hookups to the premises of potential users. Between 30 and 40 large business users have been identified as likely connection points for the operation.[10]

- Continental Cable and Teleport began building loops around greater Boston and in the Wilshire corridor of Los Angeles through a joint venture since 1992. TCG has been able to extend its business beyond the city limits via fiber routes available over Continental's suburban systems, allowing the MSO to enter the business without devoting a tremendous amount of startup effort.[11]

- Comcast agreed to acquire a 51% stake in Eastern TeleLogic in July, 1992 and subsequently expanded the CAP's operations in Philadelphia.[12]

- Continental, Adelphia Communications and Maclean Hunter Cable Television and Comcast concluded a deal in 1992 to establish a CAP network in Palm Beach County, Florida.[13]

17. Cable operators are now beginning to upgrade their existing networks to provide a broad range of telecommunications services. Cable companies are beginning to provide telephony services directly over their cable networks, often through alliances with other telecommunications companies. These "intermodal" alliances provide cable companies with significant financial backing and the technological know-how concerning the provision of two-way telephony and will thereby accelerate entry by cable companies into a wide range of exchange and interexchange telecommunications services. For example:

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[10] "In Teleport's Shadow," p.31.

[11] "In Teleport's Shadow," p.31.

[12] "In Teleport's Shadow," p.31.

[13] "In Teleport's Shadow," p.31.

- US West bought a 25% stake in the Time-Warner Entertainment for $2.5 billion in December of 1993. Roughly $1 billion of US West's investment was targeted to accelerate the building of full-service networks on Time Warner Cable systems in 25 major metropolitan areas. The two companies, with combined sales of over $32 billion,[14] will share in the design, implementation, and direction of the full-service networks, which will accommodate a wide range of services including telephony. Time Warner has announced plans to offer telephony services in Rochester, New York.[15]

- MCI recently announced a joint trial with Jones Intercable to test phone service over the Jones cable network in Alexandria, Virginia.[16]

- In February 1993, Southwestern Bell purchased Hauser Cable and has petitioned the Maryland Commission for authority to provide exchange telephone services.[17] This acquisition makes it possible for Southwestern Bell to gain access to Bell Atlantic local service customers through the cable companies' facilities. The Arlington County and Montgomery franchises serve over 200,000 households. The newly-named SBC Media Ventures has filed an application to the Maryland Public Service Commission for authority to provide local exchange telephone service in Montgomery County.[18]

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[14] "US West's Deficit Spending," *Cablevision*, February 28, 1994, & Edge, May 24, 1993.

[15] Quittner, Joshua, "Cable's Vision", *Newsday*, February 25, 1993, pp. 3.

[16] See "Reaching their Potential," *Cablevision*, January 11, 1993, p. 33.

[17] "Southwestern Bell: Cable's Next Powerhouse?," *Cablevision*, May 10, 1993.

[18] "Application of SBC Media Ventures, Inc. For Authority to Provide Local Exchange Telecommunications Services," before the Public Service Commission of Maryland, May 20, 1994.

- Cablevision (in conjunction with AT&T) won a competitive bid over Nynex to provide local telephone and cable services to Long Island University's C.W. Post campuses. In addition, Cablevision has constructed on Long Island the fiber backbone of a high-speed communications network linking Stony Brook University and Brookhaven National Laboratory, termed FISHNet, using an ATM technology that allows voice, video and data images to be processed together.[19]

18. Cable companies are also actively involved in the development of PCS technologies. It is apparent that they will be competing directly with LECs and others in PCS. For example, Comcast is conducting trials in five cities, Hauser Communications is testing in five cities, Prime II in six cities, Time Warner in five cities, United Artists Cable in five cities, Viacom in five cities, Cable USA in four cities, and Cablevision in four cities. Cable companies hold over 10% of the 187 experimental PCS licenses issued by the FCC.[20] Continental Cablevision, Cablevision of Boston, and Time Warner became the first cable TV companies to interconnect their systems to demonstrate how PCS could be offered over CATV systems in late 1993. The demonstration showed that the cable companies had to do very little to their basic cable infrastructure to offer wireless services and bypass the local telephone company for cell site interconnection.[21]

19. Based on recent technological developments and corporate announcements by both cable companies and LECs, the competition between the two industries will only intensify over the next few years. As cable companies digitize and fiberize their coaxial

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[19] See "Cablevision Seeks to Catch Big Fish in its High-Speed Long Island Net," *Communications Engineering and Design*, April 1994, p. 8 and "Information Superhighway Adds Lane," *Currents*, April 1994, p. 1.

[20] *Communications Daily*, November 18, 1993.

[21] "CATV networks join to offer PCS," *Telephony*, November 22, 1993, p.8.

networks, they will be expanding rapidly into two-way, interactive telecommunications services. As LECs upgrade or replace their existing copper twisted-pair distribution facilities with fiber and/or coaxial cables, they will be offering video programming distribution and other broadband services under the Commission "video dialtone" provisions. Indeed, the Commission has already found that, "by providing the distribution system that makes video programming 'available for purchase' by subscribers and customers, we conclude that video dialtone comes within the plain language of th[e effective competition] section of the [Cable] Act."[22]

E. The Failure of Asymmetric Regulation of Competitive Industries

20. In the late 1970's and early 1980's, I was substantially involved in the transformation of transportation regulatory policies in the United States. My research on surface freight transportation was influential in the rationalization of the U.S. railroad industry and the adoption of progressive regulatory policies by the U.S. Congress and the Interstate Commerce Commission.[23] As an advisor to the U.S. Department of

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[22] Report and Order and Further Notice of Proposed Rulemaking, MM Docket 92-266, May 3, 1994, par. 20, p. 5650.

[23] See, for example, the following articles and papers by Robert G. Harris, all of which addressed the benefits of rationalizing the rail freight industry and public policies toward the industry:

"Revitalization of the U.S. Freight Industry: An Organizational Perspective," International Railway Economics, edited by K. Button & D. Pitfield; Crower, London: 1985 (with Curtis M. Grimm).

"Structural Economics of the U.S. Rail Freight Industry: Concepts, Evidence and Merger Policy Implications," Transportation Research, 17A(4), July 1983 (with Curtis M. Grimm).

"Potential Benefits of Rail Mergers: An Econometric Analysis of Network Effects on Service Quality," Review of Economics and Statistics, 65(1), February 1983 (with Clifford Winston).

Rationalizing the Rail Freight System: Costs and Benefits of Branch Line Abandonments. U.S. Department of Transportation, Washington, D.C.: 1981.

"Determinants of Railroad Profitability: An Econometric Study," Economic Regulation: Essays in Honor of James R. Nelson, William G. Shepherd and Kenneth D. Boyer (eds.); Michigan State University Press, 1981 (with Theodore E. Keeler).

Transportation on transportation legislation and a Deputy Director at the Interstate Commerce Commission, I played a leadership role in implementing the railroad and motor carrier regulatory reform acts passed by Congress in 1980. There are significant parallels between the policy changes in transportation then and the recent and pending policy changes in telecommunications now. In both cases, after several decades of stable regulatory policies that relied heavily on administrative controls, the nation opted to pursue a different course: the development and implementation of regulatory policies that promote competition and speed the transition from a heavily regulated environment to a less regulated competitive environment.

21. The record of the success of surface freight transportation under reformed regulatory policies came, unfortunately, much too late. Indeed, it was the drastic failures of asymmetric, non-adaptive regulatory policies which generated the force for finally changing policies in the late 1970's and early 1980's.[24] By the 1970's, the US railroad industry was in financial and physical ruin. Approximately half of the rail mileage was owned by carriers in bankruptcy. In addition to billions of dollars in Federal subsidies to protect essential rail services and bail out bankrupt carriers, there was an enormous negative effect on workers, communities and investors, due to the long-term decline of rail service. The impact on the regional economies of the Northeast and the Midwest was especially devastating.

"Rationalizing the Physical Structure of the U.S. Rail Freight Industry," National Railroad Policy, Joint Economic Committee, U.S. Congress. Washington, D.C.: Government Printing Office, 1979.

[24] The watershed year in the reform process was 1980, with the passage of the Staggers Act, which liberalized railroad regulation, and the Motor Carrier Act. The impetus for change came from President Jimmy Carter, who appointed Dr. Darius Gaskins, a professor of economics at the University of California, Berkeley, as Chair of the Interstate Commerce Commission. Even as Congress deliberated over the reform legislation, Chairman Gaskins immediately moved to modify Commission policies within the limits of the then existing statutes.

22. While many observers cited the "natural decline" of railroads as a competitively viable industry, unable to compete with motor carriers, water carriers and pipelines, the current health of the rail freight industry belies that explanation. The decline was caused by obsolete regulatory policies, thanks in no small part to the major competitors of railroads, the trucking industry.[25] In one proceeding after another, motor carriers argued strenuously that railroads should be prevented from responding to truck competitors, because that would harm competitors. Truckers argued that rail carriers should price at or above "fully distributed costs," even though railroad's incremental costs on traffic they were losing to trucks was far lower.[26]

23. The Interstate Commerce Commission was, frankly, blinded by an anachronistic view of the railroads as "monopolies," eager and able to destroy their highway competitors unless regulators stood vigilant by preventing rail carriers from pricing their services economically and by inhibiting the development of new rail services. In reality, the trucking companies, rapidly stole the most profitable, high valued traffic, leaving the railroads to serve unprofitable customers and low density rural areas. Regulators failed to allow railroads pricing flexibility in response to growing competition from motor carriers, yet forced railroads to continue subsidies to agricultural shippers and rural areas with no source of support.[27]

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[25] The ICC's decisions were compounded by differential legislative treatment, which exempted private motor carriage, contract motor carriage, and agricultural commodities from Federal regulation. With the artificial competitive advantage gained from rail rates set by the ICC to cover fully distributed costs, motor carriers took huge amounts of traffic from rail carriers even though their economic costs were higher. .See Keeler, pp. 28-29

[26] Keeler, T.D., Railroads, Freight, and Public Policy Brookings, Washington, D.C., 1983, pp. 28-29 discusses this policy. Evidence that rail costs are substantially lower than truck costs for many commodities is provided by Keeler (same cite) p. 76. Moreover, using short-run variable costs provides even lower estimates of rail costs. The formula designed by the Interstate Commerce Commission produces cost variability in the 50 to 60 percent range.

[27] Since the Smith Act of 1926, the Commission enforced low rail rates for agricultural commodities, subsidized - in theory - by high rates on high value commodities. Commission policy also made it extremely difficult, and, hence, extremely rare, for a rail carrier

24. After a decade or more of physical decline and financial strife, the Congress and the Interstate Commerce Commission finally responded to the changed economic conditions and competitive realities. Those regulatory reforms have revitalized the rail industry, brought down rail rates in real terms,[28] restored the industry's financial health, induced substantial investment in network upgrades, stimulated rapid technological innovation and deployment, and shifted large volumes of truck traffic off the highways and on to far more efficient intermodal trains.[29] Shipper surveys reveal that most customers are delighted with their newfound freedom to bargain, negotiate and contract for services, and with the significant and continuing improvements in rail service quality.[30]

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to abandon low density branch lines, no matter how much money it was losing on the service. See Robert G. Harris, "Economic Analysis of Light Density Rail Lines," The Logistics and Transportation Review, 16(1), Winter 1980.

[28] Most importantly, the regulatory reforms of 1980 effectively deregulated rail rates wherever the railroad does not have "market dominance." Having finally been freed from onerous regulations, rail carriers have won back a substantial share of the traffic that they never should have lost to motor carriers in the first place, had regulation allowed fair competition. Today, the fastest growing class of rail service is intermodal -- trailers and containers moving on the line-haul portion by rail, with local pickup and delivery by truck. The shift to intermodal has dramatically reduced transportation costs to shippers, and also reduced energy consumption and highway congestion. See Mitchell E. MacDonald, "Rails Climb Back into the Ring," TRAFFIC MANAGEMENT, December 1993, p. 43.

[29] See Clifford Winston, Thomas M. Corsi, Curtis M. Grimm, and Carol A. Evans, The Economic Effects of Surface Freight Deregulation Brookings, Washington, D.C., 1990. These authors have conducted the most comprehensive study of the effects of both rail and truck deregulation, employing a counterfactual methodology. According to this source, the railroads reaped cost savings of over $3 billion dollars due to deregulation (pp. 15-41).

From 1971-1980, railroad return on equity averaged less than 3%. By 1979, almost one-fourth of Class I rail mileage was in bankruptcy. Since passage of the Staggers Act, not one major railroad has gone bankrupt and the financial condition of the industry has improved dramatically. See MacDonald, pp. 40-41.

In addition, according to the Interstate Commerce Commission, ROE for Class I railroads in 1993 was 9.38%. See "Class I Railroad Financial Data," ICC, Office of Economic and Environmental Analysis, May 1994.

[30] See Curtis M. Grimm and Ken G. Smith "The Impact of Rail Regulatory Reform on Rates, Service Quality, and Management Performance: A Shipper Perspective," LOGISTICS AND TRANSPORTATION REVIEW vol. 22, No. 1, 1986, pp. 57-68. Shippers rated rail rates and service quality in terms of speed of service, reliability, loss and damage and car supply significantly higher in the Post-Staggers period as compared to Pre-Staggers. Also, according to the Winston, et al study cited above, p. 28, shippers have received economic benefits from rail deregulation of more than $6 billion dollars annually (1988 dollars), driven by improvement in service quality.

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25. The parallels between the regulation of railroads and local exchange carriers provide some important lessons for telecommunications policies and price cap reforms. First, the myth of monopoly pervaded the rail industry long after the demise of their monopoly power, just as it apparently is in the case of local exchange carriers. Second, the competitors of railroads played a major role in sustaining regulatory policies long after they had become counter-productive because those policies were a crucial source of competitive advantage for motor carriers, just as LEC competitors now seek to retain policies that inhibit LECs from meeting them fairly in the marketplace. Third, the structure of rail rates, incorporating rate averaging, fully distributed costs and cross-subsidies, was not sustainable in a competitive environment, just as the current structure of telephone prices are not. Fourth, while regulators based their policies on intramodal competition, the most powerful market forces were intermodal competition, just as it is likely to be in telecommunications, as telcos, cable operators, cellular carriers, satellite systems and other modes of communications compete to meet customers needs.

26. The vital lesson from the surface freight experience is that the more competition develops between two industries, the more important it is that regulations enable both industries to compete effectively. The worst possible results are caused by regulations that give artificial advantages to one industry over the other. In surface freight transportation, those regulatory advantages were heavily biased in favor of motor carriers. Market forces will feed off those artificial advantages: it did not matter that the cost of rail service for a given shipper was lower than the cost of truck service, if the rail carrier had to charge a higher price. It did not matter to a shipper that rail was a more efficient means of transport than truck if the rail carrier was prevented from realizing those potential efficiencies. The regulatory reforms of 1980 have restored competition balance between rail and motor carriers. Not surprisingly, both industries are more efficient, offer lower prices and better service, and are financially healthy.

27. The cautionary lesson of that experience -- and similar experiences in financial services and energy regulation -- is that this Commission should adopt policies that promote balanced competition between cable and LECs. Both industries should receive comparable treatment in the implementation of price caps on regulated services. Both industries should be given comparable flexibility to price all but their basic services to meet economic demand. Both industries should be given similar incentives to become more efficient, to develop and deploy innovative technologies and to invest in the National Information Infrastructure. Both industries should be encouraged to develop and offer new services, in competition with each other and with other providers of communications services and products.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct. Executed on this 29th day of June, 1994.

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Ph.D. Field Advisor, Business and Public Policy (1981-87; 1989-91).
Policy and Planning Committee (1991-3; Chair, 1992-93).
Member, Board of Directors, Washington Campus Program (1990-).
Director, The Executive Program (1983-85).
Director, Executive Programs in Telecommunications (1989-).
Chair, Executive Education Task Force (1991-3).

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Executive Committee, Center for Research in Management (1989-).
Advisory Board, Lester Center for Innovation and Entrepreneurship (1992-).

Chancellor's Advisory Committee on Parking (1988-89).
Executive Committee, National Financial Services Center (1986-88).
Executive Committee, Institute of Transportation Studies (1981-83).
Director, Center for Transportation Policy Research (1980-2).

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Working Group on Technology Transfer (1988-90).
Task Force on Telecommunications and Information Policy Research (1984-85).

ACADEMIC HONORS AND AWARDS

Charles C. Slater Memorial Award (outstanding contribution), *Journal of Macromarketing*, 1983-86.
Schwabacher Prize (outstanding University service), 1983.
Phi Beta Kappa, 1977.
Alfred P. Sloan Dissertation Fellowship, 1975-77.
Blue Key and Excalibur Honorary Fraternities, 1964-65.
President, All-University Student Government, 1964-65.

TEACHING

Graduate Courses: Business and Public Policy (MBA Core Course), Competitive Strategies & Public Policies in Telecommunications, Microeconomic Analysis for Managerial Decisions, Industry Analysis and Competitive Strategy, Doctoral Research in Business & Public Policy, Antitrust Law (School of Law, with L. Sullivan), Antitrust Economics (Department of Economics).

Undergraduate Courses: Social and Political Environment of Business (Core Course), Economics of Regulated Industries.

Executive Education: Competitive Strategy, Telecommunications Policy and Strategy, Public Policy Strategy, Managing Business-Government Relations.

PUBLICATIONS

"Competitive Implications of Vertical Relations between Equipment Vendors and Telecommunications Services: Lessons from the French Experience," with Joanne Oxley, presented to European Regional Conference of the International Telecommunications Society, Stenungsbaden, Sweden, June 21, 1993; forthcoming in *Conference Proceedings*.

"Obtaining Competitive Intelligence and Creating Competitive Advantage through the Public Policy Process," with Steven Harris, invited paper, Annual Conference of the Society for Competitive Intelligence Professionals, Los Angeles, April 2, 1993; forthcoming in *Competitive Intelligence Review.*

"Deployment and Adoption of Integrated Services Digital Network in the U.S.: Progress and Public Policy Obstacles," with Luis Lopez, invited paper, Twenty-Fourth Annual Conference, Michigan State University Institute of Public Utilities, Williamsburg, Virginia, December 8, 1992; forthcoming in *MSU Public Utility Conference Proceedings*, 1993.

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"Gaining Competitive Advantage through Strategic Public Policies: The Case of Japanese Telecommunications," invited lecture, National Economists Club, Washington, D.C., June 1988; published in *Economics and the Public Interest*, Richard T. Gill (ed.); Mayfield Publishing: Mountain View, CA, 1991.

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"Telecommunications Services as a Strategic Industry: Implications for United States Policy," *Competition and the Regulation of Utilities*, Michael A. Crew (ed.), Kluwer Academic Publishers: Boston, 1990.

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"Telecommunications Policies in Japan: Lessons for the U.S.," presented to Advanced Workshop in Regulation and Public Utility Economics, Monterey, CA, July 1988; presented to Telecommunications Policy Research Conference, October 1988; *California Management Review* 31(3), Spring 1989.

"California Telecommunications Policy for the Twenty-First Century," *Report to the California Economic Development Corporation*, Sacramento, June 1988.

"A Qualitative Choice Analysis of Rail Routings: Implications for Vertical Foreclosure and Competition Policy," with Curtis A. Grimm, *The Logistics & Transportation Review*, March 1988.

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RECENT PAPERS, REPORTS, PRESENTATIONS & PROFESSIONAL PROCEEDINGS

"Market Definition and Market Power in the Sports and Entertainment Industry," invited presentation, Antitrust Section, American Bar Association Annual Proceedings, San Francisco, August 1992.

"The Design of Incentive Regulation for Telecommunications," invited presentation, Conference on Alternative Regulation, Illinois Commerce Commission, Chicago, July 1992.

"The Effects of Public Policies on ISDN Deployment and Adoption in the U.S.," presented to International Telecommunications Society, Cannes, France, June 1992.

"Removing the MFJ Restriction on InterLATA Services," invited testimony, Subcommittee on Telecommunications & Finance, U.S. House of Representatives, Washington D.C., May 1992.

"The Implications of Telecommunications Infrastructure Investment for R&D, Innovation and Competitiveness," invited testimony, Subcommittee on Communications, U.S. Senate, Washington D.C., February 1992.

"Principles of Costing and Pricing for Telecommunications Regulatory Policy," invited testimony, Colorado Public Utilities Commission En Banc Hearing, Denver, February 1992.

"Deregulation and Interstate Bank Entry in California," with Lee Burke, Research Report of the California Policy Seminar, UC Berkeley, April 1991.

"Assessing the Future of Telecommunications in the Global Economy," invited address, California Telephone Association, Monterey, CA, February 1991.

"Economic Rationale for a National Fiber Optic Infrastructure," invited address, Congressional Staff Forum on Telecommunications (sponsored by Ameritech), Washington D.C., February 1991.

"Applications of Incentive Regulation: An International Comparison," invited presentation, Conference of California Public Utilities Counsel, Long Beach, CA, October 1990.

"The Role of Telecommunications in Regional Economic Development," invited address, Rocky Mountain State Leaders Conference, Billings, Montana, October 1990.

"Telecommunications and Public Policies in the Global Market," invited address, Carnegie Council, New York, NY, October 1990.

"Why We Need a National Telecommunications Policy: A Comparative Perspective," invited address, Policy Issues Management Conference, Bell Communications Research, Murray Hill, NJ, October 1990.

"Incentive Regulation for Telephone Utilities," invited presentation, Workshop of the Colorado Public Utilities Commission, Denver, September 1990.

"The Role of Telecommunications Policy," invited lecture, Conference on Economic Development in the Pacific Northwest, Portland, Oregon, September 1990.

"The Changing Economics of Telecommunications: Implications for U.S. Policy and Competitiveness," invited briefing of U.S. Congressional staff on telecommunications (sponsored by Pacific Telesis), San Francisco, August 1990.

"Communications Competitiveness and Infrastructure Modernization Act of 1990," invited testimony, Communications Subcommittee, U. S. Senate, Washington D.C., July 1990.

"Investing in America's Future," invited essay, 1989 Annual Report of Southwestern Bell Corporation, St. Louis, 1990.

"The Public Switched Telephone Network and Rural Economic Development," invited lecture, Montana State Leaders' Conference, Helena, April 1990.

"Is Public Policy Meeting the Needs of Consumers?" invited panelist, Conference on Telecommunications Technologies and Policies, Center for Communications and Information Science & Policy, University of Pennsylvania, March 1990.

"Telecommunications as a Strategic Industry," invited address, New England Council, Boston, February 1990.

"Fiber to the Customer: A Public Policy Perspective," invited paper, Western Communications Forum, San Diego, February 1990.

Session Chair and Moderator, "State Regulatory Reform: Recent and Future Trends," Fifth Conference on State Telecommunications Regulation, University of Utah, Salt Lake City, January 1990.

Invited Panelist, "Crossroads of Information Technology," Board on Telecommunications and Computer Applications, National Academy of Engineering, Washington D.C., October 1989

Invited panelist in the "Industry Forum," Annual Meeting of the U.S. Telephone Association, San Francisco, October 1989.

"Strategic Lessons from Deregulated Industries," paper presented to Strategic Management Society, San Francisco, October 1989.

"Deregulation in the Transportation Industries: Lessons for Telecommunications Managers," invited paper, Center for Telecommunications Management, University of Southern California, October 1989.

"Price Cap Regulation and Economic Forecasting," invited presentation to 1989 National Forecasting Conference, Bell Communications Research, San Francisco, May 1989.

"The Strategic Implications of Telecommunications Deregulation in Europe," invited presentation, Strategic Management Society, Amsterdam, October 1988.

"Telecommunications Deregulation: Implications for the California Economy," invited presentation, California Foundation for the Environment and the Economy, Carmel, June 1988.

"A Comparison of U.S. and Japanese Policies toward Information Technologies," invited presentation, International Public Economics Association, Tokyo, May 1988.

"Information Technologies, Public Policy, and Regional Economic Development," invited address, Conference on Regional Development in Japan, Hokkaido University, Sapporo, Japan, May 1988.

"The Implications of Line-of-Business Regulation for Diversification Strategy & Enterprise Structure," paper presented to Strategic Management Society, Boston, October 1987.

"Alternative Regulatory Frameworks for Local Exchange Carriers," invited presentation, En Banc Hearing of the California Public Utility Commission, September 1987.

"Emerging Telecommunications Policies in Europe," Briefing of California Legislative Leaders, Los Angeles, September 1987.

"Japanese Corporate Philanthropy in the United States," presented to Academy of Management, New Orleans, August 1987; Center for Research in Management Working Paper BPP-23; published in summary form in *Strategic Directions*, with Barbara Lombardo and David Vogel, April 1989.

"The Effects of Deregulation on Competition and Competition Policy in Banking: A Review of the Literature," Working Paper No. 4, National Center for Financial Services, Berkeley, August 1987.

"Competitive Strategies under Regulatory Constraint: Implications of the AT&T Divestiture on Vertical Relations in Telecommunications," with David J. Teece, paper presented to Strategic Management Society, Singapore, 1986.

"The Economic Consequences of Deregulation," invited address, Emerging Issues Program, Conference of National State Legislative Leaders, Los Angeles, September 1986.

"Public Policies toward Utility Diversification: An Overview," invited presentation, California Policy Seminar/California Senate Office of Research, Berkeley, April 1986.

"New Technologies for Local Loop Access: An Economic and Regulatory Analysis," with Gary Pisano, Office of Technology Assessment, United States Congress, June 1985.

"Corporate Community Involvement in the Greater San Francisco Bay Area," with D. Vogel and J. Logsdon, Center for Research in Management Working Paper, Berkeley, May 1985.

"The Future of Telecommunications Regulation," invited presentation, En Banc Hearing of the California Public Utilities Commission, San Francisco, November 1984.

"Testimony in Support The Taxpayer Antitrust Enforcement Act," Judiciary Committee, U.S. Senate, May 1984.

PROFESSIONAL AFFILIATIONS

American Economic Association
Academy of Management
Strategic Management Society
International Telecommunications Society
Association of Public Policy Analysis and Management

SERVICE TO PROFESSIONAL JOURNALS, SOCIETIES & PUBLIC AGENCIES

Governor's Ad Hoc Committee, Golden State Quality Awards (1991-92)
Chair, Ninth Annual International Conference of the Strategic Management Society, October 1989, San Francisco (1987-89).
Associate Editor, *California Management Review*
Associate Editor, *Logistics and Transportation Review*
Editorial Advisory Board, Transportation Research
Session organizer: Telecommunications Policy Research Conference (1988, 1989); Academy of Management (1991).
Reviewer/Referee: *Bell/RAND Journal of Economics; Industrial and Corporate Change; Journal of Asian Economics; Journal of Economics and Business; Journal of Public Policy Analysis & Management; Journal of Regulatory Economics; National Science Foundation; Quarterly Review of Economics and Business; Review of Economics and Statistics; Telecommunications Policy.*

CONSULTING & TESTIMONY

Economic Consulting to Public Agencies:

California Department of Consumer Affairs (industry analysis); California Office of Attorney General (antitrust analysis in tire industry, merger analysis in food retailing industry, resale price maintenance in consumer electronics, infant formula pricing); California Public Utilities Commission (teach regulatory economics & policy to Commission staff); Interstate Commerce Commission (rate regulatory policy, merger policy, costing methodology); Office of Technology Assessment (telecommunications policy); U.S. Department of Transportation (railroad industry rationalization, merger policy); U.S. General Accounting Office (transportation policy).

Economic Consulting/Regulatory Expert Testimony to Private Enterprise:

Pacific Bell (pricing, competitive strategy, regulatory policy, broadband deployment); US WEST (regulatory policy, costing and pricing principles); Ameritech Corporation (development of price regulatory framework); General Telephone (pricing, regulatory policy); Western Coal Traffic League (railroad pricing); Consolidated Freightways (motor carrier pricing); Southern Pacific Transportation Co. (competition policy); American Presidents Intermodal Co. (competition policy); Bell Communications Research (R&D policy analysis); Bell Atlantic (regulatory framework, MFJ waiver).

Economic Consulting/Business Litigation Expert Witness Testimony:

Electrical contracting; biotechnology manufacturing equipment; pipe fabrication; vision care services; electronic lighting ballasts; motion picture production, distribution and exhibition; regional shopping center development, semiconductor manufacturing equipment; digital-analog converters; workmen's compensation insurance; semiconductor manufacturing.

PRIOR/OTHER EMPLOYMENT

Deputy Director, Cost, Economic and Financial Analysis, Bureau of Accounts, Interstate Commerce Commission, Washington, D.C. (on leave, University of California); (1980-81).

Director, ARTRAIN (traveling art education exhibit), Michigan Council for the Arts, Detroit, (1971-72).

President, Young American Corporation (direct marketing of specialty products), St. Louis (1969-71).

Public Relations Consultant (TIME, Inc.; Rockefeller for President Committee; Young Citizens for Humphrey-Muskie; Student Coalition for Congressional Action), New York and Washington D.C. (1967-69).

Vice President, National Student Marketing Corporation, Washington D.C. (1966-67).

Staff Assistant, Office of the Governor, State of Oregon, Salem (1966).

Public Relations Field Representative, General Motors Corporation, Warren, Michigan (1965).

January 1994

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing "Comments of Bell Atlantic" was served this 1st day of July, 1994, by first class mail, postage prepaid, on the parties on the attached list.

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