The International Handbook of Telecommunications Economics Volume III
Edited by Gary Madden

CHAPTER 10

Sprint — GTE's lost opportunity

James Alleman
Columbia University, New York, USA

Larry Cole
Cape Cod, MA, USA

Introduction

This chapter explores the development of GTE as a leading telecommunications company by focusing on its dynamic period of growth, the late-1970s and early-1980s. During this period the telecommunications industry was undergoing unprecedented change. Competition was expanded to ever widening areas due to court and Federal Communications Commission (FCC) decisions – private lines (FCC, 1959), private microwave systems (FCC, 1969), customer premise equipment (FCC, 1968), domestic satellites (FCC, 1972) and public switched networks (PSTN) (FCC, 1976) and (FCC, 1978). Technology innovation proceeded apace, with cellular mobile service implemented after many years of regulatory debate, and the nascent Internet was being developed. Market structure was also undergoing change. The most radical change was the 1984 divestiture of the Bell System to settle an antitrust lawsuit. Further, new inter-exchange carriers were gaining market share. Clearly, the traditional monopoly structure dominated by the Bell System and mimicked by GTE and other independent telephone companies, albeit without the long-distance segment, was changing dramatically.[1] GTE had a tradition of exchange carriage and equipment manufacture (through its Automatic Electric subsidiary), but provided only limited international telephone service. Although GTE had 33 state exchange telephone operations it did not comprise a network since GTE had no mechanism, as did AT&T Long Lines, to interconnect its operations. Rather, GTE had a symbiotic relationship with AT&T, both in the regulatory arena and the long-distance market.[2] In the long-distance market, AT&T was both GTE's largest single customer for access, and adversary in the regulatory (and policy) arena. In this context, GTE attempted to enhance its position by employing a reorganization and acquisition strategy. This chapter focuses on GTE's acquisition of Southern Pacific Communications (SPC) from the Southern Pacific Railroad (SPR), a move that resulted in the formation of GTE Sprint.[3]

Telecommunications environment

Industry regulation and deregulation

The late-1970s and early-1980s marked a watershed for the telecommunications industry. This period culminated in the 1984 divestiture of AT&T into a long-distance company and seven regional operators. AT&T's manufacturing arm (Western Electric) remained, and Bell Laboratories was divided between AT&T and the regional operators. While these events appear to have sparked major industry transformation, the root cause was earlier judicial, legislative and regulatory action. An appreciation of these influences drove GTE to acquire SPC. A brief review of these events, emphasizing issues critical to the SPC acquisition, is provided below. This investigation focuses on the metamorphosis of SPC to GTE Sprint, and ultimately to Sprint. Sprint progressed from the formation of SPC (which, in turn, had evolved from the internal communications system of Southern Pacific), to the purchase of SPC by GTE that resulted in GTE Sprint, to the eventual takeover of GTE Sprint by the exchange company United Telecommunications (United). The move by United into long-distance markets set the stage for the development of Sprint Corporation. To provide historical context for the discussion, a brief overview of the companies is provided.

GTE

Until the break-up of AT&T in 1984, GTE was both the second-largest US communications common carrier and largest independent telephone company.[4] GTE served almost 8% of US telephone lines and offered a wide range of voice and data services. It manufactured telephone equipment through its subsidiaries, Automatic Electric and Lenkurt. Outside the US, GTE's telephone operations consisted of the British Columbia Telephone Company (Canada), Quebec Telephone (Canada) and CODATEL (Dominican Republic). Additionally, GTE owned Telnet, a packet-switching network, and for a brief period the GTE Sprint long-distance network.[5]

SPC

In the early-1960s AT&T's long-distance service was unchallenged in its market dominance. This position changed rapidly as major companies began lowering their point-to-point telecommunications costs by installing private lines (PLs), although AT&T tariffs restricted widespread use of PLs. In particular, PLs could not be shared for profit (Dow Jones, 1982). In 1969, MCI won the watershed *above 890* case. That decision allowed MCI to provide PL service, enabling direct competition with Bell System's AT&T Long Lines Division.[6] Consequently, SPR quickly realized the value of its railroad right-of-way and internal communications network. SPR subsequently created SPC and employed a microwave system along its railroad tracks that was used to replace the existing telegraph system. By the 1970s, as regulatory constraints were lifted, SPC started to lease its circuits to private businesses. With the *above 890-decision* (FCC, 1959) expansion into PL network business became plausible. SPC later expanded into a facsimile service but did not offer dial-up service until after the EXECUNET decision in late-1978.[7] By this time, SPC had the foundation of a backbone network in place (Cook, 1982). After the EXECUNET decision, SPC became an independent entity. By the early-1980s SPC had regained profitability by reporting a 34 million US dollars (USD) operating profit (Cook, 1982). Additionally, unlike MCI and other industry leaders, SPC had plans to launch 2 satellites in 1984.

United

By the early-1980s United was an exchange telephone provider. In 1984 United acquired the low cost long-distance provider, US Telephone. United subsequently announced its intention to build a 100% digital fiber-optic cable network. This undertaking was realized in 1987 (Sprint Communications Company, 2002).[8] However, United found such network investments a substantial drain on earnings. Accordingly, to mitigate the financial burden of exclusively supporting the projects, it joined with GTE. At this time, GTE investment in expansion of the GTE Sprint network was approximately USD 1.5 million. In 1986, this partnership (called US Sprint) was equal, as both United and GTE held 50% shares. In this year, the "pin drop" commercials broadcasting revolutionary fiber-optic capability under the "Sprint" corporate name were launched. Advantages accrued to the partnership from United's technology, GTE's network and name recognition, and traffic generated from its former dealings (Sprint Communications Company, 2002). By 1989, United obtained a controlling (89%) interest in the partnership. Two years later, United obtained the remaining share of the company and changed the name to Sprint Corporation. Ironically, although GTE's Rocky Johnson sold the balance of Sprint to United because he was discouraged by a forecast of low profits, Sprint's value rose sharply shortly thereafter.[9]

Evaluation and critique of GTE's acquisition of SPC

To gain insight into GTE's development, it is helpful to examine mistakes it made in the purchase of SPC. Most errors appear to have stemmed from not understanding well the emerging market environment in which it would be operating. Further, its management structure was suited to running a monopoly telephone company and working within a regulatory process rather than to operating a competitive firm with commodity services. In particular GTE's executive management had:

(a) Little understanding of the competitive telephone sector and how to handle interconnection (access) charges;

(b) A poor valuation analysis that suggests that GTE overpaid for SPC (which is related to its unfamiliarity with an unregulated market);

(c) Not anticipated the government response to a full, vertically integrated company on the heels of the Justice Department's (DoJ's) settlement of an antitrust suit against AT&T for foreclosing on competitive long-distance providers (GTE was attempting to emulate the former-AT&T standard); and

(d) Unanticipated management issues.

Table 1: Issues and their impact on GTE Sprint.

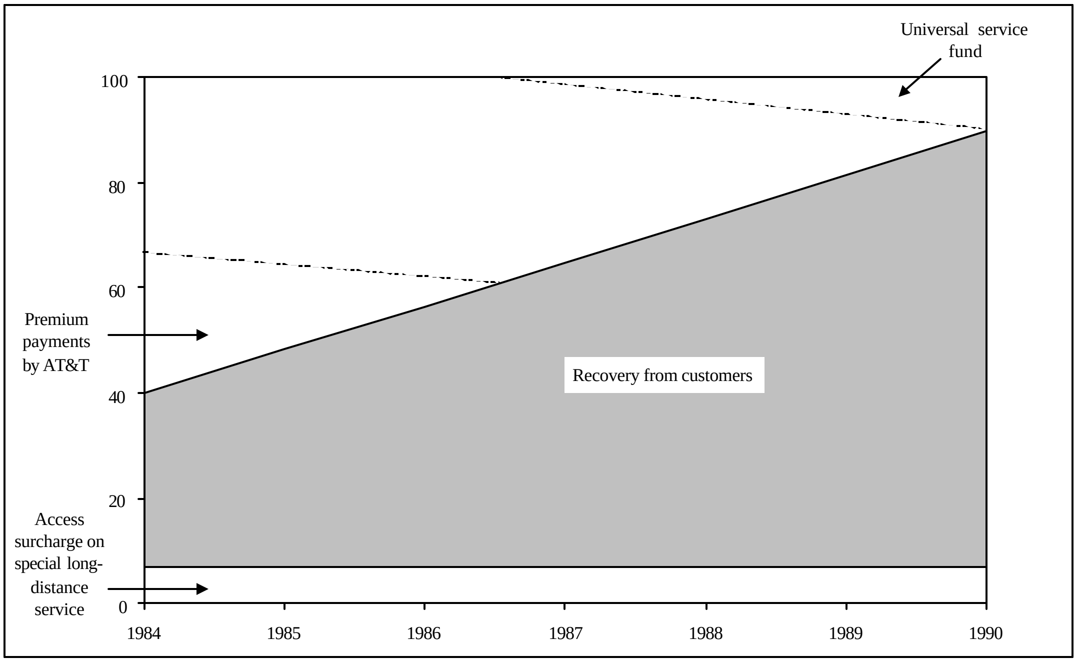
Miscalculation	Impact
Access charges	Increased costs -- led to faulty valuation
Anticipation of consent decree	Foreclosed economies of scope and GTE's exchange market
Commoditization of long-distance	Drove prices to marginal cost and reduced margins
Management ability	Lost revenue, customers and respect for "brand"
Valuation of SPC	Higher purchase price of SPC

These miscalculations contributed to a GTE net loss of more than USD3 billion, and the loss could easily have exceeded USD6 billion. A detailed analysis of the factors listed in Table 1 is provided below.

Access charges

A major error by GTE negotiators was their failure to anticipate the importance of a change in access charges for interconnection to the PSTN. With the break-up of AT&T interconnection charges were expected to fall but GTE failed to anticipate the magnitudes involved. It is unclear whether GTE recognized this factor in its pre-acquisition analyses; however, the purchase was consummated it most likely did understand the problem, if not its magnitude. The interconnection charge changes led SPC from an operating profit to a negative cash flow almost immediately after its sale to GTE.[10] A key factor that GTE's strategic planning group failed to grasp was the arcane mechanism used to determine telephone industry "costs". The system was founded in the *Smith v. Illinois* decision where the Supreme Court ruled that some local exchange equipment (or plant) had to be allocated to intrastate and interstate long-distance service by jurisdictional separation. Through time this cost allocation steadily increased (Weinhaus and Ottinger, 1988).[11] Jurisdictional separation of cost began as a small percentage of local costs but grew as different plans were implemented. By the early-1970's, the Ozark Plan pushed the allocation to over 20% of exchange plant or 30% of long-distance revenue (Horn, 1977). This sum steadily increased, since the allocation was based on the number of long-distance minutes, which consistently grew (multiplied by 2.85, see Figure 1). With the imminent divestiture of the Bell System in 1984 the allocation was capped at 25%. However, other common carriers (OCCs) were not initially burdened with these costs. OCCs operated under the ENFIA Tariff (ENFIA), which was payment for lines used to send traffic from Bell's central office to OCC's networks. With the former Bell System divided into long-distance and local segments, the scheme could not be sustained. As the AT&T divestiture and new access charges took effect on January 1, 1984, parity had to be established. Further, as technical parity, or "equal access" was achieved these access charges were paid by the OCCs (Horn, 1977).[12, 13, 14]

Figure 1: Forecasted Percentage of Jurisdictional Separations Allocations



An anonymous GTE insider repeatedly suggested that Thomas Vanderslice, GTE's President, Theodore Brophy, GTE's chairman and chief executive, and the strategic planning group did not anticipate the change to access charges ordered by the FCC, or at least did not contemplate the magnitude of the impact that such changes would have. This was confirmed by GTE's presentations before the FCC asking to hold back the change in the access charges. Several others asserted that telephone operations associates were aware of the likely impact that such changes would have, but Vanderslice failed, at least initially, to heed their advice. While Brophy was present at most of the meetings and negotiated the deal with Benjamin F. Biaggini (SP's Chairman), he was not the driving force behind the acquisition. Vanderslice directed the strategy. An additional problem confronting GTE was that the separation (settlement) process provided great revenue and high margins to telephone operating companies. The synergy between independent telephone companies and AT&T with regard to the settlements process hamstrung GTE. Under the ENFIA rules, GTE Sprint received preferred rates for interconnection. The ENFIA rates were based on a fraction of what the operating companies received based on the traditional separations and settlements process with which they had settled with AT&T's Long Lines Division for the use of their network. Moreover, the operating companies received high returns from AT&T long-distance calling. Switching to a cost-based approach increased the costs to OCCs, including GTE Sprint.[15] It must be asked whether the strategic planning group seriously considered this relationship between telephone operations and GTE Sprint in a corporate structure prior to purchase. Further, was there a failure to grasp the significance of the synergy between the entities? Based on interviews with the participants it is clear that this was the case.[16]

The 1983 GTE Annual Report reflects the tension between the telephone operating companies and the "new" long-distance company:

> Through 1983 toll revenues were received by GTE telephone companies under revenue-sharing arrangements with the Bell operating companies, whereby each company received expenses incurred in providing toll services ... The FCC recently adopted an order (revising previous orders) which will alter the toll revenues process by instituting a new system of access charges. Access charges represent a new methodology by which local telephone companies charge their customers for access to long-distance facilities and charge long-distance carriers, such as GTE Sprint, for interconnection with local facilities … Until the new system becomes effective in 1984, it is anticipated that GTE's telephone companies will continue to receive access related revenues through interim compensation arrangements such as those currently in place … The order appears to be generally favorable to GTE's telephone operating companies. However, GTE Sprint's charges for the use of local facilities will increase significantly (GTE, 1984: Note 3).

Such tension complicated GTE's regulatory strategy. At the corporate level, GTE began pressuring the Federal Communications Commission to maintain the existing ground rules of the ENFIA tariff. "As part of its lobbying effort, GTE released a gloomy assessment by consultants Booz-Allen & Hamilton (1985). The USD2 million study predicted that GTE Sprint and other alternative carriers faced minuscule returns, and possible extinction, unless the FCC gave them relief".[17] While it seems clear that GTE failed to anticipate the significance of these impending changes, evidence exists that other industry observers did recognize the potential effects of altering access charges (Cook, 1982):

> "In addition to accelerating the reorganization of the industry, the split-up of the Bell System will also get rid of the industry's pricing structure. As a monopoly, AT&T was encouraged by regulators to establish rates based on average costs throughout the country … For instance, 37 cents of every long-distance dollar still goes to support local telephone services" (*Business Week*, 1982).

However, after GTE had purchased SPC and had entered the maelstrom, it recognized the problem. "At a meeting with NY securities analysts in late November 1985, Theodore F. Brophy and other GTE officers said that although Sprint continues to experience growth in its list of customers and calling volumes, *the operation was caught in a squeeze between rising costs and aggressive rates*" (emphasis added) (*Electronic News*, 1986).

Anticipation of consent decree

At the time of GTE's purchase of SPC, the AT&T Modified Final Judgment (MFJ) had been announced. The terms of the MFJ included excluding Regional Bell Operating Companies (RBOCs) from the long-distance market. This structural remedy was designed to prevent RBOCs from giving AT&T preferential treatment. It was naï ve for GTE to believe that the government would let it recreate a similar arrangement that had just been terminated. Indeed, the DoJ filed suit against GTE for attempting such a move and a compromise was reached that mimicked the MFJ settlement with AT&T. The agreement (Consent Decree) distinguished long-distance and local telephone operations. The Decree destroyed GTE's attempt to establish an integrated service provider and any economies of scope it might have obtained from the proposed system. GTE was overshadowed by the size of AT&T. For example, in 1981 GTE revenues reached USD11 billion, less than a fifth of AT&T's USD60 billion in revenue. GTE had always relied on AT&T to provide its customers with long-distance service; however, with the purchase of Sprint's long-distance network, GTE could finally become a leading telephone company and gain capabilities that AT&T no longer possessed, due to DoJ imposed constraints. GTE intended to become an integrated telephone company supplying local service, trunk calling, telephone equipment and value-added services such as e-mail and commercial data transmission. GTE Chairman Theodore F. Brophy stated that "purchasing Sprint permits us to enter the long-distance field we are not in now. GTE's aim is to strengthen its position relative to AT&T" (Cook, 1982). With GTE's acquisition of SPC, it had hoped to establish a national telephone network that had a base of approximately 425,000 long distance subscribers. Since the acquisition would include Sprint, SP's long-distance telephone operation, GTE would finally acquire a long-distance telephone network in addition to its 16 local US telephone companies. Consequently, GTE would become the third largest US long-distance telephone provider, following AT&T and MCI.

Acquisition was hampered by the failure to anticipate limitations imposed by the Consent Decree. Pursuant to this arrangement, GTE had to maintain a "Chinese wall" between GTE Sprint and telephone operating companies, which included assets, operations and personnel (Hasson, 1983). After the AT&T antitrust suit was won, the DoJ sued to block the SPC acquisition, but settled with the execution of the Consent Decree in December 1984 (*Wall Street Journal*, 1984). The Decree that curtailed GTE's actions was similar in scope to AT&T's MFJ and provided:

(a) Restrictions on competitive operations within the telecommunications company;

(b) Long-distance had to be separate from telecommunications company operations;

(c) GTE telecommunications companies could not discriminate against long-distance carriers;

(d) Telecommunications companies could not provide long-distance services or own facilities; and

(e) GTE could not purchase another long-distance company for 10 years.

Moreover, according to Judge Greene, the Decree required, "… GTE to provide equal access to OCCs and these criteria for establishing exchange and serving areas are 'reasonable' (*Communications Daily*, 1984: 1). That is, at this point GTE was well aware that equal access and a revision of access charges were in order.

Commoditization of long-distance service

GTE further miscalculated by failing to anticipate the extent to which long-distance service would become a commodity. For instance, customers are not concerned about which company provides them with service. In a commodity market prices are driven down to costs for all competitors. When prices are similar, only then does the brand name make a difference. AT&T had an advantage of holding the long-distance brand name. It is ironic that both GTE and AT&T management did not recognize this. [18]

Management ability

GTE had management problems with SPC after purchase. A high turnover among its executive staff prevented consistent, focused and effective performance. GTE Sprint lost in excess of USD 2 billion from a defective billing system and defaulting customers. Even areas with successful records, like marketing, under performed. Further, GTE Sprint failed to produce capacity to meet increased sales volume. While management can be faulted for many of the difficulties encountered, one interviewee observed that GTE Sprint, as a whole, did not execute well. Failures in marketing bred customer dissatisfaction and a sullying of its reputation. While GTE Sprint developed innovative tariffs to attract customers, it lacked the network to serve them properly. Finally, GTE Sprint ran out of capacity a year after its purchase by GTE and began incurring substantial losses (Levine, 1985). The lack of capacity soured customer relations and slowed revenue growth. GTE Sprint's revenue growth of 0.5% was substantially weaker than MCI's (its chief OCC competitor) at 2%. By 1985 competitors constituted 8% of the market. Finally, GTE Sprint's senior executives and the majority of its marketing personnel left wreaking havoc on the core organizational structure.

Valuation of SPC

As demonstrated, not only did GTE pay too much for SPC property, but it was also hindered by disadvantageous terms of sale. The omission of a non-competition clause was damaging. This oversight could have been due to GTE not being a competitive operator. Also GTE failed to secure the right to the settlement of the antitrust suit SP had filed against AT&T. Further, negotiations did not consider SP's poor financial status. The holding company was in debt as it struggled to maintain companies in two capital-intensive industries. More importantly, and quite amazingly, GTE paid 30 times SPC's projected earnings. Even worse, the predicted price-earnings ratios were based on an expected return that did not materialize due to expected changes in ENFIA, separations and settlements. Another compelling reason to suggest GTE paid too much for SPC was Vanderslice's admission before the FCC staff that with the change in access charges proposed by the FCC, even USD1 would be too much to pay. The question then becomes, what criteria did GTE employ in determining its SPC valuation? The assessment was principally based on an analysis of discounted cash flow (DCF). While many variables are involved in DCF calculations, the major factor is the estimated cash flow or its growth. Just prior to acquisition, SPC secured a cash flow of USD34 million and over twice that amount was projected for 1982 (USD37.1 million in the first half of 1982). If as suggested the strategic planning group did not anticipate changed access charges and projected unadjusted cash flows, the purchase price of nearly USD1 billion (comprised of USD0.740 billion cash and USD0.200 billion debt) that GTE paid appears 'reasonable'. External analysts were amazed by the price SPC commanded, e.g., Robert Long, vice president with the First Boston Corporation indicated that USD750 million represented 30 times estimated earnings for 1982, and nearly seven times the net assets of the acquired companies (Bonner, 1982).

At the time of negotiations with GTE, SPR was in financial difficulty. Before execution, SPR's long-term debt nearly doubled, coverage of that debt narrowed and the debt ratio grew in the face of asset sales. Railroad and telecommunication companies are capital-intensive and SPR was comprised of both. Moreover, the period was characterized by unprecedented high interest rates and a shortage of capital. SPR was also in need of capital to refinance its long-term debt of USD750 million at interest rates potentially up to four times the rate of the debt it replaced (Cook, 1982). Further, "Southern Pacific Company has vast assets and a strong foothold in a great growth industry …. SPR needs capital — and the capital just may not be there" (Cook, 1982). That was the moment GTE came to the rescue and paid an exorbitant price to acquire SPC. The price paid likely resulted from a lack of industry knowledge and its lack of sophistication in financial markets. This shortage of industry insight may be attributed to the fact that GTE's strategic planning team came mainly from the manufacturing side of the business. Vanderslice, from GE, was also not part of the industry before joining GTE. The strategic planning group did not have telephone operating company expertise and, more importantly, did not understand the implications of regulatory accounting, which drove the disparity in costs between AT&T Long Lines and long-distance competitors. An additional lack of experience in competitive markets compounded the problems. With the exception of consumer electronics, the manufacturing side of the business had markets in place, i.e., GTE's telephone companies.[19] Competition was not of concern, since the operating companies had to buy from Automatic Electric and Lenkurt. Management, however, viewed itself as more efficient and technically more adept than that of SPC's (Bonner, 1982).

Postscript

While GTE failed to capitalize on its acquisition, SPR was more astute. When GTE purchased SPC, it apparently did not include a non-competition clause with SPR. Almost immediately after the sale, SPR founded SP Telecom to lay fiber-optic cable along its railroad right-of-way. In 1995, SP Telecom was created as a spin-off of SPR (much as SPC had been created) and renamed Qwest Communications when it went public, which acquired USWest in June 2000 (Anschutz Investment Company, 2001). Did GTE unintentionally promote the rise of a new competitor by simply failing to assert a standard contractual safeguard?

Conclusions

The reasons for GTE's purchase of a long-distance telephone company like SPC were compelling. GTE was heavily involved in the telecommunications industry and other high-technology business. It had an impressive return on investment, and its management was highly effective in handling the regulatory process. Further, GTE needed to move into the long-distance market so as not to be left behind in this emerging and competitive market. However, there were several reasons why the move was imprudent. To begin, exchange and long-distance markets are very different. The former market was traditionally, and largely remains, a monopoly enclave. The latter market is a competitive and ruthless market whose services quickly became a commodity. Competit ion is a vastly different environment from a regulated scheme — regulation moves deliberately and slowly, while competition is dynamic. In the regulated environment, management only had to focus on a single entity — the regulatory commission. Conversely, in a competitive environment customers are not captive. When a company does not deliver quality or price consumers go elsewhere. And perhaps most importantly, in a competitive scheme there is no appeal to the Eighth Circuit Court. GTE's collective reasoning was not able to assimilate these distinctions. Further, it lacked understanding of the competitive long-distance market. These factors, coupled with other errors, prevented GTE from making GTE Sprint profitable. Other important mistakes included a poor understanding of interconnection charges and valuation analysis, and a government imposed Consent Decree. The mistakes collectively produced a net loss of at least USD3 billion, and perhaps as high as USD6 billion.

References

Anschutz Investment Company (2001), *Telecommunications — Qwest 2001*, October 22.

Bodie Z. a. R. C. M. Princeton Hall, New Jersey.

Bonner R. (1982), "GTE to buy Sprint phone", *New York Times*, Section 1, p. 33.

Booz-Allan & Hamilton (1985), *Booz-Allan & Hamilton Notes*, Prepared for GTE Corporation.

Business Week (1982), "Everybody's favorite growth business: The battle for a piece of the action", p. 60.

Communications Daily (1984), "Modifying Consent Decree: Greene sets condition for approval of GTE acquisition of Sprint", *Communications Daily*, 4 (242): 1.

Cook J. (1982), "Doomed?", *Forbes*, p. 57.

Dow Jones (1982), *Dow Jones*.

Economist (1982), " GTE: Sprinting Round the Regulators", p. 74.

Electronic News, "GTE eyes Sprint sale to U. Telecom".

Federal Communications Commission (1976), *(EXECUNET II); Regulatory Policies Concerning Resale and Shared Use of Common Carrier Services*, Docket Number 16495 edn.

Federal Communications Commission (1976), *aff'd sub. nom. AT&T v. F.C.C.*, Docket Number 16495 edn.

Federal Communications Commission (1972), *Establishment of Domestic Communications Satellite Facilities by Non-Governmental Entities*, Docket Number 16495 edn.

Federal Communications Commission (1959), *Allocation of the Frequencies in the Bands Above 890 Mc.*, Docket Number 11866 edn.

Federal Communications Commission (1969), *Microwave Communication Inc.*, Docket Number 16509 edn.

Federal Communications Commission, *An Inquiry into the Use of the Bands 825-845 MHz and 870-890 MHz for Cellular Communications Systems*, Report and Order. CC Docket No. 79-318.

GTE (1984) GTE.

Hasson J. *BC Cycle.* 1983.

New York Times (1983), "GTE takeover hits snag", Section 1; Column 5, p. 38.

Shiller R. J. (2001b). Broadway Books, New York.

Sprint Communications Company, http://www.sprint.com/sprint/ir/sd/sh.html, visited on January 2, 2002.

Vietor R.H.K. (1994) Belknap Press of Harvard University Press , Cambridge, MA.

Wall Street Journal (1984), "GTE Corporation accepts Consent Decree making Sprint acquisition final".

Weinhaus, Carol L., and Anthony G. Oettinger. *Behind the Telephone Debates.* [1988/Book] Norwood, N.J.: Ablex Publishing Corp.

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1. GTE's Hawaiian telephone company did provide international and long-distance to the US mainland. Those services were relinquished with the purchase of Sprint.

2 Although GTE had its equipment business, it still purchased equipment for AT&T.

3. After SPC's purchase by GTE the resultant company was referred to as GTE Sprint. This company should not to be confused with the Sprint Corporation. United changed its name to Sprint after it purchased GTE Sprint to gain name recognition. Sprint is currently the merged company of GTE Sprint and United long-distance service, plus the exchange carriers of United and its mobile services.

4. "Independent" telephone companies were non-Bell System companies.

5. GTE had non-telecommunication industry subsidiaries, e.g., the consumer electronics producer Sylvania Electric.

6. This was the initial of a series of cases culminating in the EXECUNET decision of late-1978 which allowed MCI to enter the PSTN.

7. EXECUNET service allowed customers to dial in sequence a local or toll free number, password or account number and destination number. This "access" was considered unequal with the method used by AT&T.

8. United often deployed innovative technology early, e.g., in 1978 United laid experimental fiber-optic cable and the year following digital switches. By 1983 United had 17 locations with fiber-optic cable and almost 750,000 customers serviced by digital switches. By 1985 the network consisted of 4,700 miles of fiber-optic cable and had projected installation of 23,000 more miles of fiber-optic cable. Sprint, too, was a technology leader and had the first US coast-to-coast fiber-optic transmission in 1986. Sprint was also first to install Signaling System 7 throughout its network and executed trans-Atlantic fiber optic telephone transmission in 1988. Conversely, GTE had little digital connection or fiber-optic cable infrastructure.

9. Rocky Johnson may not have acted unwisely, since incumbent local exchange carriers generally had, and continue to have, better returns than long-distance operators.

10. A commentator, who worked for AT&T Long Lines just prior to the Sprint acquisition, said that the SPC management was structured to appear attractive to prospective buyers. This management remained with the company after the acquisition for quite some time.

11. The formula was:

$$SPF\% = (0.85 + 2(CSR\ ratio))\ SLU\%$$

where SPF is the subscriber plant factor, CSR the composite station rate and SLU the subscriber line use (per minute). The ratio was frozen in 1970, a year after its adoption, since it favored certain states. SPF increased through time with the SLU, and in 1982 it was capped at 25% for all companies.

12. The technical parity – 1 plus dialing – was to be implemented over 4 years from the time of the divestiture.
13. Because the cost in the long-distance service declined as microwave technology was introduced into the long-distance network, the move to larger allocations did not affect long-distance rates. Long-distance prices could absorb these costs, while, at the same time, allocating costs to long-distance avoided increased local rates, which were and remain politically sensitive. While allocated costs increased, actual cost was declining significantly from the early-1940s to the mid-1970s; the average investment cost per circuit fell from approximately USD110 to USD18. While long-distance rates declined during most of this period, they began to increase in 1971. Within 5 years, this increase had grown to over USD600 million (Horn, 1977: 22-23).
14. Much regulatory argument was concerned with this issue. In particular, when should the conversion to equal access tariffs be implemented – when each exchange was converted or when a fixed (large) percentage of the US was converted to equal access? AT&T argued the former and OCCs the latter. Generally, the OCCs prevailed in these regulatory arguments.
15. The impact of the move to alternative access charges was less clear for the telephone operating companies, because the FCC designed the rates to maintain the revenue stream of the local carriers.
16. Prior to the purchase one of the authors was questioned by a person in charge of the SPC purchase. The author's group in telephone operations had undertaken a study that examined the telephone industry and the impact of separations and settlements. That study showed AT&T had economic costs of approximately half the retail price it was charging. That is, when separation costs were removed, AT&T could halve what it was charging and show a profit. The strategic planner passed the comment, "I cannot tell you why, but this is important information and I need to understand it". The statement was made three days prior to the public announcement of the SPC acquisition. Clearly, such input was too late to stop the acquisition. But what is astounding is that the corporate strategic planning group failed to understand this prior to purchase. Not only did it have important implications for the competitive position of SPC, *viz-à-viz*, AT&T but also the positive relationship between GTE Telephone Operations and AT&T.
17. The report was a two-edged sword. As the *Economist* put it, "This tactic may become the ultimate in public relations hara-kiri. As soon as the study was released, Prigmore (President of GTE Sprint) stated their salespeople reported customers weren't buying, as they thought GTE was going out of business."
18. At divestiture, most Bell System management tried for an AT&T assignment. In hindsight, AT&T and its management suffered most. The company has undergone voluntary divestitures, often changed senior management and lost market share. However, the RBOCs have been extremely stable. The RBOCs maintained their monopoly in the face of competition and their profits have not fallen.

19. The consumer electronics industry was very competitive and may be why GTE moved out of that industry. It should be noted that GTE California had to put equipment purchases out to competitive bids, though this was because of a regulatory order of the California Public Service Commission.