Dynamics of the New Local Communications Markets

Competition and "Local" Communications:
Innovation, Entry and Integration

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1. Introduction

"Local" communications, but for regulation, is about to become an anachronism. Its utility as a meaningful economic concept has faded. Its viability rests solely on the continuation of state and federal regulatory distinctions and the enforcement of the provisions of the Modified Final Judgment (MFJ). The MFJ provisions -- which are now nearly 10 years old -- set up artificial LATA boundaries to separate inter- and intra-exchange calls. The size of LATAs reflected the minimum traffic requirements considered necessary a decade ago to ensure competition for interLATA services rather than any technical or economic requirements or "natural monopoly" characteristics present in the "local" exchange.

In this paper we suggest that if the local exchange was ever a natural monopoly by virtue of underlying cost conditions (rather than regulation), the imminent introduction of new local access competition using existing and new technologies will prove it is no longer. We question whether the fundamental economics of the local exchange really requires regulation of local telephone service rather than the narrow regulation of interconnection. Furthermore, we point out that technological development is sharpening competitive forces in practically all aspects of telecommunication, blurring competitive distinctions of all kinds, and requiring new organizational forms. Moreover, the willingness of some local exchange providers like Ameritech and Frontier Corp. to unbundle has laid the foundation for a further rollback of regulation in several parts of the country so that competitive forces, currently checked by regulation, can be unleashed.[1]

With the removal of regulation an avalanche of new services will be advanced which will greatly benefit consumers and U.S. competitiveness. We also contend that because of regulatory lags, regulation must take a forward looking perspective and attempt to deal with the industry as it will be, not as it was. This is particularly true when technology is advancing rapidly. While there is often considerable uncertainty with respect to the way technologies can unfold, there is often enough definition to the trajectory of technology to enable one to take the future into account without making egregious errors. Thus, in our view, it is appropriate to minimize constraints on an industry with only modest competition which is nevertheless being inexorably propelled towards greater competition.

2. Local telephone service as a "natural" monopoly?

Background

John Maynard Keynes remarked over half a century ago that "in the field of economic and political philosophy there are not many who are influenced by new theories -- so that the ideas which civil servants and politicians and even agitators apply are not likely to be the newest."[2] Civil servants, politicians, agitators and even some economists have been far to quick to see the local exchange as a natural monopoly. "The defining characteristic of natural monopoly is the necessity to have production done by a single enterprise if costs are to be minimized."[3] To the extent that the regulation of the local exchange has any grounding in economic theory, it is in the theory of natural monopoly. According to this theory, in industries characterized by cost conditions such that market demand is insufficient for all but one supplier (the "natural" monopolist) to install facilities of optimal scale, society is better off accepting the condition of monopoly -- since industry costs are thereby minimized -- but then regulating to prevent the charging of monopoly prices.

The traditional case for regulation assumed the existence of a "natural" monopoly -- a situation where economies of scale persist over all relevant ranges of demand so that a single firm can serve the market at lower cost than two or more firms. Textbook treatments (e.g., Scherer 1980) then typically use electric power and gas distribution, local telephone service, rail transport between small and medium city pairs and the long distance pipeline transport of petroleum and gasoline as examples of natural monopolies. It was often assumed, because detailed analysis was rarely performed or even reported, that regulation was necessary in such instances to protect consumers from the monopoly pricing behavior.

Recently, however, the scholarly literature has begun to recognize that natural monopolies are not only extremely rare, but that they do not necessarily have to be regulated. The theory of contestable markets demonstrates that it is not necessary for large numbers of actively producing firms to be present to produce efficient outcomes. Where costlessly reversible entry -- sometimes referred to as "hit and run" entry -- is possible, firms which are characterized by economies of scale will still price at efficient levels. Put differently, the threat of potential competition can, under certain conditions, produce efficient outcomes even in markets where there is only one supplier, or where a single supplier holds a substantial market share. The argument here, however, is not that markets characterized by natural monopolies do not need to be regulated. Although in some circumstances that is true. Rather, the proposition that the local exchange is not a natural monopoly any more, if it ever was.

In the telephone business, local telephone service has almost since the beginning been provided by a copper pair of wires strung to each house. Since the major cost of providing local phone service was the cost of the wire, and the wire was sufficient to carry the calls of each customer, it was significantly cheaper to have a single provider of local services. The cost savings from a single provider led to the widespread belief that a "natural monopoly" existed.

3. History

An historical perspective can help to explain the current status of telecommunications provision as well as to understand the nature of the need for a network of networks[4] and the organizational

structure to enhance innovation. The development of the telecommunications infrastructure in the U.S. illustrates several points that are important for analyzing the current and likely future status of the telecommunications industry: 1) competition existed in the local exchange in the early days; 2) the industry may well have continued as competitive if AT&T had not invited regulation upon itself; 3) interconnection was, and remains, the primary requirement for supporting a competitive and efficient telecommunications industry.

The Era of Competition

The telephone initially competed with the telegraph. Moreover, Western Union, the dominant provider of telegraph services formed the American Speaking Telephone Company in 1877 to go after the telephone business. Western Union hired Thomas Edison to advance the technology and he quickly came up with the carbon transmitter which provided voice quality superior to Bell, thus giving Western Union a considerable competitive advantage. With Theodore Vail as CEO in the late 1870s, Bell competed head to head with Western Union in installation, racing to install exchanges in large cities and pushing on technological development. Bell's ability to install phone lines was hindered by Western Union's control of the telegraph lines because Western Union refused services to places that installed Bell telephones, thus effectively prohibiting Bell installation in hotels, railways and newspaper offices that needed Western Union telegraph services.[5]

In September, 1878, Bell filed a patent infringement suit against Western Union over its telephone patents. As part of a settlement to this litigation, in 1879 Western Union agreed to withdraw from telephone service for seventeen years and to sell its telephone business -- then 56,000 subscribers in 55 cities -- to Bell. In return, Bell agreed to stay out of the telegraph business. Bell kept its rights to compete against Western Union for long distance services. Thus Bell was free to compete with Western Union at all levels, so long as it stayed out of telegraph, but Western Union and the telegraph was basically killed as a competitor to Bell.[6] It is unlikely that such an agreement would be sanctioned under the antitrust laws in place today. (At the time, however, the telephone and telegraph were complementary as the telephone technically did not have the capacity for long distance services and the telegraph was not competitive for local service because it required skilled operators. The telegraph increased the value of telephone service by allowing long distance communication.)

From 1879 on, Bell had a virtual monopoly on telephone service until its patents expired in the mid-1890s. Following the 1879 Western Union agreement, the Bell Company was reorganized as the American Bell Company in 1880. The agreement eliminated Bell's strongest competition and according to one observer, "left Bell close to the position of a textbook pure monopolist until 1894."[7]

Bell's market position was not based on natural monopoly; rather it was based on Bell's patent position and its market division arrangement with Western Union. In 1893 and 1894, with the expiration of two key Bell patents -- though another 900 or so covering every aspect of the telephone and related equipment remained alive -- entry rapidly occurred, despite the network externalities and scale economies that Bell enjoyed.[8] In 1894, 80 commercial systems and seven mutual systems were established. By the end of the year, new entrants had 5% of the market, or 15,000 installed phones. "By 1900 telephone competition was widespread."[9] (By 1902, 3,000 non-Bell commercial systems had been established.) The non-Bells controlled 38% of the installed phones in the U.S., and "provided direct competition to almost all Bell operating

companies."[10] The large number of providers present and viable does not appear to be indicative of strong natural monopoly conditions.

Generally Bell prices fell after competitors entered.[11] Bell itself pushed to compete by expanding its long distance offerings, which it did through innovation and investment. Competition clearly worked; in fact it worked very well, despite the lack of interconnection. Moreover, " the price reduction, selling efforts and service improvements of the competitive era created a dramatic surge in telephone demand -- the total number of telephones doubled during the last 10 years of monopoly, but were multiplied by a factor of 12 during the first 10 years of competition."[12]

As Bell lost market share to the independents, it began a series of mergers and acquisitions. This policy reversed Bell's decline in market share. The political opposition to Bell began to mount, however, so in 1913 the company entered the Kingsbury commitment with the Department of Justice. The Kingsbury Commitment required AT&T to interconnect its long distance service with the remaining independent telephone companies and be subject to state and federal regulation. It did not have to divest any operating companies other than Western Union, which it had acquired five years earlier. In addition, it was able to continue to acquire local telephone operating companies. In fact, in 1921, Congress immunized telephone and telegraph company mergers from the antitrust laws.[13]

The Era of Regulation
While the market had clearly demonstrated that it could support competition, the political winds in the early decades of this century favored regulation. Vail's strategy was to embrace regulation rather than to fight it. In Bell's 1907 annual report, Vail stated:

> "It is contended that if there is to be no competition, there should be public control. It is not believed that there is any serious objection to such control, provided it is independent, intelligent, considerate, thorough and just, recognizing, as does the Interstate Commerce Commission in its report recently issued, that capital is entitled to its fair return, and good management or enterprise to its reward."

In a 1915 speech, Vail forthrightly stated that regulation "is as necessary for the protection of corporations from each other as for protection to, or from, the public." With the support of both Bell and the independents, the Interstate Commerce Act was amended in 1910 to bring interstate telephone companies under the jurisdiction of the ICC. Regulation simultaneously stabilized rates, increased the difficulty of new entry and calmed public criticism of Bell. Regulation in subsequent decades helped maintain AT&T's dominance against the threat of new technologies, such as microwave radio. With the assistance of regulation, social subsidies were strengthened at first to advance Vail's vision of universal service, then subsequently to redistribute income. The economic concept of natural monopoly was used to ratify the logic of regulation.

The divestiture of AT&T in 1984 supposedly marked the separation of the "natural monopoly" portion of the telecommunication infrastructure from the competitive portion. Divestiture was accomplished with such a broad brush, however, that "natural monopoly" boundaries, if they existed, could not possibly have been honored. In addition, changes in technology since divestiture, both in the "local" exchange and long distance transmission, have

significantly altered the economics of transport such that any relation of the LATA boundaries to fundamental cost discontinuities must be purely coincidental.

Changes due to technological advance since divestiture are continuing, pushing at the boundaries of the local exchange from many different directions. The next section will explore the variety of technologies that are and will soon be available and how those technologies affect the economics and definition of local service.

4. New technologies and and the "natural monopoly"

For the past 20 years, technology has further challenged the notion of the natural monopoly. Technology is not only making the local exchange more susceptible to competition, it is further blurring the distinction between interexchange and intraexchange services. Regulatory distinctions between categories of service themselves affect technical choice and network design and therefore may themselves be an important factor in determining the direction of innovation and the nature of competition.

For example, the introduction of fiber optics into the telephone networks has significantly reduced the cost of transport so that the cost of calls is very insensitive to distance. As a result, depending on the amount of switching, the real resource cost of a 10 mile "local" call may not be very different than the cost of a 100 or 1,000 mile long distance call. However, because of regulation and imbedded subsidies, the prices for these calls may be very different. In response to these price-cost discrepancies, many companies have been able to arbitrage the difference, and route calls through the least cost jurisdiction even if it is not the least resource cost routing. This results both from the implicit subsidies as well as the decrease in cost of call transport.

The implementation of fiber optic technology is not the only change that is affecting the economics of local communications. There are a variety of technological advances that have lowered local exchange costs, changed the nature of local exchange costs to threaten the natural monopoly and reduced the difference between long distance and local telephone calls.[14]

New enabling technologies have and will lead to alternative provision and enhanced provision of telephone service. The advance of technology has come in many different arenas and from many different enterprises in response to several different regulatory regimes. Especially pertinent to the discussion of "local" telephony are the impact of radio based technology, the introduction of fiber optics and significant advances and decreases in prices of microelectronics and computing power.

Radio based technology
Radio based technologies are rapidly increasing quality, capacity and decreasing costs of wireless telephone service. The combination of these three factors makes radio based local loops much more of a competitive threat to the traditional wireline based local "natural" monopoly. Radio has gone through a series of advances since it was first introduced. These advances are currently most evident in the explosion of cellular phone usage that has occurred over the past ten years. Last year, there were more new cellular phone "lines" activated than local exchange lines. Despite its success, and the predictions that cellular might compete with landline service, it has yet to provide significant price competition for landline telephone service.[15] In some respects, this may be due to capacity limitations and the inability of providers to price discriminate for mobile versus fixed service. The first problem, capacity constraints, is in the process of being

rectified for the majority of the country with the conversion to digital signaling. Digital cellular transmission is expected to bring an immediate 3-fold increase in capacity. System capacity at that level will be sufficient to provide a competitive alternative to wireline service in all but the very largest areas of the country.[16]

Although cellular is currently providing only modest competition to landline service, several factors are likely to reduce cellular prices in the near future and make it more of a competitive alternative to landline service. Cellular is likely to face price competition from two sides in the near future. Nextel has begun implementing its digital, cellular specialized mobile radio (SMR) service in Los Angeles and other cities and is endeavoring to provide national coverage. The addition of a third high quality mobile service provider would expand capacity further and put downward pressure on prices. Other SMR operators also appear to have plans to introduce digital cellular technology to their networks.

In addition, future wireless competition will put pressure on both cellular and landline service. PCS is expected to provide mobile communications and to add significantly to wireless capacity. Because the higher PCS frequencies have limited effective ranges, the handsets will be smaller than comparable cellular phones. However, the systems will require significantly more cells, and thus may impose limitations on mobility, but will provide concomitant increases in capacity. This will cause them to charge lower prices than cellular systems and serve as competitors to portable and wireline phones in addition to many portable cellular phones.

The additional capacity offered by the introduction of digital signaling and the increase in spectrum available for mobile communications will eliminate the capacity constraint in most areas. At that time, service prices should be based on the cost of installing the infrastructure and maintaining the system. In many cases, these costs will be comparable to, or lower than, the costs faced by a traditional wireline company. Especially as one moves away from dense urban areas, wireline costs increase, spectrum scarcity decreases and cell siting becomes less expensive. As a result, the wireless technologies become much more competitive with wireline service.

In addition to terrestrial-based radio projects, there are a number of different satellite projects projected to begin service in the next few years. Motorola has proposed a Low Earth Orbit (LEO) satellite project called Iridium to provide world-wide satellite service interconnect to the landline network. There are a number of other "Big LEO" satellite system that have recently been assigned spectrum by the FCC and who propose to begin service in the near future. In addition, a number of other satellite systems, propose to provide ubiquitous high speed, high capacity service anywhere in the country. Although these services may be relatively expensive they will provide alternatives, especially in high cost areas and may someday turn "local communications into global communications.

Fiber optics

Fiber optics have dramatically changed the nature of competition in communications. Because fiber is so much more efficient than microwave technology, the cost of transmission of calls is much less sensitive to distance than it was at the time of divestiture. Because of the negligible cost differences, it is hard to determine why a 10 mile call should be "local" and a 100 mile call long distance. The decline in transmission costs will lead to the substitution of fiber for switching. It will become more cost effective to circuitously route calls over fiber networks if it allows the network to minimize its switching costs, if the cost of transmission decreases relative to the cost of switching.[17]

Fiber has not only affected the cost structure of the interLATA carriers, it has become an integral part of the local exchange. Local telephone and cable companies are racing to introduce fiber into their networks. Just as Bell and the other telephone companies competed to wire networks, current competitors are racing to be the first to have a high capacity two-way network and to reap the benefits of early adoption. There are many issues to be resolved about the introduction of fiber -- whether it will be fiber to the home, fiber to the curb or fiber to the neighborhood -- but it is clear that fiber and its carrying capacity have had a strong impact on the nature and cost structure of communications.

The development of fiber optic technology has led to the first competitive alternative to the LECs -- competitive access providers. CAPs have deployed fiber optic networks through dense downtown areas. In addition to the arguments that they are able to avoid the social subsidies embedded in LEC access rates, the CAPs claim that they are satisfying a need for high capacity, high quality, high speed data transmission links. Without the transmission quality of fiber, CAPs would not be able to fill this need and therefore might not be able to justify their existence, and the competitive pressure they bring to bear on LEC rates.

The preceding two sections show the complementary nature of the competitive effects of fiber and wireless technologies. Fiber is being introduced by CAPs and cable companies in dense urban areas to provide high capacity service. In these areas, the costs of wiring per telephone is relatively low since the density is high. In these areas, spectrum is also relatively scarce and expensive. Construction and operation of a high quality cellular-like system would be expensive because of the opportunity cost of the spectrum, the high price of the land rental for cell sites and the requirement of a large number of cell sites. On the other hand, in suburban and rural areas, it is more expensive to string wires, but spectrum is less intensely used and there is more choice for cell sites. As a result, technology is changing the nature of the natural monopoly in both high population and low population areas.

Equipment costs

The relentless advance in power and decrease in price of microelectronics and computing technology has had a large impact on the price and performance of customer premise equipment as well as central office switching equipment. For example, these cost decreases affect the total cost of cellular service since the handsets have become significantly cheaper, and operators pay lower prices for incremental switching capacity. Because switching and controller costs have decreased, the costs to provide alternative forms of local access have decreased. Cable, CAPs and radio based carriers will benefit from these lower costs as they begin to compete with local exchange carriers. The decline in microelectronics prices will make it easier for cable companies to compete with LECs. The customer premises equipment to link into a 500 channel interactive broadband network will be significantly cheaper and more sophisticated than it would have been only a few years ago. As a result, even if the cable and telco networks provide different levels of service, the overall competition from the variety of features ensures that the cost reductions to provide cable telephony will make them more competitive with LEC providers.[18]

The pace of electronics advance has blurred the distinction between transmission and switching as well as between central office equipment and customer premises equipment. For example, the increase in central office technology has allowed the offering of advanced voice messaging systems. While these may offer more features than standard home answering machines, they provide direct competition for each other. PBXs are an example of an advance

outside the central office that also increased the competition between central office services, Centrex, and customer premises equipment. PBXs not only provide competition for central office services, but because they provide switching services, they allow users to reduce their use of loops, and to pay for fewer lines.

The next section analyzes the effect of these technologies on the entry strategies of potential entrants into the local exchange.

5. Entry

Entry can be divided into two broad categories: entrants using existing local distribution technology and entrants using new technologies. This discussion will also consider entry in the context of an unbundled network like the one proposed by Ameritech in its Customers First Plan. This analysis seems to be applicable for other regions as well since the FCC has steadily been decreasing the scope of the "bottleneck" and increasingly allowing competition. The recent switched and special access orders and expanded interconnection have opened traffic on the local exchange network to competition beginning just outside the local switch.

Cable companies

Cable companies are positioning themselves to provide local exchange services. Cable companies have capacity to provide transport from LEC end offices to IXC POPs.[19] They are also interconnecting their headends with fiber to offer advertisers the ability to reach region-wide audiences.[20] One indirect, but non-trivial result is the creation of capacity for the transport of telephone calls. Cable companies are also putting fiber further into their networks, giving them the ability to provide end-to-end voice and video service.

Perhaps the most obvious example of cable company entry into telephony is the ownership of Teleport by TCI and other cable companies. In addition TCI's success with its CATV/telephony venture in the U.K. is another example of the cable company's interest in the provision of telephony. Finally, TCI has joined with other cable companies and Sprint to bid in the recent PCS auctions and to form Sprint Telecommunications Ventures which will compete for local service using both wireless and wireline technology.

In a cable and RBOC joint effort, Time Warner/US West recently made a presentation disclosing that they intend to upgrade their physical plant to begin the provision of telephone service.[21] Their proposed service seeks to target residences and small businesses in addition to large businesses. They expect to charge rates that will undercut LEC rates. The partners are both well-financed, experienced companies. Time Warner claimed in its presentation that it has been very successful competing against British Telecom in England.[22]

Time Warner's Orlando, Florida trial is another example of cable competition for local service.[23] The system as envisioned will be based on a fiber optic backbone/copper to the home architecture, digital compression technology and digital storage and switching systems. The network will give the cable company the ability to offer, among other things, voice and data transmission services and PCS. Jones InterCable recently announced a test of telephone service over its cable system. With the help of MCI and Scientific Atlanta, the test will allow users to bypass the LEC and receive faxes while using the phone and have access to interactive games.[24]

Comcast is also poised to begin telephone service.[25] The New York Times reported that Comcast had continuing talks with both AT&T and MCI, indicating their interest in telephone

service. Comcast also is one of the owners of Nextel, a specialized mobile radio company that recently received FCC approval to provide cellular-like service in a number of major cities. Furthermore, Comcast offers cable and telephone service in Britain. In the U.S., Brian Roberts, President of Comcast says "Long term, the cable companies want to look like the phone companies with ubiquitous coverage. We've wired up nearly all the homes, but not the businesses. So that's why we're investing in Teleport."[26]

Once these ventures and others begin offering services to consumers, a significant marketing advantage will emerge. A cable company can package its programming and phone service, offering the customer the convenience of one stop shopping and possibly adjusting the prices of the individual services to convince the customer to subscribe. Such bundling has proven highly successful in the U.K. Cable and Wireless, a British telecommunications and cable company, is now signing-up close to 15,000 residential customers per month through the local cable companies.[27] There is no reason not to expect similar scenarios in the U.S., especially with an interconnected network of networks.

Wireless entry

Wireless carriers provide both immediate and future competitive entry alternatives for local exchange service. AT&T's $18 billion purchase of McCaw Cellular will position wireless technology as a direct competitor to the RBOCs' local telephone business.[28] Their purchases of licenses in the recent PCS auction also give them nearly nationwide presence as a competitive alternative. The company's brand name, marketing prowess and financial resources eliminate any doubt that an AT&T backed cellular venture could quickly become a nationwide player in the local telecommunications services area. Furthermore, the merger places AT&T in the enviable position of being able to offer its subscribers a complete package of local, cellular and long-distance calling.

"Nonwireline" cellular carriers provide nearly ubiquitous service throughout the country. While their "loops" may not currently provide a complete competitive alternative to LEC loops, they are positioned to do so easily. Cellular carriers have sophisticated switches and, in some cases, fully functional networks and office support in place that will allow them to use spectrum for "fixed" loops and to provide competitive local service. Cellular carriers also possess a select set of customers with a high demand for telecommunications services.

Cellular and other wireless carriers appear well situated to provide future competition for the local loop, especially in rural areas where the costs of wireline loops is relatively high. In these areas, spectrum is used less intensively than in major metropolitan areas, so providing competitive wireless loops would not divert spectrum from a relatively more valuable use.

In the future, the combination of leased wireline access and wireless access may give the cellular carriers a unique advantage in marketing to customers. With their new PCS licenses, wireless carriers would provide customers with new options for "loops."[29] In one scenario, the wireless provider can position a cell site directly adjacent to a wireless PBX serving a large corporate complex. The wireless carrier could handle local mobile traffic and serve as the local carrier for all interLATA traffic originating and terminating at the PBX. Though the coverage for the wireless portion of the traffic would be more limited than for wireline traffic, the volume of traffic, combined with the absence of interconnect charges for the wireless carrier, would offset at least some of the gap.[30]

With the imminent conversion to digital signaling for cellular, there are a number of cellular operators that will have significant excess capacity. In addition, there will be significant increases in capacity from the new digital PCS carriers. They can market this capacity for use as simple local service. In fact, products are being developed to allow cellular operators to sell wireless service to wireline customers that is transparent to the user.[31] Other implementations could include selling "loops" to serve as connections for alarms that need only infrequent access. As a result, the competition from wireless providers is likely to occur on a number of fronts -- mobility, standard service, and specialized services.

Amalgamations and alliances

Given the infrastructure of cable companies, CAPs and cellular carriers, and the emergence of alliances among them,[32] a possible future competitive alternative combination would be to use CAPs to provide downtown loops, cable companies to provide loops for suburban and residential customers, and cellular companies to provide loops in rural areas. Combinations of the various technologies also lead to greater geographic coverage. An entry strategy using a combination of the assets of these companies would be reflected in the pervasive entry at multiple nodes shown in Figure 2(pg. 15).

The combination of Sprint and its cable partners in Sprint Telecommunications Ventures is a vivid example of this strategy. They have the complementary assets of Sprint's local and long distance telephony expertise, the wireless expertise of both Sprint and Comcast and the cable operations of the four cable companies. The group has stated that they expect to provide local exchange competition through both their wireless licenses and their cable plant.

Another group of potentially formidable competitors, and moving closer to a position of actual entry with each passing month, are the LECs from other regions. The RBOCs and GTE are all large, financially sound carriers with the requisite technical engineering, marketing and billing capabilities to provide local exchange services.

As already noted, US West (with Time Warner) intends to enter other regions and begin providing local exchange service within 2 years. Entry by the other LECs is just as likely. Both Sprint and GTE have local exchange operations and it would be logical for them to expand their service areas through a combination of resale and facilities construction. Most RBOCs have cellular operations in areas outside their local exchange territories. The market presence of these companies provides a natural springboard for the extension of the scope of their services into the local exchange. Even though three of the RBOCs have teamed together for their wireless operations, they have wireless operation in non-affiliated regions and the other RBOCs and GTE have wireless operations in Bell Atlantic, Nynex and US West's regions. Such a strategy could be accomplished via their own facilities, or by a pooling of talents and resources with the other potential entrants.

Entry using existing technology

Competitors using existing technology, depending on their specific capabilities, are poised to compete for either the entire market or for distinct subsets of customers. Because each potential competitor has different competitive advantages, the range of customers benefiting from new entry and expanded competition nearly spans the gamut of local exchange customers. In addition, the ability to enter with minimal investment and to act as a reseller in an unbundled local network gives an entrant complete market presence with little risk.[33]

Interexchange carriers

The most likely source of immediate and influential entry into local service will be the IXCs, especially the large, nationwide carriers like AT&T, MCI and Sprint.[34] AT&T has itself advanced the case for seamless end-to-end integration through its Megacom service and private networks. The McCaw acquisition is the *sine qua non* of a company positioning itself for the end-to-end provision of service. AT&T's purchase shows the obvious synergies between the two businesses and the expected future synergies. Indeed, AT&T's public statements suggest that the company's strategy is to provide their customers with end-to-end service.[35]

MCI has formed a subsidiary, MCI Metro, for the express purpose of providing local telephone service. In addition, through its subsidiary Access Transmission Services, MCI has filed for a permit to begin competitive access service provision in Indiana. MCI also recently announced the planned test of cable telephony with Jones InterCable. Sprint is already an active participant in local exchange telephony. MCI and Sprint will now have incentives to use competitive trunks from high volume end offices to their POPs because of changes to the rules regarding switched and special access . This will create excess capacity and position them to take advantage of the unbundling and switch integration plan.

All three companies have the ability to self-supply transport, and, once the necessary construction and right-of-way expenses are incurred, the incremental cost to add traffic is quite small.[36] Specifically, once the IXCs have successfully developed the transport segment of their network, they will be able to sign up additional subscribers at little added cost in an unbundled environment since they can rent loops from the LEC and transport the traffic to their own switches.[37] In addition, as a major manufacturer of switches, AT&T is in the position to obtain switching at a lower cost than any of its competitors and could easily position switches for local service.

IXCs enjoy their highest margins in the small and mid-size business segment.[38] Consequently, IXCs are likely to pursue these customers first for their provision of end-to-end service.[39] AT&T, as well as other large IXCs, could compete by installing switches (or using excess capacity on its existing switches) to supply dial tone and usage services and routing the traffic to one of their many existing POPs. This could be economical even in an area with a small amount of traffic because the large IXCs could either share capacity on a nearby existing long distance switch or economically use a somewhat distant switch to provide local dial tone until traffic justifies a truly local switch. Adding switch capacity is relatively simple with modern modular switches such as the 5ESS. Since the IXCs have fiber facilities in place with excess capacity, the cost of transport to take advantage of a distant "local" switch would be minimal.

An unbundled local network means that the IXCs, and everyone else for that matter, will always be able to access LEC facilities; entry can occur before proprietary facilities are built, or even planned. New construction can be delayed until such time as the current or forecasted volume of traffic justifies the investment. As a result, entrants avoid large, risky infrastructure investment.

Competitive access providers

Competitive access providers (CAPs) have entered many major cities by deploying fiber loops through dense downtown areas. They are already providing competition for local exchange

carriers without the benefit of unbundled local networks. With the recent FCC orders discussed above, the competition for transport services will increase the traffic on CAP networks, decreasing their average unit costs and making them more effective competitors for a larger portion of business.

CAPs appear to have their eyes on expanded services. MFS has recently announced that it will offer local and long distance services in New York City.[40] To support this effort, it plans to install Ericsson switches in its network. The service will be "available immediately in Manhattan and will be extended to the rest of the New York metropolitan area over 'the next few months.'"[41] MFS does not intend to stop with New York. According to its half page advertisement for this new service, "Service is available in New York now. National expansion is underway."[42]

CAPs have invested in loops that give them access to a large number of customers with a relatively high demand for telephone service. CAPs may not be positioned to compete for customers throughout the local service areas, but they are well beyond the venture capital stage and now represent formidable competitors to the local exchange carriers. The largest CAP, Teleport, is owned by several large cable companies, including TCI, Comcast and Cox, and thus possesses the financial backing to ensure its ability to effectively compete. In addition, the cable investment in a telephone service provider indicates that synergies may be expected and that the CAPs are expected to provide some of the telephony expertise.

Investment houses and the CAPs themselves believe that CAPs will play a significant role in local telecommunications. In discussing the acquisition of Teleport by TCI and Cox Communications, Goldman Sachs says that the alternative access market is "substantial" and represents a significant opportunity for cable companies.[43] TCI's CEO, Dr. John Malone, believes that there is a potential market for alternative access carriers of as much as $40 billion annually; he expects that the business will be at least $1 billion in three years with a potential to represent 25% of the total access marketplace.[44] Such heady numbers, while obviously not precise, are indicative of the potential for CAPs to become significant access providers.

With LEC switch integration, CAPs with switches can easily become the local phone service provider to those businesses passed by their network. In addition, the ability to rent loop in areas their networks do not pass means that they can provide service, with little incremental investment, to any business or residence that is served by the end offices they pass with their loops. CAPs can also expand their geographic coverage sequentially and determine the optimal path for their new fiber loops by leasing capacity in the short term while determining where to install plant expansions. Finally, the CAPs will be able to compete to serve multi-location businesses even when they do not have a physical presence near each of the satellite offices.

CAPs will be able to increase their target customer base significantly with unbundling. CAPs already reach a significant number of high volume customers. With unbundling, CAPs may deploy fiber in other areas, giving them even more potential customers. CAPs can use unbundling to determine demand for their services and perform true market research by purchasing pieces of LECs' networks before determining where to construct their own facilities. They can greatly reduce the risk of new construction by acquiring an active customer base prior to completion of their facilities.

Unbundling and integration

Because of the network nature of telecommunications, stand-alone networks cannot always deliver head to head competitive threats to existing telephone systems. There are many instances where private networks, or arrangements which provide direct access to IXCs through CAPs, provide competition to LECs without interconnection to the LEC network. However, these networks do not always provide the entire communications needs of their customers, and they are generally not stand-alone networks. In short, mutual interconnection is very important for the success of alternate "local" networks.

Ameritech recently proposed its Customers First plan to the FCC. Under this plan, Ameritech proposes not only to provide mutual interconnection to other local carriers, but it will unbundle its local network. Frontier Corp. also proposed fundamental unbundling of its network elements, including unbundling the local loop from switching. In addition, they proposed full interconnection, including interconnection with SS7 network. In essence, the unbundling allows for immediate competitive local service entry by any of the parties discussed above. They can use portions of their own networks and combine them with portions of the unbundled LEC network to provide service. Unbundling means that entry requirements will be lowered dramatically.[45] Any portion of the network that involves significant investment will be leased to competitors by the most efficient provider (initially this is likely to be the incumbent) so that if there are economies of scale or scope, all competitors and consumers will benefit. When scale and scope economies are not present, or consumers desire specific services, other providers can tailor their network services to fill those needs.
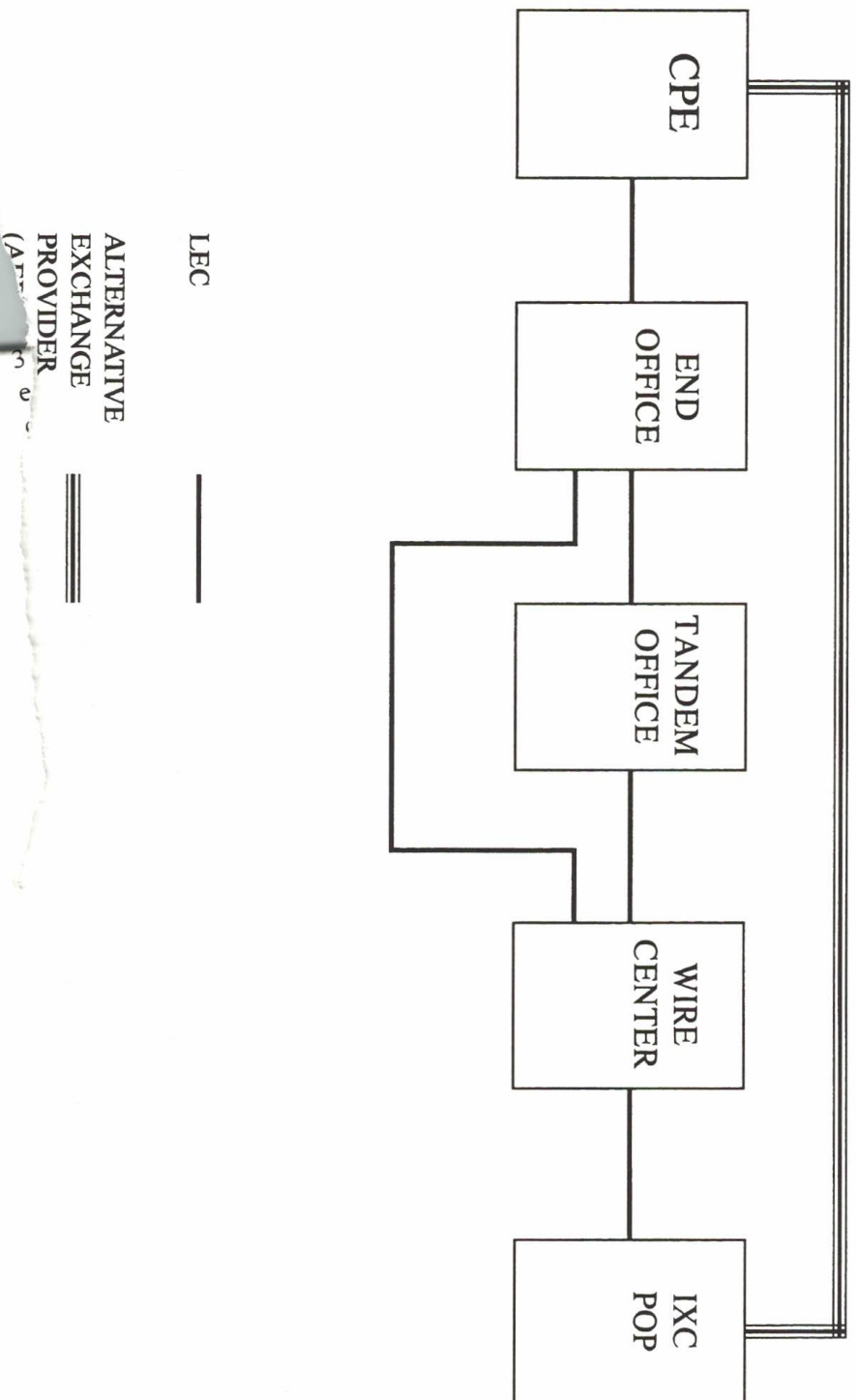
Figure 1 shows the current status of the local exchange. The majority of traffic originating at the CPE uses the LEC network. However, for some large customers, CAPs provide an alternative. Note that the diagram ignores the presence of alternative local loops such as cellular. Figure 2 shows the change in the structure of the local exchange with unbundling in place. The variety of options for traffic carriage is significantly greater with unbundling. A large number of options are available to potential entrants to take advantage of the ability to purchase pieces of the LEC network and to self supply the remaining portions, whether they be transport or switching.

One possible concern is that the threat of entry may not be sufficient to discipline prices for each individual portion of the network. To make sure that it does not exploit any remaining power over a bottleneck portion of the local exchange, Ameritech has agreed to freeze prices for years and then subject them to price cap regulation. The combination of this pricing proposal insures that Ameritech will not take advantage of any remaining power to disadvantage its competitors while waiting for the implementation of alternative local loops. As noted earlier, advances in technology are accelerating local exchange competition. The coupling of unbundling and price caps makes sure that if there is temporary market power, it will not be extended to competitive services through cross subsidies or discrimination. With unbundling and integration, an efficient network of networks will develop and be priced at competitive levels.

Comparisons with other industries are instructive because they demonstrate the feasibility of unbundling and switch integration; and how entry in industries believed to have certain natural monopoly features can be assisted by such mechanisms. This section provides a brief overview of unbundling and entry in two regulated industries: natural gas and electricity.
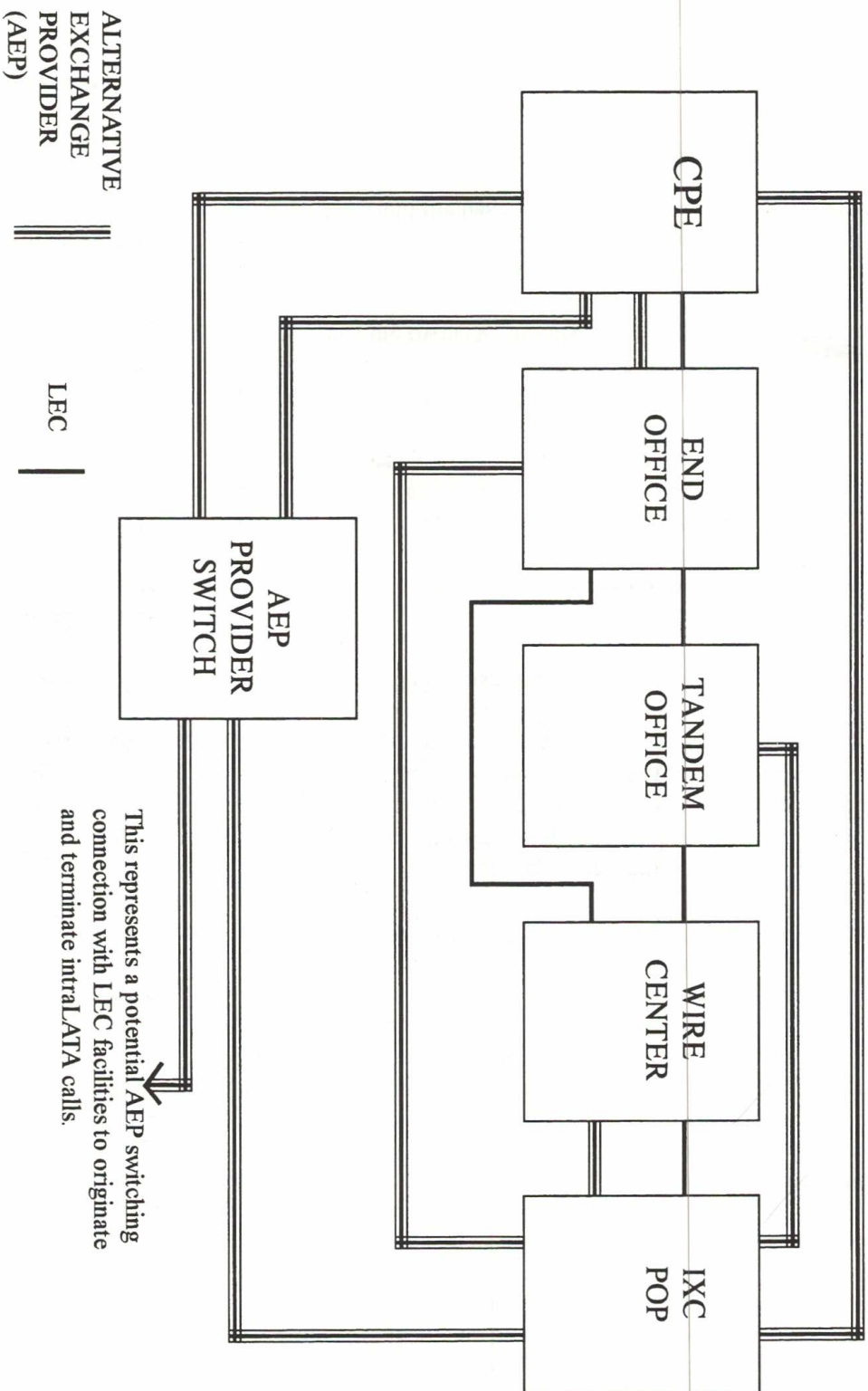
Figure 1
Current Status of the Local Exchange

```
CPE ──── END ──── TANDEM ──── WIRE ──── IXC
        OFFICE    OFFICE      CENTER    POP
```

LEC ────

ALTERNATIVE
EXCHANGE
PROVIDER ════
(A

Figure 2
The Local Exchange with Unbundling

CPE

END OFFICE

TANDEM OFFICE

WIRE CENTER

IXC POP

AEP PROVIDER SWITCH

ALTERNATIVE EXCHANGE PROVIDER (AEP)

LEC

This represents a potential AEP switching connection with LEC facilities to originate and terminate intraLATA calls.

15

A. Natural Gas

The natural gas interstate pipeline business represents a clear instance where unbundling has led to substantial entry. Traditionally, interstate natural gas pipeline service involved the purchase of natural gas at the wellhead, followed by transportation and sale at the city gate all provided on a bundled basis by interstate pipelines. Pipelines were both merchants and shippers. As discrepancies widened between gas prices at the wellhead and the city gate, pressures arose to gain access to transportation on an unbundled basis.

In 1985, FERC (Federal Energy Regulatory Commission) responded with Order 436, which represented a limited form of unbundling; it did not *require* that pipelines carry natural gas for sale in their city gate market but established nondiscriminatory tariff provisions. Despite the limited form of unbundling represented by Order 436, the effects were dramatic. The share of natural gas sold in competition with the pipeline in its city gate markets rose from approximately 15 percent of total gas carried by interstate pipelines in 1985 to over 70 percent of total gas carried in 1989. Entry was also rapid. Initially most entry was by former pipeline customers buying natural gas for their own account. Increasingly however, new marketers entered, purchased natural gas at the wellhead and resold it in competition with the pipeline's own sales business downstream.

FERC Order 636 represents a further step in the unbundling process because p eline control of facilities will be reduced. Potential shippers will now be able to acquire r   ts to pipeline capacity as well as rights to storage.[46] Pipeline customers will also be able to tra   uch rights, allowing them to realign allocated capacity and obtain the flexible services cu   ers desire. The competitive forces set in motion by Order 636 are still working their way   igh the regulatory process and the market. Even so, new companies have emerged and off   w services using the pipeline's unbundled transportation and storage capacity.

B. Electricity

Various parts of the electrical system have likewise been unbundled. In most regions o United States there are markets in which utilities can buy and sell bulk power. Interrupt power can be sold separately from reliable capacity that is provided under long term contra Furthermore, intermediate commodities can also be sold by one utility to another. Examples these include commitments to have a certain plant available for an intermediate period of ti to provide back up in case of unanticipated changes in demand at a second utility.

Unbundling has provided benefits, allowing electric utilities to sell power from plants th are underutilized on a seasonal basis, thereby reducing unit costs. It has also permitted the sh down of inefficient plants, since the owners can purchase power from more efficient utilities.

The evidence from gas and electricity indicates that opening up the local exchange is feasible, and that at least in the case of gas it indicates that new entry is facilitated. Moreover, because new entrants can access the embedded facilities of the incumbent at the incumbent's costs, it causes the incumbent to yield the basis of its own competitive advantage from scale to its competitors. Clearly, unbundling is great for new entrants, as it in essence enables them to rent the competitive advantage of the incumbent, at the incumbent's cost.

Assessment

Many different entry strategies are likely to arise. Some new entrants may be better suited for niche plays; others may choose more comprehensive strategies. Both can coexist in the

marketplace. Entrants can target high profit customers by supplying a small dedicated system catered to the specific customer's needs. This would make them more difficult for an LEC to dislodge them. Such niche players are likely to be very successful since unbundling enables the niche player to take advantage of LECs' scale economies.

A critical characteristic of local/intraLATA service to note here is the concentration of revenue in a handful of business customers. On average, 30% of a LEC's revenues, and a still larger percentage of its profits, come from 1% of the customer base.[47] A new entrant need not win over many customers to have a noticeable impact in the marketplace. The top 1% of customers account for more than 30% of profits because they purchase large volumes of high margin services. Thus, while CAPs only have a small geographic presence, their actual market presence is significant. With unbundling, a new entrant can avoid large capital outlays and can focus its limited resources on several key business customers to quickly achieve a positive cash flow. These funds can then be used to secure additional customers leading to a self-sustaining cycle of profitability.

AT&T and MCI are unlikely to be content with niche plays. These companies have expressly stated their interest in providing end-to-end service for their customers.[48] Unbundling offers the opportunity to provide ubiquitous service and the IXCs will have the added advantage of being able to complement their existing assets with the use of unbundled portions of service from the LEC. They can also obtain all of a customer's traffic without the need to provide local switching or loops.

While many of these entry strategies appear likely, it is instructive to examine and contrast the status of AT&T's competitors at the time of divestiture with the status of local exchange competitors now to see how facilities-based entry occurred in that segment of the business. The meteoric rise of MCI and Sprint and the concurrent rapid dissipation of AT&T's market position in long distance are well known and need not be repeated here. However, it is informative to compare AT&T's competitors as they existed in 1983 to LEC competitors today. Specifically, this exercise convincingly demonstrates that actual and potential competitors, not least among them AT&T, MCI and Sprint, all possess financial and marketing wherewithal and installed facilities that far surpass anything facing AT&T back in 1983. Indeed, the FCC has already noted that competition for access will "develop much more rapidly than interexchange competition did."[49]

This point is made clearly by the comparisons in Table 1. Compared with the 1983 versions of Sprint and MCI, actual and potential LEC competitors have considerable financial muscle.[50] AT&T is the leading communications provider in the world. AT&T provides long-distance service to three-quarters of all U.S. households; owns one of the five most recognizable brand names in the country; annually spends $3 billion on R&D; and is vertically integrated across major business lines.[51] Furthermore, the McCaw deal immediately made AT&T the nation's largest cellular provider. AT&T's entry into local/intraLATA will be vigorous, as the company has all the relevant complementary assets needed to be a successful competitor.

Implications of entry for "natural" monopoly arguments
Although not all of these entry scenarios will take place immediately, the threat of entry and ability of entrants to target specific groups have significant implications for the natural monopoly arguments put forth to justify regulation of local telephone service. New entry is evidence that either the monopoly is not natural or it is not sustainable. Given the number of different entry strategies, it seems obvious that a large number of urban and suburban customers will be passed

Table 1

Selected Financial Statistics
(All Amounts in $Millions)

Selected AT&T Competitors in 1983

	Sales	Current Assets	Market Value	Net Plant	EBITD
Sprint (United Tel.)	1,966	656	937	4,285	1,073
MCI	1,073	713	1,335	1,324	420

Selected LEC Competitors in 1994

IXCs					
AT&T	75,094	37,611	78,843	22,035	12,305
MCI	13,338	4,888	10,878	9,059	2,609
Sprint	12,662	2,189	9,622	10,879	3,266
RBOCs					
BellSouth	16,845	4,728	26,859	25,162	7,328
NYNEX	13,307	3,798	15,391	20,623	4,411
Bell Atlantic	13,791	3,783	21,751	16,938	3,364
Ameritech	12,570	2,891	23,725	13,455	2,147
US West	10,953	2,766	16,720	13,997	4,777
Southwestern Bell	11,619	3,493	25,052	17,317	4,952
Pacific Telesis	9,235	2,898	12,083	16,114	4,059
Other					
Time-Warner	7,396	2,817	13,323	753	1,250
TCI	4,318	204	12,421	5,579	1,685

Notes:
a) Market Value is calculated as: (number of common shares outstanding)*(12/31 closing price)
   (except for MCI in 1983, market value is calculated using the 3/31 closing price)
b) EBITD = Earnings Before Interest, Tax and Depreciation
c) Market Value for TCI is calculated using Class A common stock only
d) TCI "Current Assets" is the sum of Cash and Accounts Receivable - it does not include investments in Liberty Media and other affiliates of Turner Broadcasting

Source: Company Reports-respective years, Jan. 1995 S&P Stock Guide and electronic data retrieval for 1983 prices

by two wires capable of providing two-way voice grade service in the near future (either cable or CAP in addition to the LEC). In addition, advances in radio technology and the release of additional spectrum will provide an alternative for rural customers. Thus it appears that for two-way voice grade telephone service, the natural monopoly will not continue (if it exists now).

Unbundling adds force to the entry scenarios. With unbundling, uncommitted entry can occur quickly. The Department of Justice distinguishes between committed and uncommitted entry in it Merger Guidelines.[52] Uncommitted entrants are defined as firms whose "supply responses must be likely to occur within one year and without the expenditure of significant sunk costs of entry and exit, in response to a 'small but significant and nontransitory' price increase."[53] Such uncommitted entry does not have significant costs and is a continuing competitive threat, even when potential entrants are not actually participating actively.[54] With unbundling, the local exchange business will be contestable since up front expenditures by new entrants will be minimal. This is because potential competitors can rent/lease various components of the LEC's embedded investment while determining the demand for their services. In this way, entrants can reduce their risk by performing real market research in advance of making large capital investments. For potential entrants, unbundling creates a market for non-redeployable assets. In addition, entrants can benefit from any LEC scale and scope economies, augmented by their own competitive advantages. Unbundling essentially drives entry and exit costs to zero for the unbundled components. As a result, the market becomes contestable and, in a contestable market, market power cannot exist, regardless of market share.

However, the future appears to be somewhat different. Voice grade telephone service may soon become simply an ancillary service provided with interactive two-way video service. In this case, bandwidth needs of wireless providers may currently be too great to pose an alternative to a wire-based technology. In addition, the cost to upgrade a system to provide advanced services may justify only a single wire-based system. However, the recent spate of mergers and the investment projects by both cable and telephone companies projects a world where a large number of homes will be passed by two high capacity wires and the homes will also be addressable by a large variety of wireless service providers.

6. Organizational structure and innovation

All aspects of the telecommunications industry -- local and long distance -- have been exposed to rapid innovation since the birth of the industry. Indeed, overall telecommunications productivity growth has been about 3% per year since 1948.[55] In particular, the digital electronics revolution has brought about vast improvements in telecommunication equipment. Much of this innovation was autonomous, or made to be so. That is, it could be integrated into the network so long as it met compatibility standards. In short, one could upgrade one piece without having to abandon the existing investment in the network. Sometimes innovation isn't autonomous but is systemic thereby requiring investment throughout the network, as with Common Channel Interface Signaling (CCIS). In the pre-divestiture days, AT&T was able to bring forward such investment, even through not all of the local companies benefited equally. Complex negotiations could be avoided as the administrative apparatus -- an integrated AT&T -- was available to get it done.

Innovation has continued since divestiture, though it is of a different kind. Terminal equipment, switching and non-network technology have been beneficiaries of innovation in the

post divestiture period. There does not appear to be significant innovation that has required the cooperation of long distance carriers with the LEC's, with the exception of advanced intelligent network features that require out of band transport. Indeed, when innovative integrated service offering became compelling, the organizational response has been merger, as with AT&T and McCaw.

Now the opportunity for a new family of innovations is becoming apparent. We refer in particular to interactive TV, multimedia and the information superhighway. The amount of electronic material the superhighway can carry is dizzying compared to the relatively narrow range of broadcast TV and the limited number of cable channels. These new systems, when commercialized, will support a wide range of new services: home shopping, on-line information, classified ads, teleconferencing, movies on demand, video games, travel services, and distance learning. When in place, these new services will be available when needed, and users rather than providers will determine when they are used, thereby putting a greater degree of control back with the user.

At this point the technical barriers to building this platform and loading services upon it have largely been broken. The challenge, it would seem, is to overcome the organizational barriers. The key success factors which are relevant include equipment design, software, programming and network management. The current industrial structure is not as et well aligned with respect to the compilation of these assets. Telephone companies hav errific capabilities in network management; cable companies have broadband transmission ca lities. More importantly cable companies often have ownership in programming, and unders how to match programming to markets. Software development skills, with the possible exc of Bell Labs and Bellcore, lie mainly outside the current boundaries of the industry: M ft, Apple Computer, and Lotus are among the repositories of such skills.

Colliding technological trajectories in telephony, computers and fiber optics sugg need for a rich network of alliances as well as possible cross ownership arrangements to forward these technologies in a timely and cost effective fashion. The pioneers are likely to common ownership of key elements of the system in order to speed concerted action. The S Telecommunications Ventures alliance appears to be motivated by these considerations. C scale economies and installed base economies have been achieved, and the commercial asp of the technology proven, business routines will emerge which may obviate the need of follow firms to integrate to the same degree. As we note elsewhere:

> "Integration facilitates systemic innovations by facilitating information flows, and t coordination of investment plans. It also removes institutional barriers to innovatic where the innovation in question requires allocating costs and benefits, or placing specialized investments into several parts of an industry. In the absence of integration, there will be a reluctance on the part of both parties to make the necessary investments in specialized assets, even is this would yield mutual gains. One reason is that both parties know that the exercise of opportunism might yield even greater benefits to one of the parties. Hence, in the absence of common ownership of the parts, there will be reluctance on the part of one or more of the parties to adopt a systemic innovation."[56]

While integration may be necessary to create the information superhighway platform, alliances and partial equity arrangement may suffice to place new products and services on the

Network, Artec House, 1992, Huber, P. Kellogg, M. and Thorne, J. *The Geodesic Network II: 1993 Report on Competition in the Telephone Industry*, The Geodesic Company: Washington D.C., 1992, Reed, D. "Putting it all Together: The Cost Structure of Personal Communications Services," FCC Office of Plans and Policy Working Paper No. 28, November 1992, DeSurvire, E. "Lightwave Communications: The Fifth Generation," *Scientific American*, January 1992, p. 114, and Egan, B. *Information Superhighways: The Economics of Advanced Public Communication Networks*, Artec House, 1991.

15. Calhoun, G., *Wireless Access and the Local Telephone Network*, Artec House: Boston, MA, 1992, Hatfield D.N., Ax, G.G. and Dunmore, K.R. "A Comparison of the Costs of Providing Ordinary Telephone Service Using Conventional Wireline and Cellular Radio Technology" October 1985, Hatfield Associates, Denver, CO.

16. Rosston, G. "An Economic Analysis of the Effects of FCC Regulation on Land Mobile Radio," Stanford University Ph.D. thesis, 1994, Harris, R., Rosston, G., and Teece, D.,"Competition and Unbundling in Local Telecommunications: Implications for Antitrust Policy," in *Toward a Competitive Telecommunication Industry: Selected Papers from the 1994 Telecommunications Policy Research Conference*, Brock, G. ed., 1995.

17. Note that both technologies have been experiencing significant decreases in cost, but if transmission costs decrease more rapidly than switching costs, system designers will substitute transmission for switching at the margin. See Huber, P. Kellogg, M. and Thorne, J. *The Geodesic Network II: 1993 Report on Competition in the Telephone Industry*, The Geodesic Company, 1992, p 3.37, and DeSurvire, E. "Lightwave Communications: The Fifth Generation," *Scientific American*, January 1992.

18. See Hartman, R., D. Teece, W. Mitchell and T. Jorde, "Assess Market Power in Regimes of Rapid Technological Change," *Industrial and Corporate Change*, 2, 317-350, 1993, for a discussion of the impacts of competition on a variety of features in addition to price.

19. TCI, in 1992, became the largest single buyer of fiber in the world, based on mileage. (Telephony, May 11, 1992, v.222(19), p. 6.) Time Warner already offers local connections to long-distance carriers in Indianapolis and Kansas City. Wall Street Journal, "Time Warner, Baby Bell May Compete in San Diego," June 24, 1993, p. B7.

20. The headend is the originating point of a signal in cable TV systems.

21. Time Warner/US West presentation to the Ameritech Region Regulatory Council Customers First Ad Hoc Committee (a group of state regulators from the Ameritech region who are jointly reviewing Ameritech's Customers First Plan)

22. Time Warner's success in England comes without the benefit of the unbundling and switch integration proposed in Ameritech's Plan. As a result, the exclusionary practices opponents suggest Ameritech might engage in are distinct possibilities in England and yet have not served to prevent competition.

23. Time Warner is also seeking regulatory approval to offer telecommunications services in San Diego. The services, which are scheduled to begin in 1995, would compete directly with Pacific Bell for business customers. The company has said it will build a fiber-optic network to connect the local businesses to long-distance carriers and to link offices of companies in the area. Time Warner will also offer video conferencing and data transport. (Wall Street Journal, "Time Warner, Baby Bell May Compete in San Diego," June 24, 1993, p. B7.).

24. San Francisco Chronicle, November 23, 1993, p. B1.

25. Comcast is not only the third largest cable company, they are also the fifth largest independent cellular telephone provider, giving them a significant presence as a local service provider.

26. New York Times, September 8, 1993, p. C13.

27. Cable and Wireless, Report and Accounts 1993, p. 12.

24

28. The New York Times, August 25, 1993, pp. C1, C2.

29. Goldman Sachs, analyzing the recent AT&T/McCaw deal, wrote that the "relationship opens up a major opportunity for McCaw to provide bypass services for AT&T,..." (Goldman Sachs Investment Research, The McCaw/AT&T Alliance, November 24, 1992, p. 1.).

30. See Goldman Sachs Investment Research, The McCaw/AT&T Alliance, November 24, 1992, p. 14, for an example of such a strategy.

31. See the discussion of Telular Inc.'s "magic box." Keller, John J., "A 'Magic Box' Turns Wired Into Wireless," Wall Street Journal, October 4, 1993, p. B1.

32. For example, one of the largest CAPs, Teleport, is owned by some of the largest cable companies including TCI.

33. See Porter, Michael E., "Competition in the Long Distance Telecommunications Market," p. 9, Appendix A to "Motion for Reclassification of American Telephone and Telegraph as a Nondominant Carrier." In the Matter of Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorization Therefor, CC Docket No. 79-252. He discusses the entry of WilTel and others into interLATA service by employing a niche strategy in combination with resale to expand service to the entire marketplace.

34. Indeed, Sprint already provides local wireline service. In 1991, the company had local service revenue of $2.3 billion for the nation, $478 million in the Ameritech region alone. (Table 29, FCC Preliminary Statistics of Communications Common Carriers, 1991.) AT&T, despite its protestations to the contrary, will also enter the local service business with its imminent acquisition of McCaw Cellular.

35. For example, Bob Stanzione, AT&T Vice President of transmission systems, recently acknowledged that for AT&T to compete in the delivery of multimedia communications services, the company will "have to have alliances of some sort with the companies that provide the last-mile access to the home." San Francisco Chronicle, June 7, 1993, p. E7. These actions diminish the credibility of AT&T's public pronouncements that its acquisition of McCaw does not make it a local phone company.

       In an interview with Forbes, AT&T's vertical integration was touted by Arno Penzias, vice-president of research at AT&T's Bell Laboratories, as being "a far greater asset than it's ever been in the past." The article went on to say that "the ability to merge all the elements" - wireless, voice, data and video - is "what makes [a] network valuable" in today's marketplace. Forbes, February 1, 1993, p. 67. See also AT&T 1993 Annual Report.

36. MCI has purchased a significant amount of right of way from Western Union. Telecommunications Alert, "MCI Could Use Western Union Right-of-Ways as Bypass," May 11, 1992, V.09, No.91.

37. According to an MCI expert economist, Kenneth Baseman, "the marginal activation costs and marginal operating costs for new circuits activated on facilities already in place are generally quite low and do not differ significantly depending on whether the IXC is collocated or the IXC's POP is several miles away." Affidavit of Kenneth Baseman in Federal Communications Commission, *Report and Order and Further Notice of Proposed Rulemaking in CC Docket 91-141, 92-222*, 2 FCC Rcd 7369, October 1992.

38. "Long Distance - A Healthy Industry Ready To Conquer New Territory", Bernstein Research: New York, May 1993, p. 10.

39. IntraLATA margins are also quite high for this customer class. The average revenue per line, at $60-80 (which can be computed from Ameritech's access revenues by customer class), is far above the overall per line average of $45-50.

40. Wall Street Journal, "Business Brief -- MFS Communications Co.: Unit Tries to Win Customers from New York Telephone," October 6, 1993, p. A4. MFS has also filed a petition in Illinois to provide dialtone service.

41. Id.

platform. Indeed, whatever organizational arrangements come into place to build the platform, we expect to see a plethora of alliances and partial equity links formed in order to organize and deploy services onto these new platforms. As we state elsewhere:

> "With rapid learning, colliding technological trajectories and tight selection, on can expect to see incumbent firms becoming enveloped in a dense skein of inter-corporate relationships involving partial equity holdings and joint ventures. Such firms might be called "network" firms."[57]

Local telecommunications is thus about to become buried in this rich plethora of new arrangements designed to bring forward the bandwidth hungry technologies of tomorrow. Not only will fiber cause distance to shrink -- making everything "local" -- but telecommunications will itself become transformed. The LECs as we now know them will no longer dominate the local landscape. Cable-CAP amalgamations are already there, and out of town LECs will be in town as the MFJ's interLATA restrictions fold. Radio will bring in new players providing ESMR, PCS or Iridium like services which will compete with some aspects of what we consider local telecommunications. The identity of the players will thus change dramatically as will the nature of local service. Customers will have such a menu of new services available to them that POTS will no longer have a recognizable meaning.

7. Conclusions

Our brief survey of the history of the industry, and our analysis of technological challenges at work today make it quite clear that the so-called "local" portion of the telephone business is now, and likely has always been, capable of supporting competition. Regulation and limited interconnection are the main reasons why competition is not more powerful there today. Alternative technologies such as radio and cable remove any shadow of doubt about the fundamental ability of the local exchange to support competition. A forward looking view recognizes the impending actual competition; recognition of the multiple sources of new competition makes the disciplinary effect of potential competition a reality.

Unbundling plans put forward by some incumbent local exchange companies such as Ameritech and Frontier Corp. will sharpen local exchange competition by facilitating or indeed assisting new entry. These unbundling plans represent a bold step and involve some sacrifice of market position; but they make transparent to all -- especially regulators and judges -- that in at least in those parts of country where unbundling is to be implemented, the myth of monopoly has been buried. Just as Theodore Vail embraced regulation, the executives of Ameritech and Frontier Corp. are embracing competition. Unbundling will serve not only to promote entry, but to eliminate the excuse of the MFJ's restrictions on interLATA service, (i.e., the provision of interLATA service is inappropriate for an LEC because of the alleged ability of the LECs to use their monopoly power in the local exchange to deleteriously affect the terms of competition in interLATA services through cross subsidies and discrimination.) With unbundling, the fig leaf is removed. Eventually, the MFJ must collapse.

What lies ahead is a new industry -- the distinctions between local and long distance will disappear in their entirety, and the distinction between telephone, computer and television will also evaporate. The future is one where local exchange telephone companies as we know them

today will barely be recognizable, even a decade from now, and regulation -- except for antitrust enforcement -- will most probably be swept to the side. Technology is of course the key driver. It not only is rendering unworkable the organizational and regulatory structures of the past, but will also advance whole new streams of services of great benefit to society.

Endnotes

1. Professor Teece has testified in support of the Ameritech plan to the the U.S. Department of Justice and the Federal Communications Commission. Dr. Rosston assisted Dr. Teece in the preparation of his testimony as a Senior Economist at the Law & Economics Consulting Group.

2. Keynes, J. *The General Theory of Employment, Interest, and Money*, MacMillan: London, 1936, p.384.

3. Schmanlensee, R. *The Control of Natural Monopolies*, D.C. Heath & Co.: Lexington, NJ, 1979, p.143.

4. See Noam (1993) for the origins for these terms.

5. See Brock, G., *The Telecommunications Industry*, p. 94.

6. This "surely was one of the most one-sided deals ever struck." Noll, R.G. and Owen, B.M. "The Anticompetitive Uses of Regulation: *United States v. AT&T*" in Kwoka, J.E. and White, L.J. (eds.) *The Antitrust Revolution*, 1989, p. 291.

7. Brock, G., *The Telecommunications Industry*, p. 99.

8. As Brock notes on p.110, "While it would be practically impossible for a new entrant to establish a system equal to Bell's in a short period of time, the systems advantage to Bell was reduced by the fact that most telephone subscribers communicated with a relatively small number of people. Although the value of having a telephone would rise with the total number of people connected, the amount of increase would depend on the existing subscribers' desire to communicate with new subscribers. If a new entrant could connect to a small but homogeneous subgroup of the population, its service would be valuable despite the limited total number of phones in the system. If the Bell system and the new competitor generally served different social classes in the same city (as often happened during the period of competition), the advantage of having the two systems interconnected could be relatively small. The fact that telegraph service was far more pervasive than long-distance telephone service at the expiration of the patents also reduced the systems advantage by allowing subscribers to an isolated telephone exchange to conduct long-distance business via telegraph."

9. Brock, p. 114.

10. Brock, p. 124. See also Noll, R.G. and Owen, B.M. "The Anticompetitive Uses of Regulation: *United States v. AT&T*" in Kwoka, J.E. and White, L.J. (eds.) *The Antitrust Revolution*, 1989, p. 291.

11. Irwin, M. "The Telephone Industry," in Adams, W. (ed.) *The Structure of American Industry*, 6th ed. 1982, p-300.

12. Brock, p.122.

13. Irwin, M. "The Telephone Industry," in Adams, W. (ed.) *The Structure of American Industry*, 6th ed. 1982, p-301.

14. A variety of authors have investigated the impact of alternative technology. Rapid technological change has made it difficult for the references to remain up to date, but a few include Reed, D. *Residential Fiber Optic Networks: An Engineer and Economic Analysis*, Artec House, 1992, Calhoun, G. *Wireless Access and the Local Telephone*

42. Wall Street Journal, "Business Brief -- MFS Communications Co.: Unit Tries to Win Customers from New York Telephone," October 6, 1993, p. A4.

43. Goldman Sachs, *Communicopia: A Digital Communication Bounty*, July, 1992, p. 20.

44. Id. at 21.

45. The provision of a bundle of services may create entry barriers when combined with network externalities. However, the implementation of interconnection and the unbundling plan means that the possible competitive problems from the provision of a bundle of services will not constitute arise since all competitors can realize the same network externalities.

46. Limitations on pipeline space and use of storage meant that sellers of natural gas could not offer service fully comparable to pipeline sales service; especially in winter months when demands typically peak. Potential competitors were therefore precluded from offering winter service. Limited delivery and withdrawal flexibility prevented sellers from reaching all the customers they would have liked and similarly limited customers from purchasing natural gas from as full a range of sellers as possible. For example, distribution customers typically have highly variable delivery needs even over limited geographical areas as weather and operational conditions on their systems vary.

47. Federal Communications Commission, Bypass of the Public Switched Network, 3d Report and Order, rel'd May 26, 1987, at 32. Note that any attempt to evaluate the state of local competition with references to shares based upon the customer base are entirely misleading and inapt. What is directly relevant is the share of revenues and, more importantly, profits that are exposed to competitive pressures.

48. Even MFS has set it sights on becoming a full service provider. In its recent prospectus, MFS states that "Through MFS Intelenet, the Company will offer a single source for telecommunications services to small and medium sized business." (Prospectus of MFS Communications Company, Inc., May 19, 1993, p. 18.)

49. Federal Communications Commission *Report and Order and Further Notice of Proposed Rulemaking in CC Docket 91-141, 92-222*, 2 FCC Rcd 7369, October 1992.

50. For example, Sprint, in 1987, began a $3 billion fiber deployment program.

51. "Long Distance - A Healthy Industry Ready To Conquer New Territory", Bernstein Research, p. 14.

52. See DOJ Merger Guidelines, sections 1.3 and 3.0, Department of Justice, *1992 Department of Justice -- Federal Trade Commission Horizontal Merger Guidelines*, 4 Trade Reg. Report (CCH), 1992.

53. DOJ Merger Guidelines, section 1.3. Department of Justice, *1992 Department of Justice -- Federal Trade Commission Horizontal Merger Guidelines*, 4 Trade Reg. Report (CCH), 1992.

54. See Baumol, Panzar and Willig (1982) Contestable Markets and the Theory of Industry Structure.

55. Note that the 3% per year productivity increase is a combination of both long distance and local telephone service.

56. Teece, "Technological Change and the Nature of the Firm," in G. Dosi, C. Freeman, R. Nelson, G. Silverberg, and L.Soete (eds.) *Technical Change and Economic Theory*, Pinter: London, 1988, p. 256-281.

57. Hartman et al, 1993.

Changing Corporate Culture in the Local Competitive Environment

James E. Katz

While the determination of which telecommunications companies (or "telcos") will win in tomorrow's marketplace depends on strategic and technological factors, critically important as well is the internal organization and operations of the competitors themselves. As a result, the telecommunications executives have been paying increased attention to the "corporate culture" dimension of competitiveness and marketplace success as they search for a new organizational identity and posture. The cultural dimension may also prove to be a significant factor at the international business level as corporations try to absorb and blend workers and strategies drawn from various nations and sectors into cohesive business units.

The American experience is valuable because just as the United States has been on the forefront of the liberalization of its telecommunications regulations, U.S. companies have also been at the leading edge of experiments to find new ways of organizing themselves and marshaling their human resources to address the changing environment. This essay aims to describe the forces that have led to the emphasis on internal reorganization as a means for dealing with external environments and particularly on a specific means of retooling employee attitudes, behaviors, and goals. I begin with a brief definition of corporate culture, then turn to an analysis of the forces making it an object that managers would seek to address. I next discuss actions by various telcos and conclude by trying to discern what from these experiences might be relevant in the European and cross-national context.

1. What Is Corporate Culture?

Gordon and DiTomaso defined corporate culture as "the pattern of shared and stable beliefs and values that are developed within a company across time."[1] This definition is eminently suitable to my purposes. But to put some flesh on the concept, I will introduce the results of the research of Gordon and Cummins[2] who factor-analyzed the construct to arrive at eight dimensions of corporate culture. The result provides us with a clear sense of the operational aspects of corporate life and culture. I have adopted these and added two topics to yield the following (an asterisk indicates my addition):

- myths and legends*
- shared goals
- decision making
- innovation/risk-tanking
- action orientation

- social meaning of work*
- accountability
- development
- communication
- equity, reward

It is also worthwhile to distinguish corporate culture change from two other strategies/levels of change that corporations have tackled. These are the organizational levels (the formal structure, lines of authority, and missions of business units) and the process levels (the methods and procedures by which business is conducted), which are different from the performer level (how people are led, managed, and evaluated). It is this latter area that is the focus of corporate culture. Although for a true retooling to occur all three levels must be addressed and they cannot operate independently, for our purposes we will concentrate primarily on the "performer" level, the central feature of a corporate culture concept.

2. Why Have Some Companies Sought to Change Their Corporate Culture?

From afar, it is easy to see that major changes are sweeping the U.S. telecommunications industry. Corporations are operating differently so they can survive and even thrive as markets liberalize, margins decline, customers become choosier, and ferocious competitors close in.[3] But it is harder to see what is happening within these corporations as they change their structures and operations, in part because this is a sensitive public relations issue and commercially vulnerable proprietary area. It is still more difficult to understand the mechanisms by which some corporations are deciding to explicitly change not just their procedures and structures but also their cultures. Despite this lack of clarity about mechanisms, a growing number of employees are being asked to change their view of their lives and purposes, their understanding of what their jobs are really all about, and even their language and social relationships. In short, recent programs of culture change aim to affect the content and meaning of people's lives in a direction that has been determined and evaluated in advance.

These programs are important of course because they alter the way of life of tens of thousands of people. They are also important because they could affect the prosperity and survival of some of America's largest corporations as well as the nature of the country's telecommunications industry. And finally they are important because they serve as bellwethers for other companies about actions that might be taken, risks that must be addressed, and mistakes that should be avoided. Let us review the particular motives for undertaking these programs.

Pressure to Change Fast

A primary reason for these programs has been that the rate of change in the telecommunications industry has been accelerating. This commonplace assertion takes on special meaning, however, when we appreciate two factors. The first is that there was already a prior culture in place, the Bell culture. This culture was exceedingly strong, having evolved over nearly a century of minor adjustments into a highly stable regulatory environment. This culture was also a successful one for its time, a point to which I will return. The second is that since both the technology and the manpower base were relatively stable, there could be gradual adjustments in procedures, and employees could exchange loyalty and dedication in return for job security. There was a deeply embedded culture, and it was finely attuned to the realities of the time.

Another point is worth making about change in the telecommunications industry: it takes only a few people acting in concert to drastically alter the industry's structure and composition (witness the breakup of AT&T).[3] Yet the daily activities of the tens of thousands of people who make up the workforce of the telecommunications industry cannot change as quickly. Their activities and beliefs will change only as fast as revised methods of operation percolate down

through the organizational ranks and are absorbed into daily routines. So while the corporate shell is structured by the few, the corporate culture is structured by the many.

The Origins of the Culture Change Concept in Management Theory

The movement known by its focus on "corporate culture" has a history that brings together several strands of management theory. It represents a blending of the structural school (typified by Chester Bernard), contingency theory (e.g., Lawrence and Lorsch), and the human potential movement (e.g., Theory Y).[4] While the details of these schools of thought need not detain us, it is helpful to appreciate that the attempt to change culture rests on a foundation of philosophy, research, and analysis. It is also important to note that because so little experimentation or data gathering has been performed on different theories of culture change per se, not much is actually known about the relative efficacy of various approaches.

But the key insights of the corporate culture movement are that the way people live their lives within a corporation is a social construct, a world in which the customs, legends, norms, vocabulary, attitudes, and beliefs are created. The nature of this world directly affects the quality and speed of the work output. What can be created by people is arbitrary and therefore directly changeable, malleable, and manipulable.

In the past, this world was seen as either not important, and therefore safely ignored, or as malleable to a limited but necessary degree. The Taylor "scientific management" school did not care what workers believed or what their culture was so long as they carried out instructions. The human relations school was also uninterested in directly manipulating culture as a symbolic object, believing instead that with good, caring leadership people would perform well. Culture was not a concern because it would in effect take care of itself.

As the telecommunications environment began rapidly changing after 1983, some high-level corporate managers made an unsettling observation. After they gave commands, these managers noticed that a short time afterward they had not been carried out. This was rather a surprise since under the old system orders were to a large extent executed. Gradually consensus emerged among top leaders, catalyzed by consultants, as to the reason for this decoupling of instruction and meaningful response: namely, the ambient corporate culture was inappropriate for the situation. The culture precluded the means of carrying out the orders.

Yet beyond the particular attraction of corporate culture change itself and the efficiencies it promises, is its attractiveness at the individual psychological level of corporate leaders. These leaders want to put their personal stamp on an organization, to have made a difference. (This is consonant with the attitude that at a high level an organization is an extension of one person's idea, a lengthened shadow of one or a few people. This belief is often reflected in the myths and legends of companies, especially in the holding of its founder in a reverential light.) Thus, corporate culture transformation allows the arriving crop of leaders to imagine an objective and have that objective achieved without their direct intervention. While in a sense this is true for most organizations, it is particularly relevant to telcos because the new leadership of these corporations viewed themselves as part of a fresh generation, a group with a new outlook that would transform the industry. They wanted to set their personal stamp on the organization, make it "look and feel" different than it had been before their arrival. And of course they anticipated that a culture change would add to their company's viability and profitability.

Decreased Cultural Homogeneity of Entrants to Management Cadres
This lack of control alluded to above was further complicated by a series of civil rights laws and court decisions that led major companies, including telcos, to recruit in large numbers members of groups that had previously been underrepresented or nonexistent among the management ranks.[5] Before these decisions, one could make some reasonably accurate assumptions about the nature and types of upper-level employees of telcos. The leaders and managers generally were white males fully involved in a lifestyle that included not only certain manners of self-presentation at work but outside of work as well. Certain base values and norms were not only agreed upon but went unquestioned. Both at work and outside of work, here was a shared, fully subscribed culture that dictated specific attitudes, norms, behavior, jargon, and values. With the influx of new employees (especially of the managerial level) not socialized to this culture, leaders had to find alternative ways to deal with these new entrants. They needed to explicitly induct these culturally diverse people into a dominant corporate culture. (At the same time, great respect has been evinced for the relevant subcultures that were newly recruited. Cynics might assert that this respect for cultural diversity was really a twin-pronged strategy aimed at co-opting new entrants into the corporation's culture while minimizing the risk of lawsuits based on discrimination or bias.)

In a sense, the larger national cultures of the American middle class worked in the past as a selection tool for the new members of the corporate culture, which was itself a reproduction of the middle class. Having the manners and outlooks of the middle class, as well as its work ethos, meant that the corporations had much of their "social work" done for them. Little attention was therefore paid to the explicit culture of higher-level employees and managers.[6] (It is perhaps worth noting that in the early days of telephony the switchboard operators were boys.[7] Members of this rather unruly subculture were replaced by women, representatives of a subculture seen as more docile, polite, and flexible, especially when faced with balky equipment and customers or overbearing supervisors.) By appreciating the utility of being able to give an explicit "cultural orientation" to new (and current) employees, it was but a short step to the desire to change the culture itself in ways favorable to the corporation. This would be done not just to speed the integration and absorption of new workers and managers but to regain cultural homeostasis and a comfortable working environment.

Desire for Central Authority: A Predictable Response to Turbulent Change
Contingency theory[8] has long maintained that one reaction of organizational leaders to an operating environment that is becoming unpredictable, turbulent, and competitive is to tighten internal control over workers. If this hypothesis is correct then telco leaders would look for tools and methods to assert this control. Retooling corporate culture thus appears as a natural response and method (for reasons delineated below) in the attempt to deal with this changing environment.

Corporate Belief Structures: Often Based on Extrarational Criteria
Bolstering the drive for control are several supporting beliefs that, although coming from independent sources, merge and shape the corporate culture construct as it is currently implemented in the United States. These beliefs include the notion that time, rather than being something that just passes or happens, is a resource to be managed and exploited. There is something of a cottage industry in the United States for holding time management workshops, creating time management technologies and techniques, and performing detailed time accounting.

It is perhaps no accident that "time-motion" studies originated in the United States, and even though the phrase "time is money" may not have been coined in America, its practice seems to have reached its apogee there.[9]

Another point in this regard is the role of fashion. In the 1960s, the conglomerate style of business activity was the dominant mode, and such corporations as Litton, Allied-Signal, and Grace arose. It would not be uncommon for these corporations to have, say, food sauce bottling, missile guidance system research, and car tire manufacturing all under one management umbrella. However, this approach is now out of style, and instead corporations are entranced with "returning to basic strengths," which means reducing lines of business to a few central themes and lines. Is there something inherently different about the business world in the 1990s than in the 1960s? Were strategic planners then not able to see things that current ones are able to see today? Without necessarily answering these questions, even the fact that we can raise them would indicate that fashion and zeitgeist are factors that must not be minimized when seeking to understand corporate decision making and behavior.

Beyond these extrinsic reasons for the attractiveness of changing corporate culture, there is also what might be called the intrinsic reason. It is fundamentally true that the nature of business has become more global, quicker paced, and more efficient. And, by the same token, the pace of innovation in products and techniques, as well as management science, has accelerated. So new techniques are being created to respond to business needs, and "corporate culture" is one of them. This brief history of an idea helps us see that ideas and actions do not take place in a vacuum. Rather they have a context that when understood yields insight into how management ideas take root and become applied. The context also dictates their reception as well as their impact. The choices made in America in turn will affect how international ventures work out. And for those who would wish to import or reformulate precepts of corporate culture change, the social setting of the ideas and implementation become crucial.

3. What Does Corporate Culture Retooling Try to Accomplish?

Retooling, at an abstract, metaphysical level, seeks to replace the ailing lifeblood of a corporation with a new vital blood. But this metaphor requires defining and rests on three issues: (1) what is bad or unacceptable about the current situation, (2) what should be aimed for, and (3) how the organization proposes to get from its current point to its desired point. Let us look at the last point first.

The corporate culture programs that I have seen implemented are striking because of their holistic approach. I use the word *holistic* partly because the term appears in the material written and used by corporate culture consultants. I also use it because of the concept's derivation from Eastern philosophy-inspired holistic approaches to popular psychology. The organization is viewed comprehensively as a system with interlocking components, including:

- individuals seeking self-esteem, relief from psychic burdens, and material gratification;
- individuals integrated into a supervisory system;
- organizations that have an internal work process;
- units of an organization that need to cooperate; and
- a total organization that needs to satisfy customers, both internal and external.

Note that these items could be placed into a multidimensional matrix that shows their interrelationship: in fact, consultants often use matrices and flow charts to illustrate these components for their clients. All of this communicates the interconnected nature of the issue.

Build Teamwork, Accountability, and Empowerment
Given this holistic approach, how do corporate culture consultants assess their client's problems and define their own objectives? The corporate culture consultants' diagnosis of the problem seems consistent across companies: there has been a failure to put the customer at the center of the organizational mission. Even if well motivated at the individual and corporate level, there are structural impediments that if addressed in isolation cannot solve the problem. What is required is a total system -- a holistic approach. More specifically, consultants see that work life in corporations is often structured in a way that actually prevents individuals from contributing optimally, even if they wish to. When good performers have to struggle against a frustrating system, they are nearly always worn down and defeated. When subunit goals become more important than the total success of a corporation, the entire enterprise is hurt. When form rather than substance becomes preeminent, achievement suffers.

Integrating All Parts of Worker to Bring Focus to Corporate Problem
Despite this desire to create a holistic operation, consultants face an essentially fragmented world. In a sense, the corporation is trying to draw on other aspects of society's values, beyond the corporation itself, while at the same time advancing some values that are antithetical to these other aspects. This leads to problems concerning loyalty and personal goals.

Looking at this issue from an abstract level, there is a well-known tie between the political and economic structure of society. Analysts of culture have accepted, almost as an article of faith, that cultural resources and beliefs are intimately connected to the material basis of society and its political organizations. It would follow then that the market economy creates a culture of individualism. And without a strong political, religious, or other emotional center to demand loyalty and value commitments from society's members, the power of the market economy intensifies in the minds and calculus of a culture's members. That is, without a counterbalance, economic aspects may overwhelm other motives for behavior.

As Karl Polanyi[10] and others[11] have noted, Western society is built on an economic system in which production occurs for profit, not for social responsibility. Work is brutally competitive because the mechanism of a market is a central force. Work is organized by extrinsic and not intrinsic rewards because in a market system price determines value and people are forced to judge their worth by their income. This culture of instrumental and expressive individualism, some like Bellah[12] argue, has become self-destructive. Yet it reflects the material reality in which we live, the logical working out of the market mentality. Despite this contradiction, corporate culture consultants still aim to integrate the antithetical elements of materialism and transcendentalism. The irony is that by demanding ever higher levels of commitment from workers, mainly by drawing on these transcendental resources, the resources themselves are diminished and less available in the future.

An interesting contradiction arises in many corporate culture programs as a result of this. The programs try to get people to take individual business and moral responsibility for their actions. However, they sometimes attempt this within a context that militates against this very

objective. So, for example, they want employees to embrace the idea of group participation and democratic decision making, but this goal and its desirability was secretly arrived at by a small cadre of leaders with absolutely no inputs from the people who putatively would be able to choose what they want.

4. How Are These Programs Implemented?

The grandiose ideas of the consultants must be translated into specific programs for them to have meaning. And this is what has been done in numerous American companies, including many of those in the telecommunications business.

The corporate culture change generally has three elements: reengineering process, synthetically creating teams, and resocializing individuals to have new goals, values, and behaviors. The method of implementation invariably entails some mix of sponsoring corporation design and reliance on consultants. Consultants for reasons both professional and otherwise want the corporate culture change program to be as explicit, extensive, and thorough as possible.

One U.S. telecommunications company seemingly adopted the most thoroughgoing recommendations of its consultants. It gave them a rather free hand to involve themselves in the company as the consultants saw fit, all in the name of corporate culture reengineering. This has not always set well with employees who found their lives dissected by outsiders, especially when these outsiders saw it as their mission to change the direction and content of those lives. The final step was a series of intense indoctrination sessions in which employees had to mouth certain beliefs and would be chastised if they did not sound sincere enough. A more common approach is to work hand in glove with the consultants and then formulate a series of workshops for employees. While the consultants stage manage nearly everything, including training and overseeing workshop leaders, the company's top management remains central to the action and prominent in companywide pronouncements.[13] Ideas about culture change are formulated by the consultants, who use arcane phraseology and shibboleths in consultation with a committee of corporate representatives. After the requisite high-level committees have passed on the recommendations, the corporate culture change machinery begins rolling forward. A collaboratively decided upon vision, style, and process are enunciated by the company president, and a flurry of meetings and workshops follows.

A third style has to do with the reengineering process via corporate resources with limited assistance from the consultants. This course has been chosen by at least two U.S. telecommunications companies. The way it has worked out, at least initially, is that numerous committees were organized under an umbrella reengineering group. At this point, several different corporate culture consultants were called in to provide pointers and review internally generated plans. All major systems and corporate process methods were analyzed with an eye to seeing if they were really necessary at all, and if so, to what extent they could be provided from outside sources at reduced cost. (This practice of outsourcing, which can save costs, is becoming increasingly popular.) In one company's case, a surprising range of activities were found to be unnecessary and were eliminated.

Sometimes the same impulse to raise efficiency can lead to radically divergent results. One telecommunications company began a "charge-back" system in which each staff unit would provide its services only if it would be "paid" by the recipient from the latter's budget. These were "paper" transactions, but the purpose was to make everyone cost-sensitive and profit-motivated.

Interestingly, another company took the opposite path. It dropped a charge-back system as being too costly, and services that had formerly been levied against internal clients on a usage-sensitive basis were now provided at no cost. Any inefficiencies created by making the resources freely available were considered less important than the efficiencies to be gained by removing cumbersome tracking and accounting procedures. In addition, since a major component of the adopted reforms was "empowerment," the workers would now be held accountable for their individual performance and expected to use corporate resources wisely, so central services would not be abused. Another result of "empowerment" was to move purchasing and signature authority approval down one level of the hierarchy (i.e., each rank now had the purchasing authority that the rank above it had previously).

Reengineering has also empowered customers. Thus, in one case, a company's division decided to eliminate any charge on a customer's bill that the customer claimed was incorrect. Previously the customer had to prove, or there had to be independent confirmation, that the charge was invalid before it would be eliminated. But the company found that the cost to adjudicate the bill was usually higher than the amount in question, and that customers were upset by the process. The "reengineering" proved to increase customer satisfaction and decrease costs (even though more cheating could now occur undetected). And it created more customer loyalty. By traditional accountability standards, this policy change would be a mistake, but from the view of customer-focused culture, it was the right choice.

While certainly it would be theoretically possible that a telecommunications company could undertake a corporate culture program without consultants, it is difficult to imagine one actually doing so. One reason for this is that in all likelihood corporate leadership would not believe that it had people within the organization who could give the necessary guidance about corporate culture, since by definition the hierarchical nature (and command and control tradition) of large telecommunications companies would preclude such a belief. But beyond this, there are valuable tactical reasons for utilizing consultants. As an example, their imprimatur might carry more weight or they might be the bearer of certain information that had best not be seen as coming from certain people or units within the corporation. In other words, consultants could bear responsibility for unpopular ideas.

Fragile Barrier between Individual/Corporation, Psychological/Operational, and Private/Public

Change can be quite traumatic for those involved. Hence, an important part of the corporate culture program is to help employees deal with stress. These methods may include such things as breathing and positive visualization exercises, stress management techniques, and methods (such as assertiveness training) for dealing with others, including coworkers and family members. Moreover, a key component of such programs often involves helping employees set goals for themselves and getting them to adopt certain beliefs about self-realization and self-direction. It was precisely these initiatives that led one telecommunications company to be criticized by fundamentalist Christian employees who felt their religious rights were being trampled. Specifically, corporation-engendered beliefs that "you can make it happen" or "you control your own destiny" flew in the face of these employees' beliefs that only God decides what happens in one's life and that He controls one's destiny. These criticisms of the corporate culture program were taken so seriously that an extremely extensive (and expensive) initiative was terminated because of them. In fact, the corporate culture change programs pierce and intermingle spheres

that are traditionally kept separate in the United States: those between the public self shown at work and the private one shown in the family, the community, and in voluntary organizations (civic, religious, political, or associational).

What Techniques Are Used?

Companies can purchase various degrees of corporate culture transformation from consultants. Often there is an emphasis on packaged modules. Naturally, the greatest effects are promised only in those cases where all modules are purchased. But as indicated, this can be a substantial organizational commitment, often to a method that is untested. As is characteristic of most corporate education and training operations, the emphasis is on containerization, portability, pretty packaging, and "workshop" methods.

Typical of the American approach, the training proceeds in workshops, organized along team lines, with exercises, flip charts, cheerful name tags, quotations from great men and women, and take-away booklets. The central themes that emerge revolve around personal empowerment and accountability, teamwork, priority-setting, responding to customer needs (broadly defined), and quality. Part of the resocialization process is accomplished with new phrases, code words, and jargon. For example, instead of saying "we agree," the phrasing may now be "we have come into alignment on the path forward." The reasoning for this phrasing is that "agreement" is static, while "path forward" and "alignment" are dynamic. Further, by being compelled to use new terminology, workers are forced to become consciously aware of the new values and culture. Behind these workshops, there are usually many reengineering initiatives to reduce manpower costs, streamline and speed up processes, and focus on corporate goals. All of these are a source of stress, which is itself taken into account by corporate consultants in their employee workshops.

In a paradoxical way, corporate culture is having a strong impact on the way business occurs in many telecommunications companies that successfully undertake it. This is because, on the one hand it does, when working properly, empower employees. They have greater authority to make decisions and try innovations within their sphere. But it also decreases their freedom in another way: detailed bench-marking and minutely specified performance goals are set down and the measures of success or failure are unambiguous and inescapable. Moreover, most employees become monitored much more frequently than previously. Here I am not talking about operators and installers, who traditionally have been held to detailed, exacting, and real-time performance standards. Instead, I am referring to sales, marketing, software operations personnel, and other white-collar and middle management who traditionally are evaluated at the end of a month or even at the end of a year, and then sometimes by rather arbitrary, qualitative indicators. After the corporate culture change, these people are often measured and "benchmarked" weekly or in a few cases even hourly. So in this sense their freedom and autonomy has been reduced, and the feedback loop has been considerably tightened.

I referred above to the belief in time as something that can be controlled as a corporate resource. It is an old chestnut that time is the one thing that cannot be created and that everyone has the same twenty-four hours in a day. However, many of the corporate culture techniques are designed to create more time. This is done of course not physically but mentally. Techniques are taught to save time and to work with more efficiency and concentration. Priority-setting is taught, with an emphasis on dropping low-value projects and activities so that more time will be available for high payoff ones. Techniques are also presented concerning how to conduct meetings so that the maximum amount of input and decision can be achieved quickly. (For many

in corporate life, meetings are notorious time wasters.) The result of these efforts is nothing less than more time "created," which can be productively applied to corporate ends.

Part of this time "creation" and savings stems from setting priorities. By having to set priorities, employees can pursue the highly ranked ones and ignore or limit the low ones. Within the priority framework, workers are enjoined that killing time is not murder but suicide. Time is to be conserved and dedicated to purposeful action every bit as much as corporate purchases or use of electrical energy or fuel are.

Responses of Employees and the Indigenous Culture
One of the jargon phrases incorporated in a typical training session was "time thieves." To illustrate the concept of numerous small activities and inadvertent occurrences that waste time, the consultants had cartoons depicting small gremlins carrying off bags labeled "time," seen as sneaking away from employees and the corporate offices. In a noteworthy counter, an anonymous group within the company began circulating their own literature encouraging employees to work against the corporate culture program by becoming "time thieves" -- waste the company's time, be as unproductive as possible, they were urged. So in a small way, we can see that resistance to change can take many forms, resisters can turn the symbols of those in power against them. But presumably these guerrilla actions only delay the program's onslaught (in contrast to the legalistic methods, mentioned above, that can derail corporate culture transformations.)

Employee reactions often fall into one of four categories. The first reaction is that here is an important new way of doing business and increasing personal effectiveness. These employees might think they will need these new skills if they are to perform and excel in their jobs (and indeed they may be correct). They immediately embrace the words and concepts, using them in their daily experience. While these employees may have their own thoughts about the program, there is nothing in their presentation-of-self that would reflect that they had any doubts. They play the game perfectly and evince no actions, gestures, or even so much as a lip curl to suggest they are in anything less than full agreement with the program.

A second group also tries to understand and use the system. But rather than becoming "converts" or enthusiastic proselytizers, these people openly (and perhaps ingenuously) express their doubts, hesitations, and difficulties in understanding and adopting corporate culture schemes. At the same time, they are willing to put forth the effort necessary to comply with and carry out the new cultural norms. They might be considered good but uninspired employees and are also probably the largest segment.

A third group is skeptical or perhaps even cynical. They approach the corporate culture operation as just one of an endless series of attempts to improve organizational performance. They will do the absolute minimum necessary to stay out of trouble and give exceedingly modest endorsement when called upon. Mostly, though, they sit quietly and politely during the program but express their dissatisfaction sub rosa during the breaks.

A final group will actively challenge the program. They will ask difficult, diverting, and problematical questions of the corporate culture module moderators. They will try to find logical or operational flaws in the program. Understandably, the implementers of the corporate change program will react. The moderator's first response may well be to use various co-optation techniques, such as soothing the question-poser, agreeing that something might be true about the assertion, expressing gratitude for the contribution then trying to move on. However, if the

"troublemaker" is persistent, heavier sanctions will be imposed. Insofar as the company can get rid of these, they may well do so.

What actually transpires at these meetings can be summarized as a combination of training session, revival meeting, and old-fashioned American boosterism. There is a moral overtone that shows the new culture is wearing a white hat and wants to help individuals become self-realized and feel better about themselves. It teaches how to control stress, which can impair any employee and usually accompanies major change in one's life, especially job-related changes. Moreover, a point that is often missed in discussions of corporate culture is that by praising the new way, one must be damning the old. In the case of telecommunications, the old, often vilified culture is in fact the "Bell culture," exactly the culture that had been celebrated for the preceding century and extolled as "the company's most treasured asset: the Bell culture." This culture now is accused of being insensitive to customer needs. However, in my estimation, the Bell culture was in fact highly responsive to customer needs, but in the old days the customer was different than today.

Yesterday's customers, though, were regulators who believed in strict accountability and good service, with a high degree of reliability and consistency. In addition, the system was run as a form of social policy. By this I mean that certain sets of subscribers were "taxed" at higher rates (namely, businesses) while others were subsidized (namely, local residential customers). This has of course largely changed, but statutory commitments to these former obligations are still in place in many parts of the organization. So corporate culture transformation can be especially intricate in semiregulated entities. In sum, corporate culture change is not only an idea but a commercial package and a social process. As such, the timing and implementation procedure as well as the prior culture will affect its assimilation and effectiveness.

5. Does Corporate Culture Make a Difference?

There are at least three reasons why corporate culture might make a difference and hence why companies might expend so much effort and money to manipulate it. These differences include (1) better quality of life for employees, (2) greater company profitability, and (3) enhanced organizational survival. In my opinion, during times of labor shortages, quality of life will be a paramount concern and during times of national challenge, such as the Cold War or during or after a depression, organizational survival will rate most highly. But during times of unfettered competition, free market ethos, and intense individualism, the uppermost concern will be the profit maximization of the firm. (Currently, this latter situation seems to obtain.) Thus, what corporate culture transformation seeks to achieve would be influenced by the exigencies of the day.

Since these programs, as they have been applied to telecommunications companies, are so recent, it is not possible to answer the question whether they make a difference in terms of survival. Simply put, not enough time has passed for these programs to have had a reasonable effect on profitability or survival in a way that would be amenable to analysis with the crude measures available to researchers. And it is likely that other factors, such as dramatic reductions in personnel ("downsizing"), swamp any immediate effects that these programs might have on employee quality of life.

On the other hand, there is a noteworthy body of evidence from other industries that has relevance to the impact of corporate culture on organizational performance. But I have been

unable to locate anything of a quantitative nature concerning how programs affect employee performance. So while we can speculate about the extent to which different approaches to corporate culture change, and indeed that corporate cultures themselves directly contribute to these three outcomes, good comparative data are hard to obtain. At the same time, as noted by Gordon and DiTomaso, most empirical studies seek to link cultural patterns with particular organizational strategies or practices, and indeed there are some valuable results in this area. For instance, Dunn, Norburn, and Birle[14] orientation, as described by Peters and Waterman,[15] and effectiveness in marketing.

Still, studies that examine corporate culture characteristics relative to financial outcomes are rare. Among the exceptions are Hansen and Wernerfelt,[16] that emphasis on human resources and on goal accomplishment were important in predicting five-year returns on assets. Denison[17] organization's performance. Another example is a study by Gordon and DiTomaso of the insurance industry, which underwent deregulation and increased competition in the 1980s. Their results are noteworthy not only because of their focus on financial performance but also because the deregulation and subsequent organizational turmoil that affected the insurance industry parallels that which occurred in the telecommunications industry. They found that both the strength of the culture (measured as consistency) and the stress placed on adaptability were associated with better financial performance two to three years after the culture was measured.

Interestingly, in a comprehensive study, Kotter and Heskett[18] strength of two hundred firms' organizational culture with their economic performance. They found that over an eleven-year period strong cultures were associated with economic success. They attribute success to cultures that prevent the short-term interests of shareholders from overriding other concerns and that treat all "stakeholders" equally. They conclude, though, that the shareholder's interests are ultimately best served by such a strategy. "Only when managers care about the legitimate interests of shareholders do they strive to perform well economically over time, and in a competitive industry that is only possible when they take care of their customers, and in a competitive market that is only possible when they take care of those who serve customers -- employees."

In my personal judgment, I find that several factors increase the likelihood of the success of corporate culture programs. The first is that there needs to be a clear and sustained dedication to the program on the part of top and middle management. The sustained aspect is important, and the "vital organizational objective du jour" syndrome had best be avoided. There is also a big difference between verbal commitment and behavioral commitment as well as between initial commitment and commitment over the long run. Second, there need to be incentives for the employees to "buy into" the new system. They need to see that it will work well and work to their benefit, and this needs to be demonstrated quickly. Also valuable is making a concerted effort not to degrade the prior culture (since this in effect degrades the employees who were part of that culture as well). Third, employees should be informed in a straightforward, honest, and adult way what is going to be happening and told as well that the company's approach is a reasonable, reasoned way to proceed and that the entire enterprise has been thought through carefully. Finally, the culture change program should emphasize the essential humaneness of the approach and social concern of the company. While a few might not care what kind of company they work for, most seem to want to take pride in their organization and to know that they are leaving the world a better place for their efforts.

These American attempts are obviously reflections of the larger nation. in the United States as well as of particular decisions relative to spec States is at the forefront of those countries that are liberalizing their teleco but even so there are significant and heavy regulations still in pla telecommunications operations, particularly in local service. As woul. American telcos are trying to maximize their position. It is noteworthy that tl are in the forefront of advocating liberalization are also attempting to u thorough and explicit culture change programs. This is not surprising give culture would be better suited to a newly competitive environment than wou culture firms. Moreover, both strong pressure for deregulation and a v mechanistically retool culture represent a certain aggressive and innovati management stance.

With hesitation, let me suggest some links that may be worth pondering as the culture change programs percolate through the corporate world. Understanding the imp. of these programs for European companies is particularly germane as these com increasingly link up with American companies, as for example in the agreement between West and France Telecom. As I see it, these corporate culture programs have sev implications for European telcos, especially for the more aggressive among them that might wa to work with the companies that were formerly part of the Bell system. The first implication i of course whether an "American-style" cultural transformation is even appropriate for European telecommunications companies. Perhaps the answer to this question is less important than the reality: the desire to undertake such programs will be strong given the power of the American model in so many European areas of life. Moreover, should the American telcos that undertake such cultural revisionism begin pulling ahead of their more decorous counterparts -- and especially if the Americans meet with relatively great success in Europe -- such an attraction may well prove practically irresistible. So in this sense, any judgments as to the perceived or actual appropriateness of corporate culture programs could be irrelevant since they may be undertaken anyway.

Having said this, there are also some factors that would moderate if not arrest such a program, particularly in the thoroughgoing American form. The first of these is the strong tradition of protecting the individual in the workplace that exists to an extent in many European countries but is virtually unimaginable in the United States. These national (and in some cases provincial) laws might well hobble the aggressive methods for instilling a new culture among the workforce that have characterized some American programs.

Moreover, European telcos have often emerged from a civil service tradition, which at once creates both a specific strong culture that will need to be "retooled" for competition and an identity that would resist such efforts. (Recall that research shows that the strongest culture is also the most resistant to change.) For many European countries, there is also an important labor union tradition that could impede such attempts. These factors, combined with the larger European cultural concern for its workforce, will likely preclude the draconian measures, such as harsh expulsions from corporate offices, that have accompanied a few American corporate culture retooling programs.

At the same time, the European companies will have to make a transition from the norms and behaviors that they held under the monopolistic setting to ones in which they can give comparable service as their competitors. The method that is likely to be chosen is probably going to be more akin to the incremental approach than to the extreme steps characteristic of some American companies.

Certainly there will be no lack of consulting companies, both U.S. and European, that will come forward to aggressively vend their wares. It will be difficult to know which of these companies are selling performance and which are selling hype. In addition, a question would arise whether past successes with other companies, to the extent they even could be documented, were even due to their contribution at all rather than to some other party or even some unique circumstances. And finally there would be some question whether these skills are truly transferable to the environment of the European telco considering their services. By the same token, as I mentioned above, the advantages of gaining a fresh perspective from outsiders and having an independent source of recommendations cannot be underestimated. Further, the major European telcos seem to attend very carefully to what their colleagues in other European Community (E.C.) nations are doing. They will, therefore, imitate each other to a degree and thus gradually move along more or less in tandem. Or, put differently, some major European telcos view it as a big advantage to do things the same way as their counterparts in other countries, and so an imitation effect is likely to be quite strong.

On the other hand, with liberalization there will be many new entrants to the European market. New companies have the advantage of being able to create their corporate culture when they begin operations. The built-in resistance will be diminished, and rewards and behaviors can be structured to address immediate market exigencies rather than having to seek transitional ones, which will be the burden of the PTT's.

Finally, the notion of separate European and American telcos seems increasingly archaic. Instead, the telecommunications players of the future are likely to be truly global entities, with adjustments to local employment practices made where necessary. Within this context, corporate culture may become more fixated on seeking ways to integrate diverse practices and perspectives than on retooling a static, procedure-dominated culture into a dynamic, customer-focused one. The complexities of fast-moving, specialized markets will demand flexibility, and far-flung operations will require integration. These exigencies suggest a convergence on a style that incorporates many frames of reference and rapidly shifting skills.

If the American situation is a precursor to the European one, we can also expect a rapidly shifting potpourri of corporate partnerships, strategic alliances, spun-off subsidiary operations, and acquisitions of smaller companies in niche markets. This cacophonous admixture may make the corporation harder to manage. Certainly it will make it less amenable to centralized control from the top. Perhaps having some core values, a shared vocabulary, and a shared set of basic interoperable tools will allow the corporations to maximize the advantages of scale while minimizing the costs of ponderousness. Having a unified core culture, yet one that still respects local autonomy and initiative, may be a vital advantage. Such a culture would presumably respect diversity, individual autonomy, and responsibility and reward some risk-taking. It would be a culture where frames of reference shift rapidly, where conflicting ideas and interpretations can coexist, and where individual meaning and cultural identity will have a synthetic, artfully constructed quality. Rather than gradual transitions, which have characterized the telecommunications environment of the past, the environment of the future will be characterized

by sharp discontinuities in meaning and method: a postmodern corporate culture for a postmodern corporation.

7. Meaning for International Operations

Beyond the areas we have been discussing, namely, the internal and local dimensions of corporate culture and the implications of American activities for European telecommunications companies, lie questions concerning the relative regional and national differences in corporate culture. As a telecommunications business expands its global organizational connections, its corporate culture becomes ever more critical, especially as it begins interacting with distinctive regional cultures.

To begin with, business strategy often requires exploiting foreign markets and working with members of the host culture. Representatives of the global telecommunications company clearly must be able to provide an interface between local cultural practices and the culture that operates within the telco. Second, we are entering an era of cross-national alliances, which in effect also means bringing nationals of diverse cultures together in operations. Certainly, under these conditions the normal difficulties of communication are amplified. And without sensitivity to local cultural practices and incentives one can easily run afoul. As Noemy Wachtel[19] pointed out, literal translation is not sufficient for understanding what is going on in a host culture. She cited an experience where she and her AT&T colleagues were constantly having to explain and understand each side's way of doing business, independent of the substance of negotiations. From a cultural viewpoint, foreign entanglements are pregnant with possible conflicts and rewards.

As different cultures with distinct regional or national identities are brought into integrated working relationships, the "cultural baggage" of the larger cultures will inevitably conflict within the more limited corporate culture boundary. We have already had a foretaste of this in the United States where vast differences in regional culture were at one time subsumed within the AT&T monopoly. How, for instance, could the important but widely varying local norms regarding racial minority hiring be respected by a national company like AT&T? In the 1950s and early 1960s, these sometimes strict norms were often nearly the opposite in various state jurisdictions, and the practice in one state would be unacceptable to another. Yet all these companies were operating under the same corporate umbrella.

On a similar theme but different plane, I have been informed by Swedish employees of British Telecom (BT) that they discern a conflict between the hierarchical arrangements that are typical of BT and the more muted (or even explicitly downplayed) status distinctions typical of Swedish companies. Likewise, there may be some difficulties encountered in partnerships such as that between U.S. West and France Telecom. It will probably be the case that there will be points of interaction among those who are steeped in the free spirit of cowboys and the unbridled freshness of the frontier with those who are steeped in the tradition of Napoleon and the beaux arts. Doubtless many of these interactions will produce valuable synergies and enriching experiences. It will also probably be the case that without adequate preparation, different cultural norms and practices will impede communication and smooth coordination.

A strand running through many of my remarks is that while opinions abound, hard data that would let us create meaningful categories about approaches to changing cultures, or cultures themselves, are not available. Perhaps, then, a prudent next step would be to begin a social

mapping project. This project would attempt to delineate which aspects of major corporate and indigenous cultures are important, which aspects of these cultures might inherently lead to conflict, and how these cultural values and processes relate to corporate and strategic alliance effectiveness. Another approach would be to attempt to understand the determinants of effective culture change programs.

Culture is demonstrably important for achieving corporate performance and objectives with strategic partners. And the old cultures of many telcos no longer appear appropriate to the changed circumstances of the emerging business environment. To many corporate leaders, frustrated by slow-reacting bureaucracies, the far-reaching transformation promised by corporate culture reconstruction is compelling. But the key question in this is whether the explicit "cultural retooling" that is being practiced by some companies is appropriate and necessary. These programs are undeniably expensive, both in terms of their direct costs and in terms of time and emotional costs to employees. Are the gradual, calm approaches that are used by other companies preferable? Unfortunately, we do not have the direct evidence necessary to give a clear answer. But my personal observations do suggest that the manner in which these programs are implemented, regardless of the speed, makes a difference in their effectiveness.

There are those who argue that it is best to take quick action, including the instant dispatching of surplus employees. They say that if the procedure is handled more deliberately those who are going to be eliminated will poison the other employees and become daily reminders of the past problems and portents of a gloomy future. Supporters of this viewpoint hold that by getting rid of surplus workers immediately, and shocking the others into the "lessons of the new environment," they are acting humanely. It allows all parties to make personal and professional adjustments in light of the new reality, and dragging things out is, they argue, a disservice both to those who now must pursue other career options and those who must reorient their daily routines within the corporation.

On the other hand, there are others who say this approach, rather than being more humane, is actually the opposite. Advocates of the "gradualist" approach maintain that by giving employees time to make adjustments, they are allowing them to maintain their dignity even as they lose their jobs. And the lesson given to the remaining employees is that this is a caring company that will take care of its people insofar as that is possible. The unstated reciprocal point is that the corporation is derived from the employees' respect and dedication given in return for the company's care.

Which alternative is preferable at this point remains firmly lodged in the sphere of values, since as far as I have been able to determine, there has been no systematic evaluation that would allow us to definitively answer this question. Still, beyond the question of internal company management, these personnel retention and acculturation decisions have ramifications for the larger business environment within which these companies work. Thus, treatment of workers in a semiregulated industry can be an object of interest for both governmental bodies and labor unions. It also has implications for the recruitment and retention of the most talented workers. And, in some very rare cases, these decisions have become the concerns of very high levels of government.

In conclusion, corporate culture change programs have significance not only for the companies and employees directly involved in them: the programs chosen by companies can spill over into the political and public arenas, rebounding in ways that lead to governmental expressions of concern that directly intervene into internal corporate matters. As a consequence,

such corporate culture change programs need to be conceived with judiciousness and prudence so that they have the potential to achieve results that will help the corporation achieve success while improving the lot of its employees.

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Endnotes

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2. Gordon and Cummins (1979).

3. Coll (1986).

4. Clark (1985).

5. Collins (1979).

6. Whyte (1956).

7. Maddox (1977).

8. Lawrence and Lorsch (1967), Katz (1984), and Galbraith (1973).

9. Katz (1984).

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11. Stanfield (1986).

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13. Elmes and Costello (1992).

14. Dunn, Norburn, and Birley (1985).

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16. Hansen and Wernerfelt (1989).

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19. Wachtel (1993).