983: Access charge implementation issues.

New York Public Service Commission. Case No. 28425. June 1983: Access charge implementation issues.

Florida Public Service Commission. Docket No. 820537-TP. June 30, 1983, November 4, 1983, April 9, 1984, June 4, 1984, September 7, 1984, October 25, 1984 and August 15, 1985: Access charge implementation issues.

Pennsylvania Public Utility Commission. Docket No. R-832. August 5, 1983: Rate Case.

New Jersey Board of Public Utilities. Docket No. 83-11. February 20, 1984: Access Charge.

New York Public Service Commission. Case 88-C-102. March 2, 1990: Alternative Operator Service Issues.

California Public Service Commission. A.90-07-015. July 10, 1990: AT&T Deregulation.

New York Public Service Commission. Case 28425. October 8, 1990: IntraLATA Dial 1 Competition.

Massachusetts Department of Public Utilities. DPU 90-133. October 17, 1990: AT&T Deregulation.

Georgia Public Service Commission. 3905-U. November 16, 1990: Incentive Regulation.

California Public Service Commission. I-87-11-033. September 23, 1991: IntraLATA Competition.

Georgia Public Service Commission. Docket No. 3987-U. January 31, 1992: Cross-Subsidy.

Colorado Public Utilities Commission. Docket No. 92R-050T. August 24, 1992: Collocation.

Connecticut Department of Public Utility Control. Docket No. 9106-10-06. September 25, 1992: Infrastructure.

Maryland Public Service Commission. Case No. 8584. Phase II. July 21, 1995: Local Competition.

Connecticut Department of Public Utility Control. Docket No. 95-06-17. September 8, 1995: Local Competition.

Federal-State Joint Board on Universal Service. CC Docket No. 96-45. June 5, 1996: Cost Modeling.

Colorado Public Utilities Commission. Docket No. 96A-287T. September 6, 1996: Arbitration.

**TESTIMONY (CONT'D)**

Hawaii Public Utilities Commission, October 17, 1996: Arbitration.

Oregon Public Service Commission, Dockets ARB 3 & 6, September 6, 1996: Arbitration.

Michigan Public Service Commission, October 24, 1996: Arbitration.

New York Public Service Commission, Case No. 28425, May 9, 1997: Access Charges.

Colorado Public Utilities Commission, Docket No. 97F-175T, July 18, 1997: Access Charges.

Utah Public Service Commission, Docket No. 97-049-08, October 2, 1997: Access Charges.

Connecticut Department of Public Utility Control, Docket No. 96-04-07, February 10, 1998: Access Charges.

Massachusetts Department of Public Utility Control, Docket No. 98-15, August 14, 1998: Wholesale Discount.

Connecticut Department of Public Utility Control, Docket No. 95-06-17RE02, August 3, 1999: Wholesale Discount.

**Robert A. Mercer**  
President  
HAI Consulting, Inc.  
737 29th Street, Suite 200  
Boulder, Colorado 80303  
(303) 442-5395

## **Work Experience**

President, and formerly Senior Vice President, Hatfield Associates, Inc., and HAI Consulting, Inc., Boulder, Colorado, March, 1987 - Present<sup>1</sup>

Provides strategic planning and education related to public and private telecommunications infrastructures, with a particular emphasis on local exchange competition, broadband integrated networks, intelligent networks, and private enterprise networking. Examples of current work include the analysis of competitive alternatives for the provision of local exchange services, evaluating the cost of local exchange service provided by incumbent telephone companies and other competitive entities, and advising a client on the means for evaluating the performance of its network services integrator.

Conducts telecommunications policy analyses, with particular current emphasis on the interconnection, unbundling, and resale aspects of the 1996 telecommunications legislation, and past involvement in the FCC's Open Network Architecture (ONA) and Video Dial Tone (VDT) concepts. Co-author of the well-known "Hatfield Report" and "Hatfield II Report" on the ONA concept, and of a report titled "The Enduring Local Bottleneck" which deals with the ability of alternative providers to enter the local exchange telecommunications business. Also testifies before state regulatory bodies in proceedings pertaining to the cost of local exchange service and on the conditions necessary for local exchange competition to flourish.

Adjunct Professor, University of Colorado, Interdisciplinary Master of Science in Telecommunications Program, Boulder, Colorado (June, 1986 - Present); Pace University Department of Computer Systems and Information Sciences, White Plains, New York (August, 1988 - December, 1994)

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<sup>1</sup> Hatfield Associates, Inc., discontinued operation as a telecommunications consulting firm in 10/97, and its principals and work program transferred to HAI Consulting, Inc., at that time.

Teaches courses on data and computer networks, Open Systems Interconnection, TCP/IP, multi-protocol networking, Asynchronous Transfer Mode (ATM), network management, and telecommunications standards. At University of Colorado, directs and participates on Master's thesis committees. Also participates in effort to define and coordinate the program's curriculum, particularly as it pertains to data communications. Has made regular presentations in the ICA Summer Program at University of Colorado for most of the past five summers. Has taught extensively at IBM and Advantis in conjunction with Pace University. Has also presented numerous public seminars and talks on a variety of telecommunications topics.

Department Head of Datakit Systems Engineering, AT&T Bell Laboratories, Holmdel, New Jersey, 1986-1987

Directed systems engineering of Datakit("), a virtual circuit switching data communications product of AT&T Technologies. Participated extensively in AT&T planning of its data communications and network management architectures, and the products and services resulting from those architectures.

Senior Executive, BDM Corporation, Boulder, Colorado, 1985-1986

Planned data communications networks for various defense agencies. Served as a consultant to several clients on data protocol issues. Developed projections of market for secure Local Area Networks.

Assistant Vice President of Network Compatibility Planning, Bell Communications Research, Livingston, New Jersey, 1983-1985

Directed Bellcore support of the Bell Operating Companies (BOCs) in meeting the technical Equal Access requirements of the Modified Final Judgement. Conducted technical fora with the Inter-exchange Carriers and other carriers on behalf of the BOCs. Managed the North American Numbering Plan. Directed Bellcore's involvement in standards-making efforts, and played a major role in the formation of a new U. S. standards committee, Committee T1. Managed the "technical regulatory" work at Bellcore, which analyzed technical aspects of various FCC proceedings, including the ISDN Inquiry, the consideration of how the Computer II rules applied to the divested BOCs, and Computer III. With respect to the latter, was heavily involved in the work on the Comparably Efficient Interconnection concept, which later led to the Open Network Architecture (ONA) concept. Testified in a Vermont rate case proceeding on the value of Bellcore activities to the BOCs.

Director of Network Architecture Planning, Bell Laboratories, Holmdel, New Jersey,

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" Datakit is a registered trademark of the AT&T Corporation.

1981-1983

Managed early Bell System planning for the Integrated Services Digital Network (ISDN). Provided project management to two key data network planning and implementation activities. Managed Bell Laboratories involvement in several U. S. and international standardization activities. Participated in planning for the Bell Laboratories reorganization in preparation for the AT&T Divestiture.

Division Manager of Network Services Standards, AT&T, Basking Ridge, New Jersey, 1979-1981

Managed the effort to describe the interface and performance characteristics of the Bell System network, particularly as necessary to meet the terms of the FCC Registration Program. Directed several components of the Bell Systems participation in international telecommunications standards committee CCITT.

Supervisor and Member of Technical Staff, Bell Laboratories, Holmdel, New Jersey, 1973-1979

Analyses of network performance issues and customer perceptions of performance, highlighted by direction of a pioneering study of customer retrial and abandonment behavior during long-distance telephone calls. Planning for operational processes and operations support systems associated with new Bell System services.

Assistant Professor of Physics, Indiana University, Bloomington, Indiana, 1970-1973

### **Education**

B.S., Physics (1964), Carnegie Institute of Technology (now Carnegie-Mellon University), Pittsburgh, Pennsylvania.

Ph.D., Physics (1969), Johns Hopkins University, Baltimore, Maryland.

### **Other Activities and Awards**

Member of the Board of Directors, American National Standards Institute, 1983-1985. National Defense Education Act Fellowship, 1965-1968. Member of IEEE, and Sigma Xi academic society.

### **Doctoral Dissertation Title**

$K^*n$  Scattering and Related Effects in the Reaction  
 $K^*p \rightarrow K^*n^* \pi^+$  at 5.43 BeV/c (1969).

## **Graduate Courses Taught**

ATM Overview	ATM Technology
Broadband Applications Essentials	Broadband Wide Area Networks
Computer Communications Essentials	Computer Networks
Advanced Data Communications	Data Communications Essentials
Internetworking and TCP/IP Overview	Local Area Network Overview
Multi-Protocol Networking	Networking Trends and Directions
Network Management	T1/T3 Networking Principles
TCP/IP Architecture	Telecommunications Essentials
Telecommunications Industry Essentials	Telecommunications Standards
Voice Applications Essentials	

## **Participation in Regulatory Proceedings**

Written direct testimony filed with the Oregon Public Utility Commission dealing with the use of the HAI Model for estimating the cost of universal service, Docket UM 731 Phase IV, Salem, Oregon, October, 1999.

Written direct testimony and rebuttal testimony filed with the State Corporation Commission of the State of Kansas dealing with the use of the HAI Model for estimating the cost of universal service, Topeka, Kansas, April, 1999.

Testimony before the Nevada Public Utilities Commission dealing with the use of the Nevada HAI Model to estimate the cost of unbundled network elements provided by Nevada Bell, Reno, Nevada, November, 1998. Preceded by written testimony and presentations to several workshops on the Nevada HAI Model.

Testimony before the Texas Public Utilities Commission dealing with appropriate inputs values to be used in the HAI Model Release 5.0a for estimating the cost of universal service, Austin, Texas, September, 1998.

Testimony before the Washington Utilities and Transportation Commission dealing with the appropriate methodology for estimating the cost of universal service, Olympia, Washington, September, 1998. Preceded by written testimony and rebuttal testimony.

Testimony before the Nevada Public Utilities Commission dealing with the use of the Nevada HAI Model to estimate the cost of unbundled network elements provided by Centel, Carson City, Nevada, August, 1998. Preceded by written testimony and presentations to several workshops on the Nevada HAI Model.

Testimony before the Texas Public Utilities Commission dealing with the use of the HAI Model Release 5.0a to estimate the cost of universal service, Austin, Texas, June and March, 1998. Preceded by written direct testimony, rebuttal testimony, supplemental rebuttal testimony, supplemental testimony, and reply to supplemental testimony.

Testimony before the Minnesota Public Utilities Commission dealing with the use of the HAI Model Release 5.0a to estimate the cost of universal service, St. Paul, Minnesota, February, 1998. Preceded by written testimony, supplemental testimony, and rebuttal testimony.

Testimony before the Colorado Public Utilities Commission dealing with the use of the Hatfield Model 4.0 to estimate the cost of universal service, Denver, Colorado, December, 1997. Preceded by written direct testimony, supplemental direct testimony, and rebuttal testimony.

Presentation to the Oregon Public Utilities Commission workshop on cost proxy models dealing with the Hatfield Model 4.0, Salem, Oregon, November, 1997.

Testimony before the New Jersey Board of Public Utilities dealing with the cost of universal service and interexchange carrier access, Newark, New Jersey, October, 1997. Preceded by written testimony filed September, 1997.

Presentation to a Pennsylvania Public Utility Commission Universal Service Workshop dealing with the Hatfield Model 4.0, Harrisburg, Pennsylvania, October, 1997.

Presentation to the Colorado Public Utility Commission Staff and the Office of Consumer Counsel dealing with the Hatfield Model 4.0, Denver, CO, July, 1997.

Testimony before the Washington Utilities and Transportation Commission dealing with the appropriate methodology for estimating the cost of unbundled network elements provided by incumbent local exchange carriers, Olympia, Washington, July, 1997. Preceded by written testimony, rebuttal testimony, and surrebuttal testimony.

Testimony before the Virginia State Corporation Commission dealing with the cost of unbundled network elements provided by Bell Atlantic of Virginia, Richmond, Virginia, June, 1997. Preceded by written testimony and rebuttal testimony.

Presentation to the Nevada Public Service Commission Cost Workshop dealing with the appropriate methodology for estimating the cost of universal local exchange service, Carson City, Nevada, April, 1997.

Presentation to the Colorado Public Utilities Commission Staff High Cost Fund Task Force dealing with the appropriate methodology for estimating the cost of universal local exchange service, Denver, Colorado, March, 1997.

Presentation to the Washington Utilities and Transportation Commission staff dealing with proxy cost models, and Hatfield Model Release 3, Olympia, WA, February, 1997.

Presentation to the Federal-State Joint Board on Universal Service dealing with

Version 3 of the Hatfield Model, Washington, DC, January, 1997.

Testimony before the New Jersey Board of Public Utilities dealing with the cost of unbundled network elements in connection with the generic arbitration proceeding, Newark, NJ, January, 1997. Preceded by written testimony.

Testimony before the Washington Utilities and Transportation Commission dealing with the cost of unbundled network elements in connection with MCI's arbitration case vs. U W West, Olympia, WA, November, 1996. Preceded by written testimony.

Testimony before the Commonwealth of Massachusetts Department of Public Utilities dealing with the cost of unbundled network elements in connection with MCI's arbitration case vs. NYNEX, Boston, MA, November, 1996. Preceded by written testimony.

Testimony before the New Jersey Board of Public Utilities dealing with the cost of unbundled network elements in connection with MCI's arbitration case vs. Bell Atlantic of New Jersey, Morristown, NJ, November, 1996. Preceded by written testimony.

Testimony before the Texas Public Utilities Commission dealing with the cost of unbundled network elements in connection with AT&T's and MCI's consolidated arbitration case vs. GTE, Austin, Texas, November, 1996. Preceded by written testimony.

Testimony before the New York Public Service Commission dealing with the cost of unbundled network elements in connection with MCI's arbitration case with NYNEX, Albany, NY, October, 1996. Preceded by written testimony.

Testimony before the Washington Utilities and Transportation Commission dealing with the cost of unbundled network elements in connection with three arbitration cases: AT&T vs. U S West, AT&T vs. GTE, and MCI vs. U S West, Olympia, WA, October - November, 1996. Preceded by written testimony and rebuttal testimony.

Testimony before the Utah Public Service Commission dealing with the cost of unbundled network elements in connection with AT&T's arbitration case vs. U S West, Salt Lake City, UT, October, 1996. Preceded by written testimony.

Presentation on the Hatfield Model to the arbitrator in the Massachusetts arbitrations of AT&T and MCI vs. NYNEX, Boston, MA, October, 1996.

Testimony before the Texas Public Utilities Commission dealing with the cost of unbundled network elements in connection with AT&T's and MCI's consolidated arbitration case vs. Southwestern Bell, Austin, Texas, October, 1996. Preceded by written testimony.

Testimony before the California Public Utilities Commission dealing with the cost of unbundled network elements in connection with four arbitration cases: AT&T vs. Pacific Bell, AT&T vs. GTE, MCI vs. Pacific Bell, and MCI vs. GTE, San Francisco, California, September - October, 1996. Preceded by written testimony and rebuttal testimony.

Testimony before the New Jersey Board of Public Utilities dealing with the cost of unbundled network elements in connection with AT&T's arbitration case with Bell Atlantic of New Jersey, Newark, New Jersey, September, 1996. Preceded by written testimony.

Testimony before the New Jersey Board of Public Utilities dealing with the cost of basic local exchange service, Newark, New Jersey, September, 1996. Preceded by written testimony and rebuttal testimony.

Testimony before the California Public Utilities Commission dealing with the state of local exchange competition, San Francisco, California, August, 1996. Preceded by prefiled written testimony and rebuttal testimony.

Presentations on the Hatfield Model to the staffs of the Federal-State Joint Board on Universal Service, Iowa Department of Commerce Utilities Board, Texas Public Utilities Commission, New Jersey Board of Public Utilities, and New York Public Service Commission, July-August, 1996.

Testimony before the Utah Public Service Commission dealing with a methodology to estimate the cost of universal service provided by U S WEST in the state of Utah, Salt Lake City, Utah, May, 1996. Preceded by prefiled written testimony and surrebuttal testimony.

Testimony before the California Public Utilities Commission dealing with the estimated cost of basic telephone service provided by Pacific Bell and other local exchange carriers in the state of California, San Francisco, California, May, 1996. Preceded by prefiled written testimony, rebuttal testimony, and surrebuttal testimony.

Testimony before the Maryland Public Service Commission dealing with the cost of local exchange service in the state of Maryland, in conjunction with MCI's Competition Plus initiative, Baltimore, MD, April, 1996, preceded by prefiled written testimony and surrebuttal testimony.

Presentation to the Ministry of Communications and Transportation of Mexico on Telmex' costs to provide interconnection to long distance carriers, Mexico City, Mexico, March, 1996.

Testimony before the Pennsylvania Public Service Commission dealing with a methodology to estimate the cost of universal service provided by Bell Atlantic of Pennsylvania and other local exchange carriers in the state of Pennsylvania,

Harrisburg, PA, March, 1996. Preceded by prefiled written testimony, rebuttal testimony, and surrebuttal testimony.

Testimony before the Washington Utilities and Transportation Commission dealing with the cost of local exchange service provided by U S WEST in the state of Washington, Seattle, Washington, January, 1996. Preceded by prefiled written testimony, amended testimony, and surrebuttal testimony.

Testimony before the Maryland Public Service Commission dealing with Bell Atlantic's cost of providing basic local exchange service in Maryland, August, 1995. Preceded by prefiled written testimony.

"Modeling Basic Universal Service for Pennsylvania," with A. Daniel Kelley, presentation to the staff of the Pennsylvania Public Service Commission, Harrisburg, PA, July, 1995.

Testimony before the Illinois Commerce Commission dealing with AT&T's proposal on conditions to test the potential for local exchange competition, and Ameritech's proposed Customer First Plan, Chicago, IL, October, 1994. Preceded by prefiled written testimonies concerning the two proposals, rebuttal testimony, and surrebuttal testimony.

Testimony before the Canadian Radio-Television and Telecommunications Commission on behalf of Unitel Communications, Inc. concerning Comparably Efficient Interconnection and Open Network Architecture, Ottawa, Ontario, Canada, December, 1993.

Rebuttal testimony before the Georgia Public Service Commission on behalf of the Georgia Cable Television Association concerning Southern Bell's Open Network Architecture tariff filings in Docket 4018-U, Atlanta, GA, February, 1993.

Testimony before the Georgia Public Service Commission on behalf of the Georgia Cable Television Association concerning Southern Bell's Open Network Architecture tariff filings in Docket 4018-U, Atlanta, GA, January, 1993.

Prefiled testimony and rebuttal testimony submitted to the Oregon Public Utilities Commission on behalf of Electric Lightwave, Inc. (ELI) dealing with the comparability of services offered by ELI, U S WEST, and GTE Northwest, January-February, 1993.

Testimony before the Florida Public Service Commission on behalf of the Florida Cable Television Association concerning Southern Bell's plans for the Broadband Integrated Services Digital Network, Tallahassee, Florida, March, 1990.

### **Telecommunications Papers/Articles**

Local Telecommunications Cost Modeling: Theory and Practice, coauthored with Richard Chandler and A. Daniel Kelley, presented at the Twenty-Fourth Annual Telecommunications Policy Research Conference, Georgia, September, 1996.

"Overview of Enterprise Network Developments," IEEE Communications Magazine, January, 1996, p. 30.

"Telecommunications Technology" and "Utility Applications of Telecommunications," chapters in report titled Business Opportunities and Risks for Electric Utilities in the National Information Infrastructure, published by the Electric Power Research Institute, Palo Alto, CA, October, 1994.

"VSATs Link Far-Flung LANS," with S. Kroder, Business Communications Review, October, 1994, p. 51.

The Enduring Local Bottleneck: Monopoly Power and the Local Exchange Carriers, with Economics and Technology, Inc., published report, February, 1994.

A General Approach to Local Exchange Carrier Pricing and Interconnection Issues, co-authored with Daniel Kelley, presented at the Twentieth Annual Telecommunications Policy Research Conference, Solomons Island, Maryland, September, 1992.

"Frame Relay: 'Caveat Emperor' (Let the Buyer Be Wary of the Leader)," Telecom Data Report, August 1, 1992, p. 14.

LAN Basics, book co-authored with Roberta Martine, Intertec Publishing Corp., Chicago, IL, ISBN 0-917845-20-X, May, 1992.

"The Audio Messaging Interchange Specification (AMIS)," chapter in Managing Voice Networks, Datapro Information Services Group, McGraw-Hill, Inc, Delran, NJ, 1992.

"The Technology of Broadband Networks," chapter in book Integrated Broadband Networks - The Public Policy Issues, North-Holland, Amsterdam, Netherlands, 1991.

"AMIS Launches a New Era in Voice Messaging," Business Communications Review, October, 1990, p. 41.

"The ONA Connection," Proceedings of the National Communications Forum, 43, No. 1, October, 1989, p. 339. Talk presented at the conference, Chicago, Illinois, October, 1989.

"AMIS: Soon to be Famous," Business Communications Review, May, 1989, p. 50.

"ONA as a Motivator of Enhanced ISDNs," Proceedings of the National Communications Forum, 42, No. 1, October, 1988, p. 602. Talk presented at the

conference, Chicago, Illinois, October, 1988.

"ONA: Why Should Users Care?," Business Communications Review, September-October, 1988, p. 50.

"Open Network Architecture: A Promise Not Realized," with D. Hatfield, Telecommunications Magazine, July, 1988, p. 64.

"Unbundling - A Key ONA Requirement Not Met," Network World, July 11, 1988.

"ONA: Motivator of a Full ISDN," Proceedings of the National Communications Forum, 41, No. 1, September, 1987, p. 481.

"ONA: Recovering from a Shattered Illusion," Perspective article, Communications Week, April 13, 1987.

"What Equal Access Means to Telcos," Telephone Engineering and Management, November 1, 1983, p. 99.

"A Study of Network Performance and Customer Behavior During DDD Call Attempts in the USA," with F. Duffy, Bell System Technical Journal, 57, January, 1978, p. 1.