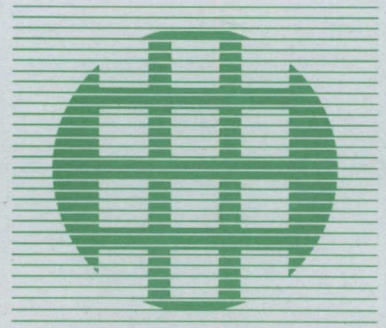
ECONOMIC ASPECTS OF NEW ENTRY TO THE PUBLIC INTEREXCHANGE TELECOMMUNICATIONS MARKET: AN ANNOTATED BIBLIOGRAPHY

PREPARED FOR THE

TELECOMMUNICATIONS POLICY BRANCH

DEPARTMENT OF COMMUNICATIONS



D.A. FORD AND ASSOCIATES LTD.
MANAGEMENT CONSULTANTS

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INTRODUCTION

On July 22, the Minister of Communications announced a policy for telecommunications in Canada. In January 1988, Proposed Guidelines for Type I Telecommunications Carriers were issued as part of this policy.

A major policy issue which the government faces is the matter of new entry of facilities-based (Type I) telecommunications common carriers. The Guidelines propose that applicants for entry as Type IA or IB carriers in the federal regulatory jurisdiction will bear the onus of proof that their entry would serve the public convenience and necessity. Applications will be made to the Minister of Communications.

In order to prepare for the consideration of such applications, the Department asked D.A. Ford and Associates Ltd. to conduct a small survey of existing studies, reports, articles and papers on the subject of the economic aspects of new entry to the public interexchange telecommunications market, and to produce an annotated bibliography based on the survey. The initial search of the U.S. literature was conducted by Mr. David Ellis, a doctoral student in the Department of Telecommunication, Michigan State University, under the supervision of Professor Thomas Muth. Through the facilities of the Michigan State University libraries, access was obtained to Public Affairs Information System (PAIS), the Social Science Citation Index (SSCI) of the Institute for Scientific Information Inc., AIB/Inform, and the Mirlyn catalog system of the University of Michigan. The databases were searched using various combinations of the terms "telecommunications", "market entry", "economics", "regulation", "deregulation", "interexchange", "competition" and "privatization".

The search yielded a comprehensive set of bibliographic references and citations from the telecommunications economic, regulatory and policy literature relating to the U.S., the U.K. and Western Europe, and Japan. Publications included in the survey included those which focused on the more theoretical issues of industry structure, those concerned with deregulation and other practical aspects of the economics of new entry, and also more popular articles based on opinions and interviews. The search concentrated on the literature of the past five years, although articles back as far as 1980 were considered for inclusion.

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This annotated bibliography contains 64 references and is organized as follows. It is divided into major sections in order of increasing specificity with respect to the telecommunications industry. The first section contains five general references, mainly books, on market structure and market entry. Next, specific references to market entry in telecommunications in the U.S. (31), Europe (15), and Japan (5) are organized in sequential sections. The final section contains eight references to more general articles on market entry, competition and deregulation, such as reports on personal interviews with industry executives. No papers or articles relating specifically to the Canadian telecommunications industry were identified during the literature search with the exception of a brief note in reference number 60.

Within each section, books, articles and papers are referenced in alphabetical order according to the last name of the first author. The titles of articles are in quotations. The titles of books and the names of journal and other periodicals are underlined. Following each article is a one paragraph abstract specifying the scope and general conclusions contained in the reference. The authors' own abstract or the abstract of the database service has been used verbatim in those cases where the consultants found them to be satisfactory for this work, in which case the source is identified in parentheses at the start of the abstract.

Ten of the references in the bibliography were not available for personal review by the consultants. However, in order to provide as complete a bibliography as possible, these references are included in the bibliography with the appropriate notation. Where an abstract was available but the full article was not, which is the case with eight of the references, there was of course no opportunity for the consultants to assess the adequacy of the abstract, but the abstract is included in the bibliography with its source and with a notation that the article itself has not been reviewed.

The 64 bibliographic references are numbered sequentially from the beginning of the bibliography to the end of the general articles section.

GENERAL REFERENCES ON MARKET STRUCTURE AND MARKET ENTRY

1. Areeda, Philip, Antitrust Analysis, Problems, Text, Cases, 3rd edition, Little, Brown and Company, Boston, 1981.

This major treatise on U.S. antitrust matters contains a small section on barriers to entry (Section 17, pages 20 to 22). No specific reference is made to telecommunications. A fourth edition of this work was published in 1988 but was not available to the consultants.

2. Baumol, William J., Panzer, John C., and Willig, Robert D., Contestable Markets and the Theory of Industry Structure, Harcourt Brace Jovanovitch, New York, 1982.

This is a standard reference textbook on the subject of market structure and market entry. Chapter 10 (pages 279-303) contains a section on entry barriers, but no specific reference is made to the telecommunications industry.

3. Landes, William M. and Posner, Richard A., "Market Power in Antitrust Cases", Harvard Law Review, Volume 94, Number 5 (March 1981), pages 937-996.

In U.S. antitrust law, the possession of market power is key to the determination of whether or not a violation has taken place. The authors of this paper present an economic analysis of market power for application to particular cases and for formulation of antitrust policy. This approach is then used in the definition of product and geographical markets, in the measurement of market power arising from mergers and within regulated industries, and for the quantification of damages in monopolization and price-fixing cases. No specific references to the telecommunications industry are made.

4. Salop, Steven C., "Measuring Ease of Entry", The Antitrust Bulletin, Volume 31 (Summer 1986), pages 551-570.

The issue of what constitutes an entry barrier for use in U.S. antitrust litigation is a controversial economic issue. Also controversial are the methods for measuring entry barriers and ease of entry. This paper describes the use of economic evidence for analyzing ease of entry in the case of a hypothetical merger. No reference is made to the telecommunications industry.

5. Scherer, F.M., Industrial Market Structure and Economic Performance, 2nd edition, Houghton Mifflin Company, Boston, 1980.

This textbook is a good starting point for addressing the issue of market entry. Chapter 4, entitled "The Determinants of Market Structure", covers such topics as economies of scale, mergers and concentration, the impact of government policies and stochastic determinants of market structure. No specific reference to the telecommunications industry is made.

MARKET ENTRY, DEREGULATION AND COMPETITION IN THE UNITED STATES

6. Baumol, William J. and Selwyn, Lee L., "Deregulation: Will it Produce True Competition for Long-Haul Services?", Network World, Volume 4, Issue 16 (April 20, 1987), pages 26-27.

(AIB/Inform Abstract - Original reference not available to consultants.) Regulation may be the most important inhibitor of true competition in long-haul services. Because of this, deregulation of carriers will enhance the long-distance industry. Since there is so much rivalry already, the elimination of handicapping and uneven regulation can stimulate further the forces of competition. Technological advances have eroded the old natural monopoly, but technology no longer dictates that a single organization will have inherent cost or other advantage over a multiplicity of suppliers. An opposing view suggests that the divestiture and deregulation of AT&T and its former Bell operating companies (BOC) are not related to a great extent. The idea that the breakup of the companies ended their historic monopolies in local and long-haul services is a perversion of the principles of the Modified Final Judgment, under which the breakup was implemented. Few people doubt that deregulation would benefit AT&T and the BOCs, but none have shown how such a fundamental policy change will benefit anyone else.

7. Buckley, Linda, "The Status of Interexchange Competition: Third Down and a Long Way to Go", Rural Telecommunications, Volume 6, Issue 1 (Winter 1987), pages 8-12.

(AIB/Inform Abstract - Original reference not available to consultants.) Although AT&T still maintains nearly 80% of the interexchange market, most other common carriers (OCC) still claim that many of their equal-access goals were met despite such problems as customer and carrier confusion created by the midstream change to the balloting and allocation procedure. AT&T competitors, which include MCI and US Sprint, are using mergers and acquisitions to expand. However, faced with possible competition

from regional Bell holding companies (RHC), they are now expected to adopt strategies that emphasize cost-efficiency and quality. Even opponents concede that eventual RHC participation is assured because of the introduction of legislative proposals to transfer control of the Modification of Final Judgment (MFJ) to the Federal Communications Commission (FCC) and to delineate procedures for granting waivers of existing restrictions.

8. Cross, Philip S., "Market Entry and Rate Regulation of Intrastate Telephone Services", Public Utilities Fortnightly, Volume 114, Issue 7 (September 27, 1984), pages 50-53.

Many state regulatory commissions are deciding whether or not to permit open competition for market entry and pricing of telecommunications services in the intrastate market. In deciding whether to allow open market entry and to relax the regulation of rates, commissions are questioning whether they have the power to alter established market entry standards for intrastate carriage, and whether they can treat intrastate competitors differently for rate regulation purposes, depending on their power in the market.

9. Eberle, Donald C. and Williamson, Lyle, "Deregulation of Telecommunications at the State Level: Managing a Transition", Public Utilities Fortnightly, Volume 127, Issue 5 (September 1, 1988), pages 20-28.

Since the AT&T divestiture, 27 states have enacted legislation to modify their traditional telecommunications regulatory structure. This article reviews these legislative changes which tend to broaden consumer choice and promote competition. They are analyzed with respect to the following criteria: Definition of deregulation; decision-making entity; how competition is determined; consumer protection; interconnection (access); universal service protection; and reregulation provisions.

10. Einhorn, Michael A., "Optimality and Sustainability: Regulation and Intermodal Competition in Telecommunications", Rand Journal of Economics, Volume 18, Issue 4 (Winter 1987), pages 550-563.

As regulators continue to open utility markets to entry, new competitors often target the largest customers, thereby making traditional pricing procedures inappropriate. In this paper, telecommunications pricing strategies are developed for competitive markets. It demonstrates that, under an optimal non-uniform price schedule, utilities can legitimately charge high-volume customers rates which are below the marginal usage cost.

11. Faulhaber, Gerald R., "The FCC's Path to Deregulation: Turnpike or Quagmire?", Public Utilities Fortnightly, Volume 120, Issue 5 (September 3, 1987), pages 22-26.

(AIB/Inform Abstract) Some three years after the American Telephone and Telegraph Co. (AT&T) divestiture, the Federal Communications Commission (FCC) is addressing fundamental deregulation of interstate telecommunications. The FCC has suggested a "service-by-service" approach as a reasonable contender for a means of transition to deregulation. With this approach, services would be removed from the rate base and rate of return regulation to which the dominant carrier, AT&T, is now subject, if in the FCC's judgment reasonable competition were likely in the markets for these services. Service-by-service deregulation would mean that the FCC would have to determine service definitions, measures of market power, and cost allocations each time a new service is proposed for deregulation. A successful transition to deregulation must protect consumers against short-term monopoly exploitation and excessive adjustment costs. Also, it must avoid reliance on a regulatory process that permits competitors to lobby for special privileges. Adoption of any one of the "social contract" transition methods could protect the consumers of these services. References.

12. Fowler, Mark S., Halprin, Albert and Schlichting, James D., " 'Back to the Future': A Model for Telecommunications", Federal Communications Law Journal, Volume 38, Issue 2 (April 1986), pages 145-200.

This article by the then Chairman of the FCC and the Chief of the FCC's Common Carrier Bureau begins with a discussion of the fundamental societal goals for telecommunications in the US. It then explores the traditional public utility regulatory model and its costs. Next, the paper traces the role of developing technologies in rendering a competitive industry model the most appropriate one for telecommunications in the US. The article then suggests basic guiding principles for the transition to competition, such as encouraging use of the public switched network through a policy of pricing flexibility and through a movement from structural regulation of dominant carriers to an open network architecture with non-structural separation. The paper concludes with a proposal for a three-year trial of total deregulation of telecommunications services which, among other things, would speed the transition to a competitive marketplace and avoid the costs of a gradualist approach to deregulation.

13. Hall, Mary D., "Telecommunications Policy for the Future: A Model State Plan", Public Utilities Fortnightly, Volume 115, Issue 1 (January 10, 1985), pages 15-19.

This article focuses on the need for state governments to develop a communications system plan and principles to guide its implementation. Once this plan is in place, regulatory decisions can then be made within this framework. Issues discussed include jurisdiction, scope of regulation, market standards, entry requirements, protecting the monopoly ratepayer, affiliated interest, measures service and access charges, and lifeline rates.

14. Hills, Jill, Deregulating Telecoms, Quorum Books, Westport, Connecticut, 1986.

The preface to the book states in part:

"This book has been written in an attempt to redress the balance of the debate on the deregulation of telecommunications. A great deal has been written on the benefits in general of deregulation and of privatisation but almost nothing on who benefits from the two processes. If the book sparks debate around that issue it will have served its purpose."

It reviews deregulation and privatization of telecommunications in the US, Britain and Japan as well as the deregulation of international telecommunications.

15. Irwin, Manley, "US Telecommunications: Searching for the Optimum Policy", Telecommunications Policy, Volume 12, Issue 1 (March 1988), pages 13-15.

(Abstract accompanying article) Divestiture, deregulation and market entry have not removed the burden of choice in US telecommunications policy. This report analyses the context in which the USA is struggling to strike a balance between regulation and global competition, and discusses the future prospects for regulation in the light of the emerging globalization.

16. Johnson, Elizabeth, "Telecommunications Market Structure in the USA: The Effects of Deregulation and Divestiture", Telecommunications Policy, Volume 10, Issue 1 (March 1986), pages 57-67.

This article traces the events leading to deregulation and divestiture from 1956 to 1986. The author concludes that the driver toward a more competitive market will be a variety of customer premise equipment needing open architecture for network access. As the network becomes more responsive to the unique equipment needs of its customers, and therefore more demand sensitive, the market structure will make the transition from monopolistic to competitive. A number of implications for market structure are predicted.

17. Johnson, James L., "The Telephone Industry in Transition: Managing Deregulation", Public Utilities Fortnightly, Volume 116, Issue 7 (October 3, 1985), pages 15-17.

This article by the senior vice president of GTE corporation and incoming chairman of the United States Telephone Association presents his views on the future structure of the industry and strategies to ensure universal service. In particular, he stresses that the potential benefits of competition would be limited severely if the local exchange carriers were continued to be subjected to structural or regulatory requirements that restrained participation in telecommunications markets. He argues for a competitive cost-based environment, assurance of the prerogative of state regulators on local matters, recognition of the need for regulated companies to have the same economic advantages as their competitors, and consideration of the special revenue requirements of small companies in a competitive industry.

18. Militzer, Kenneth H. and Wolf, Martin H., "Deregulation in Telecommunications", Business Economics, Volume 20, Issue 3 (July 1985), pages 27-33.

(AIB/Inform Abstract - Original reference not available to consultants.) The telecommunications industry has dramatically changed from a regulated monopoly to an industry characterized by intense competition. Industry deregulation reflects the impact of 3 forces that have been in operation for several years: 1. Rapid technological change led to the development of transmission facilities that could provide long-distance service at greatly reduced costs. 2. Regulation's role in deregulation resulted from the price structures that regulation created, that in turn created incentives for new firms to enter the industry. 3. The divestiture of its local operating telephone companies by American Telephone and Telegraph Co. (AT&T) removed the last possible barrier to full competition in long distance markets. AT&T now faces intense competition in markets for customer premises and other telecommunications equipment. The costs to AT&T and its customers of asymmetrical regulation are enormous, and the Federal Communications Commission (FCC) is placing a greater burden on AT&T than on its competitors. Tables. References.

19. Miller, Edythe S., "Ideology, Jurisdiction and Deregulation of the Telephone Network", Public Utilities Fortnightly, Volume 118, Issue 7 (October 2, 1986), pages 14-18.

In an attempt to deregulate further the US telecommunications industry, the FCC preempted the jurisdiction of the state regulators with respect to telephone company depreciation rates. In May 1986, the US Supreme Court held on appeal that the Communications Act of 1934 bars federal preemption of the states' authority over dual jurisdiction assets. This article examines the impact of this decision and its implications for the development of a competitive environment.

20. Patrick, Dennis R., "On the Road to Telephone Deregulation", Public Utilities Fortnightly, Volume 114, Issue 12 (December 6, 1984), pages 19-21.

(AIB/Inform Abstract) The telecommunications industry in the US has embarked on the road to deregulation. The industry and the Federal Communications Commission (FCC) must still confront many critical issues, the resolution of which will shape the industry's structure into the 21st Century. For competition among interexchange services to flourish on a "level playing field", 3 steps are required: 1. a nondiscriminatory, rational system of access charges, 2. an equal access option for all service providers, and 3. the eventual elimination of the dual system of carrier regulation. In defining the level playing field, the FCC must not lose sight of its ultimate policy goal, which is to protect competition, not competitors, to maximize consumer welfare. An analytic framework is the best means for the FCC to realize its objective. In moving from regulation to deregulation, it must be understood that: 1. All regulation imposes costs and distorts the market. 2. The FCC cannot create competition. 3. Policies must be designed to allow competition to flourish.

21. Philip, George and Tsoi, Shao Hing, "Regulation and Deregulation of Telecommunications: The Economic and Political Realities. Part I: The United States", Journal of Information Science, Volume 14, Issue 5 (1988), pages 257-264.

This paper provides an outsider's view of the US telecommunications industry as it reviews the evolution and liberalization of the industry. The development of a competitive telecommunications environment in the US is documented, along with the effects of deregulation. (Part II of this series is included in this bibliography as reference number 47. It describes the situation in the United Kingdom and other West European countries)

22. Prigmore, Donald G., "Creating Long-distance Competition at the State Level: What's Needed", Public Utilities Fortnightly, Volume 116, Issue 9 (October 31, 1985), pages 43-45.

This article by the president and CEO of GTE Sprint Communications Corporation argues that the deregulation of AT&T threatens the development of competition and the attainment of the national telecommunications policy goal of competition. Flaws in the implementation of the equal-access, all of which benefited AT&T, remain largely uncorrected. While AT&T proposes dropping all regulatory controls, GTE argues for a transitional period during which certain controls would remain in place. GTE Sprint needs time to build its networks and truly become a viable competitor.

23. Pryor, Timothy M. and Weaver, Carl G.K., "The Future of Competition in the Telecommunications Industry", Public Utilities Fortnightly, Volume 119, Issue 5 (March 5, 1987), pages 28-32.

(Abstract accompanying article) Satellite and microwave technologies broke the barrier to competition in the telecommunications industry presented by the natural monopoly cost characteristics of conven-tional co-axial cable systems, thus widening its role for at least a time. In this article, the basis of natural monopoly cost characteristics in telecommunications is examined. A major conclusion is that ongoing deployment of fiber-optic cables will reintroduce a natural monopoly technology to major interurban telecommunications markets and, as a result, continuing competition in those markets will produce severe instability affecting participants and users.

24. Public Communications Associates, Lansing, Michigan, and Economics and Technology Inc., Boston, Massachusetts, "Telecommunications Competition in Michigan and Regulatory Alternatives: A Report to the Michigan Divestiture Research Fund Board", Project Telegis, Michigan State University, June 1988.

This major work for the Michigan Divestiture Research Board Fund looked at the State of Michigan in detail, and surveyed 23 other state regulators. Volume I examines the natural economic structure of the telecommunications industry in the State of Michigan, as defined by various distinct market segments. It uses Minimum Efficient Market Share (MEMS) to measure the proportion of total market demand that a carrier must serve in order to achieve maximum long run average cost efficiencies. The study determined MEMS for a variety of isolated market segments using different assumptions, and also examined the implications of carriers providing services on an integrated basis across market segments, and of competition between large, integrated carriers and specialized carriers serving only a portion of the total market. Volume II reports on deregulation of telecommunications in 23 key states since 1982. Analysis of legislation, administrative activities, professional and trade reports led to the conclusion that telecommunications deregulation has increased the responsibilities of administrative agencies. Agencies in deregulated states are now concerned with structurally dividing competitive niches from monopoly markets and services and in determining where and how competition operates.

25. Schwartz, Gail Garfield, "Why Changes in Telecommunications Regulation Should Be Made Slowly and Carefully", Public Utilities Fortnightly, Volume 121, Issue 4 (February 18, 1988), pages 31-35.

This article by the Deputy Chairman of the New York Public Service Commission discusses the appropriate type of regulation during the transition from regulated monopolies to fully competitive markets. A system employed by the NYPSC to replace conventional rate base/rate of return with an incentive system which allows carriers a share of any productivity gains is described.

26. Selwyn, Lee L., "Assessing Market Power and Competition in the Telecommunications Industry: Toward an Empirical Foundation for Regulatory Reform", Federal Communications Law Journal, Volume 40, Issue 2 (April 1988), pages 193-233.

(AIB/Inform Abstract - Original reference not available to consultants.) Many of the key decisions on the future course and scope of telecommunications regulation will turn on the question of whether a competitive marketplace can develop that will introduce constraints on what might otherwise be monopolistic pricing and marketing practices by dominant carriers. Peter Huber's (1987) study of the telecommunications industry focused attention on the vital role that a telecommunications network plays in amassing market power. It reached some fundamentally incorrect factual conclusions about the connection between networks and market power. Huber's geodesic model supports the assertion that both structural and line of business constraints on dominant carriers should be eliminated and that most regulatory constraints ultimately should be removed. It is concluded that the responsibility for imposing and maintaining constraints of the market power of the dominant carriers must lie with an efficient system of economic regulation of the dominant local and interchange (sic) carriers. Tables. Charts. Appendix.

27. Selwyn, Lee L., Townsend, David N. and Kravtin, Patricia D., The Sustainability of Competition in Light of New Technologies, presented at the Twentieth Annual Williamsburg Conference of the Institute of Public Utilities, Michigan State University, December 6, 1988.

This paper describes a study which approached competitive market structure questions from the standpoint of basic underlying cost and demand conditions. It concentrated primarily on the actual cost elements of supply in telecommunications markets, and used a computer simulation model to construct hypothetical network architectures. The cost functions and market demand levels for given markets or market segments were determined by measuring costs across wide volumes of demand and examining actual demand trends in the identified market.

28. Shultz, Paul, "The Paradox of Deregulation", Rural Telecommunications, Volume 5, Issue 1 (Winter 1986), pages 8-12.

(AIB/Inform Abstract - Original reference not available to consultants.) The purpose of deregulation is to eliminate unwieldy regulatory rules and procedures that stifle the growth of new products and innovations. While this purpose has been realized to some extent, deregulation has caused public safety worries and general concern as to whether competition always serves the public interest. Many critics fear that the pendulum has swung too far toward deregulation. In an effort to put AT&T and its competitors -- other common carriers (OCC) -- on an equal footing, the Federal Communications Commission has established a 2-tiered system whereby AT&T remains regulated, but the OCCs are free to choose their markets. While OCCs press for continued regulation of AT&T, AT&T wants deregulation, which it says will give it a freer hand against the OCCs. Some analysts predict that deregulation of the Bell companies will favour a telecommunications oligopoly, given that the small carriers are continuing to fail in their efforts to compete against the large corporations in the long distance market.

29. Smith, Kathleen Reichert, "Competing with AT&T", Long Range Planning (UK), Volume 18, Issue 1 (February 1985), pages 47-52.

(AIB/Inform Abstract - Original reference not available to consultants.) The telecommunications industry has experienced dramatic structural change in response to increasing competition arising from 3 major sources: 1. regulatory changes, 2. technology, and 3. the marketplace. Regulatory changes have been the predominant force in the restructuring of voice telecommunications, which has moved from a classic monopoly structure, through a climate of emerging competition and regulatory protection, toward deregulation and free market competition today. GTE Sprint has evolved along with these changes from a startup company to a major billion-dollar enterprise. The initial goal of GTE Sprint in the regulated environment was to attract customers away from AT&T. This remained the strategic directive of the company until divestiture altered the competitive environment and thus required new

strategic thinking. The major thrusts of GTE Sprint's new competitive strategy are to: 1. enhance and develop the network, 2. gain market share rapidly, 3. create a basis for competition on attributes other than price, and 4. develop a brand identity. GTE Sprint recognizes that in a deregulated environment, effective strategic planning is a major determinant of the company's future.

30. Sponseller, Diane, "Competition and Market Entry Factors", Public Utilities Fortnightly, Volume 120, Issue 13 (December 24, 1987), pages 39-43.

(AIB/Inform Abstract) Most state utility commissions have not embraced competition and deregulation unequivocally. Rather, they have scrutinized competitive applicants' service value and their effect on existing utilities prior to permitting market entry. Primarily, commissions examine the abilities of existing utilities, the adequacy of their service, and the public need for different or additional service. Specific factors evaluated are: 1. current and potential demand, 2. the adequacy of an applicant's technical and financial abilities to provide safe and reliable service, as well as the impact of a competitor on existing plant, and 3. the effect of competition on the revenues of existing utilities. In addition, the competitive status of existing utilities whose activities were previously restricted is an issue. Striving to protect the public interest, state utility commissions should continue to avoid problems similar to those of the deregulated airline industry.

31. Stavro, Barry, "Therefore, Be Bold", Forbes, Volume 136, Issue 8 (September 23, 1985), pages 115-116.

(AIB/Inform Abstract - Original reference not available to consultants.) William Esrey, president of United Telecommunications Inc. (Kansas City, Missouri), plans to spend $2 billion by 1988 to install a 23,000-mile fiber optic network aimed at capturing part of the $47-billion long-distance telephone market. United Telecom chairman Paul Henson foresaw the slowing growth of local telephone business and saw an opportunity in the deregulation of the phone industry to compete using fiber optics. Fiber optics can replace copper cable, satellite, and microwave phone systems. United Telecom, with 1984 net income of $2.57 per share, plans to double its size and compete with market leader American Telephone and Telegraph (AT&T) by offering cheaper, higher quality service. However, AT&T and other competitors have or plan to have part of their fiber optic networks operational soon. Moreover, Esrey has been unable to find a partner to help finance United Telecom's network. As a result, analysts doubt that the firm can continue raising its dividend ratio of 73% of earnings. However, Esrey believes that opportunities of the network exceed the risks.

32. Stoddard, Rob, "Decade of Deregulation: Three Experts Examine 10 Years of Regulation", Satellite Communications, Volume 11, Issue 7 (July 1987), pages 21-22.

Three attorneys collectively suggest a number of pivotal federal policies which have taken the "open skies" satellite policy of the early 70s to broad-based deregulation of domestic satellites and its extension to the international arena. Those discussed in the article include the Competitive Carrier decisions, the WARCs, two-degree spacing, earth station deregulation, transponder sales, separate international system, domestic transponder service, and re-examination of Comsat's role.

33. Tunstall, Jeremy, Communications Deregulation: The Unleashing of America's Communications Industry, Basil Blackwell, Oxford, 1986.

This book is a no-holds-barred, strongly critical and often irreverent examination of the US's road to deregulation in telecommunications and broadcasting. The final chapter entitled "Deregulation versus Policy" notes that "... communications deregulation in the US has indeed meant the piecemeal abolition of previous regulations and fragments of policy." Noting that communications deregulation lacks not only an agreed-upon definition but also an agreed-upon goal, the author proceeds to sketch out a brief scorecard of US successes and failures.

34. Wenders, John T., "The Economic Theory of Regulation and the US Telecoms Industry", Telecommunications Policy, Volume 12, Issue 1 (March 1988), pages 16-26.

(AIB/Inform Abstract) The usual outcome of the economic theory of regulation is that regulatory processes will be dominated by the few who have much to gain at the expense of the many who will lose. However, it is argued that this is not the result of political-regulatory choice in the US. The US telecommunications industry can best be viewed as a regulatory cartel in which a balance of interests was satisfied. Dominated by AT&T Co. and the Bell System, industry regulation guaranteed its profits and protected it from competition, while regulatory authorities were able to administer a toll-to-residence subscriber subsidy mechanism. This resulted in the divestiture of AT&T and efforts by the Federal Communications Commission to end these subsidy flows. Unless the politically popular subsidy scheme is ended, competition is likely to produce a bifurcated US telecommunications network in which most of the large users either will bypass the local network or migrate to discounted toll services. Graphs. References.

35. Wiley, Richard E., "US Regulation -- The Shape of Things to Come", Telecommunications, Volume 21, Issue 8 (August 1987), pages 29-30.

This article by the former chairman of the FCC points out that the principal goal of divestiture - to create a fully competitive marketplace for interexchange telecommunications services in which regulation of AT&T could be replaced by marketplace forces - is not yet a reality. AT&T continues to dominate the interexchange business with over an 80% market share. Its competitors are caught in a cost/price squeeze due to AT&T's having decreased rates over 30% since divestiture while the competitors' costs of access have nearly doubled. As a result they have experienced, collectively, staggering losses despite a series of consolidations and mergers among the larger players. In spite of the lack of a competitive marketplace, however, AT&T continues to press for deregulation. The most fascinating set of outstanding issues involves BOC entry into interexchange services. Both the DOJ and the FCC believe regulatory tools can restrain BOC anticompetitive behaviour. Wiley concludes that it will be some time before there is stability in the industry.

36. Wilson, Carol, "From ISDN to IXC Shake-out: 1985 was a Year of Transition", Telephony, Volume 210, Issue 2 (January 13, 1986), pages 56-58.

This review of 1985 developments in the US telecommunications industry noted IBM's swap of SBS for a share of MCI, AT&T expanded its computer line, the regional holding companies (RHCs) expanded their lines of business through diversification, several companies announced ISDN trials, and OCC interexchange carriers made a number of moves to survive. In the last category, many gained customers through equal access but continued to report losses. OCC capital expenditures through 1989 were forecast at $6 billion, with profit margins declining to 2.6%. GTE Sprint and US Telecom agreed to swap excess fibre capacity. Allnet merged with Lexitel to for ALC Communications.

MARKET ENTRY, DEREGULATION AND COMPETITION IN EUROPE

37. Amory, Bernard E., "Telecommunications Monopolies and EC Law", Transnational Data and Communications Report, Volume 10 (May 1987), pages 17-18.

The telecommunications sector in Europe has traditionally been in the hands of legal public monopolies. The maintenance of these monopolies in the face of rapidly developing information technologies is being called into question. Proposals are being made to create some competition in the telecommunications sector. Such competition could stimulate a Europe-wide market and allow this market to face technological developments. This article examines some of the initiatives in this direction and the legal impediments to their implementation.

38. Carney, M.G., "Strategy in the Telecommunications Market", Telecommunications policy, Volume 10, Issue 3 (September 1986), pages 245-257.

(Abstract accompanying article) This article identifies some of the ways in which firms in the telecommunications industry have attempted to cope with deregulation, drawing upon the experience already evident since liberalization began a few years ago. The author argues that certain types of market conditions provide particular problems for firms, to which they must respond if they are to remain prosperous. A matrix describing four market types is offered as a facsimile of the competitive conditions now found in the telecommunications industry, and examples are given from the UK. Economic, technological and political factors affect the strategic behaviour which firms follow, but in different ways and at different times.

39. Coustel, Jean Pierre, "Telecommunications Services in France: The Regulated Monopoly and the Challenge of Competition", Telecommunications Policy, Volume 10, Issue 3 (September 1986), pages 229-243.

(Abstract accompanying article) Classical microeconomic modelling cannot alone explain the present trend of telecommunications deregulation. Based upon an examination of the French situation, the author argues that the current phenomenon should be viewed more as a game between three main players whose behaviour can be analysed using principles of industrial organization. The traditional telecommunications monopoly is bound to react defensively in response to increasingly powerful demand, stimulated by technical innovations, while at the same time the public policy maker searches for modern regulatory principles. Demand, as represented by large corporate customers, will probably trigger the next step in the game between the three players.

40. Foreman-Peck, James, and Manning, Dorothy, "Natural Monopoly and telecommunications liberalisation in the UK", in European Telecommunications Policy, CJSC, London, 1987.

This paper addresses the following three issues as they bear upon the British telecommunications network: 1. Specifying the conditions under which legal entry barriers are desirable and in what form; 2. Deciding on the appropriate type of regulation for the industry, if any (including nationalization); and 3. Identifying the repercussions of these policies upon related markets.

41. Mansell, Robin E., "Telecommunication Network-based Services: Regulation and Market Structure in Transition", Telecommunications Policy, Volume 12, Issue 3 (September 1988), pages 243-255.

(Abstract accompanying article) Analysis of the convergence of telecommunications and computer technologies and regulation has become something of a growth industry. Many regulatory bodies and standards organizations are actively engaged in policy debate, and are influential in setting the ground rules for the supply and use of services. The author discusses how research on the implications of new telecom policies has been limited and suggests telecommunications network-based services as a conceptual tool to guide research. Suggestions are made for research that could usefully contribute to current telecommunications policy debates.

42. Neumann, Karl-Heinz and Wieland, Bernhard, "Competition and Social Objectives: The Case of West German Telecommunications", Telecommunications Policy, Volume 10, Issue 2 (June 1986), pages 121-131.

(Abstract accompanying article) This article discusses the problems which arise if liberalization in telecommunications has to be brought about under strong equity constraints. It is shown that, under West Germany's political framework, the average consumer exerts a much larger influence on telecommunications policy than in, for example, the USA. Distributional concerns therefore play a major role in German telecommunications policy. A strategy is presented which satisfies these equity constraints. The main elements are: (a) to keep the monopoly on the network level; (b) to allow service competition, but; (c) only under a regime of 'harmonized tariffs'.

43. Palmer, Michael and Tunstall, Jeremy, "Deregulation and Competition in European Telecommunications", Journal of Communications, Volume 38, Issue 1 (Winter 1988), pages 60-69.

This article looks primarily at initiatives in the UK and France. It begins by noting that the divestiture by AT&T called into question the European concept of natural monopoly, "loosed" AT&T into European markets and enticed Europeans with an entry to the US market. Britain is pursuing a high risk policy by privatizing its major carrier, encouraging domestic and international competition, and trying to turn British Telecom into an international enterprise. In contrast, France has chosen government monopoly and state enterprise.

44. Solomon, J.H., "The EEC Green Paper: A Faltering Step in the Right Direction", Telecommunications Policy, Volume 11, Issue 4 (December 1987), pages 322-324.

(AIB/Inform Abstract) Comment is made on the European Economic Community (EEC) Green Paper on the Development of the Common Market for Telecommunications Services and Equipment. Only a radical change in European political thinking about telecommunications can keep Europe from being left behind in the information race. The Green Paper represents something inhibited and continuing to inhibit the full business developments presented through current technological changes. By its restraint on the issue of network competition, the Green Paper has left in place a market structure dominated and controlled by PTTs. Meanwhile, the US and Japan are moving rapidly toward nationwide broadband facilities for which they are also developing services. The structure of the European market reflects outdated technologies and solutions. Positive recommendations of the Green Paper include: 1. Separate the regulatory and operational functions of administration, 2. Liberalize the provision of nonvoice services, 3. Liberalize satellite services.

45. Solomon, J.H., "Telecommunications Evolution in the UK", Telecommunications Policy, Volume 10, Issue 3 (September 1986), pages 186-192.

(AIB/Inform Abstract) The Conservative government elected in 1979 has greatly changed the face of telecommunications in the UK. The new government had a comprehensive telecommunications policy based on the principle of liberalization and an industrial policy geared to the withdrawal of state intervention and the restoration of public enterprises to the private sector. The British Telecommunications Bill, introduced in 1980, included: 1. separation of the Post Office and British telecommunications (BT), and 2. the assumption of power to sell shares in Cable and Wireless. The Telecommunications Act 1984 led the way for privatization, stripping BT of its exclusive privileges. The successes of the new stimulants are substantial, and business and residential customers have benefited. The residential consumer now has a choice of equipment and, for the first time, a choice of carrier. Given the structure of UK telecommunications, which still makes government agencies the determinant of market entry, the scale and effectiveness of competition will remain a matter of political will.

46. Taylor, Bob, "Telecoms 1992: Putting the Green Paper into Action", European Trends (UK), Issue 2 (1988), pages 48-50.

(AIB/Inform Abstract - Original reference not available to consultants.) In February 1988, the European Commission published proposals for implementing the telecommunications strategy set out in its Green Paper. The Commission's proposals cover 4 areas: 1. the complete opening of terminal equipment markets to full competition, 2. the progressive opening of telecommunications service markets, 3. the liberalization of the market for receive-only satellite antennae, and 4. the basing of tariffs on real costs. To support these proposals, the Commission outlined measures that included clear and legal separation of the regulatory powers and operational activities of the national telecoms administrations. The Commission also wants to apply all the competition rules in articles 85, 86 and 90 of the Rome Treaty to the telecoms sector.

The Commission has established that any supplier should be allowed to submit bids, and it plans to liberalize some technical measures. The Commission's program probably will meet some resistance, and several governments already have voiced some objections to proposed telecom strategy.

47. Tsoi, Shao Hing and Philip, George, "Regulation and Deregulation of Telecommunications: The Economic and Political Realities. Part II: The United Kingdom and other West European Countries", Journal of Information Science, Volume 14, Issue 5 (1988), pages 265-273.

This paper describes the effect which the privatization of British Telecom (BT) have had on consumers, equipment suppliers and particularly on its main competitor - Mercury. The study shows that, despite the efforts of the regulatory body OfTel (Office for Telecommunications which was created by the 1984 Telecommunications Act), privatization has had little effect in breaking the monopoly of BT. Some of the other West European countries are also planning to open up their PTTs to competition but, unlike the UK, they prefer liberalization to privatization. (Part I of this series is included in this bibliography as reference number 21. It describes the situation in the United States.)

48. Turney, Roger S., "Telecommunications Liberalization in the U.K.: The British Get a Choice", Telephony, Volume 213, Issue 17 (October 26, 1987), pages 42-46.

(AIB/Inform Abstract) The UK version of US telecommunications deregulation, called liberalization, has given Mercury Communications the go-ahead to compete with British Telecom. Politics, more than market pressure, motivated the UK deregulation movement. A consortium of 3 UK companies set up Mercury Communications in 1981. Cable and Wireless bought Mercury from its partners in 1984, making it a wholly owned subsidiary of one of the world's largest

international telecom operators. Mercury, which now must build a new network as a new carrier, is using only state-of-the-art technology. The backbone of Mercury's UK long-distance network is the trunk network, which is based on a central, high-capacity fiber-optic route in the center of the country. High-capacity trunks extend the network to major towns on the south coast and in Scotland. Local distribution networks also are being installed in several major cities. Today, Mercury has over 1,000 business customers and is rapidly expanding its customer base. Map. Tables.

49. Wieland, Bernhard, "Die okonomische Theorie des naturlichen Monopols", WIK Discussion Papers on Telecommunications Research, No. 2, August 1983.

50. Wieland, Bernhard, "Grossenvorteile und naturliches Monopol aus empirischer Sicht", WIK Discussion Papers on Telecommunications Research, No. 13, June 1985.

These two discussion papers prepared by the Wissenschaftliches Institut fur Kommunikationsdienste (WIK) der Deutsches Bundespost were referenced in an overview document describing WIK and its research programs prepared by WIK in September 1988. WIK, the Deutsches Bundepost's research institute for telecommunications and postal services, was founded by the German PTT in 1982. Its emphasis is on economics. It is to contribute to basic research in the fields in which the PTT is active and to provide policy advice. The papers themselves could not be obtained and no abstracts are available.

51. Williamson, John and Purton, Peter, "The U.K.'s Competitive War: Who is Winning?", Telephony, Volume 214, Issue 4 (January 25, 1988), pages 28-40.

(AIB/Inform Abstract) In the UK, British Telecom (BT) and its competitors are battling it out in the deregulated telecommunications industry. A review of the current state of the UK telecommunications system addresses: 1. how competition is affecting BT and its competitors, 2. what its impact has been on unions, the public and government, and 3. whether there should be more competitors. It is clear that everyone is not completely happy with the results of deregulation, and a media campaign is attacking BT's competence and indifference to customers. BT is caught between the needs of major corporate users and residential customers and must concentrate on corporate customers to avoid losing too much business to Mercury Communications Ltd., its most serious competitor. After a shaky start in 1983, Mercury has gained competitive speed and customers, and its all digital network constitutes a significant advantage over BT. However, Mercury's growth has been limited by the need to interconnect its network with BT. As yet, no other major group appears to have the resources to enter the telecommunications arena and compete with BT and Mercury.

MARKET ENTRY, DEREGULATION AND COMPETITION IN JAPAN AND THE PACIFIC RIM

52. Davidson, William H., "Japanese Telecommunications Policy", Telecommunications policy, Volume 11, Issue 2 (June 1987), pages 147-160.

(Abstract accompanying article) Recent shifts in telecommunications policy have led to a dramatic restructuring of the Japanese telecommunications industry. A variety of new participants have entered the domestic communications market, and existing vendors have reoriented themselves. These shifts have not occurred without trauma. Policy and jurisdictional debates and tension remain; traditional policies and structures conflict with new directions. Japan's experience in adapting new goals, policies and structures in the telecommunications sector warrants careful examination by public and private sector participants.

53. Komiya, Megumi and Renaud, Jean-Luc, "Japanese Telecommunications Industry Privatization", Transnational Data Report, Volume 8, Issue 3 (April/May 1985), pages 163-166.

(Summary accompanying article) The worldwide trend toward deregulation in telecommunication systems and services has not left Japan untouched. Following the restructuring of British telecom and the breakup of AT&T, it is the turn of the government-operated Nippon Telegraph and Telephone Public Corporation (NTT) to be gradually handed over to the private sector.

In December of 1984, both Houses of Japan's Diet passed a set of three bills - the Telecommunications Enterprise Act, the NTT Privatization Act and the Omnibus Act - aimed at remodelling the nation's telecommunications industry. This transformation consists of the privatization of NTT, the implementation of the nationwide digitized telecommunications project known as Information Network System, and the entry of private carriers and value-added networks (VANs). In particular, the bills are expected to open the market to foreign suppliers of value-added services.

54. Lannon, Larry, "The Competitive Dawn Breaks in Japan", Telephony, Volume 213, Issue 4 (July 27, 1987), pages 66-72.

(AIB/Inform Abstract) Nippon Telegraph and Telephone (NTT), the largest telephone network in Japan, will be operating against competition in the autumn of 1987. Government policy is to permit smaller competitors to gather strength in the initial phase, and competition will be introduced with care. There are Type 1 and Type 2 carriers: the former have their own facilities, which the latter lease from them. There are now 9 Type 1 carriers, the most important being NTT, which operates under singular regulatory restrictions. Over 300 Type 2 carriers provide a variety of enhanced services to the business community. A growing number of companies want to enter the international marketplace. Sensitive issues that will surface are pricing policy and the obligation of NTT to serve all customers. Initially, Type 1 carriers will primarily compete among business customers in densely populated areas. NTT's Information Network System constitutes its primary strategy for moving beyond its current capability in the business services area.

55. Maeda, Kunji, "Privatization of Japanese Telecommunications", Telecommunications Policy, Volume 9, Issue 2 (June 1985), pages 93-95.

(Abstract accompanying article) This article describes the rationale for privatization of Nippon Telegraph and Telephone (NTT) and contrasts this with the motivation to privatize BT in the UK. The author goes on to outline the changes taking place as a result of the new legislation in Japan and the new challenges facing NTT in the new environment.

56. Snow, Marcellus S., "Regulation to Deregulation: The Telecommunications Sector and Industrialization - Evidence from the Pacific Rim and Basin", Telecommunications Policy, Volume 9, Issue 4 (December 1985), pages 281-290.

(Abstract accompanying article) Evidence from the Pacific and elsewhere suggests that countries deregulate their telecommunications sectors as economic development proceeds. Theoretical considerations support this, since arguments for (against) deregulation are mostly applicable to industrialized (developing) countries. Several such arguments are surveyed. Actual instances of telecommunications deregulation in Pacific countries are also cited to confirm this hypothesis. The scarcity and simplicity of telecommunications in early development stages favour cooperative, regulated solutions; as technological progress makes services more abundant and varied, competitive, deregulated approaches become more attractive.

ARTICLES OF MORE GENERAL INTEREST REGARDING MARKET ENTRY, DEREGULATION AND COMPETITION

57. Anonymous, "New Zealand Deregulating Telecom", Transnational Data and Communications Report, Volume 11, Issue 3 (March 1988), page 9.

Following closely on legislation adopted by New Zealand in 1987 to open the terminal market to competition, the government plans to end NZ Telecom's monopoly over the provision of telecom services, including network services. Competition in telecom network services could begin late in 1988 or the start of 1989.

58. Dawson, Mimi Weyforth, "Revisiting Computer II: A Journey into the Realm of Demonopolization - but not Deregulation", Telephony, Volume 208, Issue 23 (June 10, 1985), pages 46-48.

FCC Commissioner Dawson comments on the FCC's current concern with two issues: 1. whether the treatment of basic and enhanced services under Computer II policies should be modified, and 2. when, and by how much, regulation can be relaxed in the interexchange market. Local exchange carriers are concerned with Computer II because it determines whether services are regulated or not, and whether or not they must be provided through a separate subsidiary.

59. Johnstone, Bob, "The Right Connection: US Equipment Proves a Winner for Japanese Firm", Far Eastern Economic Review (Hong Kong), Volume 138, Issue 43 (October 22, 1987), pages 92-93.

While emphasizing the use of Dallas-based Digital Switch Corp's switching equipment by Daini Denden, this article also provides information on the competitive situation in Japan among Daini Denden, Japan Telecom and Teleway Japan.

60. Jussawalla, Meheroo, "Economics and Global Impact of Telecom Deregulation", Transnational Data and Communications Report, Volume 11, Issue 3 (March 1988), pages 10-16.

This article is an abridged version of a keynote address delivered at the Pacific Telecommunications Council Tenth Annual Conference, Honolulu, Hawaii, in February 1988. It consists of an overall review of deregulation and liberalization initiatives in the US, Canada, Europe and the Pacific.

61. Schlegel, Jochen K.H., "Competition in International Communications", Transnational Data and Communications Report, Volume 10, Issue 5 (May 1987), pages 19-20.

This article by the Counselor for Posts and Telecommunications with the West German embassy in Washington comments on the trade impact of US deregulation and US pressures on other countries to conform. Protectionist measures by the US also come under fire.

62. Booker, Ellis, "Bob Allen on AT&T", Telephony, Volume 213, Issue 16 (October 19, 1987, pages 44-50.

This article consists of a Telephony interview with AT&T's President and CEO. It discusses price cap regulation, investment, ONA, access charges, deregulation, competition, and so on.

63. Lannon, Larry, "Meet Japan's Telecom Giant: NTT's Dr. Hisashi Shinto", Telephony, Volume 212, Issue 21 (May 25, 1987), pages 32-36.

This article consists of a Telephony interview with the President and CEO of Nippon Telegraph and Telephone Corp. (NTT). It discusses NTT's responses to the new competitive environment in Japan.

64. Williamson, Sandra, "AT&T's Partoll Paints a Lively Portrait of Competition for IXCs", Telephony, Volume 211, Issue 16 (October 20, 1986), pages 64-77.

This article consists of an interview with AT&T's senior vice president - external affairs. It discusses interexchange competition, bypass, the MFJ, deregulation, market share, rate of return, and the possible lifting of restrictions on the BOCs.

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