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AT&T Divestiture:
A Status Report

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1. Introduction

On January 7, 1982, the U.S. Department of Justice settled an almost decade-long antitrust case against the American Telephone and Telegraph Company ("AT&T") by AT&T's divesting itself of its local exchange operations -- the Bell Operating Companies ("BOCs"). In perhaps the largest restructuring of an industry ever, including the break-up of Standard Oil in 1911, AT&T gave up its local exchange services, while keeping its long-distance operations, its equipment manufacturing subsidiary, and its recently approved subsidiary for data processing and other "enhanced" services.

The goal of divestiture was to increase competition in the U.S. telephone industry in the following ways:

1. Opening up the market for long-distance service providers by affording them equal access to local networks;
2. Removing the incentive for BOCs to purchase AT&T equipment as "captive buyers," thus opening the BOC market to competitive suppliers; and
3. Allowing AT&T to compete in the domestic and international markets for high-technology hardware and software.

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2. Roles of U.S. Government Agencies

The basic framework of government involvement in U.S. telecommunications policy is simple in theory and complex in reality. The public sector does not own or operate telecommunications services, except for a few small rural telephone systems. Almost all civilian telecommunications facilities are privately owned, but are subject to licensing and regulatory oversight. These regulations are set by the Federal Communications Commission ("FCC") (a body of five commissioners appointed by the President but independent of the executive) for all matters affecting interstate telephony. State regulatory commissions -- which also are usually independent in status -- regulate intrastate telephony.

In addition, the Department of Justice plays a major role through its Antitrust Division, which enforces the AT&T divestiture. The primary authority in that case is a federal judge, Harold Greene. He frequently decides whether telephone companies and other parties are complying with the AT&T divestiture decree, and he thus has become a major presence in telecommunications matters.

Following a broader policy the U.S. decision making process, the federal courts -- particularly the U.S. Court of Appeals for the District of Columbia Circuit -- have become a significant locus of telecommunications policy making. For example, that court forced the FCC to allow non-Bell long-distance carriers to interconnect with the BOCs, making competition possible. E.g., Hush-a-Phone v. United States, 238 F.2d 266 (D.C. Cir. 1956). The Federal Trade Commission also plays a minor role in regulating industry competitive behavior and structural changes.

The most important entity for telephone policy, at least in theory, is the Congress. The primary federal legislation is the Communications Act of 1934, 47 U.S.C. §§ 151 et. seq. (1982). This Magna Charta of U.S. telecommunications policy rarely has been amended, despite many attempts to do so. Policy making to deal with changed circumstances has been left largely to the FCC's and the courts' discretion. Congress often wields its power indirectly, however, by giving signals to the FCC through bills, resolutions, hearings, and budgetary decisions.

On the one hand, this multiplicity of decision-making bodies makes comprehensive policy-making unrealistic. On the other hand, it accomodates decentralized and ad hoc decisions, many of which are specific responses to particular problems, rather than part of a grand design. This has permitted a fairly rapid re-orientation of U.S. common carrier policy, through means such as the AT&T divestiture.

3. The FCC's Regulatory Powers

The Communications Act of 1934 defines a "common carrier" as a "common carrier for hire, in interstate or foreign communications by wire or radio or an interstate or foreign radio transmission of energy." 47 U.S.C. § 153(h) (1982). In less circular terms, a common carrier is a firm which either holds itself out by its business practices or is required by law to provide transmission services to any properly qualified customer. National Ass'n of Regulatory Utility Comm'rs v. FCC, 525 F.2d 630 (D.C. Cir.), cert. denied. 425 U.S. 992 (1976).

Because of its traditionally federalist policies, U.S. regulation of carriers has existed at several levels of government. Local exchange operators --

primarily the BOCs -- must secure state and occasionally even local approval of their operations. (The necessity for local approval depends upon whether a state has empowered cities to grant authorizations, generally termed "franchises" or "consents." Although local franchising was quite common during the early days of telephony, virtually all states today have prohibited it.)

The states in turn have created specialized administrative agencies -- usually called "public utilities commissions" or "public service commissions" -- to regulate telephone companies' rates and practices. By definition, state agencies may regulate only intrastate activities, such as charges for calls within a particular exchange or between exchanges within the same state. Both local exchange and long distance operators must apply to the state agencies for approval of their intrastate tariffs and for "certificates of public convenience and necessity."

The FCC must approve any interstate carrier's rates and practices, under 47 U.S.C. § 214 (1982). Although the Commission largely has abandoned strict rate of return regulation, tariff filings and "Section 214 certificates" still are necessary.

As regulated monopolies, telephone companies must apply to the FCC and state authorities for rate increases. The FCC passes upon interstate rates (at least for AT&T at present), while the state commissions approve intrastate rates. Regulators must publish these applications and conduct public hearings prior to rendering decisions. In theory, tariffs are designed to permit a common carrier a fair rate of return on its capital investment.

4. Limitations on AT&T

Long the dominant force in U.S. telecommunications, AT&T was limited for twenty-five years to the traditional telephone business pursuant to a 1956 Consent Decree, which terminated an antitrust suit brought by the Justice Department. United States v. Western Electric Co., Inc. et al, U.S.D.C. N.J., C.A. No. 17-49, January 24, 1956. AT&T settled the 1974 antitrust case in 1982, under a Modification of Final Judgment ("MFJ"), by divesting its 22 local exchange Bell Operating Companies ("BOCs"), which now are owned by seven "Bell Regional Holding Companies" ("BRHCs"). In exchange for the divestiture, the government dismissed its antitrust case and amended the 1956 Consent Decree through the MFJ to permit AT&T to enter unregulated fields, such as the data base and computer industries. AT&T also retained control of several key entities: its research and development arm, Bell Labs; its manufacturing arm, Western Electric (now AT&T Technologies); its long-distance operation, Long Lines Division (now AT&T Communications); and its competitive products and services marketing subsidiary (now AT&T Information Systems). The FCC supported the settlement, but urged that the BOCs also be permitted to enter unregulated fields.

AT&T could provide only telecommunications service under the 1956 Consent Decree. With electronic switching at hand and with customer demand for new services, AT&T increasingly felt pressure to offer enhanced services. These services at first were provided through AT&T's tariffed offerings -- over the objections of the data processing industry --and were considered communications services. The FCC moved forward to address this dilemma in its First and then Second Computer Inquiry ("Computer II"). See Amendment of

Section 64.702 of the Commission's Rules and Regulations (Computer II Inquiry), 77 FCC 2d 384 (1980); 84 FCC 2d 50 (1980); 88 FCC 2d 512 (1981); aff'd. sub-nom. CCIA v. FCC, 693 F.2d 198 (D.C. Cir. 1982). In 1981, before the MFJ, the Commission independently had developed a distinction between "basic" or communications services, and "enhanced" or additional services. The FCC allowed AT&T to provide only basic services through its tariffed offerings. Enhanced services had to be provided by an unregulated and "fully separated" subsidiary. This subsidiary -- first named American Bell and then AT&T Information Systems -- also is in charge of marketing all competitive equipment, such as computers and customer premises equipment.

5. U.S. Networks

Operation of the networks in the United States is highly decentralized. Following the AT&T divestiture, the structure of networks is as follows:

a. Local Service

- (i) There are 22 Bell Operating Companies, such as New England Telephone. They are organized into seven Bell regional holding companies, such as NYNEX. These local exchange companies provide the bulk of local service. They are restricted to service within their Local Access and Transport Areas ("LATAs"), and may not enter long distance communications. They are regulated by various bodies, primarily state commissions and the FCC.
- (ii) There are more than one thousand independent telephone companies, of which the largest is General Telephone & Electronics ("GTE").

- (iii) Various "by-passers" compete with the BOCs by using technologies including:
 - a. Cable television;
 - b. Point-to-point microwave;
 - c. Digital Termination Service ("DTS"), a two-way point-to-point switched microwave service ;
 - d. Fiber optic links;
 - e. Infrared transmission, which does not require an FCC license.
 - (iv) Shared Tenant Services ("STS"), is a hybrid new form of local transmission, by which landlords resell local service using a PBX and lines leased from telephone companies. The FCC currently is considering whether it should preempt local and state authorities from regulating STS resellers' intrastate rates.
- b. Long distance service.
- (i) AT&T controls about 85% of interexchange service.
 - (ii) Other common carriers ("OCCs") such as MCI, GTE/Sprint, Satellite Business Systems ("SBS"), and ITT provide the rest.
 - (iii) "Resellers" of long distance (including in part the OCCs, which often lease lines from AT&T) and many others buy long distance service at bulk rates and retail it at a profit to smaller users.
 - (iv) Lessors of long-distance links include a growing number of railroads, which install fiber optic lines on their rights-of-way.
 - (v) Domestic record carriers, primarily Western Union and RCA, provide mostly telegraph services, and increasingly general data transmission.

- (vi) Specialized companies, including data networks and value-added networks ("VAN") (such as GTE Telenet and Tymnet) provide packet switching and other high-technology services.
- (vii) Satellite carriers (such as RCA), often operating as common carriers, lease transponder capacity to other common carriers and private users.

These networks are substantially free to offer all types of telecommunications services, with exceptions which include the following:

1. Although AT&T can carry electronic publishing or videotex communications for other information providers, it may not provide its own information services until 1989.
2. The BOCs may provide their own information or other data base services only through a fully separated subsidiary.
3. Under the Cable Communications Policy Act of 1984, BOCs may operate video transmission systems -- such as cable television -- only in "rural" areas, which a cable company would find too unprofitable to enter. But the BOCs are free to construct and "lease-back" cable systems to cable companies, as long as the BOCs do not control the systems' programming in any way.
4. Since local telephone companies are rate regulated, an extension of their service offerings is subject to regulatory scrutiny if it affects rates.
5. For local transmission, the situation is very much in flux. Some states have adopted rules to restrict local "by-pass" of the BOCs. In several instances, intra-state long-distance service entry is also

restricted by state rules. Many of these regulations are now subject to litigation.

In addition, certain geographical service restrictions apply. BOCs and other local telephone companies have exclusive franchises for public switched service in their geographic areas, though this exclusivity is being undermined de facto by various forms of by-pass and shared tenant services. Bell Operating Companies cannot enter long-distance or international service. AT&T cannot offer local service. Since GTE provides both local and long-distance, it must divide these operations into separate subsidiary companies.

Common carriage provides access rights to all users, including resellers which offer services in competition with a carrier. Local exchange companies must grant access to all long distance carriers, as long as they pay for access. By 1986 "equal access" -- i.e., equal availability of all long-distance carriers to telephone users -- must be provided to all long distance carriers. Customers indicate their "primary" carrier, to which long-distance calls are automatically routed by a local exchange. Customers also can select a long distance carrier for each call, according to pre-programmed "least-cost-routing" instructions.

The reselling of domestic local and long distance transmission now is legal, available, and extensively used. Recent trends include sharing of satellite transponders, reselling of local transmission by shared-tenant services, and non-BOC coin and credit-card operated public telephones. Resellers do not require certification from the FCC; they need file only a notification with the FCC, if they service the general public. If they make no such general offering -- as in the case of one bank's reselling its surplus transmission capacity to another -- no FCC notification is necessary.

Of particular importance are the rates for access to local networks by long distance carriers. In the past, complex financial accounting rules ("separations and settlements") and formulae provided an internal subsidy from AT&T's long distance service to its local operations. After divestiture, this system has been revamped, with access charges phased in along with equal access for non-Bell long distance carriers. (Since the OCCs are under financial pressure, they oppose access charges that are equal to AT&T's.) The new access charge system partly substitutes carrier-paid access fees for flat subscriber fees, to pay for each subscriber's use of the local network for long-distance calls. Because of the extremely large amounts at issue to the carriers, and because of distributional impact of access fees, access charges have become a very controversial issue.

Other telecommunications charges also are regulated. The BOCs' rates and services are regulated by state commissions, on a rate-of-return basis. Because of the local exchange companies' dominance in local residential distribution, deregulation of these charges is unlikely in the near future.

But if local communications become competitive, as is the trend in business communications, they probably will be deregulated. In domestic and international long distance service, rate regulation is already on its way out. The OCCs need only file tariffs. Internationally, only AT&T (and the Hawaiian Telephone Company on some Pacific routes) are "dominant carriers," and thus subject to rate regulation. In practice, the FCC supervises rates quite laxly. Domestically, regulation of AT&T's rates has shifted from protecting users against monopolistic price increases, to insulating competitors from predatory price reductions. Long-distance rate regulation is likely to disappear as the OCCs establish themselves.

6. Local Telecommunications

One of the immediate concerns of U.S. commentators had been the effect of the AT&T divestiture on rates for residential subscribers. Figures of 300% increases were frequently cited.

So far, local increases have not been as dramatic as many have feared. For example, during the first eight months of 1984, rate increases that have been approved by state PUCs -- using raw data from the Commerce Department's National Telecommunications and Information Agency ("NTIA") and weighing states for their telephone population -- have been calculated by the authors as follows: average residential flat rates in urban areas have gone up by 11.96% to \$15.68. Rural residential flat rates have gone up by 17.59%; but since they started from the significantly lower base of \$11.35, the increase in dollar terms (\$1.60) is slightly lower than that for urban residents. Average rates for urban business service have increased by 12.38% -- in dollar terms an increase of \$3.88 to \$35.29 for a one-line flat rate service. On the other hand, long distance rates and equipment prices have decreased by 5% and 11% respectively. Taking into account all of these charges as well as increased installation charges and the inflation rate, average residential flat rate customers' rates apparently have increased in 1985 by about 8% in real terms.

The predictions of steep rate increases did not take into account the fairly swift working of the political/regulatory system, whose strong opposition permits at most only a very gradual phase-in of increases in local service rates. Furthermore, social safety-nets in the form of "life-line" service for the needy have sprung up across the country. Overall, it is unlikely that residential customers will bear the full cost of their service; it is more likely that there will

be some alternative form of subsidy, either internal -- to the extent that this will not lead many business users to "by-pass" the system -- or through some form of a communications surtax for a universal service fund. Finally, rate pressures are forcing local exchange telephone firms and their holding companies to cut costs and find new business opportunities. Competition for procurement has driven down prices for central office switching equipment. The result is that residential users are not likely to be as badly off as it seemed at first; but they clearly will pay more than before divestiture, unless they have many long-distance calls. A strong sentiment for supporting the poor and elderly in their telephone usage is evident. The argument of positive social and economic externalities for broad-based participation in the public network has been accepted, and the commitment to universal service is strong.

7. Bypass

One of the most important recent developments in American telecommunications is the emergence of competition in local telephony -- a phenomenon usually referred to as "bypass". There are now a dozen or more options for local communications links. They are summarized in the attached table, prepared by the authors for Manhattan.

Price Comparison of Local Transmission Links

(Manhattan; leased lines or channels; 5 miles unless noted)

<u>Transmission Medium</u>	<u>Price per Month (leased)</u>	<u>Capacity (Kilobits per second)</u>	<u>Price (per 1 kilobit per second transmission capacity)</u>
Switched Voice Grade Circuit	117.16(a) (69.16)(b)	1.2	97.60 (57.60)
Direct Analog Data Communications	236.40(c)	9.6	24.60
Digital Data Service	373.00(c)	56	6.70
T1 Line	2645.26(c)	1,544	1.70
Fiber Line	2644(i) 13,500	1,544 44,736	1.70 .30
Coaxial Cable Line	1750(m)	1,544	1.15
Point-to Point Microwave	1200(k) 1000	6,132 1,544	.20 .65
Digital Termination Service (DTS)	600(l)	56	10.71
Multi-point Distribution System (MDS)	5,000(j)	3,088	1.62
Satellite Transponder	110,000(d)	64,000 (max of 1,544 Kbps)	1.70
Cellular radio	2,000(e)	.3(f)	6667
Infrared	400(g,h)	1,544	.25

Because the top 3% of customers typically account for 50% of their revenues, telephone companies are susceptible to major revenue loss if they lose some of their best customers; and the fixed cost of maintaining the network then must be distributed among the remaining subscribers, resulting in rate increases and further incentives to bypass or drop off the network altogether. The federal regulatory response to this problem has been to impose end user access charges.

Unlike MCI, AT&T has been cautious in pursuing the bypass route, partly because of the MFJ's restrictions, and partially because of political reasons. AT&T cannot afford to antagonize the local telephone companies, which are the primary customers of AT&T's equipment.

The incentive for AT&T's bypass is large, however, considering that in 1984 it paid local telephone companies \$17.4 billion for access charges, which on a per call basis, was much more than its long-distance competitors had to. AT&T already has set several regulatory steps in motion to provide customers with a direct hookup to its long-distance service. Recently, it has linked up with "Teleport" to have direct access into Manhattan outside the local BOC.

Roughly two-thirds of AT&T's costs in providing long-distance are for access to local networks. For local telephone companies, payments from long-distance carriers are about one-third of their total revenues. It is a lucrative business for local companies. For example, New York Telephone charges AT&T seven to eight cents per minute for a connection, with only three to four cents per minute of costs. Given the size of these figures, even small changes in regulatory policy on access charges make a big difference to AT&T and the local companies.

Similarly, local telephone companies can bypass their own switch.

Partially they do so already, in the sense of leasing private lines that permit their customers to leave the public switched network. A lease presumably is a lesser evil than losing such customer traffic altogether.

Regulators find themselves in a dilemma. As they restrict telephone companies from providing bypass services, or permit them to match the bypassers' lower prices, they may only accelerate the departure of large users. This has led to different responses. A number of states have permitted local telephone companies to price their services competitively. On the other hand, the California Public Utilities Commission has considered banning intrastate carrier bypass, thus taking the opposite approach.

8. Long-Distance Telephony

Residential and business users are beginning to benefit from the head-to-head competition of long distance companies. As equal access for all long-distance carriers is successively instituted, the rivalry for the subscribers has become intense. Even AT&T has started giving its users Green Stamps discount coupons for various items of merchandise! The rates of AT&T's competitors are already unregulated. AT&T recently lowered rates by 6.1%, and has attempted to offer customers block-buying schemes. The FCC's approach seems to be to let AT&T lower its prices only slowly, to permit the growth of its competitors, some of which are experiencing problems at present. Most likely, when AT&T's market share has fallen to about two-thirds of the total, its long-distance rates will be deregulated. At present, AT&T claims that it is losing 5,000 customers a day, many of whom are among the heaviest callers. At the same time several companies, including railroads, have embarked on major investment programs in

transmission facilities. The primary problem for customers is in the installation of private lines. Coordination problems between AT&T and the local companies have created a major backlog of orders. But there is no reason to expect that the problem is more than transitional. The argument of economies of scale, perhaps the key economic underpinning for a maintenance of monopolistic supply, has been overrated. Much more significant is the fact that the existing rivalry is forcing AT&T's competitors to move their cost curves downwards. The move of the cost curves is a chief characteristic of the new regime. The reliance on this shift through the dynamics of market competition, as opposed to the goal of moving down a static curve, basically is the difference of the new and the old U.S. approaches.

Another fundamental but incipient economic problem of telecommunications competition has not been well anticipated. It is the problem of unstable competition. With the expansion of the various long distance networks, overcapacity is likely. With low marginal cost, price wars should be expected -- a situation that would not permit a recovery of total costs. In such circumstances, one can expect the re-emergence of some forms of stabilizing rate regulation. GTE-Sprint already has petitioned the FCC to continue to lower access rates for AT&T's competitors. Survival of some carriers may be in question. For example, SBS, formed originally by IBM, Aetna Insurance and Comsat, has been sold to MCI after persistent losses. This move strengthens MCI, whose primary goal at this point is to establish itself as the clear Number Two. It has been widely interpreted as an entry by IBM into the long distance field. Actually, it would be more correct to see it as a semi-exit, since IBM's partial ownership in MCI could be increased (or decreased) in light of circumstances.

9. The Equipment Market

The connection of terminal equipment to the interstate network is regulated by the Federal Communications Commission under 47 U.S.C. § 201 et. seq. (1982) and 47 C.F.R. § 68.1 et. seq. (1985). Part 68 sets minimum technical standards for equipment, in order for it to be connected to any BOC or other local exchange. 47 C.F.R. § 68.2(a)(1),(2),(3),(4) (1985). The FCC's objective is to provide uniform interconnection standards to protect the telephone network from improper terminal equipment and wiring.

Because interconnection standards are uniform, terminal equipment users have equal access to the telephone network. All vendors must register their products, however, with the FCC prior to marketing them. 47 C.F.R. § 68.200 (1985). Registration requires the disclosure of a unit's technical specifications, so that the FCC's staff can identify any possible system degradation prior to installation of the equipment. But there is no formal approval process.

The U.S. market for equipment had been competitive in the past only in the procurement by independent telephone companies and OCCs. AT&T was precluded from that market, but many other companies were active in it, including Ericsson and Northern Telecom. On the other hand, the vast Bell system, comprising 80% of the total market, was foreclosed by its ties to AT&T's manufacturing subsidiary Western Electric.

The AT&T divestiture radically changed the network equipment market. By severing the link between the BOCs and AT&T, it freed the former from buying only from AT&T Technologies, Western Electric's new designation. (AT&T also markets equipment through its fully separated subsidiary AT&T Information Systems, a relic from the Computer II attempts to deal with AT&T's

market power through internal reorganization.)

Although most analysts expected the BOCs to cling to AT&T as their equipment supplier, the BOCs in fact have embraced a wide variety of non-AT&T equipment quite rapidly. To a certain extent, they are responsible to their state regulatory commissions for using low-cost suppliers, absent offsetting factors. In one instance involving a telecommunications link allegedly affecting defense communications, the Defense Department reportedly expressed preference for U.S. equipment. But aside from this episode, the opening of the U.S. market to foreign network equipment has been rapid. In 1984, Northern Telecom had a market share of 43% for network elemental digital switches -- double that of AT&T. Foreign suppliers -- such as CIT-Alcatel, Siemens, NEC, Ericsson and Plessey (and ITT's European subsidiaries) -- also are about to enter this market aggressively. The BOCs are encouraging competition, since it has driven prices down for them. For example, the market for digital switches has been booming. Although the lion's share will go to Northern Telecom and AT&T, most BOCs will place at least ten to fifteen percent of their orders with third suppliers for reasons of cost and independence.

Network standards are coordinated for the local companies by Bell Communications Research (Bellcore). Bellcore does not seem to be using its role to set standards favoring AT&T or U.S. manufacturers. Neither the U.S. Executive, the FCC, nor state commissions have shown a desire to set standards, beyond those already in place.

As in long-distance transmission, AT&T's market share has no way to go but down. AT&T's market share for its PBX equipment dropped from 51% to 22% over the last decade. AT&T's production of new equipment has been

hampered by shortages in chip-making capacity. The company is now embarked on vigorous cost cutting; but it is bound by labor contracts which disadvantage it in comparison with its frequently non-unionized competitors. These labor contracts are up for perhaps difficult renegotiation in 1986. According to some analysts, AT&T's cost for product installation and maintenance is \$61 per hour, as compared to \$33 for IBM and \$28 for MCL. The trend is unavoidably in the direction of labor confrontations, which will reduce or eliminate the traditional familial work attitudes at AT&T. AT&T also suffers from its relative lack of production orientation and marketing expertise, which is essential in highly competitive markets. The market for small computers and PBX equipment is sophisticated as to performance characteristics, and has no great respect for big names -- as even IBM has learned. This market demands innovation, rapid production cycles, strong support systems, and competitive pricing. even for a technological leader such as AT&T, which has entered with a line of 3B minicomputers and system 76 PBX and personal computers, this has proven to be a major challenge that was only partly overcome,

There had been high expectations of AT&T's role in the computer field. Here, AT&T's main trump is its Unix operating system. Unix has "portability" and programming flexibility, and can run on almost any computer; applications software for Unix can be used for all machines. Unix has a wide and devoted following in universities. But AT&T may not profit from it very much, because it has been slow to license it to other computer manufactureres and thus to make it the industry standard. For a while, even IBM was a licensee; but the newest IBM Personal Computer AT uses a Unix-like system named Xenix, written by the software house Microsoft. AT&T thus may be left out in the cold in terms of

royalties, probably reducing its computer revenues in 1988 from an estimated \$4 billion if Unix were the industry standard, to half that much. AT&T has tried to prevent this by incorporating Unix into microprocessor chips themselves, to be the lower cost producer of Unix-compatible computers. Ironically, the AT&T induced a revolution in operating software, but is merely helping its many rival adaptations; in the long run, Japanese computer manufacturers, whose weakness in software design, may benefit from Unix's flexibility.

In less sophisticated markets, consumers are able to buy inexpensive telephone sets for less than \$10 at a corner hardware store, plug them in, and throw them away if they break, just as they do with a toaster. The prophesized major problem in determining the cause of faulty service has not materialized for residential users.

AT&T has reorganized itself around the two product lines of equipment (AT&T Technologies, 40% of revenues) and long distance service (AT&T Communications, 60% of revenues and most of the profits). AT&T Information System encompasses the short-lived fully separated subsidiary American Bell. AT&T Technologies is barely profitable, reportedly due to the complexity of its structure. Further major cuts are expected. The unit is said to generate only \$39,000 in revenue per employee, as contrasted with \$93,000 for IBM.

In one instance, AT&T claims to have cut its production cost on a telephone receiver from \$2.30 to \$.99 within one month. In June, 1984, AT&T announced the goal of cutting its cost in all manufacturing divisions by 20-25% within a year. The company has closed four of its older plants, consolidated other operations, imposed a pay freeze on its 114,000 management-level employees (for a \$185 million saving) as well as thousands of its workers (the

goal is 13,000), and laid off thousands of others. It even sold the headquarters of its manufacturing arm, Western Electric. In long distance transmission, operating costs for AT&T have been estimated by a respected financial analyst to be 34.2 cents per revenue minute, compared to 17.9 cents for its rival MCI. This seems to indicate a substantial potential for cost savings in the old AT&T system, which had been admired as a paragon of efficiency.

10. International Equipment Trade

In the telecommunications equipment market, the divestiture has led to the emergence of AT&T as a competitor in world markets, a sharp break with the past. For more than fifty years AT&T had to stay out of international equipment activities, despite being the largest equipment manufacturer in the world.

With constraints removed, and with the need to diversify its scope of operations, AT&T has embraced an international orientation. To gain European acceptance, the company has restricted itself to alliances with European domestic companies, as a way of establishing beachheads. Given the nationally protected nature of the European markets and AT&T's lack of international experience, this strategy seems to be the most realistic way for AT&T to establish its presence in Europe. Some major instances are AT&T's purchase of 25% of Olivetti in early 1984, its cooperative agreement with Philips, and its manufacturing investments in Spain, Ireland, and Korea.

Protectionism in telecommunications has been traditional in most industrialized countries, with the result that few domestic markets are open, thus greatly limiting trade opportunities and fragmenting the market. In order to overcome this, there have been proposals to open the European domestic

markets to other European manufacturers, while restricting North Americans and Pacific countries.

But trade is a two-way street. Ironically, the very U.S. liberalization which is raising anxiety and protectionism in its wake is providing foreign manufacturers with opportunities in the U.S. equipment market. The BOCs which had relied largely on Western Electric equipment prior to divestiture now are free to obtain equipment from other suppliers, and are doing so actively.

The opening of the American market is among the best news that many firms have had for a long time. As mentioned, European markets are largely compartmentalized, and demand has declined in the Third World, including the oil producing countries. In addition, many countries use the expansion of their telecommunications networks to spur their own domestic electronics firms, by relying on a less than state-of-the-art technology suitable to local servicing skills. Often these countries have set up domestic equipment manufacturers with government protection similar to those of advanced countries. There thus are a very limited number of markets for telecommunications equipment which are really open. The OECD estimated that in 1982 open markets accounted for less than 10% of the world market. In fact, by far the largest such market is now the U.S. The irony is that some of the most avid advocates of protectionist policy in national telecommunications equipment now are seeking their fortunes in the newly-liberalized U.S. market! This asymmetric situation presumably cannot continue for long. It is highly unlikely that the U.S. will stand by passively if other countries can freely sell equipment in the U.S., while U.S. manufacturers are shut out of European markets. Given the presently ballooning U.S. trade deficit, undoubtedly the U.S. would press for reciprocity. The

opportunity to enter the U.S. market thus is in fact a double-edged sword, because it threatens by its dynamics to bring about a reduction in protectionism outside the U.S.

11. International Telephony

American deregulation has particularly affected international telecommunications services. In this area, U.S. policy has restructured the rules of the game radically within a short period of time, thus forcing their correspondents across the oceans to adjust, often unwillingly, to the new situation.

Historically, U.S. regulation of telecommunications firms had carved up the global market into distinct segments, each assigned to different carriers. These included domestic telephone carriers, domestic telegraph carriers, domestic satellite carriers, international voice carriers, international record carriers (IRCs); the international satellite carrier, the international marine cable consortium, and carriers for domestic non-voice satellite communications. Though AT&T participated in several of these market segments, as a rule the different sectors and firms were segregated from each other. This situation was largely unstable, perhaps because of its high profitability. The artificial nature of the market segmentation became evident and led to policy responses within a relatively short time, in which the FCC largely eliminated the rules which prohibited AT&T and the IRCs from entering each others' markets. The International Record Carrier Competition Act [Public Law 97-130, DEc. 29, 1981] eliminated the separation between domestic and international telegraphy that had kept Western Union and the IRCs apart. The FCC also is about to

permit new entrants into international satellites and submarine cables.

The emergence of new American international carriers challenges the orderliness of the carefully protected international telecommunications regime. There are potential benefits for other countries, however, in this situation. Since they are the only address within their countries for AT&T, MCI, and others, PTTs are in a position to choose which American carrier will be allowed access to their market, and can play off -- or "whip-saw" -- the rival American carriers to obtain advantageous agreements. To prevent whip-sawing, the FCC has required that international settlement arrangements be uniform for identical routes, thereby trying to establish a U.S. cartel on settlement agreements.

The new carriers are less than happy with these anti-whipsaw rules. In order to be admitted into otherwise hostile territory, the would-be U.S. entrants need to offer attractive deals to the PTTs. Their ability to compete with AT&T for PTT business is severely reduced by this type of rule. AT&T's competitors thus argue that although the PTTs may benefit from whipsawing, at the same time they may be "infecting" themselves with this competition.

12. Conclusion

What does all this add up to? When the AT&T divestiture was announced, both U.S. critics and foreign observers interpreted the settlement as a victory for AT&T, which had shed, it was believed, the sluggish and regulated parts of its business and gained the rights to the world of the future, the new information technology. This interpretation disregarded the long fight that AT&T had waged to preserve its end-to-end vertical integration, which was the cornerstone of its corporate philosophy. It also ignored the FCC's Computer II decision, which,

preceding the divestiture by about a year, had opened competitive markets to AT&T under a structurally separated subsidiary. And it was simply wrong-headed in believing that a monopolist would do well in the new world of competition. So far, the experience has been sobering for AT&T, its shareholders, managers, and employees, who had to lower their expectations and run much harder than before.

It is important not to confuse the health of AT&T with that of U.S. telecommunications. The infrastructure is alive and well. A glance at the trade press's torrent of announcements of services, products, ventures and market entrants shows the feverish vitality that characterizes all parts of communications. Indeed, precisely this vitality may undermine the economic rationale for the divestiture -- namely to separate the competitive and monopolistic sectors of telecommunications from each other. As this artificial institutional separation crumbles under technological reality and the regulators' desire to give local exchange companies new sources of revenue for rate relief in residential and rural telephony, the AT&T divestiture increasingly may become a mere size-reduction for a giant firm, into a set of mini-AT&Ts, coupled with liberalization. This would be less of a functionally targeted and elegant economic separation that the MFJ's Justice Department originators and Judge Greene had envisioned. Indeed, Judge Greene is busily trying to stem this tide by restricting the regional holding companies. These efforts demonstrate that the lessons of the past -- the futility of structural solutions in a dynamic environment -- have not been learned.

The U.S. telephony market thus seems to have come through the AT&T divestiture in comparatively good shape. Despite dire predictions, the BOCs have used their local networks to generate revenues attractive to the investment community. At the same time, their "captive consumer" status with AT&T as an equipment supplier has evaporated, thus opening up the terminal and switching equipment market to dozens of new companies. Despite its retention of long-distance, hardware and eventually "enhanced services" activities, AT&T seems to be in the most precarious position; its traditional markets in long-distance service and telephone equipment are eroding rather quickly. As is the case in most major human events, where all of these entities will be by 1990 is impossible to predict.