

**Transnational Investments in
Mobile Telephone Systems:
Toward Global
Telephone Companies?**

Christopher W. Mines

Program on Information Resources Policy

Harvard University

Center for Information
Policy Research

Cambridge, Massachusetts

A publication of the Program on Information Resources Policy.

**Transnational Investments in Mobile Telephone Systems:
Toward Global Telephone Companies?**

Christopher W. Mines
November 1994, P-94-7

Project Director
Anthony G. Oettinger

The Program on Information Resources Policy is jointly sponsored by Harvard University and the Center for Information Policy Research.

Chairman
Anthony G. Oettinger

Managing Director
John C.B. LeGates

Christopher W. Mines is a Senior Consultant in the Communications Industry Practice at GeoPartners Research, Inc., in Cambridge, Massachusetts.

Copyright © 1994 by the President and Fellows of Harvard College. Not to be reproduced in any form without written consent from the Program on Information Resources Policy, Harvard University, Aiken 200, Cambridge MA 02138. (617) 495-4114. Printed in the United States of America.
ISBN 1-879716-17-8

Printing 5 4 3 2 1

Harvard University

Center for Information Policy Research

Affiliates

American Telephone & Telegraph Co.
Apple Computer, Inc.
Applied Telecommunications Technologies,
Inc.
Australian & Overseas Telecommunications
Corp.
BellSouth Corporation
Braxton Associates
Commission of the European Communities
Computer & Communications Industry
Assoc.
CSC Index (England)
DACOM (Korea)
Deloitte & Touche
Dialog Information Services, Inc.
DRI/McGraw Hill
Educational Testing Service
EG&G Inc.
ESL Inc.—a TRW Company
ETRI (Korea)
European Parliament
France Telecom
GTE Corporation
Hitachi Research Institute (Japan)
IBM Corp.
International Resource Development, Inc.
Japan Telecom
KPN (Netherlands)
Lee Enterprises, Inc.
Lincoln Laboratory, MIT
Martin Marietta Corp.
John and Mary R. Markle Foundation
McCaw Cellular Communications, Inc.
MeesPierson (U.K.)
Mead Data Central
Microsoft Corp.
MITRE Corp.
National Telephone Cooperative Assoc.
The New York Times Co.

NEC Corp. (Japan)
Nippon Telegraph & Telephone Corp. (Japan)
North Communications
Northern Telecom
NYNEX
Pacific Bell
Pacific Bell Directory
Pacific Telesis Group
Raytheon Company
Research Institute of Telecommunications
and Economics (Japan)
Revista Nacional de Telematica (Brazil)
Samara Associates
Scaife Family Charitable Trusts
Scientific-Atlanta, Inc.
Siemens Corp.
Southern California Edison Co.
Sprint Communications Company L.P.
State of California Public Utilities
Commission
Strategy Assistance Services
The College Board
Times Mirror Co.
United States Government:
Department of Commerce
National Telecommunications and
Information Administration
Department of Defense
National Defense University
Department of Health and Human Services
National Library of Medicine
Federal Communications Commission
National Security Agency
U.S. General Accounting Office
U.S. Media Group
Viacom Broadcasting
VideoSoft Solutions, Inc.
VISA International

Acknowledgements

The author gratefully acknowledges the following people who reviewed and commented critically on earlier versions of this report: David Allen, John A. Arcate, H. Paris Burstyn, Jim McConnaughey, Pamela J. Riley, and Deena Shiff.

These reviewers and the Program's affiliates, however, are not responsible for or necessarily in agreement with the views expressed here, nor should they be blamed for any errors of fact or interpretation.

Executive Summary

- Traditional telecommunications service companies have made significant overseas expansions during the late 1980s and early 1990s. These companies were historically tied to their physical asset bases, i.e., their networks that connect customers to each other and to the rest of the world. Increasingly, however, telephone companies are seeking market and investment opportunities beyond the scope of their physical networks. Direct investment or operations in foreign countries is well developed in most large industries; it is becoming prevalent in telecommunications after almost a hundred years of insular, cooperative prosperity for telephone companies around the world.
- Telephone companies have substantial cash flow that they reinvest seeking above-average returns. Increasingly, this is being carried out in international investments, where (some) monopoly markets still exist, where the opportunity for benign regulation in return for network investment is intact, and where some companies can be undisputed technology and marketing leaders in telecommunications markets growing considerably faster than at home.
- Telephone companies, particularly in developed countries, initiate overseas investments for a number of reasons. Most prominent is their desire to serve their large corporate customers wherever they operate around the world. In addition, the companies may seek to enter unpenetrated and therefore higher growth markets, to leverage their experience and expertise, and to skirt the market-entry or profitability regulations of their home country. National governments often encourage such investments by foreign telephone companies, through explicit policies for upgrading telecommunications infrastructure, or for introducing competition into their domestic market.
- At the same time, there are a number of inhibitors to the global ambitions of telephone companies. The need to invest in their home region is paramount among these, in order to placate regulators and investors, and also to compete with new suppliers. In addition, the uncertainties of forecasting returns on investment, and of managing complex projects, is compounded by overseas locations. Governments may also act to slow down foreign investments through regulations limiting foreign ownership of telecommunications companies or assets.
- Mobile telephone systems are one of the large-scale tests of the globalization strategies of telephone companies, and of the telecommunications development policies of national governments. As new systems go on the air during the early-to-mid 1990s, they will offer concrete lessons about the returns for telephone companies from international investments, and the returns for governments of introducing competition and encouraging (or limiting) foreign investment in telecommunications.

Contents

Acknowledgements	iv
Executive Summary	v
Preface	ix
Chapter One The Emergence of Global Telephone Companies: Why and Why Not?	1
1.1 Overview	1
1.1.1 Candidate Rationales for Globalization	2
1.1.2 Obstacles to Globalization	5
1.2 Corporate Strategies and Government Policies Encouraging Globalization	7
1.2.1 Serve Customers in Different Geographies	7
1.2.2 Enter High-Growth Markets	10
1.2.3 Leverage Experience and Expertise	14
1.2.4 Skirt Regulatory Restrictions at Home	17
1.2.5 Attract Foreign Investment for Upgrading Communications Infrastructure	19
1.2.6 Introduce Competition	22
1.3 Strategy Limitations and Policy Restrictions on Globalization	25
1.3.1 Keep Home Regulators and Ratepayers Happy	25
1.3.2 Meet Competition in the Home Market	26
1.3.3 Organizational and Operational Problems	26
1.3.4 Problems with Valuation, Bidding, and Forecasting	29
1.3.5 Limits on Foreign Investment	31
1.4 Summaries	34
1.4.1 Strategies of the Telephone Companies	34
1.4.2 Government Policies	35
Chapter Two Transnational Investments in Mobile Telephone Systems	39
2.1 An Active Arena for International Investment in Telecommunications	39
2.2 Who Is Where with What?	40
2.3 Preliminary Observations on Selected Cases	45
2.3.1 Pacific Telesis in Germany	45
2.3.2 BT-McCaw in the U.S.	48
2.3.3 BellSouth in South America	49
2.3.4 PCN Systems in the U.K.	50
2.4 Conclusion	51
Acronyms	53

Illustrations

Figures

1-1	Three Axes of Growth for Telcos	15
1-2	Australian Mobile Advertisement	24
1-3	A Skeptical BellSouth Shareholder	28

Tables

1-1	World's Largest Telephone Companies in 1989	3
1-2	Why Go Global	4
1-3	Why <i>Not</i> Go Global	6
1-4	National Economic and Telephonic Statistics	12
1-5	Countries Ranked by GDP per Telephone Line	13
1-6	Countries Ranked by GDP per Person	37
2-1	Transnational Investments in Mobile Telephone Systems	41
2-2	Countries Ranked by Mobile Penetration	47

Preface

The monopolies of telephone companies around the world are eroding. Giant telecommunications service companies, most of them government-owned, are going mobile, in two senses: first, they are moving out of their historical regional service areas to seek global business opportunities, and, second, they are increasingly looking toward radio-based mobile telephony for growth in revenue and profit.

As of mid-1992, the globalization of the telephone industry is an emerging phenomenon. Virtually all the events discussed in this paper occurred between 1987 and 1992, most since 1990. For this reason it is not possible to offer solid conclusions about the past success or failure or the future direction of the strategies of telephone companies or of national policies regarding foreign investment in telecommunications. Aiming therefore at breadth rather than depth, this paper offers a framework for making or analyzing strategies and policies. It is intended as an initial step in providing means that corporate strategists and government policymakers need to analyze implications of the possible emergence of global telephone companies.

The paper examines possible rationales for the attempted globalization of telephone companies, with particular attention to the companies' investments in mobile systems in other countries. Chapter One offers some candidate rationales for the globalization of telephone companies using examples to examine the relative strength of those rationales. Both the corporate strategies of telephone companies and national government policies that affect foreign investment in telecommunications are discussed. Chapter Two looks in detail at transnational investments in mobile telephone systems, on the basis of thirty-seven systems in twenty-five countries that have some level of participation by foreign telephone companies. Mobile is a fertile case study of the business investments telephone companies are making in other countries. In this chapter, the strategic and policy rationales outlined in Chapter One are brought to bear on categorizing those investments.

The paper reflects information current as of November 1992.

Chapter One

The Emergence of Global Telephone Companies: Why and Why Not?

1.1 Overview

Since 1987, telecommunications service companies have significantly expanded overseas. Traditionally, they have been tied to their physical asset base, i.e., networks that connect their customers both to one another and to the world. Increasingly, however, telephone companies are seeking market and investment opportunities beyond the scope of their physical networks.

Telecommunications is a latecomer to a worldwide market. Many other industries are well accustomed to dealing with “the new competitive pressures created by global markets [in which a company’s] home base is invaded by foreign entrants offering new products and service packages to their customers [and] some of their domestic competitors have joined forces with, or been acquired by, foreign rivals.”¹ Foreign direct investment (FDI) is a fact of life for many industries; it is now increasingly a fact of life also for the telecommunications industry, after almost a hundred years of insular, cooperative prosperity for monopoly telephone companies.

International telecommunications service has been made possible by cooperation among national telephone companies. International telephone circuits are controlled in the outbound direction by the home country, which has cooperative agreements with its counterparts in most other countries (see section 1.2.1). The globalization of the industry will create new competitive pressures on this longstanding cooperative industry structure.

The progressive globalisation of world telecommunication markets is a fact which any responsible telephone company must deal with. It is brought about by the development of world economics, by technological advances, demand for new services from large users and by market liberalisation in many countries. However, at the same time these factors are creating radically different conditions in the operator’s home market. Increased competition from new entrants, as well as from its own large customers, threatens its

¹DeAnne Julius, *Global Companies and Public Policy* (New York: Council on Foreign Relations Press, 1990), 106.

historically dominant position and will exert negative pressure on its profitability and growth potential.²

The players in the globalization of the telephone industry include some of the largest companies in the world. In 1989, only two of the companies (AT&T, Cable & Wireless) listed in **Table 1-1** had even as much as 5 percent of their revenues from outside their home countries, and most had no international revenues. Contrary to other large industries, telecommunications service markets are still largely defined by national borders. To the extent that these companies, all among the largest in their respective national economies, move into the telecommunications markets of other countries, telecommunications will become more like other significant industries: the scope of its leading companies will be global, which might lead to consolidation in the number of industry participants.

At present, the entry of foreign telecom service providers stimulates competition by increasing the number of suppliers in a given domestic market segment. This stimulus, and the presumed benefit of competitive pricing, is being encouraged by many national governments. Over time, however, telecommunications service markets may begin to look more like the closely allied telecommunications *equipment* industry, in which high R&D and other entry costs have resulted in a shrinking number of market participants, and government subsidies protect preferred (i.e., locally based or owned) suppliers of equipment.³ Some governments, already looking to the day when their national telephone company will face competition from much larger international service companies, are formulating policies to prohibit foreign ownership or lopsided competitive rules to protect indigenous companies.

1.1.1 Candidate Rationales for Globalization

Why are regulated, utility-minded companies, in most cases barely out from under state ownership, companies that have massive fixed investments and monopoly franchises in their home regions, looking overseas for investment and growth opportunities? The candidate rationales for globalization of the telephone industry, listed in **Table 1-2**, are outlined below.

²Alain Thiney, "Telecoms Goes Global," *Communications International*, 17:12 (December 1990), 35.

³For a discussion of the different dimensions of a company's "nationality" in the telecom equipment industry, see Robert A. Travis, *The Telecommunications Industry in the U.S. and International Competition: Policy and Practice* (Cambridge, Mass.: Harvard University Program on Information Resources Policy, P-91-4, 1991), Chapter 3.

Table 1-1

World's Largest Telephone Companies in 1989

Rank*	Company	Country	Telecom Revenues (\$ Millions)	Revenue Change 1988-89	Customer Access Lines (000s)	Ownership	Competition in Home Markets?	Active Foreign Investor?
1	NTT	Japan	42,173	3%	52,000	state	some	no
2	AT&T	U.S.	38,475	3%	n/a	public	all	yes
3	Deutsche Telekom	Germany	20,385	5%	29,405	state	some	no
4	BT	U.K.	18,754	10%	25,013	public/state	some	yes
5	France Telecom	France	16,651	12%	27,000	state	some	yes
6	BellSouth	U.S.	13,996	3%	17,000	public	some	yes
7	NYNEX	U.S.	13,211	4%	15,000	public	some	yes
8	GTE **	U.S.	12,459	7%	15,141	public	some	yes
9	Bell Atlantic	U.S.	11,449	5%	17,056	public	some	yes
10	SIP	Italy	10,846	11%	21,266	state	some	??
11	Ameritech	U.S.	10,211	3%	15,899	public	some	yes
12	U S West	U.S.	9,691	5%	12,218	public	some	yes
13	Pacific Telesis	U.S.	9,593	1%	13,650	public	some	yes
14	Southwestern Bell	U.S.	8,730	3%	11,759	public	some	yes
15	United Telecom***	U.S.	6,961	18%	3,812	public	some	??
16	Bell Canada	Canada	6,766	13%	8,986	public/state	some	??
17	MCI	U.S.	6,471	26%	n/a	public	all	??
18	Telecom Australia	Australia	6,263	10%	7,420	state	some	no
19	Telefonica	Spain	6,005	16%	11,797	state	??	yes
20	Telebras	Brazil	5,844	n/a	8,040	state	none	no
21	Televerket	Sweden	4,223	15%	6,691	state	??	yes
22	PTT Netherlands	Holland	3,970	20%	6,691	state	??	yes
23	PTT Swiss	Switz.	3,950	6%	3,785	state	none	??
24	Korea Telecom	S. Korea	3,375	-4%	10,486	state	none	no
25	Contel **	U.S.	3,114	5%	n/a	public	some	??
26	Cable & Wireless	U.K.	3,069	45%	n/a	public	some	yes
27	OPT	Austria	2,281	6%	3,103	state	??	no
28	RTT	Belgium	2,150	7%	3,700	state	??	yes
29	Telmex	Mexico	2,131	n/a	4,703	state/foreign	some	no
30	NTA	Norway	2,067	8%	2,025	state	??	no

* Ranked by telecommunications revenues.

** GTE merged with Contel in 1990.

*** Name changed to Sprint in 1991.

n/a: not applicable or not available.

Source: "Classement Idate-Télécoms Magazine des Cinquante Premiers Exploitants de Réseaux dans le Monde" in "Opérateurs," *Télécoms Magazine*, 3 (January-February 1991) 62-63.

Table 1-2
Why Go Global

Corporate Strategies	Government Policies
Serve customers in multiple geographies	Attract foreign investment for upgrading infrastructure
Enter unpenetrated, high-growth markets	Introduce competition
Leverage experience and expertise	
Skirt home-market regulation	

© 1994 President and Fellows of Harvard College. Program on Information Resources Policy.

Serve customers in multiple geographies. Telephone companies (telcos) have identified multinational corporations as their most important customer set. The telcos seek to broaden and deepen their relationships with such corporations, expanding the number of both products sold and locations served.

Enter unpenetrated, high-growth markets. Telephone service in industrial countries is well established and the growth of the customer base slow. In less developed countries, even those with fairly large economies, telephone service is rarer. The growth rate of the customer base, revenues, and eventually earnings can be significantly higher than in home markets.

Leverage experience and expertise. Leverage means finding incremental markets where telcos can re-use and resell their capabilities. The expertise of telephone companies in network design and implementation is less valuable in their home markets, where the network is upgraded in evolutionary fashion, than it is in foreign markets which are redesigning or building modern telephone networks, virtually from scratch. Expertise in design, installation, and operation is portable across national boundaries, but most other telco assets are not.

Skirt restrictions of home country regulation. Many telephone companies see their home markets being opened to competition; often, competitive entry restrictions are relaxed faster than regulations on prices, profits, and so on, resulting in the telephone company's inability to respond fully to competitive challenges. In some cases, foreign markets are under

government protection, with foreign investors given preferential treatment by host governments; in others, overseas markets are unregulated altogether.

In the U.S., the Bell operating companies (BOCs) created in 1984 still operate under the purview of the Modification of Final Judgement (MFJ), which settled the government's antitrust suit against AT&T. The MFJ (with other court decisions, regulations, and statutes) prevents the BOCs from entering domestic businesses that might otherwise be attractive to them, including long-distance telephone service, telecommunications equipment manufacturing, and cable television. Other governmental restrictions on diversification apply on their home grounds to some non-U.S. companies. For instance, BT (formerly British Telecom) is prohibited from entering nontelecommunications markets in the United Kingdom.

Attract foreign investment for upgrading communications infrastructure. Less developed countries have structured policies toward the telecommunications industry (and other infrastructure industries, such as airlines and utilities) specifically to attract investment from overseas. These countries' needs include capital, expertise, and credibility. They also need modern infrastructure to attract further foreign investment and create jobs.

Introduce competition into telecommunications markets. After privatizing the state telephone monopoly, some governments have decided that further changes in market structure are needed to spur lower prices and service innovation, and they have thus encouraged or mandated second or third entrants into some segments of their telecommunications market. Competition is being tried as a supplement to or partial replacement of direct government regulation of the industry.

1.1.2 Obstacles to Globalization

A variety of strategic obstacles face telephone companies seeking to go global. In addition, in some countries national policies limit implementation of international expansion strategies there. Table 1-3 summarizes potential problems for telcos moving into foreign markets.

Keep the home front happy. Regulators and their constituents, telephone ratepayers, may be unhappy that telephone companies are investing abroad. Foreign operations may make

the company vulnerable to charges of ignoring its home market and may make rate deliberations with regulators more difficult.

Table 1-3

Why *Not* Go Global

Corporate Strategies	Government Policies
Keep home regulators happy Meet competition in home market Minimize potential organizational and operational difficulties Recognize uncertainty of valuation, bidding, and forecasting issues	Limit foreign investment in telecommunications companies

© 1994 President and Fellows of Harvard College. Program on Information Resources Policy.

Meet home front competition. Relatedly, telephone companies may have to invest to meet competition from new entrants into previously protected markets. These entrants may include foreign companies or start-up firms based on new telecommunications technology.

Organizational and operational difficulties. Structuring and implementing global operations are difficult even for experienced corporate managements, and the experience of telephone companies in foreign operations is very limited. The problems caused by this inexperience may be compounded by the largely unregulated nature of overseas ventures, in equipment sales, directory publishing, or mobile service, for example.

Valuing and competing for overseas investments. Fulfilling a strategic mandate may lead to overpaying in competition for foreign properties. Unknowns in the bidding process, competition with rivals, and a need to “do something” may cloud the valuation process. Forecasting future cash flows from brand new operations (e.g., cellular in South America or Eastern Europe) is largely guesswork.

Limits on foreign ownership of telecommunications companies or assets such as radio spectrum licenses. Some (developed) countries also have stringent regulatory oversight on

foreign companies. Telecommunications is sometimes considered a matter of national security, on a par with defense contractors, airlines, and the like.

1.2 Corporate Strategies and Government Policies Encouraging Globalization

The basic argument of a telephone company or any corporation embarking for foreign shores must be to enhance financial returns and shareholder value. Beneath this generic rationale come a number of specific arguments advanced by telephone company managements for venturing into international markets. In addition, government policies aimed at attracting FDI into the telecommunications industry have been implemented, particularly by developing nations. Examples and evidence of these corporate strategies and government policies driving globalization of the telephone industry are explored below.

1.2.1 Serve Customers in Different Geographies

In search of multinational customers. Almost by definition, the largest, most attractive customers of telephone companies (or of many other service or manufacturing companies) are multinational user organizations. The telcos want to serve the needs of their largest and most important customers around the world. "Large corporations with geographically dispersed research, development, manufacturing, and commercial operations need truly integrated worldwide communications networks to optimize their operations and resource deployment, and to service their customers efficiently.... These are the global customers, creating the global telecommunications market."⁴

The perceived necessity to capture the business of large, multinational customers is reflected in the rough-and-ready "80/20" rule: 80 percent of telco revenues are typically generated by 20 percent of its customers. In the U.S., the BOCs have on average an even more skewed revenue distribution, with just 15 percent of customers generating roughly 85 percent of revenue.⁵ With these large corporate customers increasingly operating in the home markets of multiple telecommunications operators, competition for their business becomes more intense.

⁴Thiney, "Telecoms Goes Global," 35.

⁵The Yankee Group, "BT in the 1990s," *Level:8* 11, 2 (February 1992), 2.

End of the cooperative model. At a minimum, multinational presence of customer organizations requires carriers to have foreign offices to coordinate the provision of services with the dominant carriers in those countries. International telecommunications facilities are provided jointly by two carriers, and the costs of those circuits are shared in "half-circuit" increments. Revenue from traffic carried over the international facility is also shared, but on the basis of billed minutes of usage in the country originating the traffic. Different accounting costs, as well as customer rates, cause discrepancies between the revenue accruing to each of the cooperating telecoms operators of an international line. Although these so-called "multilateral correspondent relations" among national carriers, governed by the International Telecommunication Union (ITU), are extremely complex and subject to nearly constant revision, the cooperation model has worked remarkably well while the volume of international telephone traffic has exploded over the last thirty years.⁶

The introduction of competition into international long-distance service, and the forthcoming relaxation of some countries' domestic regulatory restrictions, make multilateral, cooperative relationships even more difficult to maintain. Partners in one market may compete with one another in other markets, creating tension and the possible breakdown of network or financial arrangements that customers count on. The newly aggressive sales approach of a global telecom operator is analogous to developments in the banking industry, in which global expansion and mergers have been justified by the "pitch that a three-continent network will serve companies better than traditional correspondent banking," where banks had cooperative relationships with their like in other countries.⁷ (Some banks are retreating from this concept; see section 1.3.3.)

Companies aggressively seeking to open new markets for their entry may also be dependent on protected monopolies in home markets. Cable & Wireless (C&W), seen by some as a model for a global telecom company, derives much of its profits from its protected monopoly in Hong Kong.⁸ C&W once viewed ownership of facilities in other countries as an

⁶For a detailed account of international telecommunications relationships, see Jaak Aulik, *Financial Structures in Competitive Telecommunications: An International Overview* (Cambridge, Mass.: Harvard University Program on Information Resources Policy, P-87-2, 1987).

⁷"Hongkong Bank's Global Gamble," *The Economist* (21 March 1992), 81.

⁸Denis Gilhooly, "Scramble of the Titans—Globalization," *Financial Times* (7 Oct. 1991) [Nexis]. C&W owns 50 percent of the Hong Kong Telephone Company.

important differentiator and source of profit, instead of relying on leasing others' facilities or traditional cooperative arrangements. According to its 1990 annual report:

the agreement [to acquire long-distance carrier TRT/FTC in the U.S.] will broaden the portfolio and allow us to keep more of our customers' traffic on our own network for longer all of which helps on cost and quality. Importantly, it will also make us less dependent on other carriers for the provision of international services.... Both acquisitions emphasize the fact that Cable & Wireless Communications Inc. [C&W's U.S. subsidiary] is now a well-established, facilities-based carrier. It's all part of changing the way we're perceived and strengthening our reputation as a serious alternative to the big players.⁹

By early 1992, C&W's ambitious view of becoming a facilities-based carrier in major markets around the world had changed significantly; acquisition of TRT fell through over price negotiations, and C&W adopted a more cautious strategy based on linking markets where it already had significant franchises.¹⁰

The move toward outsourcing. One of the clearest examples of telephone companies following their large customers' globalization is BT's strategy, announced in 1991 with the creation of its Syncordia subsidiary, to create a network management organization that can service all the telecoms needs of customers worldwide. Network "outsourcing" is a trend in corporate management of information services. Because most corporations are not expert and cannot add value in the provision and management of telecommunications (and, often, in computing), they look to turn those functions over to an outside expert. Outsourcing of communications service management is an outgrowth of the "core competencies" theory of corporate strategy.¹¹

As explained by BT, "Customers ... increasingly want to focus on their core businesses, and managing global telecommunications is a terrible hassle for any company that is not in the telcom business. [BT] saw this trend emerging some years ago, and we believed that it would

⁹Cable and Wireless plc., *Report and Accounts 1991* (London, 1991), 36.

¹⁰See "Cable & Wireless Re-focuses on Cautious New Strategy," *Markets* (2 April 1992) [Nexis].

¹¹Detailed in, e.g., C.K. Prahalad and G. Hamel, "The Core Competence of the Corporation," *Harvard Business Review* 68, 3 (May-June 1990), 79.

happen on an international scale.”¹² Both BT and C&W have similar “global network strategies which are focused on the acquisition or control of networks around the world to be able to serve customers with multinational requirements from one point of contact and at the minimum possible cost.”¹³ This strategy does not necessarily imply *ownership* of physical transmission facilities in other countries, but, rather, the ability to contract for and resell them to customers as a convenience. BT has established a network presence in the U.S. through its acquisition of Tymnet, a public data network with around 4000 nodes; C&W owns the eighth largest long-distance telephone carrier in the U.S., Cable & Wireless Communications, Inc.

The outsourcing move is the current swing of the strategy pendulum, in contrast to corporate thinking of early 1980s, when many corporations thought it best to build and own internal communications networks. General Motors’ (GM) purchase of Electronic Data Systems and Citicorp’s development of its “Citinet,” were two examples of that thinking.

Companies such as BT and C&W that aim to serve all the communications needs of global user corporations have concentrated their efforts in the U.S., the headquarters of some 40 percent of the largest multinationals. This concentration has resulted in a proliferation of branch sales offices of overseas telecommunications companies, including the still government-owned telecom operators of Germany, France, and Belgium. BT’s Syncordia subsidiary is based in Atlanta; competitor Infonet (owned by MCI, Deutsche Telekom, France Telecom, Belgacom, and PTT Telecom Netherlands, among others) is in California. France Telecom also owns Cylix Communications Co., a Memphis-based satellite data transmission carrier.¹⁴

1.2.2 Enter High-Growth Markets

A stark fact facing telephone companies in developed countries is that their market is growing very slowly. The growth of customer access lines for the BOCs averaged 2.5 percent in 1989–90. In developing countries the reverse situation is similarly obvious:

¹²Richard Marriott, BT Director of Corporate Strategy, quoted by John McCormick in “Can BT Snare the Global Market?” *Information Week* (1 Feb. 1992), 26 [Nexis].

¹³“British Telecom Steps Up Pressure on FCC,” *Financial Times* (7 Feb. 1991) [Nexis].

¹⁴A useful summary of foreign-owned operations in the U.S. telecoms market is Karen Lynch, “Foreign Carriers Stake U.S. Claims,” *Communications Week* (18 May 1992), 65.

Foreign telephone markets, where governments are interested in promoting development, should grow faster than the U.S. market in the years ahead as modernization occurs and competition is introduced.... Because most foreign telecom markets are significantly less developed in many respects than the U.S. market, overseas companies should attain higher growth rates than their U.S. counterparts over the next decade.¹⁵

These conclusions are especially compelling for the BOCs, which are (at least temporarily) locked out of the faster growing segments of the U.S. domestic telecommunications market by the provisions of the MFJ. Whether due to faster growth in their domestic market (penetration and usage of telephone service) or to regulatory relief on pricing or profit structures, the earnings growth rates of many international telephone companies are far higher than those of the BOCs. Since 1987, the BOCs have averaged a 5 percent growth in annual earnings, in comparison with 13 percent for Telefonica (Spain), 11.5 percent for BT (U.K.), 15 percent for New Zealand Telecom, and 25 percent for Telefonos de Mexico.¹⁶ As simply stated by a Bell Atlantic executive, "We think the opportunities for financial growth are better abroad than they are here [in the U.S.]."¹⁷

Another conclusion, from a study of overall trends in foreign direct investment (FDI), is that it is primarily market-driven, "flowing more strongly to those countries which offer greater market potential in terms of both market size and of growth prospects."¹⁸ Market size, for telephone companies, is measured in gross terms by population, while growth prospects can be crudely characterized by telephone service penetration within a country. **Table 1-4** summarizes these basic statistics for selected countries. The same data are rearranged in **Table 1-5**, where countries are ranked by gross domestic product (GDP) per telephone line. This admittedly crude statistic measures the size of a nation's economy in relation to the size of its telephone network. Not surprisingly, many countries where significant FDI has occurred in the telephone industry (by an outsider taking a stake in the

¹⁵F.J. Governali, "International Telecommunications Survey," report prepared by the First Boston Corporation (New York, 1990).

¹⁶Robert B. Morris, "Telephone Industry Monthly," a report prepared by Goldman Sachs & Co. (New York, 1992), 7.

¹⁷Hyde Tucker, President of Bell Atlantic International, quoted by Barton Crockett and Bob Brown in "RBHCs Foreign Investments Rankle U.S. Network Users," *Network World* (25 June 1990), 1.

¹⁸Julius, *Global Companies and Public Policy*, 37.

Table 1-4

National Economic and Telephonic Statistics
(1989 data unless noted)

Country*	Population (000s)	GDP (\$Billions)	GDP per Person (\$)	Telephone Lines (000s)	Telephone Lines per 100 Population	Mobile Telephone Users, 1990 (000s)	Mobile Telephone Users per 100 Pop.
Argentina	32,000	86	2,678	3,277	10.2	16	0.05
Australia	15,606	250	16,045	7,268	46.6	268	1.72
Austria	7,595	106	13,957	3,034	39.9	0	0.00
Belgium	9,876	140	14,186	3,955	40.0	44	0.45
Brazil	144,428	407	2,816	8,354	5.8	2	0.00
Canada	26,500	512	19,321	13,936	52.6	569	2.15
Chile	12,750	28	2,196	613	4.8	17	0.13
Czechoslovakia	15,624	131	8,359	2,007	12.8	0	0.00
Denmark	5,130	77	15,010	3,556	69.3	160	3.12
Finland	4,955	77	15,600	2,470	49.8	255	5.15
France	57,100	850	14,883	25,827	45.2	323	0.57
Germany (E)	16,661	141	8,463	3,944	23.7	351	2.11
Germany (W)	61,320	971	15,841	28,377	46.3	0	0.00
Hong Kong	5,736	64	11,158	2,154	37.6	140	2.44
Hungary	10,590	68	6,431	742	7.0	0	0.00
India	818,782	243	297	3,800	0.5	0	0.00
Israel	4,406	45	10,191	1,472	33.4	0	0.00
Italy	57,527	828	14,395	20,091	34.9	410	0.71
Japan	122,970	2,003	16,289	51,951	42.2	892	0.73
Mexico	83,062	225	2,706	4,262	5.1	97	0.12
Morocco	23,958	25	1,035	286	1.2	1	0.00
Netherlands	14,805	212	14,286	6,466	43.7	97	0.66
New Zealand	3,359	40	11,968	1,452	43.2	59	1.76
Peru	20,570	19	924	501	2.4	4	0.02
Philippines	58,721	44	751	479	0.8	8	0.01
Poland	37,800	183	4,852	3,095	8.2	0	0.00
Portugal	10,371	56	5,380	1,849	17.8	9	0.09
South Africa	30,745	103	3,337	2,630	8.6	3	0.01
South Korea	41,975	218	5,201	10,326	24.6	107	0.25
Spain	39,100	421	10,770	10,972	28.1	74	0.19
Sweden	8,400	137	16,357	5,600	66.7	526	6.26
Switzerland	6,715	123	18,287	3,633	54.1	146	2.17
Taiwan	19,903	151	7,587	5,294	26.6	121	0.61
United Kingdom	56,799	852	14,991	23,492	41.4	1220	2.15
United States	247,847	5,413	21,841	121,481	49.0	5283	2.13
Uruguay	2,955	9	3,080	345	11.7	0	0.00
Venezuela	18,757	41	2,165	1,714	9.1	8	0.04

*Not included: USSR, China.

Sources: AT&T, *The World's Telephones* (Morristown, N.J.: AT&T, 1990); Geoffrey M. Johnson, "Cellular Communications Industry," a report prepared for Cowen & Co. (Boston, 1991); Central Intelligence Agency, *World Factbook 1991* (Washington D.C.: U.S. G.P.O., 1991).

Table 1-5
Countries Ranked by GDP per Telephone Line

Country	GDP per Telephone Line (\$000s)	Foreign Investment in Telecommunications through:	
		PTO Stake	Competitive Entry
Philippines	92.1		
Hungary	91.8	pending?	yes
Morocco	86.7		
Czechoslovakia	65.1		yes
India	64.0		
Poland	59.3	pending?	yes
Mexico	52.7	yes	yes
Brazil	48.7	pending?	yes
Chile	45.7	yes	yes
United States	44.6		yes
Italy	41.2		
South Africa	39.0		
Japan	38.6		yes
Spain	38.4		
Peru	37.9	pending?	
Canada	36.7		
United Kingdom	36.2		yes
Germany (E)	35.8		
Belgium	35.4		
Austria	34.9		
Australia	34.5		yes
Germany (W)	34.2		yes
Switzerland	33.8		
France	32.9		yes
Netherlands	32.7		
Finland	31.3		
Israel	30.5		
Portugal	30.2	pending?	yes
Hong Kong	29.7	yes	yes
Taiwan	28.5		
New Zealand	27.7	yes	yes
Uruguay	26.4	pending?	
Argentina	26.2	yes	
Sweden	24.5		yes
Venezuela	23.7	yes	yes
Denmark	21.7		yes
South Korea	21.1		

Sources: AT&T, *The World's Telephones* (Morristown, N.J.: AT&T, 1990); Geoffrey M. Johnson, "Cellular Communications Industry," a report prepared for Cowen & Co. (Boston, 1991); Central Intelligence Agency, *World Factbook 1991* (Washington, D.C.: U.S. G.P.O., 1991).

country's principal telecommunications operator (PTO), or by competitive entry, or both) are also those with the highest ratio of GDP to telephone line. Countries with large economies and small telephone networks have the highest values on this measurement and are, in this rough approximation, the most attractive candidates for FDI into their telephone industry (*ceteris paribus*).

But these statistics measure only the *potential* size of the market; much more difficult is judging whether customer demand and ability to pay exist in emerging telecommunications markets in South America or Eastern Europe. In Eastern Europe, owing largely to primitive telephone networks, telecommunications revenue per capita is only 10 to 20 percent that in Western Europe,¹⁹ and much of it is in old-style telex and telegraph traffic, rather than voice telephony.

1.2.3 Leverage Experience and Expertise

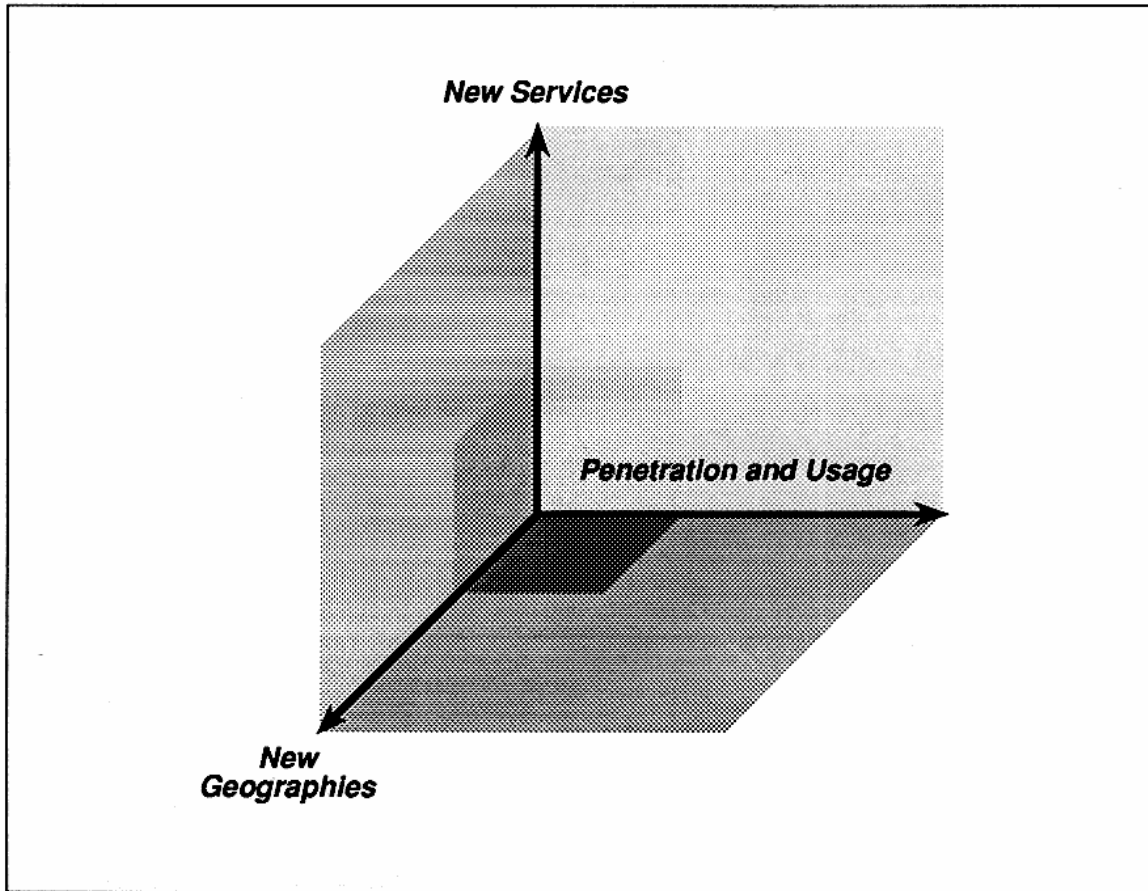
Traditional avenues of growth for telephone companies in developed countries are service penetration (percentage of population with telephones) and usage (calls or minutes of use per person) and the addition of new services (such as fax, call waiting, or videoconferencing).²⁰ Replicating these growth strategies in new geographical locations has offered a third axis of growth for the telephone companies of developed countries (see **Figure 1-1**).

Acquisition. A telephone company going global looks for markets where its experience and expertise in implementing and operating telephone services is directly applicable. Probably the clearest example of this strategy is New Zealand, where in 1990 the state-owned telephone monopoly was sold to two BOCs, Bell Atlantic (based in Philadelphia) and Ameritech (Chicago). The ideal situation was prescribed by a Bell Atlantic executive: "What it takes to succeed in the mid-Atlantic region [Bell Atlantic's home territory] is what it takes to grow profitably in New Zealand and in any global telecommunications market of the 1990s."²¹ Of course, most foreign telecommunications markets do not share the similarities

¹⁹Tim Kelly, "Telecommunications in the Rebirth of Eastern Europe," *OECD Observer* 167 (December 1990), 19.

²⁰So far, telecoms operators in developed countries seem to be ignoring the revenue potential of actively selling additional lines to residential customers for fax, personal computer, or other uses.

²¹Hyde Tucker, President of Bell Atlantic International, presentation to the New York Society of Security Analysts (NYSSA), 25 Oct. 1990.



© 1994 President and Fellows of Harvard College. Program on Information Resources Policy.

Figure 1-1

Three Axes of Growth for Telcos

in language, culture, and politics the U.S. and New Zealand share; nevertheless, the strategy is to find countries where the expertise of the telephone company can be brought to bear on new market opportunities. According to the Bell Atlantic Annual Report for 1991, "Our basic approach in international is to expand our communications franchise by *extending the strengths of our domestic business* in network, wireless, and business systems [emphasis added]."²²

²²Bell Atlantic Corporation, 1991 Annual Report (Philadelphia, 1992), 4.

Other telephone companies are following similar logic. Telefonica de España is part of two consortia that have bought national telephone companies in Mexico and Argentina (see section 1.2.5). GTE's purchase of a 40 percent stake in Venezuela's national telephone company was presented as motivated by a desire to leverage the company's expertise: "The Venezuelan project provides GTE with a tremendous opportunity to demonstrate the full range of our capabilities in the field of telecommunications. We will use our experience and proven technology to provide a sophisticated system with a high level of quality."²³

New business development. France Telecom is pursuing a different, technology-based tack, attempting to leverage its experience with emerging international standards for telecommunications in advance of U.S.-based carriers. The French national telephone network was the first to implement the Integrated Service Digital Network (ISDN) standard on a widespread basis and the first to invest in widespread deployment of videotex technology (which allows electronic directories, catalogs, and mail services through computer terminals connected to the telephone network). France Telecom's "Minitel" serves some five million customers.

One initial implementation of this strategy is a joint venture between France Telecom and U S West (the Denver-based BOC) to provide videotex services. This venture's "Community Link Minitel" service, offered via "Gateways" in Omaha, Seattle, and Minneapolis, essentially brings technology to the U.S. that France Telecom implemented widely in France. The service is closely based on Minitel's usage-based pricing structure and technology. After building gateways in another set of U S West cities, the joint venture plans to expand outside the U.S., spending about \$50-75 million by the year 2000. The difference between this service and France Telecom's domestic effort is this will not be directly backed by the French government, which underwrote the initial development and deployment of Minitel and stopped publishing printed telephone directories to encourage usage.

Another explicit example of geographic leverage in new business development is cellular mobile telephony, discussed in **Chapter Two**. The U.S. is among the world leaders in usage of cellular (see **Table 1-4**), and U.S. providers are therefore among the world's experts in

²³GTE Corporation, 1991 Annual Report (Stamford, Conn., 1992), 3.

building and operating cellular systems. As summarized in the 1991 Annual Report of Pacific Telesis, "An important long-term strategy for growth is to create new international opportunities by capitalizing on our expertise in wireless ventures."²⁴ The company's primary role in the international consortia it joined to provide cellular service is technical expertise in building and operating networks.

Some international moves by telephone companies are aimed at *gaining* experience in new markets, rather than leveraging experience. Several BOCs have invested in cable television franchises in the U.K., Europe, and Hong Kong. Cable TV is a market in which they have no experience or expertise, although clearly network construction and maintenance, among other elements of the business, are similar to telephony. Foreign cable television investments may be an example of a *reverse* strategy, whereby BOCs gain experience and partners abroad in anticipation of eventually being allowed to enter such markets in their home countries. In the U.K., for example, U S West is the leader among several BOCs marketing and carrying cable television and telephone service together over a single network.²⁵ U S West is a partner with TCI and Comcast, two of the largest U.S. cable operators, in these combined telephone/cable TV networks. Such behavior in the U.K. may be a guide to what the BOCs might do if given the opportunity to get into cable television in the U.S., one the 1992 "video dial tone" decision by the FCC heralds.

1.2.4 Skirt Regulatory Restrictions at Home

Countries that have introduced competition into their telecommunications markets may have also induced their domestic suppliers to look abroad for more attractive growth opportunities. BT, for example, faces a combination of tight regulatory oversight and growing competition in its domestic market. The British government endorsed the concept of further competitive market entry into local and long-distance telephone service in its 1990 Duopoly Review.²⁶

²⁴Pacific Telesis Group, 1991 Annual Report (San Francisco, 1992), 21.

²⁵"Now You're Talking," *The Economist* (25 July 1992), 69-70 [Nexis]; also, Adriel Bettelheim, "U S West in New European Venture," *Denver Post* (31 Aug. 1990), C1.

²⁶Department of Trade and Industry, *Competition and Choice: Telecommunications Policy for the 1990s* (London: HMSO, 1991).

The BOCs are constrained by the MFJ and other regulations that prohibit their entry into the manufacture of telecom equipment, ownership of domestic cable television systems, or provision of long-distance telephone service. While some argue that these restrictions have prevented the BOCs from investing in unprofitable diversification,²⁷ the companies themselves continue to lobby for relief from the MFJ limitations. One obvious way to escape the MFJ's reach is to go overseas, which the BOCs are doing with varying degrees of enthusiasm and success. By investing in such operations as U.K. cable franchises (U S West has sixteen, NYNEX eleven), Mexican and New Zealand telephone companies, and Eastern European and Russian network construction projects, the BOCs are pursuing activities very similar to those prohibited within the U.S. by the MFJ.

There are several possible rationales for these activities:

- They may demonstrate to domestic regulators and customers that the BOCs can participate expertly and profitably in businesses like cable TV and long-distance telephone service.
- The BOCs could gain experience and international partners in supplying such services, in anticipation of being allowed to do so domestically.
- They potentially increase shareholder value by investing in projects offering higher return than are available to them domestically (although the small size of such projects relative to the revenue base of the BOCs makes this argument of dubious merit).

For the BOCs, the intersection of corporate strategy and public policy results in movement of capital and human investment overseas at a time when overall infrastructure investment and capital equipment spending in the U.S. are already below those of many other nations. The BOCs are prohibited by regulation from investing in markets where they probably have expertise and could make a contribution. One observer hypothesized a consensus among the BOCs that "if the Judge [overseeing the MFJ] were to lift restrictions [on domestic market entry], a domestic investment would have preference to an international investment, especially if the returns were about equal."²⁸

²⁷See, for example, John C. LeGates, "The Strategic Environment and Choices of Local Exchange Telephone Companies," *Perspectives*, (Cambridge, Mass.: Harvard University, Program on Information Resources Policy, July 1990).

²⁸R.D. Toole, "Telecommunications Services Industry Report," report prepared by Merrill Lynch Capital Markets (New York, 1991), 10.

Another attraction of overseas telephone markets is the chance to own a monopoly franchise, opportunities for which are generally eroding under the deregulation schemes of most developed countries. The bidding for stakes in national telephone companies in Mexico and Venezuela (see section 1.2.5) was clearly influenced by the governments' guarantee that the companies would retain their monopolies over telephone service. In Mexico, Telmex has a monopoly on nationwide local, long-distance, and international service through 1996. Privatization in Venezuela offered a monopoly franchise on basic telephone service for nine years. It seems reasonable to suppose that in the future privatization in Peru, Eastern Europe, and elsewhere will offer bidders similar guarantees from competition in telephone service. Government guarantees, however, may be difficult to enforce, because new services may encroach on basic telephony. For example, neither Mexico nor Venezuela protects cellular mobile service from competition.

1.2.5 Attract Foreign Investment for Upgrading Communications Infrastructure

The simplest, most powerful argument for governments' policy decisions to privatize and encourage foreign investment in their telephone industries is to encourage "much faster development of the telecommunications infrastructure than if modernization was left in the hands of state-owned monopolies."²⁹ Quicker development of the telecommunications network is seen as a linchpin for attracting foreign investment in other sectors of the economy and often is the most attractive piece of state property cash-poor governments can bring to the market.

Three examples. Countries taking this route in the early 1990s were Mexico, Argentina, and New Zealand, with others in Eastern Europe and South America poised to follow suit.

(i) *Telefonos de Mexico (Telmex)* was sold in late 1990 to a consortium headed by Southwestern Bell Corporation (St. Louis-based BOC) that includes France Telecom and Mexico's Grupo Carso. They paid \$1.75 billion for a 20.5 percent controlling stake. Losers in the bidding were two groups, one including GTE and Telefonica de España, the other, consisting only of Mexican investors, whose "offer had been given little chance of success

²⁹Hugo Dixon, "A Clearer Line to Markets Abroad," *Financial Times* (6 March 1990), 20.

because they lacked a foreign partner to provide technology.”³⁰ The Mexican government’s program to sell Telmex offered to retrain employees and restructure the debt and promises to lift previously heavy taxes on phone service. The government guarantees a lighter tax burden on Telmex in return for requiring the winning bidders to invest \$10-12 billion over five years to bring Mexico’s telephone network up to modern standards.

The Telmex privatization is part of a comprehensive program of sales of state assets that began in 1988 with the successful sale of Aeromexico, formerly a state-owned monopoly rated one of the worst airlines in Latin America. Telephone service is in the most liberal category of Mexican law governing foreign investment, which allows up to 49 percent foreign ownership in such industrial sectors as fishing, transportation, financial services, and mining. Still reserved for the Mexican government are such industries as railroads, oil and gas refining, electric power generation, and, confusingly, telegraph service.³¹

(ii) *Telecom New Zealand* is one of the most attractive properties in the international investment array. Its telephone network is already based on modern technology (85 percent digital), a strong management team is in place, and the country has lots of potential for enhanced telephone services like cellular. Even so, the government decided that the interest of the population could be served best by bringing in expertise of outside owners. Ameritech and Bell Atlantic teamed up to win the bidding, attracted by “the political, economic, and social environment in New Zealand similar to that in the United States, the same language, no regulation to speak of, and the company in most ways at or above U.S. phone industry standards.”³²

(iii) Argentina’s *Empresa Nacional de Telecomunicaciones (ENtel)* was split into two geographic regions and stakes sold to two consortia—North to Bell Atlantic and Manufacturers Hanover Bank, and South to Spain’s Telefonica and Citibank. The government was primarily interested in technology transfer to local companies and workers and in gaining relief from its foreign debt. The two banks are major lenders to Argentina and are getting equity in the

³⁰Juanita Darling, “Mexico Chooses Lead Investor for Its Phone System,” *Los Angeles Times* (10 Dec. 1990), D1.

³¹“Foreign Investment Climate Report,” U.S. Embassy to Mexico, 1991.

³²Governali, “International Telecommunications Survey,” 3.

telephone companies in return for debt forgiveness. In total, 60 percent of ENTel was sold for \$214 million cash, \$5 billion in debt relief, and another \$379 million cash to be paid between 1991 and 1996. Ten percent of the companies will be sold to employees, and 30 percent to the public via the Argentine stock exchange.³³

Bell Atlantic is not investing money in the venture; it receives an ownership stake in Telco North in return for management services and worker training to be provided to the company. This complements the company's strategy of leveraging expertise in new countries—by doing so; expertise and technology are transferred to local workers and companies.

Jobs, jobs, jobs. Besides technology transfer, another important reason for the less developed countries (LDCs) to upgrade their telephone networks is to attract jobs. "Developing countries, once viewed strictly as sources of raw materials and cheap labor, are now seen as possible locations for anything from airline reservations centers and insurance processing operations to sophisticated computer programming laboratories and advanced automated manufacturing facilities."³⁴ These "network-based" jobs, the low rungs on the ladder of symbolic-analytic occupations which bring countries' economies the highest salaries and growth potential, require advanced communications infrastructure.³⁵

In the Caribbean, several countries are building so-called teleports—high-speed data and voice transmission facilities—to attract data processing jobs from information-based industries such as airlines, insurance, and credit card companies. A teleport facility in Jamaica is an \$8.5 million joint venture of AT&T, C&W, and the local telephone authority. Lower wage rates, lower employee turnover, and increasing skills of the work force help attract foreign companies once the telecoms infrastructure is in place.³⁶

³³"Argentina Unveils Bids for Phone Firm," *Los Angeles Times* (27 June 1990), D5.

³⁴Jonathan Weber, "World on the Move," *Los Angeles Times* (1 Oct. 1991), "World Report" [section], 6.

³⁵For a discussion of symbolic-analytic jobs and their implications for national economies, see Robert B. Reich, *The Work of Nations* (New York: Knopf, 1991), Chapter 14.

³⁶Canute James, "Caribbean Seeks Role as World's Paperless Tiger," *Financial Times* (9 April 1992), 3.

Many countries and regions have identified their telecommunications networks as a vital component in attracting global commerce, akin to transportation or educational resources. Singapore stands out as an example of a country that has successfully invested billions of dollars on state-of-the-art telecommunications systems through a government monopoly and used the network as a key element of economic growth.³⁷ Singapore is an exception; in many other developing countries, especially in South America and Africa, poor communications systems discourage foreign investment. Eastern European countries have systematically starved their telephone networks by returning profits (if any) to state coffers rather than reinvesting. "The situation is similar to western Europe twenty years ago, but [with FDI in telecommunications increasing] can be expected to change rather more rapidly than the slow process of liberalization that has taken place in the West."³⁸

1.2.6 Introduce Competition

Countries where the regulatory regime is liberalized are the most active and attractive to foreign investment. The competitive market structure in long-distance services, pioneered in the U.S. and more recently adopted in the U.K. and Japan, is now being replicated in Australia, Canada, Finland, New Zealand, and Sweden. Fifty-eight percent of the value of forty international telecommunications investments during 1984-89 was in deals that took place in the U.S. or the U.K. "Clearly, market liberalization attracts new investors both domestically and from overseas. At the same time, it tempts domestic carriers based in the countries that are liberalizing their markets to expand their activities to newly deregulated markets."³⁹ Corporate strategy and government policy intersect: procompetition policies encourage foreign investment, and investment is easiest and most attractive in competitive markets.

Australia liberalized its telecommunications industry by creating the Australian Telecommunications Authority (Austel) regulatory body and selling a second carrier license to the "Optus" consortium (members include Cable & Wireless C&W and BellSouth) which has

³⁷Rajendra S. Sisodia, "Singapore Invests in the Nation-Corporation," *Harvard Business Review* 70:3 (May-June 1992), 44.

³⁸Kelly, "Telecommunications in the Rebirth of Eastern Europe," 21.

³⁹J. Hughes, "Diversification for Telecommunications," a report prepared by Booz, Allen and Hamilton (New York, 1990), 2.

an omnibus license to compete with Australian and Overseas Telecommunications Corporation (AOTC), the government-owned monopoly. Several outcomes of such a policy are possible:

- without specific local content rules, the domestic manufacture of telecommunications equipment will decline (as happened after the sale of Telecom New Zealand to the two BOCs);
- prices for telecommunications services will fall, by Optus' forecast, by nearly 10 percent annually for the first five years (how much from competition and how much from already planned cost reductions via new technology is unclear).⁴⁰

In 1992 the Australian government opened bidding for a third, mobile telecommunications operator, as shown in Figure 1-2.

The clearest example of foreign investment increasing competition is in mobile services, as discussed in Chapter Two. "Both the U.S. and the U.K. have a high penetration of cellular phone users, thanks partly to the competitive structure in which their industries grew up. Most other industrialized countries, which started by giving their local companies monopolies in mobile communications, are lagging."⁴¹ One way for those countries to catch up is by emulating the American and British (duopoly) market structure and bringing new competitors into the mobile market. For example, Germany licensed a competitor to Telekom in mobile in order to bring price competition and service innovation into the market and to bring expertise from countries with high mobile usage and experience in competitive market structure. The competitive license was awarded to a consortium of Cable and Wireless (U.K.), Pacific Telesis (U.S.), and Mannesmann (Germany). The German cellular market structure is discussed in section 2.3.1.

India, a latecomer to foreign investment in its economy, also has chosen cellular as one of the first markets to be opened to competition. Early in 1992 bids were solicited to construct and operate cellular networks in Delhi, Bombay, Calcutta, and Madras, but the operation of the basic public telephone network will remain in government hands.⁴² As of April, more

⁴⁰The Yankee Group, "Optus at Risk," *The Aussie Communicator* 9, 2 (February 1992) [Nexis].

⁴¹Dixon, "A Clearer Line."

⁴²Robert Poe and Rajendra Bajpai, "Equipment, Services Deals Sought—India," *Communications Week International* (3 Feb. 1992) [Nexis].



**A significant opportunity in
Australian telecommunications**

THIRD PUBLIC MOBILE TELECOMMUNICATIONS SERVICE

Operator to be selected

A third Public Mobile Telecommunications Service (PMTS) licence is to be granted by the Australian Government as part of its ongoing telecommunications reform process. PMTS is a telecommunications growth area and exciting opportunities exist in this sector as the trend towards mobile communications continues.

The third PMTS carrier will have rights to compete with the two incumbent PMTS carriers, the Australian and Overseas Telecommunications Corporation (AOTC) and Optus Communications, in the provision of public mobile telecommunications services. The third PMTS carrier will gain access to the AOTC and Optus fixed networks through commercially agreed interconnection arrangements.

The new licence will offer considerable opportunities in the modern and dynamic telecommunications industry. It will be operated in a geographical region that is experiencing the fastest telecommunications growth in the world.

Selection of the third PMTS carrier is to be completed by 31 December 1992, and the carrier will be licensed to begin operations from 1 July 1993.

The Australian Government is seeking submissions from interested parties covering their corporate, managerial and financial structure, previous and current operations (particularly telecommunications experience), and likely commitment to providing telecommunications services in Australia (including preliminary views on industry development and network rollout).

Submissions will be used to decide the selection process to be followed. This could involve one or more parties being invited to submit a more detailed proposal.

Closing date for submissions: Friday, 3 July 1992.

A detailed Information Document containing vital information relating to the opportunity is available and interested parties should ensure they obtain a copy.

Enquiries and requests for the Information Document should be directed to:

Ms Pauline Selmes
Communications Selection Team
Department of Transport and Communications
GPO Box 594 Canberra ACT 2601 Australia
Telephone: 61 6 274 6304 Facsimile: 61 6 274 6323

Source: *The Economist* 324, 7757 (9 May 1992), 49.

Figure 1-2

Australian Mobile Advertisement

than thirty bids had been received, many with substantial foreign ownership. The Indian government will allow up to 51 percent foreign ownership in the cellular systems.

1.3 Strategy Limitations and Policy Restrictions on Globalization

1.3.1 Keep Home Regulators and Ratepayers Happy

Telephone companies with global ambitions are put in the difficult position of simultaneously arguing both sides of the competition question:

- (i) they want to make investments in foreign markets for the benefit of their shareholders, and
- (ii) they want regulatory protection from “cream-skimming” competition by new (foreign or domestic) entrants in their home markets.

Such seeming inconsistencies are the stuff of international competition; they are new to telephone companies but familiar in many other industries. American automobile manufacturers arguing for protection from imports (and even transplants) while making all their profits in foreign (European) markets provide one example of corporations playing both sides of the globalization game. BT is a good example in telecommunications, arguing for less restrictive regulatory oversight in the U.S. but fighting the entry of other companies into the U.K. long-distance market.⁴³

BellSouth's 1991 annual report featured a skeptical shareholder (see **Figure 1-3**) asking one of the “tough questions” faced by telephone companies: “Why are you investing so aggressively in mobile communications and other countries?” After three pages detailing the company's wide variety of international ventures, the answer was “growth”: “BellSouth's expanding horizons give our shareholders growth opportunities outside our traditional geographic strongholds.”⁴⁴

Foreign ventures can complicate the competitive situation at home: an ability to enter foreign markets when policies are liberalized is often accompanied by a liberalization of the home market. Thus, a telco may face more competition in its home market from foreign companies, when it moves abroad to compete with them! The 1990 duopoly review in the

⁴³See “BT Steps Up Pressure” for examples of the contradictions inherent in BT's position.

⁴⁴BellSouth Corporation, Annual Report 1991 (Atlanta, 1992), 18-21.

U.K., for example, implies that "BT will face more and tougher competition at home, [but at the same time] stiff regulation of its powers to enter new domestic market or adopt what it would regard as commercial pricing strategies."⁴⁵

1.3.2 Meet Competition in the Home Market

Even without increased competition from foreign invaders, telcos face a variety of competitive threats to their basic business, as new technologies combine with crumbling market entry barriers to introduce competition in the basic local transport business of telephone companies. In the U.S., present and potential competitors include private communications networks operated by large customers, alternative operators of short-haul facilities (fiber, microwave, and satellite-based), wireless services, and cable television operators expanding into voice or data transmission, or both. Such alternative local access providers represent an estimated \$200 million in aggregate revenues in 1991 (or considerably less than 1 percent of the market), but the example of the (hotly competitive) long-distance industry makes them a credible long-term threat to U.S. telcos.⁴⁶

International expansion cannot be at the expense of efforts in the telco's home market to make winning customers tough for new entrants (whether from overseas or not), especially for local telcos like the BOCs, the overwhelming percentage of whose revenues has and will likely continue to come from their home region.

1.3.3 Organizational and Operational Problems

Given their history of monopoly and regulated activities organized on a territorial basis, "a major question mark is whether the traditional telephone companies can effect the necessary cultural changes to compete on a global scale."⁴⁷

One example of difficulty is in functional vs. geographic organization. An important and perennial issue for all companies that operate internationally, in the 1990s it is being faced by

⁴⁵Yankee Group, "BT in the 1990s," 8.

⁴⁶"The loneliness of the long-distance telephone company," *The Economist* (6 June 1992), 73 [Nexis]. For a doomsday view of the telcos' competitive position, see Gary Slutsker, "No Time for Complacency," *Forbes* (15 Oct. 1990) [Nexis].

⁴⁷Gilhooly, "Scramble of the Titans."

telephone companies for the first time. Pacific Telesis puts all its international operations into a subsidiary company, Pacific Telesis International; domestic and international cellular operations are therefore in different organizations. In contrast, U S West in 1990 combined its domestic and international cellular operations, in part to give the division CEO a "world view." He had overall responsibility for international cellular investments and for U S West's 81 percent stake in U S West New Vector, one of the largest domestic cellular and paging operators. This organizational structure was changed in 1991, when New Vector became a stand-alone division and international cellular operations were brought under the umbrella international activities organization.⁴⁸ Bell Atlantic has the bulk of its international operations under its Bell Atlantic International subsidiary, but both foreign and domestic cellular are managed by its Bell Atlantic Enterprises International organization.⁴⁹

The organizational structures being tried out by telephone companies creating international operations highlight a problem for all large corporations: because they are "incompletely connected networks of information flows," some pieces of the company know things that other pieces do not.⁵⁰ The need to find the best way to organize the flows so that relevant (but not extraneous) information reaches the right people is not unique to telephone companies, but they are facing it on an international scale for the first time. The problem is compounded by the boundaries between regulated and unregulated operations within corporations that each face substantially different information requirements. Even in industries with much more experience in global operations, examples can be found of changing fashions or outright mistakes in organization or strategy implementation.

- The concept of "global banking" has been roundly discredited in the last several years, making it very difficult for banks to justify international mergers. "Too many have lost money in ill-conceived ventures in remote parts of the globe. Japanese, American and British banks that once claimed the world as their market have now limped home to tend battered balance sheets."⁵¹ At least one of the main rationales for international bank operations was the same as for telecom companies: to serve their multinational customers wherever they operate. But this strategy has few

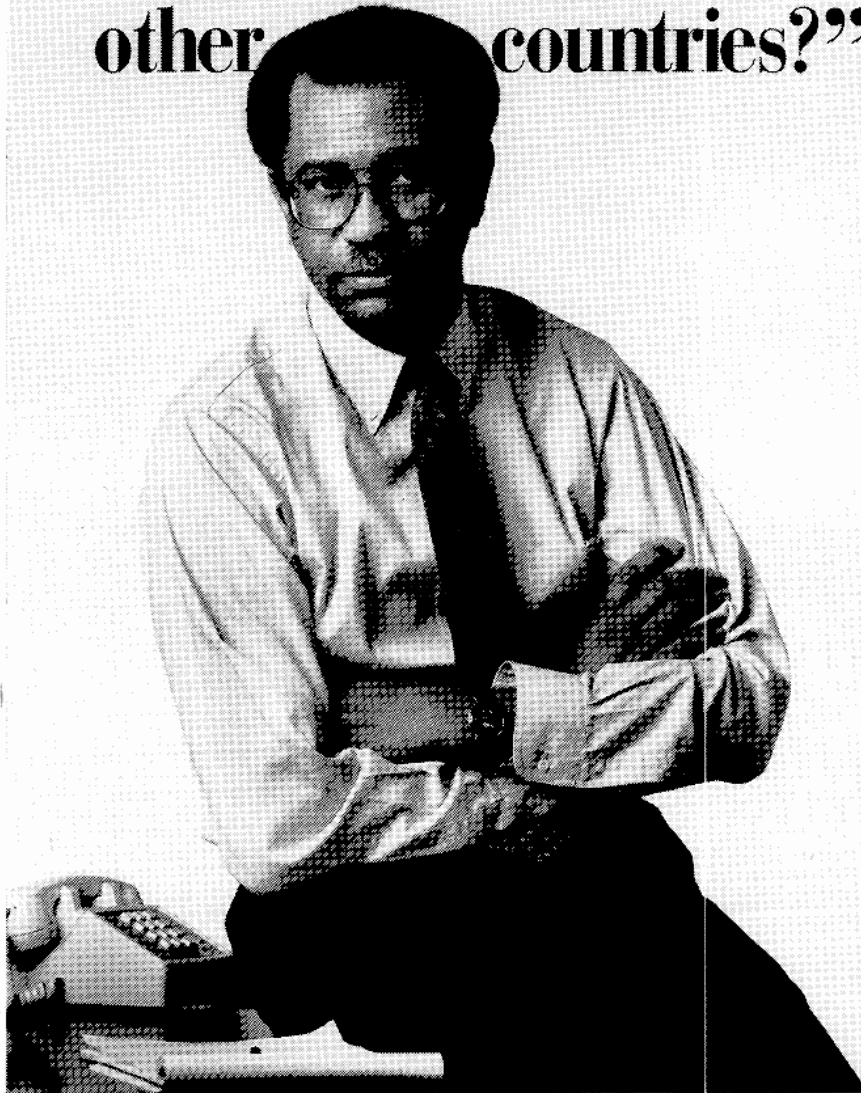
⁴⁸U S West Corporation, 1991 10-K Report, A-6.

⁴⁹Charles Mason, "The Bell Atlantic Way," *Telephony* 220:7 (18 Feb. 1991), 20.

⁵⁰This concept in organizational theory is explored in Kenneth J. Arrow, "Information and Economic Behavior," in *Readings in Public Sector Economics*, edited by Samuel Baker and Catherine Elliott (Lexington, Mass.: D.C. Heath, 1990), 241-255.

⁵¹"Hongkong Bank's Global Gamble."

**“Why are you investing
so aggressively in mobile
communications and in
other countries?”**



Source: BellSouth Annual Report 1991, 18.

Figure 1-3

A Skeptical BellSouth Shareholder

adherents now and plenty of counter-examples: Lloyds Bank shed its international operations and concentrated on home market; Bank America (BA), "which nearly went broke as a global bank," regained some measure of prosperity by concentrating on its West Coast market.⁵² BA's merger with home-town rival Security Pacific is the kind of cost-rationalizing merger now smiled on in the banking industry. Geographic diversification offers few opportunities for combining operations, and often just the reverse occurs: many functions must be duplicated in other countries.

- In transportation, Federal Express is retreating from Europe and contracting for delivery services there. Building its own networks of planes and trucks proved a disaster, and the company "admits it was wrong to assume that it would realize synergies and savings by being involved in both intercontinental and domestic businesses."⁵³ FedEx decided that the risk of contracting for local deliveries was outweighed by being able to use specialized operators within local markets.

1.3.4 Problems with Valuation, Bidding, and Forecasting

Uncertainty about the fitness of telcos to compete internationally "extends to their ability to make sensible investment decisions overseas."⁵⁴ Viewing the entire spectrum of international operations, it is not clear that the companies have set a concrete set of objectives for their international strategies and a complementary portfolio structure to achieve those objectives. Company investment strategies vary widely along the axes of diversification-or-focus, service, geographic, and deal structure. As characterized by one survey,

many companies race ahead with immediate search and screen activities without paying adequate attention to this [portfolio] step. In some cases international opportunities simply appear, and force companies to react with a shotgun approach without actively pursuing a well thought out portfolio strategy. As a result, companies find themselves with a few, scattered international investments, many seemingly attractive opportunities, and limited (if any) criteria by which to choose among these opportunities.⁵⁵

Investment decisions may be colored by a perceived window of opportunity, such as a "one-time-only" chance to get a radio spectrum allocation or to buy into a privatizing national telco. If a country's shift toward liberalization in telecommunications regulation and market structure is permanent (and it's hard to envision going backward), then it's more likely that

⁵²Ibid.

⁵³"Pass the Parcel," *The Economist* (21 March 1992), 73 [Nexis].

⁵⁴WP, "Scramble of the Titans."

⁵⁵Hughes, "Diversification for Telecommunications," 17.

other opportunities will become available and that paying a premium for a "one-time" opportunity will result in overpaying. A premium attached to a service monopoly, for example, may be obviated by either a future change in regulation or a change in technology that brings new competition from other fields. Telecommunications service will probably have continuing shifts in ownership and international movement of capital that will make it more like other mature large-scale global industries.

Venezuela offers a good example of a frantic bidding process for a privatized telephone company. In November 1991, a consortium led by GTE (and including AT&T, Telefonica de España, and C.A. la Electricidad de Caracas) paid \$1.9 billion for a 40 percent stake in Compañia Anonima Nacional Telefonos de Venezuela (CANTV). The sale price was twice the minimum set by the government. A competing group that included Bell Canada and Bell Atlantic was among the losers, with a bid of \$1.41 billion. GTE revised its CANTV revenue projection for 1991 downward *by 50 percent* only two days before the bidding, and AT&T nearly quit the consortium because the price got too high.

Bell Canada put a positive spin on losing, because it did not overpay for a money-losing company with a terrible service reputation. The logistics of the Venezuelan deal were hard to manage given the existing telephone system is so bad: on-site negotiators could not get faxes or telephone calls from home. Evaluating and forecasting involved judging hundreds of pages of often sketchy regulatory, technical, and financial information, while new data was being received right up until bid time.⁵⁶

Companies try to compensate for such risks involved in operating overseas by setting much tougher investment criteria for international projects. BellSouth, for example, sets its investment hurdle rate 5 to 8 percentage points higher for international projects than for comparable domestic ones.⁵⁷ Bell Atlantic early on took a cautious approach to international expansion, forming consulting relationships that "require management talent rather than capital." Its acquisition in New Zealand and other investments (cellular in Czechoslovakia,

⁵⁶Mike Urlocker, "Three Months of Work, One Day of Judgement," *Financial Post* (Toronto) (2 Oct. 1991), 47.

⁵⁷Toole, "Telecommunications Services Industry Report," 21.

most prominently) began with such consulting contracts and were expanded to larger commitments after a comfort level was reached with the local conditions and deal structure.⁵⁸

1.3.5 Limits on Foreign Investment

Many countries have government policies that limit foreign investment in their telecommunications industry. The brief survey that follows suggests that these are primarily developed countries with well established communications industries and that the restrictions are part of more general limits on investment in economic sectors that are identified as having “national security” or “strategic” importance. In addition, state-owned or recently privatized telecom operators in developed countries tend to be off-limits to foreign investment.

If telecommunications is to follow other large economic sectors and become truly a global industry, such limits on foreign investment will have to be removed by the developed countries. In the near future, telecommunications may become another testing ground for the pros and cons of foreign investment, as the automobile and aircraft industries currently are.

The United States has longstanding restrictions on foreign ownership in communications (common carrier and broadcasting using radio spectrum), aviation, shipping, energy, fishing, and mining. The rationale for such restrictions, which for communications originated in the Radio Act of 1912, is national security, i.e., that foreign control of broadcasters or common carriers would pose a threat in time of war or other emergency.⁵⁹

The restrictions of ownership of radio licenses are spelled out in Section 310 of the Communications Act of 1934:

- (a) The station license required under this chapter shall not be granted to or held by any foreign government or the representative thereof.
- (b) No broadcast or common carrier ... license shall be granted to or held by
 - (1) any alien or the representative of any alien;
 - (2) any corporation organized under the laws of any foreign government;
 - (3) any corporation of which any officer or director is an alien or of which more than one-fifth of the capital stock is owned of record or voted by aliens or

⁵⁸Hyde Tucker, Bell Atlantic, at NYSSA.

⁵⁹Sorin A. Bodea, *The Impact of Section 310 of the Communications Act of 1934: Economic and National Issues* (Cambridge, Mass.: Harvard University, Program on Information Resources Policy, I-92-5, 1992), 3.

- their representatives ... or by any corporation organized under the laws of a foreign country;
- (4) any corporation directly or indirectly controlled by any other corporation of which any officer or more than one-fourth of the director are aliens, or of which more than one-fourth of the capital stock is owned of record or voted by aliens.⁶⁰

In 1991, one policy restriction on foreign carriers in the U.S. was removed by the FCC, "to acknowledge movement in several foreign markets toward the U.S. competitive market model" as well as the increasing internationalization of the telephone industry.⁶¹ The FCC changed its definition of U.S.-based international carriers, which had been regulated as "dominant operators," with foreign ownership of such a carrier limited to 15 percent. Both BT and C&W proposed different ways of relaxing these restrictions, based on the behavior of their home market (the U.K.), which has no legislated restrictions on foreign operation in the telecom market. The reciprocal action of the FCC in this case is an indicator of the direction of its future policy toward easing FDI limits in telecommunications.

Another set of FDI restrictions is represented in the "protection" of American industries from foreign investment embodied in the Exon-Florio provision in the 1988 Omnibus Trade Act, which sought an explicit government role to restore American economic competitiveness. The Congressional Committee on Foreign Investment in the U.S. (CFIUS) has responsibility for okaying acquisitions by foreign companies. Most investigations have been of foreign investment or acquisitions in the electronics industry; the thinking behind Exon-Florio has not extended into the telecommunications industry.

"Protection" of U.S. industries from foreign investment versus the possible benefits of FDI remains a divisive issue for the federal government. In 1991, during the slowdown in travel related to the Persian Gulf war, then Secretary of Transportation Skinner made statements regarding loosening of the FDI restriction in the airline industry; he suggested in Congressional testimony that raising the current 25 percent limit on foreign investment might "attract additional capital" into that industry. "His suggestion signaled a shift in position amid calls from U.S. airlines to help stem devastating cash flow losses and the collapse of orderly

⁶⁰United States Code, Volume 18, Title 47 (Washington, D.C.: U.S. G.P.O., 1989).

⁶¹*Telecommunications Reports*, 16 Dec. 1991, 1.

markets for capital and assets.”⁶² The suggestion came in for criticism by Congress that Skinner was opening the door for “foreign control” of airlines, the same bogey opponents of FDI in other industries cite. The proposed investment in US Air by British Airways (BA), although still beneath the 25 percent ceiling, would be another step in loosening the FDI policy of the U.S. in a “strategic” industry. BA’s managers may well argue in the future that “until America’s xenophobic rules against the foreign ownership of airlines are relaxed, [they] will not have a free hand to work whatever magic they may possess on their new American partner.”⁶³

Japan is among the countries that limit FDI in telecommunications. It did not allow foreigners to own shares in Nippon Telegraph and Telephone (NTT) or Kokusai Denshin Denwa (KDD), the two principal communications carriers, until 1992, when a new law was passed that allowed foreigners up to 20 percent investment in each of those companies (i.e., the same level as in the U.S.). The law states that “foreigners should not be allowed to become board members of the companies because of consideration for Japan’s national security.”⁶⁴ As in the U.S., potential harm from foreign control is raised without any specifics attached.

The **United Kingdom**, too, prohibits foreign direct investment in privatized companies such as BT and C&W. But competition is being introduced in its mobile communications markets by consortia with substantial foreign participation (see section 2.3.4), and the government has not explicitly ruled out new entrants into domestic and international long-distance service.⁶⁵

Foreign investment (and private domestic investment) is prohibited in the state telecommunications monopolies of **Germany, Italy, and France**. Again, mobile communications is the first market segment in which competition, including substantial foreign participation, is being allowed (as of mid-1992, in both Germany and France).

⁶²Patricia Gilmartin, “Skinner Tells Senate Panel Limits on Foreign Investment Should Be Eased,” *Aviation Week and Space Technology* (25 Feb. 1991), 31 [Nexis].

⁶³“Wings Across the Water,” *The Economist* (25 July 1992), 64 [Nexis].

⁶⁴“Japan to Further Deregulate Telecommunication Market,” *Asahi News Service*, 19 Sept. 1991.

⁶⁵See “Sprint to Build Network, Take On Mercury and BT in the U.K.,” *The Report on AT&T*, 13 Jan. 1992.

Canada implemented a sweeping overhaul of its telecommunications regulation in 1992, bringing the provincial telephone companies under a common regulatory umbrella. Foreign companies are allowed to own no more than 20 percent of a Canadian carrier, except for pre-existing ownership situations such as GTE Corporation, which owns 50 percent of British Columbia Telephone and Quebec Telephone.

The developed countries and their restrictive FDI policies touched on above stand in direct contrast to developing nations, which are actively seeking foreign investment in telecommunications and many other industries. Restrictive policies are incongruous next to the increasingly active international investments of telephone companies from the U.S. and other developed countries. The situation is probably untenable: as more countries become both receivers and senders of foreign investment in telecommunications, reciprocal policy treatment is likely to emerge from the current hodgepodge, but only after a long series of bilateral negotiations.

1.4 Summaries

1.4.1 Strategies of the Telephone Companies

A fairly straightforward explanation for the global ambitions of telephone companies is evident: the liberalizing policy environment and competition enabled by rapid technology development combine to restrict the options for domestic growth. Telephone companies in developed countries find themselves between the rock of increasing competition (which takes advantage of declining costs of technology) and the hard place of continuing regulation (which severely limits their pricing responses to competition).

Although diversification opportunities for telephone companies are plentiful, during the last twenty years or so many of them have been tried and rejected (first by GTE and its independent counterparts, more recently by the liberated BOCs and such privatized national telcos as BT). Financial services like leasing and real estate, equipment sales and service, publishing, software development and marketing, and other quasi-related businesses were spawned by the plans of telco management to realize a significant amount of revenues and earnings from nonregulated endeavors. The bottom line for many such diversification efforts, however, is that "if there is an unregulated business out there in which money is to be made,

there are [already] people out there making money in it.”⁶⁶ It has never been clear that telephone companies like the BOCs bring anything special, beyond their enormous cash flow, to unregulated businesses, especially those only tangentially related to telecommunications.

With a dismal record in diversification outside telecommunications and mature markets for their core businesses, telco managements face a situation similar to that faced by other large corporations in mature industries: they have substantial free cash flow and want to reinvest it in markets that have higher than average growth rates.⁶⁷ According to the 1991 Bell Atlantic annual report, “We continue to look for investment opportunities in high-growth markets that allow us to apply our expertise in the building and management of complex communications network, both at home and abroad. To provide the capital required for such strategic investments, we have de-emphasized our financial services operations and repositioned or divested some non-strategic businesses.”⁶⁸ Increasingly, these strategy directives are being translated by telco managers into “International,” where (some) monopoly markets still exist, where the opportunity for benign regulation in return for network investment is intact,⁶⁹ and where the telcos can be undisputed technology and marketing leaders in telecommunications markets that are growing considerably faster than at home.

1.4.2 Government Policies

Two types of government policy toward transnational investment in the telecommunications industry hold sway in the early 1990s:

- developing countries are privatizing their national telephone companies and inviting foreign participation via direct ownership of the old monopoly and/or encouraging foreign investment in new communications ventures competitive with the existing carrier
- developed countries generally have more restrictive foreign investment policies, which allow some investment in new competitive ventures but restrict or prohibit foreign participation in the country’s mainstay telephone carrier(s).

⁶⁶LeGates, “The Strategic Environment,” 2.

⁶⁷In 1991, cash flow from telephone operations (before acquisitions and capital expenditures) averaged \$4.1 billion for each of the seven BOCs and \$6.8 billion for GTE. Morris, “Telephone Industry Monthly,” 9.

⁶⁸Bell Atlantic, 1991 Annual Report, 2.

⁶⁹This recreates the “social contract” regulatory period of the U.S. telephone industry, roughly 1920–60, when the Bell System monopoly reigned supreme and spread low-cost telephone service throughout the country. See Gerald W. Brock, *The Telecommunications Industry* (Cambridge, Mass.: Harvard University Press, 1981).

Table 1-6 shows this contrast, ranking countries by GDP per person and listing the type of foreign investment allowed in the telecommunications industry. Countries that have permitted foreign investment in their PTOs are clustered in the bottom half of the GDP ranking; virtually no developed nation has allowed foreign investment anywhere but in the competitive fringe of its telecommunications industry (New Zealand and Hong Kong are the exceptions). On the other hand, more than half the countries on the list allow foreigners to invest in competitive start-ups in the industry, although many of them remain under ownership restrictions or other limitations.

Table 1-6
Countries Ranked by GDP per Person

Country	GDP per Person (\$)	Foreign Investment in Telecommunications through:	
		PTO Stake	Competitive Entry
United States	21,841		yes
Canada	19,321		
Switzerland	18,287		
Sweden	16,357		yes
Japan	16,289		yes
Australia	16,045		yes
Germany (W)	15,841		yes
Finland	15,600		
Denmark	15,010		yes
United Kingdom	14,991		yes
France	14,883		yes
Italy	14,395		
Netherlands	14,286		
Belgium	14,186		
Austria	13,957		
New Zealand	11,968	yes	yes
Hong Kong	11,158	yes	yes
Spain	10,770		
Israel	10,191		
Germany (E)	8,463		
Czechoslovakia	8,359		yes
Taiwan	7,587		
Hungary	6,431	pending?	yes
Portugal	5,380	pending?	yes
South Korea	5,201		
Poland	4,852	pending?	yes
South Africa	3,337		
Uruguay	3,080	pending?	
Brazil	2,816	pending?	yes
Mexico	2,706	yes	yes
Argentina	2,678	yes	
Chile	2,196	yes	yes
Venezuela	2,165	yes	yes
Morocco	1,035		
Peru	924	pending?	
Philippines	751		
India	297		

Sources: AT&T, *The World's Telephones* (Morristown, N.J.: AT&T, 1990); Geoffrey M. Johnson, "Cellular Communications Industry," a report prepared for Cowen & Co. (Boston, 1991); Central Intelligence Agency, *World Factbook 1991* (Washington D.C.: U.S. G.P.O., 1991).

Chapter Two

Transnational Investments in Mobile Telephone Systems

2.1 An Active Arena for International Investment in Telecommunications

Mobile (including cellular) telephone systems are a fertile example of the investments being made by telephone companies in other countries, because they have many of the characteristics attractive to companies looking to go global and to governments whose policies encourage such moves:

- The telephone companies can implement a proved technology in a packaged, “turnkey” system that is cheap and easy to install and make operational, relative to land-line telephone systems.
- Because it is a wireless, radio-based technology, cellular telephony does not require digging up the streets and wiring apartment buildings or houses. Cellular is better suited to less-developed, more sparsely populated countries and regions.
- Often considerable demand for mobile service is pent up (sometimes because the land-line telephone service in place is poor or nonexistent).
- Telcos can leverage their expertise in designing, building, and operating cellular networks in a new market.
- Cellular systems are franchised by the government, so competition for the new system operator is limited (if it exists at all).
- Significant local participation can be required by the host government, through banks, transportation companies, or equipment manufacturers.
- Especially in the European Union (EU), governments are requiring a shift to mobile systems based on new technology standards, which require construction of new networks.

Telephone companies in developed countries have recent experience with cellular systems as start-up operations, because they have been operational for less than a decade in all but the Scandinavian countries.⁷⁰ Telcos have considerable operational and management experience with the early phases of a cellular system, including design, construction, marketing, and

⁷⁰For details on the early years of mobile telephone regulation in the U.S. and the U.K., see Christopher W. Mines, *Policy Development for Cellular Telephone Service in the U.S. and the U.K.* (Cambridge, Mass: Harvard University, Program on Information Resources Policy, 1992).

operations. Just as important, telco managers remember how quickly cellular ventures can become profitable! (also true of cable television, directory publishing, and other frequent international ventures of the telcos).

For the BOCs, cellular investments were the first out-of-region business ventures. Within weeks of their creation in 1984, the BOCs were bidding on nonwireline (NWL) cellular franchises outside their service areas and thus moving into competition with one another. Such cellular system acquisitions were the first instances of the addition of the geographic dimension to the telcos' strategic planning.

Joint ventures or consortia are the dominant form of ownership of cellular systems, whether the participants are domestic or foreign. Cooperative ventures are so prevalent because:

- Limited radio spectrum space (or, at least, the perception of limits) means that only two to three mobile suppliers are likely to be licensed, out of a much larger number of qualified applicants. This situation creates an incentive to join with partners before or during the application and bidding process.
- Most countries explicitly require, or at least will favor, local participation as well as foreign expertise in an application for a mobile franchise license. This combination is best, from the perspective of the home governments, for transferring technology and know-how into the local economy and work force. Partnerships between local and foreign participants in a consortium are the typical means of satisfying such requirements.

2.2 Who Is Where with What?

Table 2-1 summarizes information about thirty-seven mobile telephone ventures in twenty-five countries that have some degree of foreign ownership. Both operating and planned systems are included, but only those where franchises or licenses have been awarded. In general, experimental, pending, or rumored systems and relationships are *not* in the table. For example, it does not include proposed systems based on new technologies that may eventually become competitive with mobile telephony, e.g., the "Iridium" satellite-based system proposed by Motorola. Nor does it include the experimental personal communication system (PCS) licenses granted by the FCC. Further, it does not include countries or franchises under bid as of mid-1992 (third Australian license, Greece, India, third Hong Kong license, etc.).

Table 2-1
Transnational Investments in Mobile Telephone Systems

Country	Region	Operating Company	Participants (Percent Share)			No. of Carriers	Replacement or New?	Subscribers (000s)	Total Investment	Start Date
			1	2	3					
Category (i): Countries that have brought foreign investors into existing or new monopoly markets										
Argentina	Buenos Aires	CRM	BellSouth (36)	Motorola (14)		monopoly	16.0		late 1989	
Bolivia		Tel Cell de Bolivia	Millicom (69)			monopoly	unk.		1990	
Czechoslovakia		Eurotel	Bell Atlantic (24.5)	U S West (24.5)		monopoly	0.0	\$60m	late 1991?	
Hungary		Hungary Cell. Comm.	U S West (49)		1st of 2	new	5.5	\$55m	late 1990	
Lithuania		Comliet UAB	Millicom (49)			new	0.0		1992?	
Poland		Ameritech		France Telecom		monopoly	0.0	\$150m	late 1991?	
Russia	Moscow		U S West (22)	Millicom (20)		monopoly	0.0		late 1991	
Russia	St. Petersburg		U S West (40)	City PTT		monopoly	0.0		mid 1991?	
Uruguay		Ablatar	BellSouth (35)			monopoly	0.0	\$10m	1991?	
Category (ii): Countries that have encouraged entry of foreign companies/investors as new, competitive suppliers										
Australia		Optus	C&W (24.5)	BellSouth (24.5)	2nd of 2	new	0.0	330.0	mid 1991	
Chile	Santiago	CIDCOM	BellSouth (100)		1 of 2		7.0	unk.		
Chile	Santiago	Telecom Chile	Motorola (33)		1 of 2	repl	unk.		early 1992	
Denmark		Dansk Mobiltelefon	BellSouth (29)		1 of 2	new	0.0	169.0	mid 1989	
France		SFR	Pac Tel (26)	Racal (4)	1 of 3	new	79.0	352.0	mid 1992	
Germany		Mobilfunk	Japan Tel Co	Mannesmann (51)	2nd of 2	new	0.0	469.0	1994	
Japan	Tokyo	Digital Phone	DD/Kyocera (26)	Japan RR	1 of 7	new	0.0	1089.0	mid 1989	
Japan	Tokyo	TU-ka	Pac Tel (13)	Motorola (8)	1 of 7	new	unk.	1089.0	1994	
Japan	Kansai		Pac Tel (23)	Japan Telecom (27)	1 of 7	new	0.0	1089.0	1994	
Japan	Tokai		C&W (40)	Japan Telecom (27)	1 of 7	new	0.0	1089.0	1994	
Pakistan		Paktel	Millicom (60)	Hasan	1 of 2	new	3.3	4.8	late 1990	
Pakistan		Pakcom	Millicom (60)	Comvik	1 of 2	new	1.4	4.8	late 1990	
Philippines		Extelcom	Millicom (40)	Comvik	2nd of 3	new	1.0	33.0	early 1990	
Philippines		Isiacom	Hutchison	Express	3rd of 3	new	unk.	33.0	early 1991	
Portugal		Telecel	Pac Tel (23)		2nd of 2	new	0.0	10.5	late 1992	
Russia	Moscow	MCC	Millicom (30)	U S West (40)	1 of 2	new	0.0	0.0	late 1991?	
Russia	Moscow		Bell Atlantic	City PTT	1 of 2	new	0.0	0.0		
Russia		NordicTel	SAS	Volvo	1 of 2	new	0.0	0.0	1992	
Sweden		Telcel	BellSouth (44)		1 of 3	new	0.0	0.0	1991?	
Venezuela		Unitel-Mercury PCN	C&W (60)	U S West (50)	2nd of 2	new	0.0	8.0	1993?	
U.K.		Microtel	Hutchison (100)		1 of 4	new	0.0	1220.0	1993?	
U.K.					1 of 4	new	0.0	1220.0	1993?	
Category (iii): Countries that have done both (i) and (ii)										
Mexico	national	Telcel	SW Bell	France Telecom	1 of 2	acquisition	110.0		early 1990	
Mexico	Region 2	Movitel de Noroeste	GTE		2nd of 2	new	unk.	110.0	late 1990	
Mexico	Region 5	Concel de Occidente	BellSouth (30)	Vodafone	2nd of 2	new	unk.	110.0	late 1990	
Mexico	Region 4	Cellular de Telefonía	Millicom (37.5)		2nd of 2	new	unk.	110.0		
New Zealand		Telecom Cellular	Ameritech (45)	Bell Atlantic (45)	1 of 2	acquisition	62.7		mid 1987	
New Zealand		Perwell Two	BellSouth		2nd of 2	new	0.0		mid 1992	
Category (iv): Countries that have foreign investment in existing, competitive cellular carriers										
Canada	Br. Columbia	BC Cellular	GTE (50)	Motorola	1 of 2				early 1986	
Hong Kong		Hutchison Telephone	Hutchison (70)		1 of 3	new	67.0	168.0	1985	
Hong Kong		Pacific Link	Vodafone (30)		1 of 3	acquisition	40.0	168.0	late 1989	
Sweden		Comvik	Millicom (20)		1 of 3	???	17.0	564.0	mid 1981	
U.S.	regional	McCaw Cellular	BT (20)		1 of 2	acquisition	1390.0	6380.0	late 1990	

unk. = unknown.
Source: Adapted and expanded from International Trade Administration, "A Competitive Assessment of the U.S. Cellular Radiotelephone Industry" (Washington D.C.: Department of Commerce, 1992).
© 1994 President and Fellows of Harvard College. Program on Information Resources Policy.

The table does include information about:

- **country** (and **region**, if applicable) where the mobile telephone system is located
- **operating company**, that is, the name of the company operating the mobile system
- **participants**, including foreign and domestic investors other than the national telephone operator of the host country. The percentage of **ownership shares** are shown if reported
- **number of suppliers**, which indicates the competitive situation in the country or region; where applicable, the order of market entry is shown (e.g., "2nd of 3")
- **replacement or new**, that is, whether the system is being built in a market that previously had no mobile system or is replacing an existing system. "Acquisition" indicates an existing system that changed ownership to one that include foreign participants
- **subscribers**, that is, information about the number of cellular subscribers to the particular mobile system, and in the **country** as a whole. The information varies in timeliness and is not comparable across countries. It also differs from the statistics in **Table 2-3**, which are for 1990 mobile subscriber levels
- **the total investment**, the reported amount that will eventually be spent to build the cellular system
- **start date**, the year the system first became operational

This compilation of cellular systems with foreign investors suggests four basic categories:

(i) **Countries that have brought foreign investors into existing or new monopoly markets.** These are primarily developing countries building their first cellular systems from scratch and in need of capital and expertise from overseas companies. They would seem to be the highest-risk, highest-return investments: the market is unproved, but a monopoly franchise is being granted, at least for the time being. This category comprises primarily countries in Eastern Europe—Czechoslovakia, Poland, Russia, Hungary—and South America—Argentina, Bolivia, Uruguay.

In this category, the company strategies appear to be entering high-growth markets, leveraging experience and expertise and skirting home-country regulation. The important government policy (from **Table 1-3**) is attracting foreign investment to upgrade the country's communications infrastructure.

(ii) Countries that have encouraged entry of foreign companies as investors in new competitive cellular suppliers. This situation is the most common, where a country has decided to introduce or increase competition in mobile telephony and has licensed additional suppliers in an already established market. Countries range from Chile, where cellular service is new but competitive from the start, to Japan and the U.K., where cellular is very well established and new entrants are being formed to offer systems based on new technologies (digital cellular, PCN, etc.).

In this category, the relevant corporate strategies are leveraging experience and expertise and entering high-growth markets. These markets, however, are generally more developed than those in Category (i), and the new cellular systems will face entrenched competition, often from the national telephone carrier (in Germany, Australia, Japan, the U.K., et al.). Although the market for mobile telephone service in such countries is proved, the second or third franchise may have a lower value than a monopoly license in a developing country owing to the competitive market structure.

The overriding government policy is obviously to introduce competition, both as a way to bring service innovation and price competition to mobile customers and, perhaps as important, to light a fire under a (complacent) national telephone company. Competition, even a simple duopoly as in the U.S. or the U.K., is seen by other governments as the key to expanding usage of mobile telephony. France, Italy, and Spain, for example, where second mobile operators are just launching in 1992-93, have mobile penetration levels less than half those in the U.S. and U.K. despite a roughly equal ratio of GDP per person (see **Table 2-2**).

In addition, many countries are testing competition as a substitute for direct price or profit regulation of their telecom industry, and mobile is the testing ground for introducing such policies.⁷¹

(iii) Countries that have done both (i) and (ii). Both Mexico and New Zealand have privatized and sold stakes in their national telephone companies to foreign investors, while

⁷¹This theme has many complications, of course, most of them evident in the U.S. regulatory experience during the past fifteen years. For an overview, see Kip Viscusi, John Vernon, and Joseph Harrington, *Economics of Regulation and Antitrust* (Lexington, Mass.: D.C. Heath, 1992), Chapter 15.

simultaneously introducing competition into their cellular markets via new carriers with foreign investors. In both countries, the former state telephone monopoly was sold with specific guarantees of monopoly protection in basic telephone service, but mobile was exempted from this provision.

In this category the dominant company strategy is, again, to find a relatively high-growth market with a benign regulatory situation and to leverage experience and expertise developed at home. In both cases, BOCs have invested in the national telephone company (Southwestern Bell in Telmex, Ameritech and Bell Atlantic in Telecom New Zealand) and the start-up competitors (BellSouth in both countries), putting them in competition with one another outside the U.S.

(iv) Countries that have foreign investment in established, competitive mobile service companies. In these cases, foreign companies have either long-standing (GTE in B.C. Tel.) or relatively recent (BT in McCaw Cellular) stakes in established, competitive cellular carriers.

The only company strategy that seems applicable in these instances is leveraging of experience in mobile operations. As discussed below (section 2.3.2), however, BT was a largely passive investor in McCaw, while McCaw has been cash-hungry throughout its corporate development and saw the BT investment—and its more recent sale of that stake and additional shares to AT&T—as a way to reduce its reliance on debt financing. It is difficult to see how BT benefited from the relationship, especially given the stock-price performance of McCaw and its cellular counterparts between the time of BT's investment in 1989 and its still-to-be-consummated sale of its McCaw stake to AT&T in late 1992 (section 2.3.2).

There may be a tenuous argument in this category for companies seeking to serve their customers in multiple geographies, but, in general, this strategy, prominent among the globalization rationales discussed in Chapter One, does not apply to mobile, which is largely an individual or consumer, rather than corporate, communications service. There are some exceptions to this rule, including mobile data communications systems implemented by transport and service companies (e.g., United Parcel Service and IBM), but significant demand for worldwide cellular "roaming" has yet to develop. Given the advent of a common

cellular system for the European Community, being implemented by the member nations under EU mandate, perhaps companies are looking to a future when worldwide cellular systems will be a strategic advantage in attracting or retaining customers. Although research for this paper discovered no company statements of such a far-reaching strategy, the beginnings can be found in Europe, North America, and South America (see sections 2.3.2 and 2.3.3).

The most important government policy in the category *iv* countries is the limit placed on foreign ownership of telecommunications companies (in both the U.S. and Canada, it now stands at 20 percent). Given the size and growth of the North American cellular market (by far the largest in the world) and the frequent transactions of domestic companies trading cellular properties, it is a fair bet that foreign companies would be more active without the ownership restriction. The introduction of new mobile telephone technologies over the next several years in the U.S. will probably cause more foreign participation in the domestic market (via licenses for personal communications services [PCS] networks, for example), but under current law these will be subject to the 20 percent foreign ownership ceiling.

2.3 Preliminary Observations on Selected Cases

As is clear from the statistics in Table 2-1, foreign participation in cellular systems is a recent phenomenon, and in mid-1992 it is still too early to judge the success or failure of any of the significant projects and investments. This is especially true given the proprietary nature of much of the data needed to evaluate companies' strategic moves, e.g., size of investment, structure of consortia or contracts, and company expectations regarding returns. The cases sketched below are examples of issues faced by telephone companies and government policymakers in the telephone industry's "global mobile" market.

2.3.1 Pacific Telesis in Germany

Pacific Telesis, the BOC in the West Coast region of the U.S., has a 26 percent stake in the Mobilfunk consortium which is building a digital cellular system in Germany. The other partners in the venture are Mannesmann Gmbh, a German engineering and construction company, and Cable & Wireless. Pacific Tel's contract is for design, engineering, and construction of the network, and it will contribute about 26 percent of the reported \$1 to \$2 billion being invested in the new mobile system.

When the new system goes on the air throughout Germany in 1992, it will face entrenched competition from the existing cellular system of the Deutsche Telekom, Germany's state-owned PTO. As of 1990, this system had 351,000 subscribers, for a penetration rate of 2.1 percent of the population (of the former West Germany, the relevant base). As shown in Table 2-2, which ranks countries by cellular penetration, this is one of the most successful cellular systems in the world. So, Pacific Tel and its partners confront the contradiction of competitive entry in a developed country: cellular demand is well established and growing, but a formidable operator exists in this case that is also a government-owned company with a monopoly in the provision of basic telecommunications services.

The new Mobilfunk system will have advantages, including its digital transmission technology, which offers higher capacity and better quality, and its willingness to offer service prices significantly below the existing monopoly Telekom system. The new network is based on technology known as GSM (global standard for mobile), standards sanctioned by the EU and mandated for use in mobile telephone systems throughout the Community. Under the EU mandate, GSM-based systems must be introduced in a competitive market. Like Australia and Hong Kong, Germany is planning to solicit bids for a third mobile network during 1992.

The parameters of Pacific Telesis' investment decision for the German mobile project are given below. More important than the data, estimated from several sources, is the *structure* of the calculation, which emphasizes the discount rate that the telco's management might use in calculating the return from such an investment.

- Size of German mobile market: 350,000 subscribers x annual sales of \$1,000
- Growth rate over next twenty years: 15 percent
- Market share of new system (average over next twenty years): 20 percent
- Life of system: twenty years
- Stake of Pacific Telesis: 26 percent

Using a discount rate of 18 percent (slightly higher than Pac Tel's average cost of capital), the project's revenues over twenty years have a present value of \$436 million. Using a discount rate of 22 percent (i.e., adding four percentage points as an "international risk

Table 2-2
Countries Ranked by Mobile Penetration

Country	Mobile Subscribers, 1990 (000s)	Mobile Per 100 Population	Foreign Investment in Telecommunications through:	
			PTO Stake	Competitive Entry
Sweden	526	6.26		yes
Finland	255	5.15		
Denmark	160	3.12		yes
Hong Kong	140	2.44	yes	yes
Switzerland	146	2.17		
United Kingdom	1,220	2.15		yes
Canada	569	2.15		
United States	5,283	2.13		yes
Germany (W)	351	2.11		yes
New Zealand	59	1.76	yes	yes
Australia	268	1.72		yes
Japan	892	0.73		yes
Italy	410	0.71		
Netherlands	97	0.66		
Taiwan	121	0.61		
France	323	0.57		yes
Belgium	44	0.45		
South Korea	107	0.25		
Spain	74	0.19		
Chile	17	0.13	yes	yes
Mexico	97	0.12	yes	yes
Portugal	9	0.09	pending?	yes
Argentina	16	0.05	yes	
Venezuela	8	0.04	yes	yes
Peru	4	0.02	pending?	
Philippines	8	0.01		
South Africa	3	0.01		
Morocco	1	0.00		
Brazil	2	0.00	pending?	yes
Germany (E)	0	0.00		
Austria	0	0.00		
Israel	0	0.00		
Czechoslovakia	0	0.00		yes
Hungary	0	0.00	pending?	yes
Poland	0	0.00	pending?	yes
Uruguay	0	0.00	pending?	
India	0	0.00		

Not included: USSR, China.

PTO: principal telecommunications operator.

Sources: AT&T, *The World's Telephones* (Morristown, N.J.: AT&T, 1990); Geoffrey M. Johnson, "Cellular Communications Industry," a report prepared for Cowen & Co. (Boston, 1991); Central Intelligence Agency, *World Factbook 1991* (Washington, D.C.: U.S. GPO, 1991).

differential”), the present value drops to \$180 million. If the investment by Pac Tel is equal to 26 percent of \$1.5 billion, or \$390 million, the choice of discount rate is a crucial one for the investment decision. Obviously, the discount rate will be affected by many variables, including not only the company’s overall cost of capital but also its evaluation of the business risk of the particular project, the political climate in the host country, and a myriad of other factors.

2.3.2 BT-McCaw in the U.S.

In 1989, BT bought a 22 percent stake in McCaw Cellular Communications (Bellevue, Washington) for \$1.5 billion. As the 1990-91 recession took hold in the U.S., growth in cellular subscribers did not meet expectations. At the same time, investors began to perceive competition for cellular emerging, and, looking to the future, discounted stock prices. By late 1991, McCaw’s share price had nearly halved. Whether BT’s investment would prove a “strategic,” which is to say, costly, mistake was a source of worry.⁷² The American two-carrier-per-market system, in which there is little price-based competition between cellular service suppliers, may be in for change as new mobile technologies are introduced in the mid-1990s. Early in 1991, the FCC authorized experimental personal communication service (PCS) licenses.

Late in 1992, McCaw and AT&T announced negotiations for the sale of BT’s 22 percent stake, as well as an additional 10 percent share of McCaw, to AT&T for \$3.8 billion.⁷³ BT would receive roughly \$1.8 billion for its share, which would translate into a 6 percent annual return on its original investment in McCaw in 1989. The proposed sale confirmed the impression that BT was a passive investor in McCaw and has turned its global ambitions strictly toward its outsourcing and data networking businesses (**Chapter One**). BT had described McCaw as a good long-term investment, but not one with the potential to expand into other countries.⁷⁴

⁷²Jeremy Warner, “US Competition Threatens \$1.5 bn BT Investment,” *The Independent* (London), March 24, 1991, p. 8.

⁷³“AT&T Plans to Buy McCaw Cellular Stake,” *New York Times* (Nov. 5, 1992), D1.

⁷⁴BT plc., 1991 Annual Report (London, 1991).

McCaw's stated primary strategic focus is on integrating its regional cellular systems into the "North American Cellular Network," to allow

a subscriber's calls and calling features to follow him effortlessly and transparently when he travels to the participating markets. 1992 will bring further expansion of the NACN, extending the reach of seamless national call delivery.⁷⁵

Envisioned as seamless connection of regional cellular systems throughout Mexico, Canada, and U.S., the NACN is based on four developments: *digital technology* extending throughout the network to the handset; *critical mass* of wireless network coverage; *trust* in the reliability and quality of the network, thus certainty among consumers that calls will reach them anywhere; and *intelligence* within the network allowing it to follow subscribers' instructions for communications. The NACN, with the European system under implementation by the EU, could become precursors to wireless telephony which may be a true substitute for the wired telephone network. AT&T's investment (and, presumably, involvement) in McCaw's effort portends a huge battle over the local access market, where AT&T currently pays local telcos \$25-30 billion annually.

2.3.3 BellSouth in South America

Another version of the increasing geographic spread of cellular networks is BellSouth's plan to offer roaming capability among its five cellular systems in South America: Buenos Aires, Argentina; Caracas, Venezuela; Uruguay; Mexico; and Santiago, Chile. Roaming capabilities allows subscribers from one regional system to use their phones when travelling in another. Miami (in BellSouth's home territory in Florida) will be the "gateway" city for the South American system, where interregional calls are set up and switched. BellSouth recently joined ALACELL, a trade association for cellular companies in Latin America, as a founding member.⁷⁶ Although BellSouth has not shown a "global" cellular strategy, it is moving to explore the operational and marketing possibilities of telephone systems that go far beyond the geographic reach of their traditional, in-the-ground networks.

⁷⁵LIN Broadcasting, Inc., 1991 Annual Report (Bellevue, Wash., 1992), 2. McCaw Cellular own 52 percent of LIN, one of its principal cellular operating subsidiaries.

⁷⁶See "BellSouth Plans to Offer Roaming Service Among Latin American, U.S. Cellular Companies," *Telecommunications Reports* (April 20, 1992), 27.

2.3.4 PCN Systems in the U.K.

In 1992-93, the U.K. is in the midst of introducing another set of competitors into its mobile telephony market, which has been structured as a duopoly since the launch of commercial cellular service in 1985.⁷⁷ In 1989 three new suppliers, each a separate consortium, were licensed to build so-called personal communications networks (PCNs) in the U.K. and compete with the existing cellular carriers, Cellnet (60 percent owned by BT) and Vodaphone plc. Since the franchises were awarded, those consortia have rearranged several times, and now only two are set to build PCN infrastructure, as indicated in **Table 2-1**. Unitel-Mercury is a combination of two of the original consortia, now jointly owned by the leaders of the two groups, Cable & Wireless and U S West. The other supplier is 100 percent owned by Hutchison Telecom of Hong Kong. Each consortium will spend an estimated \$525 million for initial network coverage and \$1.75 billion for coverage of the entire U.K.⁷⁸

These planned PCN systems have different technical and therefore usage characteristics from existing cellular telephone systems: uses higher frequencies for transmission, which require lower power but have smaller range, and will have smaller handsets. The British PCN can accommodate stationary or walking users; it cannot be used in automobiles at highway speed.⁷⁹ Even so, it will overlap to some (as yet unknown) degree with cellular, and, thus, become another tier of competition for the established suppliers. In fact, PCN has been licensed by the U.K. specifically to compete with both land-line telephone service and the two existing cellular operators. This regulatory intent is perceived by PCN operators as a favorable regulatory climate; the participants also view the U.K. market as a favorable competitive situation, because existing cellular systems are capacity-bound in and around London.⁸⁰ The U.K. is a pioneer in licensing PCN suppliers, and its experience (including the false starts and corporate recombinations to date) is being watched closely in other

⁷⁷See Mines, *Policy Development for Cellular*, Chapter Four.

⁷⁸M. Mabbutt, "U.K. Personal Communications Network," report prepared for the Nomura Research Institute Europe (London, 1992), 4.

⁷⁹The variety of technology and market characteristics of PCNs are described in Derrick C. Huang, *Up in the Air: New Wireless Communications* (Cambridge, Mass.: Harvard University, Program on Information Resources Policy, P-92-3, 1992).

⁸⁰John E. DeFeo, CEO of U S West NewVector Group, presentation to Donaldson Lufkin Jenrette Conference, June 1992.

developed countries to see the impact of new technologies and additional competitors on the mobile telephone market.

U S West performs some strategic gymnastics to justify its entry into the U.K. mobile market while claiming that the same new technology is not needed in the U.S. (where it is already a major player in cellular, with valuable licenses that would become less so if new spectrum were allocated and new entrants authorized). The company makes the case that competition from PCN is needed in the U.K., where cellular service prices are 30 to 40 percent above those in the U.S., and the relevant frequencies are unoccupied, while in the U.S. the frequencies are allocated (primarily to long-distance microwave transmission). In addition, the company argues that existing cellular carriers provide excellent service in the U.S., while they have done a "poor job" in the U.K., creating an environment for the success of new entrants.⁸¹ This posture is consistent with being a telephone company that does not want to face competition in its home market but wants to enter new markets as a competitive supplier.⁸²

2.4 Conclusion

Mobile telephony is one of the large-scale tests of the globalization strategies of telephone companies and of the telecommunications development policies of national governments. As new systems go on the air during the mid-1990s, they will offer concrete lessons about the financial returns for telephone companies from international investments and the social returns for countries of introducing competition and encouraging (or limiting) foreign direct investment in telecommunications.

⁸¹Ibid.

⁸²Locke, "US West Targets Overseas Cellular."

Acronyms

ALACELL	trade association for cellular companies in Latin America
AOTC	Australian and Overseas Telecommunications Corporation
BOCs	Bell operating companies
BT	formerly British Telecom
CANTV	Compania Anonima Nacional Telefonos de Venezuela
CFIUS	Congressional Committee on Foreign Investment in the U.S.
EU	European Union
FDI	foreign direct investment
FTC	Federal Trade Commission
GDP	gross domestic product
GM	General Motors
GSM	global standard for mobile
ITU	International Telecommunication Union
KDD	Kokusai Denshin Denwa
LDCs	less developed countries
MFJ	Modification of Final Judgement
NACN	North American Cellular Network
NTT	Nippon Telegraph and Telephone
NYSSA	New York Society of Security Analysts
NWL	nonwireline
OECD	Organization for Economic Co-operation and Development
PCN	personal communications network
PCS	personal communications service
PTO	principal telecommunications operator



PPGLOBAL



ISBN 1-879716-17-8