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South African Telecommunications: History and Prospects

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Covering the broad tip of southern Africa and possessed of vast mineral deposits, South Africa is the most important industrial nation in Africa. Historically, it has been among the world's largest gold and diamond producers, and it continues to derive at least one-seventh of its gross domestic product (GDP) from mining and quarrying. At R431.5 billion in 1994, South Africa's GDP is by far the largest in Africa.¹

Of course, what is unique about South Africa is its politics. For the most part, white domination of the country's majority black population has been the rule since Dutch settlers arrived in the Cape peninsula during the latter half of the seventeenth century. Although serious hostility has always existed between Afrikaners (descendants of mostly Dutch settlers) and the English (who began settling the territory after Britain seized the Cape in 1806 to protect its Indian sea route), they essentially made common cause when it came to the use of black labor. This was particularly true after diamonds and gold were discovered in the late 1800s. The emergence of South Africa as an independent republic in 1910 rested on policies explicitly designed to ensure that whites retained political power and control over the state. A wide range of measures ended the limited access of "Coloureds" (mixed race) and Africans to the vote and required that all senior positions in the state bureaucracy be filled by whites. Historically, the South African republic had been a democracy for whites.²

In 1948, South Africa's system of racial separation became dramatically explicit and manifested itself in a series of nefarious laws known as apartheid.

Although the apartheid policies succeeded in securing a low-wage industrial reserve army for South Africa, they created vast inefficiencies. Black "guest workers," for example, were needed in cities, but were forced to live far outside them, thus forcing South Africa's transport system to accommodate massive long-range daily population movements—at the cost of considerable state-provided subsidies. Outlays for police and security represented other inefficiencies: while always high, these outlays reached immense proportions in the years following the 1976 uprising in Soweto.

In 1993, the population of South Africa, including the ten black homelands, was approximately 38.5 million. Blacks made up 75.6 percent of this total, Asians (primarily people of Indian ancestry) 2.6 percent, mixed-race inhabitants 8.6 percent, and whites 13.2 percent. In the mid-1990s, some 89 percent of Asians, mixed-race South Africans, and whites were urbanized, compared to only 50 percent of the country's Africans. In 1992, more than half the African population was under nineteen years of age (South Africa Institute 1992, p. 2). Decades of legalized discrimination and violence against Africans had resulted in a remarkably unequal society. Employed Africans, for example, are situated overwhelmingly in semiskilled and unskilled labor markets, and although accurate statistics are often difficult to obtain, unemployment among Africans in the early 1990s was estimated at 45 to 46 percent of the economically active population (South Africa Institute 1992, p. xliii; "Recession Leaves 46% without Jobs" 1993). The repeal of "influx control" laws in 1986, which brought about a 28 percent increase in the number of urbanized blacks, did not end the nation's economic inequality. Moreover, a sizable percentage of Africans lives in informal settlements and squatter camps situated at the edges of black townships, without access to tap water or sewage facilities, much less electricity or telephones.³ Even with the formal end of the apartheid state, per capita expenditure on schools finds Africans receiving just 25 percent of traditionally white school expenditures (South Africa Institute 1992, p. 195). Unemployment levels remained unchanged and proved to be one of the most intractable problems facing the popularly elected government in 1994.

It is in politics that the major dramatic changes in South Africa have occurred. The concatenation of three forces—widespread overt opposition to racial rule, efforts of the state to preserve white minority control, and international pressure—gave rise to a process of debilitating economic crisis and intensifying political conflict that placed intense pressure on the South African state (Price 1991). In 1990, the government of F. W. de Klerk legalized banned organizations, including the African National Congress (ANC) and the South African Communist Party (SACP), and began the process of rescinding the formal laws of apartheid.⁴ This led to tremendous political activity on all fronts, a great deal of conflict (some violent), and a general worsening of the economy. In the period after the legalization of the ANC, representatives of the black majority engaged in difficult negotiations with the white government to establish new political ground rules and structures, including the resolution of fundamental questions over power-sharing arrangements versus one-person, one-vote democracy. Struggles within the African population itself also arose, the most prominent being the frequently violent confrontations between supporters of the ANC and those of the Inkatha Freedom Party (see Adam and Moodley 1992). Momentous elections held in April 1994 brought to power a coalition dominated by the ANC, which called itself the "Government of National Unity (GNU)."

Less noticed than these highly visible political changes was an important transformation in South Africa's political economy. Long a strongly interventionist state characterized by extensive government involvement in the economy, in the years of economic crisis, the South African state began to dramatically scale back its economic activity. Historically, much of the state's intervention in the economy

involved controlling labor markets under the apartheid system, and apartheid secured a continuous flow of phenomenally cheap black labor to white farms, mines, and factories. But state intervention in South Africa also entailed the operation of monopolistic public corporations—known as “parastatals”—in many areas of economic life. In the past few years, the South African government began disengaging from its extensive historic involvement in the parastatals. Telecommunications is one of several sectors—including electricity and transport, oil, and iron and steel production—where this retrenchment of state intervention took place.

12.1 The “Ancient Regime”

Historically, the South African Posts and Telecommunications (SAPT) was in most respects a classic post, telephone, and telegraph (PTT) monopoly, legally monopolizing postal and telecommunications services and operating a system characterized by internal cross-subsidies (*Statutes of the Republic of South Africa* 1958). Perhaps the clearest cross-subsidy was that from telecommunications to posts. With the entire operation statutorily forbidden either to make a profit or to experience loss, profitable telecommunications services balanced out large operating losses on the postal side. The SAPT, often colloquially referred to simply as “the Post Office,” was classified as a “state business enterprise” and was run through the office of the Ministry of Transport and Communications.⁵ After the emergence of the South African Republic (most often referred to as “Union”) in 1910, the finances of the Post Office were controlled by the Treasury. Post Office revenue was paid into the Exchequer and all Post Office expenditures came from the Exchequer. Because it operated directly out of a government ministry and hence was tied to Parliament’s annual planning cycle, the SAPT generally experienced close financial oversight. The oversight system evolved such that the SAPT had to submit detailed annual reports on its budgets, accounts, and proposed capital expenditures to the Auditor-General (an instrument of Parliament), who then wrote a report on the SAPT.

Under this system of oversight, the SAPT as a rule experienced little outright corruption or gross overspending but generally suffered from a shortage of capital inasmuch as it had to compete for funds with other central government capital projects. Close government oversight also meant that the SAPT did not set its tariffs according to marginal costing principles. Since members of South Africa’s Parliament felt that they had to serve their constituents’ interests in low telephone rates, tariffs were set well below the level that would have enabled the SAPT to meet demand expediently. If upward tariffs were thought to contribute to inflation or proved politically difficult for the transport and communications minister, they were typically adjusted downward (Taylor 1992). In 1968, South Africa’s system of financing changed to some degree when the Post Office’s finances were separated by law from the Exchequer and placed under its own control. Yet while the SAPT controlled its revenues, it was still dependent on Treasury loans to finance capital expenditures. As in many nations, the SAPT operated a savings bank that provided for some of its loan requirements. The operation of the bank

itself, however, was an expensive undertaking. It was only in 1972 that the SAPT finally received permission to seek its own local or offshore financing ("Posts and Telecommunications" 1986, pp. 47–48).

Judging by comparative productivity indexes, one could reasonably conclude that the SAPT functioned as a repository for public employment. For instance, on the telecommunications side access lines in service per employee measured a relatively low 45.4 as late as 1989. By way of contrast, South Korea measured 226.3, the United States 130.6, and Mexico 95.6. Even Turkey outperformed South Africa at 65.9 access lines in service per employee, according to 1989 data (Coopers & Lybrand 1992, p. 16).⁶ This performance, however, must be understood in the broad context of South Africa's apartheid variant of the interventionist state: South African parastatals historically have been the focus of the "job reservation" system, whereby unemployable whites (primarily poor Afrikaners who had left farming) were given jobs by the state or its parastatals. At the very least, the SAPT participated in the job reservation system indirectly, through the contracts the Post Office fashioned with domestic equipment manufacturing companies, which particularly in the early years were under mandate to hire whites (Kaplan 1990, pp. 31–32).⁷

12.1.1 The SAPT and Local Telecommunications Equipment Manufacturing

The relationship between the SAPT and domestic equipment providers functioned, as in other nations, in the manner of an industrial policy, with local purchasing obligations and high domestic content requirements. In the main, the policy succeeded rather well. By the mid-1990s, the manufacture of telecommunications equipment constituted the largest part of the South African electronics sector. Prior to 1958, the SAPT's equipment was supplied by the principal contractors to the British Post Office: Automatic Telephone Electric Company, Siemens U.K., and Standard Telephones and Cables. In 1958, with military and strategic considerations in mind, the government utilized the SAPT's monopsonistic power to establish extensive local production of telecommunications equipment. Long-term contracts (officially known as the Manufacture and Supply Agreements) with five principal South African telecommunications equipment companies embodied national goals on local content (Kaplan 1990, pp. 27–31, 79–85).

In the mid-1990s, South Africa's four remaining major telecommunications equipment companies were the Altech Group, Siemens, Telephone Manufacturers of South Africa (Temsas), and Plessey, but other companies, including General Electric Company (GEC) and ATC, have become significant players in local equipment provision as well. Altech was South Africa's exclusive supplier of transmission equipment while Siemens, Altech, and Temsas provided switches. Siemens also supplied telex and teletex equipment as well as telephone exchange power supply equipment, and Temsas, originally set up by the local Plessey and GEC companies, was the sole manufacturer of standard telephones. Plessey was responsible for providing small private branch exchanges (PBXs), and Aberdare and ATC were selected to produce cable for South Africa's national transmission

network. In the early 1990s, ATC was the only manufacturer of fiber-optic cable in South Africa. More recently, Telkor was awarded the contract to supply South Africa's pay phones (Telkom 1991, p. 31).

All the principal local producers of South Africa's telecommunications equipment and components have a significant part of their equity held by one of South Africa's largest local corporate groups.⁸ Anglo-American, for example, has a 20 percent stake in Altech, and the Sanlam Group has a 32 percent stake in Siemens. Considerable ownership changes in South Africa's telecommunications manufacturing companies occurred in the 1990s, reflecting a general rationalization and a specific regrouping in the advent of a sharp decline in orders from Telkom, South Africa's telecommunications entity since 1991 (see Kaplan, this volume, chapter 11). Currently GEC holds a two-thirds stake in Temsa with the other third held by Siemens. The Reunert Group, owned (80 percent) by Barlow Rand, is the parent of both ATC and Telkor. South Africa's principal telecommunications companies all have a shareholding in South African Micro Electronic Systems (SAMES), South Africa's sole local producer of integrated circuits (Kaplan 1990, pp. 84–85). Following a major fire in 1990, SAMES was restructured, with the Industrial Development Corporation, a state agency, taking a majority stake.

Historically, as technology became more complex, the local South African companies essentially became licensees of first-world companies. While in many respects these foreign corporate telecommunications connections follow broader historical relationships (particularly with the United Kingdom), the SAPT's decision in the late 1970s to digitize the network tightened the connections with the foreign equipment suppliers. The decision was based on the fact that demand was increasing and the British-based electromechanical switching system had begun to present the SAPT with serious technical problems. However, small nations cannot easily amass the capital and expertise to create and manufacture highly advanced, general (as opposed to niche) telecommunications devices. As a result, South African equipment companies entered into licensing arrangements to assemble foreign-designed telecommunications equipment in South Africa. For example, Siemens licensed Temsa to manufacture the German EWSD digital exchange, and Teltech (part of the Altech group) was licensed to manufacture the French Alcatel E-10 digital exchange (designated locally as the SA 128E). Inasmuch as the late 1970s represented the early days of digital technology, the choice of suppliers was limited, and only a few companies could present viable digital equipment offerings at that time.

The decision to authorize two different foreign telecommunications equipment suppliers for South Africa was a political one. Given economic sanctions and the possibility of a supplier cutoff, dependence on a single source of foreign technology was considered to entail political risks. The government thought that the difficulties of meshing two different digital exchange systems was outweighed by the political slack offered by two different foreign suppliers (Kaplan 1990, pp. 41–42). In the mid-1990s, foreign owners thus have significant percentages of shareholding in most of the major South African telecommunications companies. For years, for example, Alcatel (France) had a 12.5 percent stake in Altech. In January 1993, Alcatel boosted its stake to 50 percent and allowed Altech to buy a

stake in Alcatel as well, thus more fully integrating the companies. In the mid-1990s, Siemens (Zurich) had a 52 percent ownership of Siemens South Africa, and until the recent merger of Plessey and Grinaker, Plessey (United Kingdom) had a 74 percent stake in Plessey South Africa. Following the reorganization of Plessey, GEC of the United Kingdom now holds 50 percent of GEC South Africa's stake in Temsa.

Originally, South Africa's Manufacture and Supply Agreements covered a ten-year term, but the equipment suppliers persuaded the SAPT to increase the term to fifteen years because of the high investment in plant and technological transfer from overseas principals.⁹ The SAPT was obliged to purchase its equipment from the domestic companies when feasible, depending on the percentage of local content and the comparison of local with international equipment prices. According to policy, the SAPT would generally purchase South African-made equipment if there was a reasonable degree of local content so long as the price did not exceed the international price by more than 25 percent. In many instances, however, the price premium was far higher, ranging from 32 percent for telecommunications equipment to 60 percent for electronic components (Kaplan 1990, pp. 106–26).¹⁰

While the Manufacture and Supply Agreements worked well to ensconce viable equipment firms and establish coherent standards and specifications, the pricing structures may have acted to replicate the famous Averch-Johnson-Wellisz effect. As a rule, the SAPT would take back a percentage of high supplier margins as a kind of rebate or "profit sharing." Designed to give suppliers incentives to enhance efficiency, the rebate arrangement instead gave suppliers incentives to reinvest in their own plants (such investment being part of the overall cost structure) in order to reduce the amount that the SAPT would take back (Hartyani 1992; Schulze 1992; Averch and Johnson 1962; Wellisz 1963). Although intended to foster innovation and product development, South Africa's supply agreements paradoxically may have hindered them. According to David Kaplan (1990, pp. 99–101), the agreements function to exclude the entry of new, smaller companies that might be highly innovative. The agreements provide alternative and less risky routes to achieving high levels of profitability.¹¹ As if to underscore the historical weakness of South African telecommunications equipment manufacturing, the South African Board of Trade and Industry reported that telecommunications manufacturers exported only 1.5 percent of their products in 1985 (Kaplan 1992). Since then, however, local telecommunications equipment exports have improved. Exports, primarily to Eastern Europe and Africa, expanded after 1988, increasing two and one half times in constant Rands (see Kaplan, this volume, chapter 11).¹² By 1991, the telecommunications equipment industry in South Africa was worth R1.839 billion (BMI TechKnowledge 1992, p. 95).

12.2 A New Telecommunications Regime

South Africa's telecommunications structure changed in October 1991 when posts and telecommunications were separated from each other and set free from direct ministerial control (Republic of South Africa 1991c). A combination of forces,

including those that have affected other African telecommunications administrations as well as those specific to South African politics, led to the regime change (see Horwitz 1992). Demands from large users—who had formed effective lobbying groups—for improved service quality, freedom of choice, and the opportunity to compete began to find a receptive audience in the government. Similarly, on the technological front, rapid advances, particularly in the areas of fiber-optic and mobile communication, had begun to erode the telecommunications sector's natural monopoly conditions. Finally, and perhaps most important, in the rapidly declining economic climate of the 1980s, the government came to the tradition-jolting conclusion that privatizing its public corporations and enterprises was a better option than operating debt-ridden ones. This historic reversal was the result of a series of official investigations of the principal South African parastatals, including the SAPT, conducted by Dr. W. J. de Villiers and known as the De Villiers Report.

12.2.1 The De Villiers Report

In the case of the SAPT, de Villiers found that South Africa's telecommunications system was characterized by very heavy debt—a consequence, he concluded, of overforecast demand and “goldplating,” which he characterized as a too rapid conversion to digital technology (De Villiers 1989). The SAPT's staggering debt stemmed from the timing of its expansion. With the telephone market for whites saturated, the SAPT began in the late 1970s to extend service to Indian and “Colored” areas and, later, to a number of black areas. In the midst of this expansion, the SAPT faced the problem of whether to expand its problematic electromechanical switching system or go digital. It decided to pursue the digital option. These expansion projects required a vast infusion of capital, which the SAPT was permitted to obtain through loans on the international capital market. The annual capital expenditure on telecommunications equipment increased fivefold over the seven years from 1980–81 to 1986–87 (De Villiers 1989, concise version, p. 11). As South Africa's economic condition deteriorated in the 1980s and the value of the Rand plummeted, the SAPT's—and the government's—indebtedness increased dramatically. Similar stories characterized the state of South Africa's electricity and transportation parastatals (De Villiers 1984, 1986). Reversing its historic policies, the government began moving toward a policy of privatizing its key parastatals.

The transformation of the institutional structure of South African parastatals came about essentially at the very time that South Africa was poised to realize the transition to democracy. Hence, the South African government's privatization proposals were inherently politicized. Whether or not the government intended it, the effect of such privatization would have been to take the parastatals out of the hands of a newly empowered black majority in a democratic dispensation (Horwitz 1992). And indeed, in early 1990, the newly legalized African National Congress announced that, though it was no longer wedded to nationalization as a matter of general policy, public corporations and state business enterprises that were privatized prior to political accommodation would be prime candidates for

renationalization. This political line was voiced shortly after the ANC's legalization and was adopted formally at an April 1990 conference held in Harare, Zimbabwe (Battersby 1990, p. 3). The ANC's general pronouncement and the specific opposition of the Postal and Telecommunications Workers Association (POTWA, the main union representing the SAPT black employees) to the privatization of the SAPT took the wind out of the sails of the privatization gambit.

As a result, "commercialization," which had previously been viewed merely as a preparatory stage to privatization, then assumed importance as a privatization substitute. The government began to view commercialization as a step toward ridding itself of what it had become convinced was a complacent, bureaucratic, top-heavy parastatal and as a means of pushing the Post Office toward a market-oriented corporate culture. In place of the command structures of state-owned enterprises, market incentives supposedly not only would induce the SAPT to operate on a proper business footing but would inculcate a customer-oriented organizational culture in what was widely perceived as a slothful civil service bureaucracy.

12.2.2 *Telkom SA*

South Africa's new telecommunications entity, Telkom SA, became a company formally registered in October 1991 under the South African Companies Act, with the state as the sole shareholder. As a commercialized entity, Telkom could generate profits and pay taxes, received no state subsidies, and was responsible for obtaining its own financing (although this remained subject to ministerial oversight inasmuch as the state was Telkom's sole shareholder). Telkom's management made much of its new status and the change in corporate culture that resulted. It formed a bona fide twelve-person board of directors, consisting largely of high-ranking businessmen (including two nonwhites) and complemented by a couple of academics. The company decided to operate regionally (reserving some powers of central management) and appointed individual client managers for important corporate clients. The old SAPT relinquished its joint role as player and regulator, and a very small Department of Posts and Telecommunications acted as interim regulator. About one hundred people remained in the department while 67,000 went to Telkom.

South Africa's telecommunications sector thus entered an era of liberalization and deregulation. In the early 1990s, however, the actual complexion of this new era was still quite vague. South Africa faced the prospect of fundamentally restructuring its telecommunications institutions, which required the resolution of difficult questions regarding the boundary between monopoly and competitive services, the adjustment of tariff structures, and the coordination of a now lively telecommunications sector that previously had very few players. The difficulties of telecommunications restructuring have affected nearly all telecommunications institutions worldwide, but they are particularly pronounced in the advanced industrialized countries (see Duch 1991). What intensifies the complexity and difficulty of the process in South Africa, of course, is that these policy decisions must be considered through the historical lens of apartheid and hence are politicized to an extraordinary degree.

Lest misunderstanding arise regarding this issue of “politicization,” I submit that policies on infrastructures are never the technocratic matters they are often portrayed to be. Because infrastructures invariably involve the state, tax monies, and allocative policies that have crucial public goods consequences, policies surrounding them are inherently political. In South Africa, this fact is simply intensified. The historical operation of South Africa’s telecommunications, like all state services, was inscribed within the apartheid system, and the inequitable distribution of infrastructure and access to service reflected this fact. The disparities in South Africa’s telephone penetration by race are striking, and the politics of the system of separate development have meant that there is inadequate infrastructure in the black townships and virtually none in the country’s African rural areas. For example, 1989 figures show telephone penetration per 100 blacks at 2.4 compared with 25 for whites.¹³ This disparity is not simply a matter of skewed income levels. The infrastructure is not fully in place in many areas of black settlement, and there is evidence of a fair degree of suppressed demand among blacks.¹⁴ Thus, whereas in the industrialized nations the PTTs or regulated telephone monopolies typically marshaled cost-averaging and value-of-service pricing mechanisms to extend service universally, the SAPT historically utilized cross-subsidies to extend service mainly to whites and business.¹⁵ How South Africa deals with this legacy, while accommodating new business needs in the postapartheid era, was the key question facing the sector during the period of transition to majority rule in the mid-1990s.

12.3 The Politics of Transition

The stated objective of the Post Office Amendment Act of 1991 was to free South Africa’s postal services and telecommunications from the perceived burdens of ministerial control. Remaking major socioeconomic institutions, however, is a difficult business. The commercialization of the SAPT was a complex political process that required a fair amount of effort to secure appropriate legislation. Several full-scale parliamentary discussions were devoted to the change.¹⁶ It is unrealistic to expect that a technically complex sector like telecommunications can be restructured in specific ways by a general body such as South Africa’s Parliament. Hence, it was not surprising that in the early 1990s the determination of many of South Africa’s telecommunications issues was deferred.

Two items of enormous consequence were left undecided by the legislation: namely, how the now transformed sector would be structured and how it would be regulated. The central questions confronting any transformation of the PTT system—that is, which areas of service would remain monopolized, which would be competitive and to what degree, and how to adjust tariff structures—were also left unaddressed by the Post Office Amendment Act. Less understandable perhaps was that South Africa’s Parliament also did not determine who would eventually decide these fundamental questions. South Africa’s now grossly pared down Department of Posts and Telecommunications was understood to be acting in the role of interim regulator without, however, having its legal standing or the scope

of its authority spelled out. The 1991 Act to Amend the Post Office Act of 1958 was itself vague and contradictory with regard to the structure of South Africa's post-SAPT telecommunications. On the one hand, section 34 replaced the words "Postmaster-General" with "telecommunications company" and stated that the successor telecommunications company (Telkom):

shall have the exclusive privilege of constructing, maintaining or using, or of authorizing any person to construct, maintain or use, any telecommunications line for the sending, conveying, transmitting or receiving of sounds, images, signs, signals, communications or other information, and of transmitting telegrams over any such telecommunications line within the Republic or the territorial waters thereof. (Republic of South Africa 1991c, p. 36)

On the other hand, section 43 stated:

Notwithstanding anything to the contrary contained in this Act, the Minister may, after consultation with the successor company concerned, and if it is in the public interest, by notice in the Gazette, also authorize any other person to exercise any power corresponding with any part of the exclusive power to conduct the postal service or the telecommunications service which has in terms of this Act been transferred to the postal company or the telecommunications company, respectively, on such conditions as the Minister may deem fit (Republic of South Africa 1991c, p. 44)

Thus, while Telkom seemed to have an exclusive operating privilege and the sole authority to determine the network's use, there was room in the statute for the minister to undermine that privilege. Yet the statute did not clearly give the minister the power to compel interconnection with the Telkom network in the event another carrier was authorized to provide a telecommunications service. Moreover, the authority of the Postmaster General vis-à-vis Telkom was at best unclear and at worst minimal. In short, the Post Office Amendment Act left a number of central questions unaddressed and an effective vacuum in direction.¹⁷

Since Telkom is a commercialized company whose sole shareholder is the state, Telkom has in effect to answer to two ministers. The "policy" portfolio, held by the minister of Transport and Communications, has been separated from the "shareholder" portfolio held by the minister of Minerals and Energy Affairs and Public Enterprises. Because "policy" and "shareholding" are not mutually exclusive categories, in the early 1990s it was not in fact clear who set policy for the sector.¹⁸

The South African government tolerated this lack of clarity perhaps because legislative finality was unlikely and because the interim period was expected to be brief. On the legislative and regulatory fronts, the government asked Pierre Pretorius, a Transnet advocate (a lawyer admitted to argue before the Supreme Court) who had played a leading role in the commercialization of that parastatal, to draft the legislation on the telecommunications sector. Pretorius's first order of business was to propose a regulatory structure for the sector. South Africa's minister of Transport and Communications originally favored the appointment of a single regulator in the manner of the British regulatory body Oftel but was dissuaded from taking this course, according to Pretorius, because South Africa was "too divided a society" and because a group of commissioners would provide greater

representation.¹⁹ The working model of the new regulatory body at that time was the U.S. Federal Communications Commission, which oversees American broadcasting, the U.S. spectrum, and telecommunications as a whole.

On the basic policy front, the Department of Posts and Telecommunications contracted with Coopers & Lybrand, Deloitte, the U.K.-based international accounting firm, to conduct an independent study of the South African telecommunications sector. The Coopers & Lybrand study was designed to provide an independent, expert analysis of South African telecommunications to guide the writing of the new legislation. Coopers & Lybrand made available an interim draft of the report, but the government's reaction was slowed by the then pressing need to attend to the multiparty constitutional negotiations (known as Codesa—the Convention for a Democratic South Africa) in May 1992. In the meantime, the government (probably through the Department of Posts and Telecommunications Steering Group, which oversaw the review) asked Coopers & Lybrand to address several questions regarding the interim draft. The final draft was released publicly in September 1992.

12.3.1 Assessing the Sector

In 1992, the exigencies of the politics of transition to democracy complicated South Africa's telecommunications picture. At the same time that the government was moving on its own to draft legislation on the structure of the telecommunications sector and its regulation, it was obliged to discuss at least the rudimentary outline of its proposals at Codesa. This reflected the fact that though the official, formal (National Party) government continued to function, Codesa had begun to take on the trappings of an interim government.

Notwithstanding grumbling from National Party stalwarts about the sanctity of the state and "duly constituted government," consequential state policies simply could not continue to be determined solely by the white government under the fundamentally new circumstance of the transition to a democratic dispensation. All important policies effectively had to begin going to Codesa. There, however, the key discussions on the subject of a communications regulatory agency centered, perhaps not surprisingly, on broadcasting. Because of the inordinate propagandistic power of the National Party stemming from its control of the South African Broadcast Corporation (SABC) (another state monopoly), the ANC-SACP-COSATU (Congress of South African Trade Unions) alliance focused its attention on breaking up the SABC and establishing a regulatory authority to ensure fair access to broadcasting for all political parties. The focus on broadcasting made perfect sense given the likelihood of hotly contested democratic elections. In the Codesa negotiations, the telecommunications component of communications regulation was definitely of secondary importance. In terms of its importance to the South African economy, however, telecommunications dwarfs broadcasting.²⁰ As if to underscore this fact, the business community voiced concern that telecommunications issues would be given short shrift by any future regulatory body ("Holding the Airwaves Hostage" 1992, p. 83). That same anxiety, albeit perhaps animated by different aims, was shared by POTWA (POTWA Communications Workshop 1992).

Notwithstanding these concerns, the Codesa negotiators had essentially reached an agreement on the terms for a combined telecommunications-broadcast-spectrum regulatory authority. But when Codesa broke down in July 1992, the regulatory authority agreements came undone (Pretorius 1993).²¹

The state of South African telecommunications policy in 1993 was characterized by conflict and probably stalemate deriving from the fact that, following the collapse of Codesa, the government went ahead and began to formulate policy without first establishing a legal framework for the sector and its regulation. Moreover, the government formulated telecommunications policy without engaging an effective consultative process with the ANC and the unions. This in itself was somewhat surprising. In housing, electricity, science and technology, and the general economy, national forums in South Africa have been fashioned to serve as negotiating arenas for all relevant parties to hammer out consensual policy recommendations. These forums were pushed by extraparliamentary groups, but the government felt compelled to participate because any long-term policy it might undertake risked being vetoed without the agreement of the forums. The National Electricity Forum, for example, proposed in late 1992 and constituted in early 1993, found the government participating alongside the ANC, the National Union of Miners (NUM), the National Union of Metalworkers South Africa (NUMSA), the South African National Civic Organization (SANCO), the Association of Municipal Electricity Undertakings (AMEU), the United Municipal Executive (UME), the Chamber of Business (SACOB), and Eskom to formulate policies to restructure South Africa's electricity sector.

Even in the seemingly more contentious area of broadcasting, the ANC alliance and the government were able to work together and hammer out negotiated agreements. This resulted in the creation of an Independent Broadcast Authority in August 1993 (see Independent Broadcasting Authority Bill, final draft, 1993). However, a parallel process did not gel in the telecommunications sector. Indeed, the absence of such a process in telecommunications led constitutional negotiators to sever the previous connection between broadcasting and telecommunications and negotiate the regulatory authority for broadcasting separately (Pretorius 1993).

In early 1992, BMI TechKnowledge, a market research firm, attempted to put together a telecommunications policy forum, but participation by Telkom and the ANC was diffident and spotty, and the government took no direct part at all. A large convening conference was scheduled for October 1992, but in the aftermath of the collapse of Codesa, the ANC alliance refused to participate. In early 1993 BMI abandoned its efforts (Smit 1993).²² In the meantime, the government received the Coopers & Lybrand report and asked for public comments within just one month. The ANC issued a blistering attack on the report, branding it as flawed and denouncing what it perceived as the government's determination to restructure South African telecommunications without any broad consultation (ANC 1992). Moreover, the report's general observation that retrenchments would probably be necessary in Telkom greatly angered COSATU, which had not been approached by the Coopers & Lybrand consultants (Fanaroff 1993b; Naidoo 1993).

At that point, all the parties began playing out a political strategy. Efforts to get

representatives of the ANC and the unions and the government together came to nothing. The South African government then moved ahead with its own agenda, using particular aspects of the Coopers & Lybrand report as its guide.

12.3.1.1 The Coopers & Lybrand Report

The Coopers & Lybrand report was a comprehensive study, addressing issues pertaining to regulatory authority and the structure of the telecommunications sector. Beginning with the fact of Telkom's commercialized status, the Coopers & Lybrand report specifically addressed the problem of institutional roles. Thus, it suggested that Telkom have no regulatory functions whatsoever and that the government's role as sector policy maker be separated from its role as Telkom shareholder. Responsibility for sector policy making would remain with the minister for Posts and Telecommunications, while the role of government-as-shareholder would be exercised by the Ministry of Finance.

In the interests of ensuring adequate representation and promoting informed public debate, the report suggested that consideration be given to the establishment of a statutory consultative committee for the telecommunications sector made up of representatives of either consumers or all those with an interest in the sector. The policy-making ministry and the regulatory agency could be required to consult the committee before any major decisions were taken. A proposed Telecommunications Regulatory Agency would itself promulgate and administer specific regulations within the context of overall telecommunications policy as set out by ministers. Referring to international trends in telecommunications, the report recommended that the regulatory agency be set up as a body independent of the ministry that sets policy (Coopers & Lybrand 1992, pp. 47–70).

In the areas of competition, deregulation, and privatization, the Coopers & Lybrand report reviewed international trends and supported the principles of competition and privatization in general and in the abstract but recognized that certain service monopolies were necessary, at least for several years. Specifically, the report recommended that Telkom retain the exclusive right to supply long distance and international voice telephony for a period of at least five years. The Coopers & Lybrand consultants recognized that opening South Africa's long distance service to competition would result in widespread "creamskimming" and thus necessitate Telkom's increasing charges for local service by a factor of between two and three. Quite properly, Coopers & Lybrand understood that this would be politically unacceptable.

In a sense, in a quid pro quo for retention of the long distance monopoly, the report recommended that the objective of increased network penetration be formalized in terms of a regulatory obligation on Telkom to meet specified targets for service expansion and to provide for the financing of such obligations. The report further recommended that a system of price caps be established for those services in which Telkom retains a monopoly and that explicit regulatory controls on Telkom's prices be instituted. At the same time, the report advised that the provision of *local* service by independent network operators (such as Transtel or Eskom) not be ruled out. Such provision, however, would not be in competition with Telkom; it should instead be a supplement to the main network (Coopers & Lybrand 1992, pp. 20–26, 81–95).

In the area of enhanced services, the Coopers & Lybrand report suggested that the current draft value-added networks (VANs) license be issued immediately, subject to negotiations with the industry for further liberalization. However, because of the danger of straight resale of network capacity, the report recommended that the resale of voice services not be permitted for three to five years. Furthermore, the self-provision of short-haul circuits should be allowed subject to defined limits (the report suggested a limit of 500 meters). Very small aperture satellite terminals (VSATs) should also be liberalized but made subject to a ban on interconnection with the public-switched network.

The report recommended that provision of the first telephone instrument be liberalized and the local content requirements relaxed over three to five years. Technical standards would be supervised by an independent body as part of a move toward more open, international standards. Finally, in what would soon become the most consequential element of the report, Coopers & Lybrand recommended that consideration be given to licensing two competitive digital cellular networks, among which network sharing should be permitted to avoid unnecessary duplication of resources. International experience, the consultants argued, shows that competition works to increase penetration and lower market prices in the cellular field. Telkom should be allowed to participate in one of these network-operating franchises, the report suggested, either on its own or as part of a consortium—but only through a fully separate subsidiary. Air time resellers, the report added, should be introduced to act as intermediaries between the networks and the end users (Coopers & Lybrand 1992, pp. 71–80).

Thus, while the Coopers & Lybrand report recommended some competition to sharpen the incentives for improved performance and held out the goal of privatization as a means to introduce private-sector capital into the industry, a close reading reveals that in the short run the report suggested protecting Telkom as the primary supplier of South Africa's telecommunications services and using a mixed set of regulatory controls to push the company to behave in an efficient, public-interested manner. The only recommendation clearly contrary to this general advice was the licensing of two competitive cellular operators. Even here, the report hedged a bit, advising a prohibition on the provision of connections from mobile to fixed terminal equipment (such as PBXs) in order to protect Telkom. However, the report clearly did not adequately analyze the consequences to Telkom and the public-switched telephone network of its cellular recommendations (Coopers & Lybrand 1992, pp. 76–78). Sensitive perhaps to the very real politicoeconomic tension between the need to expand South Africa's basic network in the postapartheid period and the need to liberalize VAN services, the Coopers & Lybrand report plotted three potential scenarios that described alternative development paths for South Africa's telecommunications sector:

- Scenario 1, the "base case," essentially followed Telkom's five-year plan for modest service expansion and investment, extended forward to 2002.
- Scenario 2, labeled "network expansion," proposed to increase the availability of South Africa's basic telephone service in an aggressive manner, increasing access lines to 19.6 per 100 urban inhabitants versus 14.1 in the

base case (scenario 1), and 6.2 access lines per 100 rural inhabitants versus 3.5 in the base case. Although there would be an increase in both local and national call charges, access would be cross-subsidized mainly by business through higher rental and connection charges. International charges would decrease, however.

In scenario 2, Telkom would not face competition in voice telephony, but its profitability would be the lowest of the three options, primarily due to the significantly higher levels of capital investment. Some financial restructuring would be necessary to carry out the aims of scenario 2. Indeed, in order for the network expansion scenario to work, the report suggested the necessity of a capital injection of R4 billion in 1993–94 to retire an equivalent amount of long-term debt. This cash could come from the government or by privatizing Telkom.

- Scenario 3, the “competition” option, rebalanced all prices over five to seven years to reflect actual costs, after which competition in voice telephony is introduced and prices presumably decline. Under this scenario, business prices decline furthest and fastest. To increase the availability of basic service, public pay phone penetration would be increased substantially to nearly 300,000 by the year 2002 versus 82,600 in Telkom’s base case (scenario 1).

In scenario 3, access line penetration plots out to 13.5 per 100 urban inhabitants by 2002 and 3.5 per 100 rural inhabitants—quite a bit lower than the network expansion scenario (scenario 2). Competition in all services is assumed to be a spur to productivity gains. Telkom would be in the best financial shape under this scenario.

To the extent that the Coopers & Lybrand report offered recommendations among the scenarios, it suggested that both the network expansion (scenario 2) and competition scenarios (scenario 3) were better than Telkom’s base case plan (scenario 1). Telkom’s plan was judged to lead only to a limited expansion of levels of access, and even that depended on network utilization increases that approached operationally infeasible levels. It seems reasonable to conclude that the Coopers & Lybrand consultants addressed what they understood to be the two main politicoeconomic policy positions with regard to telecommunications—and in their report framed these positions within the discourse of expertise.

In this sense, the Coopers & Lybrand report does in some ways represent a kind of generic, framed debate between the ANC alliance and the National Party over the future of South African telecommunications. And this perhaps was the report’s real importance. It presented a version of the basic progressive demand for network expansion and framed it within acceptable boundaries. Given that the ANC alliance had neither the wherewithal nor the capacity to generate its own study, the Coopers & Lybrand report essentially became a baseline from which to assess South Africa’s telecommunications policies and the debates about them. Thus, any demand that Telkom “serve the people” had to confront the specific realities of Coopers & Lybrand’s scenario 2.

At the same time, any call for a competitive telecommunications system for

South Africa must address the demands for basic service by, at the very least, vastly increasing the number of pay phones and keeping call charges within reach of the poor. In other words, the Coopers & Lybrand scenarios may not be the only options, but they likely assume the status of a gold standard.

12.3.2 The Cellular Controversy

In certain respects, the Coopers & Lybrand report reflected a wariness that resolving the conflicts in South Africa's telecommunications sector would be a difficult political process. This wariness, however, was evidently not shared by the South African government. Advocate Pretorius, charged with drafting the enabling legislation, wanted to set the legal structure in place before policies were determined. Short of a legal structure, Pretorius favored a consultative process for the determination of policy.

Though seemingly placed in a powerful position, Pretorius was essentially ignored. The government went ahead with a strategy to revamp South Africa's telecommunications sector without a legal structure in place and without a consultative process. The vehicle for the revamping was the decision to establish two cellular network operators and send these licenses out to tender. Cellular thus became the key battleground in the South African telecommunications debate.

The visible driving forces in this movement were Minister of Transport and Communications Welgemoed and Eugene van Rensburg, head of the Policy Unit on Public Enterprises of the Ministry of Minerals and Energy Affairs and Public Enterprises.²³ This route was in marked contrast to that taken in other contested sectors. For instance, in 1993 South Africa's Department of Home Affairs was sitting on eighty to ninety applications for broadcast licenses, but it was decided not to make any awards until the broadcast authority was put in place (Pretorius 1993).

South Africa's cabinet met in early 1993 to decide how the proposed cellular mobile telephone system should be organized and regulated. With expressions of investment interest from big-time foreign operators—perhaps representing the largest single foreign investment in postsanctions South Africa—dangling in front of them, cabinet ministers went ahead and authorized two cellular licenses. The parties pushing for the quick authorization of cellular service pointed to the interest by foreign investors and argued that the timing was opportune and not to be squandered (see Sergeant 1993b; also Knott-Craig 1993b). The licenses were put out to tender in April 1993, and the minister of Transport and Communications appointed Ters Oosthuizen as the "regulator." Oosthuizen, an advocate who for many years worked for Eskom, was to oversee telecommunications in general and the cellular tender process in particular. Oosthuizen subsequently asked the minister to name him postmaster general because he had no staff or legal standing as regulator. However, by becoming postmaster general, Oosthuizen unambiguously identified himself with the government and thus its old structure and nonconsultative methods (Hainebach 1993).

The ANC and COSATU, joined by a group called the Cellular Telephone Consultative Forum, immediately charged that Oosthuizen had been appointed outside of both legislation and the Negotiating Forum (the resurrected Codesa constitutional

negotiations). The ANC alliance claimed that the licensing of cellular telephony represented a unilateral restructuring of the industry, a form of privatization through the back door (see Fanaroff 1993a). In fact, some of the government's own pronouncements support that interpretation. Policy Unit chief Eugene van Rensburg, for example, was quoted as saying that the cellular policy can be taken as clear indication that the government favors competition ("Dial for Fair Play" 1993).

Another explanation of the government's actions put politics at center stage. According to one report, a senior government source was quoted as saying that the National Party government saw that it had the opportunity to provide telephones to the masses quickly through cellular service, and the party had no intention of waiting and thereby permitting the ANC to reap the political benefits (Sergeant 1993a).²⁴ Other observers invoked a political explanation of the more traditional kind, arguing that Welgemoed was a minister "of the old school"—that is, of the imperious apartheid stripe—who would never allow "interlopers" to make policy or interfere with his authority.²⁵

Whatever the full explanation for the South African government's actions, in 1993 it proceeded to set the terms of application for the cellular licenses and appoint a tender review board to review the applications. A R50,000 tender application fee was assessed in order to discourage all but the most serious bidders. The basic terms of the fifteen-year license were that each operator had to pay an initial basic fee of R100 million plus an ongoing license fee of 5 percent of its net revenue. Also, R5 million in annual radio fees had to be paid to the postmaster general along with R1 million a year for each 10 MHz channel granted to the operator. Some of these fees were designed to finance the regulator, but the R100 million basic fee would go straight to the Exchequer—it was not earmarked, that is, for expanding telephone service to those without access ("Squeezing the Cellular-Phone Industry" 1993). Among other things, applicants had to specify the extent to which their choice of technology would lead to high volumes and low costs, how they would support South African industry, and how they would provide service to poor communities.²⁶

Telkom was quickly awarded half of one license. It entered into a consortium with U.K.-based Vodafone and the Rembrandt Group of South Africa to form a separate subsidiary, Vodacom. Three applicants vied for the second license. Mobile Telephone Network (MTN), considered by most accounts the favorite, was a consortium of M-Net (the South African pay television provider), U.K.-based Cable & Wireless, NAFTEL (an association of black businesspeople), and Transtel. Cellstar Cellular Networks was a venture of Anglovaal's Grintek Limited and Telecom Finland. The Reunert Group applied for the license in a venture that combined Barlow Rand with the Deutsch Bundespost Telekom. Both the Reunert and Cellstar ventures left room for black participation, but at the time the tender applications were submitted there were no takers.²⁷

In 1993, the African Telecommunications Forum, a loose grouping of black organizations and entrepreneurs, made inquiries about obtaining a cellular license, though it did not submit a genuine tender bid (in part because of ANC opposition to the tender process). The parties to the African Telecommunications Forum included the ANC-aligned Thebe, Afritel, Suntel, MIT, and NIT, and the forum

enjoyed the backing of the National African Federated Chambers of Commerce (NAFCOC). Afritel in particular forged links with the U.S. telecommunications giant AT&T, although the U.S. investors would not commit until all state and local authority sanctions were dropped (“Dial-a-Profit” 1993).

In September 1993, the South African government announced Mobile Telephone Network as the winner of the second cellular license. Vodacom’s system would be the Global System for Mobile Communications (GSM) standard, and Mobile Telephone Network proposed GSM as well. Quite apart from the licensing controversy, a minor storm arose over the technical standard. The part of the spectrum allocated to South African cellular was the 900 MHz, eliminating the American Mobile Phone Standard system, which operated in the 800 MHz spectrum. The fact that the tender documents specify a R20,000 a year fee for each 200 KHz channel led some to question whether the South African government had already chosen a standard—because only the GSM operates in 200 KHz blocks (“Squeezing the Cellular-Phone Industry” 1993).

Several observers, including Postmaster General Oosthuizen, indicated that well prior to the tender bidding Telkom had already committed itself to GSM and had installed some base stations (Oosthuizen 1993; also Maepa 1993). Moreover, Telkom’s commitment to GSM, in the judgment of the chief executive of Plessey, stemmed not from its technical characteristics per se but once again from Telkom’s historically close relations to its main equipment supplier, Siemens—the company that would bring in GSM technology from Europe (Temple 1993).²⁸ Some faulted GSM as an expensive cellular system, with high prices for handsets that are not very lightweight and probable call charges several times those of the current phone network. Others, notably Alan Knott-Craig, chief executive of Vodacom, were forthright in their defense of GSM. The key, Knott-Craig argued, was that GSM allowed the separation of service from the actual telephone. Thus, GSM cellular call boxes could go a long way toward serving underprovided communities. Vodacom’s Community Tariff Plan subscribers would use a prepaid SIM card, enabling them to make calls from any GSM telephone and access a centralized voice mail system. The voice mail feature would obviate the need for the individual ownership of a telephone. In addition, Vodacom planned to franchise the GSM Community Telephones to members of underserved communities, creating the conditions for telephone entrepreneurship (Knott-Craig 1993b).²⁹ Of course, the complexity to the user of the SIM card and voice mail led others to doubt the very claims put forward for GSM (Davies 1993).³⁰ While the ANC and COSATU did not condemn GSM per se, they bitterly opposed the existing cellular tender process. In 1993, ANC Information Systems head Andile Ngcaba indicated that he believed the cellular applicants were simply using the language of universal service to win the tender. The ANC wanted cellular to be a separate, autonomous parastatal service offered by Telkom in a sector rationally planned to take advantage of all existing communications infrastructure. Such a structure would be the best means for providing universal service (Ngcaba 1993a, 1993b, p. 17).³¹

The cellular controversy thus became a major source of conflict between the government and the ANC alliance. The government argued that it would not stop the tender process; that applicants had spent millions of Rands in a good-faith

effort to apply for licenses, and suspending the process would lead to a myriad of lawsuits. The government also argued that suspending the process would jeopardize foreign investment (“Government ‘Will Not Back Down’ on Phone Licenses” 1993; Oosthuizen 1993).³²

The ANC alliance then called for a moratorium on the tender process. In September 1993, the politics of the cellular tenders became quite heated, with COSATU threatening strikes and the ANC threatening to revoke the licenses when it came to power. Nelson Mandela, the ANC president, with President de Klerk over the cellular license controversy, and ANC Secretary-General Cyril Ramaphosa led a delegation to meet with Public Enterprises Minister Dawie de Villiers (Makhanya 1993, p. 18). Ramaphosa was quoted as saying that a future government would immediately review, and perhaps cancel, the cellular licenses if the government went ahead and issued them (“Government, ANC Impasse on Cellular Phone Controversy” 1993).

Interestingly, the cellular controversy cooled off because another telecommunications brouhaha intervened. Moving ahead in other areas, the government tabled a new bill before Parliament to amend the Post and Telecommunications Act. While much of this bill simply clarified the power of the postmaster general, the ANC alliance again vehemently objected to the government’s lack of consultation in what appeared to be a bid to restructure South African telecommunications. And in the context of the struggle over the cellular licenses, the ANC interpreted the bill’s clarification of the postmaster general’s authority as a cynical maneuver to deregulate Telkom (Ngcaba 1993b, p. 17). In exchange for the government’s agreement to hold off on the new Post and Telecommunications amendment bill, the ANC agreed to back down on its opposition to the granting of the cellular licenses, which went forward with Vodacom and MTN. A fluid license was being considered in 1998 (“Compromise Deal on Cellular Phones” 1993).

12.4 The State of the Network During Transition

The government popularly elected in 1994 inherited a relatively large telecommunications network consisting of 3.7 million access lines—the twenty-fifth largest network in the world (Department of Posts and Telecommunications 1992, p. 49). This total had increased from 3.315 million in 1991. South Africa had 38 percent of the telephones in Africa and the highest density of telephones on the continent (Siemens 1992, p. 16; Telkom 1991, p. 1).

South Africa’s network is also relatively sophisticated. It has a high degree of digitization and consists of an increasing percentage of optical fiber. As we have seen, the SAPT began the process of digitization early, in 1978–79, in part because it ran into trouble with its electromechanical switches just at the point when large foreign manufacturers were introducing digital technology and in part because digital was judged by the SAPT management to be a better technology for meeting the huge existing demand.³³ Siemens, Temsa, and Altech were awarded long-term contracts for the supply of this equipment and began installing digital exchanges in 1980.

In 1993, there were 1,586 exchange sites in South Africa's automatic telephone network, of which 929 had digital exchange equipment—a digital penetration rate of 58.5 percent. Of the over 3.5 million access lines in operation in 1993, about 56 percent terminated on digital equipment. Moreover, this rate was planned to increase to 64 percent by 1995 and to more than 80 percent by the year 2000. The penetration of digital transmission systems is even higher, with 100 percent in South Africa's large metropolitan areas and 78 percent in the rural areas (Lachenicht 1991; Telkom 1991, 1993).

Prior to 1969, South Africa's international telephone connections were carried by some twenty high-frequency circuits and two telegraph cables. In 1969, the SAT-1 submarine coaxial cable, running from Cape Town to Portugal, began operation and in December 1975 was supplemented by a satellite earth station. A new undersea fiber-optic cable (SAT-2), due to be commissioned in 1994, would carry a 565 megabits per second transmission—providing the equivalent of 7,680 voice channels. SAT-2 would link South Africa to international telecommunications nodes in Madeira and the Canary Isles (see *Proceedings of the Fifth National Congress* 1991). In the mid-1990s, a modern telex service with over 30,000 connections linked all of South Africa's major population centers—although, as in all nations, facsimile or fax service was displacing telex, and telex investments consequently became a major loss. South Africa was one of the first countries to introduce a public videotex service (Beltel), which by 1993 included an x-400 protocol electronic message handling service. By the end of March 1992, the number of registered Beltel users was nearly 30,000, but the service has historically operated at a considerable loss (BMI TechKnowledge 1992, p. 99). In 1983, an international packet-switching network (Saponet-P) replaced an analog network and by 1993 linked South Africa to thirty-five countries. In 1986, a digital point-to-point service (Diginet) for companies needing to transfer large volumes of data at high speeds was introduced.

In 1993, leased lines, including high-capacity 2-megabits lines, became available in South Africa but could be purchased only from Telkom. Under 1993 rules, a link between two offices of the same company on either side of a public road were to be provided by Telkom. Neither third-party traffic nor bypass was permitted. South Africa's cellular phone service, based on a variant of the German C450 analog system, had been operating since 1986 but by 1993 had only about 13,000 subscribers because of extremely high handset prices and the lack of available frequencies. South Africa's liberalized private Mobile Radio and radiopaging services had also grown considerably by the early 1990s, but they too were hampered by a dearth of available radio frequencies (largely because some 62 percent of the frequencies allocated by the International Telecommunications Union for Land Mobile Radio use in the early 1990s were occupied by the South African Defence Forces, although the sharp reduction in the military over the next years would create opportunities for reallocation of frequencies) (Department of Posts and Telecommunications 1992, p. 14; Coopers & Lybrand 1992, p. 76).

By the mid-1990s, various customer premises equipment, including PBXs, modems, fax machines, and cordless telephones, had been deregulated in South

Africa for several years—subject to type approval by Telkom. In addition, Telkom provided its own small business telephone systems and data modems in competition with privately supplied PABX systems and data modems. By 1993, internal wiring within buildings had been largely liberalized for several years as well. The liberalization of customer premises equipment had limits, however. Telkom retained exclusive rights to provision of the first telephone on customer premises, and the approval of attachments involved local content requirements until 1996.

In general, the quality of South Africa's telecommunications service is good and service is relatively cheap. For example, Telkom's call completion rates (just over 95 percent) and speed of fault clearance (77 percent cleared within one working day) are near the level of other industrialized countries. In white and urban areas, the average waiting time for connection in 1990 was thirty days (down from sixty-seven days in 1989), although in black areas waiting time for connection is much higher and extremely variable (Coopers & Lybrand 1992, p. 14). Notwithstanding these statistical measures, large users reported unhappiness with Telkom's response on fault clearance and connection times and frustration with Telkom bureaucracy generally (Davies 1992; Paul 1992). Moreover, the service waiting list has been growing: between 1990 and 1991, the waiting list had grown 14.56 percent to an official total of 125,448, and by 1994 to an estimated 134,000 (Department of Posts and Telecommunications 1992a, p. 12; Plessey 1995).³⁴

By the early 1990s, Telkom also offered telephone information services, but the problems that plagued it in the early months of 1992 were revealing. Telkom's response to widespread customer complaints about grossly inaccurate bills, for example, was first to deny that there was any problem at all and then to insist that complainants pay their accounts (some reading in the thousands of Rands) while Telkom investigated—or risk having telephone service cut off. Finally, amid great hue and cry, Telkom's managing director conceded that computer error and/or service theft were responsible for incorrect billing. The "087" debacle (from the number for information services) lent credence to the view that, for all the talk about a new customer orientation, Telkom's corporate culture had not yet changed. The entire episode smacked of the arrogance and unconcern of a single supplier and left Telkom with bad debts of some R77 million and contributed to write-offs of R136.9 million (Telkom 1993, p. 3), a figure that would grow to R207 million by 1994.³⁵

International price comparisons of a basket of telephone services with industrialized countries (based on 1989 tariffs and exchange rates) show that Telkom's tariffs for both business and residential customers, as well as residential line rental and connection charges, were low by international standards. In addition, unlike many countries, South Africa's business customers are not charged higher prices than residential customers, and business line rental and connection charges are thus even lower by international standards than those for residential customers. On the other hand, its international long distance tariffs were comparatively high. For instance, charges for calls to the United States were some 30 to 40 percent greater than U.S.-originated calls to South Africa ("Networking Pays Off" 1993). National long distance charges were in line with those in other industrialized

countries. Call charges account for approximately 50 percent of Telkom's total revenue (Coopers & Lybrand 1992, pp. 11–17). Hence, South Africa's cross-subsidies can be understood as follows: international—and to a lesser degree, national—long distance charges subsidized local service (although this is not direct business subsidization of residential customers) while calls greatly subsidized rentals. According to the De Villiers Report, the actual cost of telephone rental per month in South Africa in 1987–88 was about R28, though the actual rental charge was R15. Thus, telephone rentals have been heavily subsidized by higher call tariffs. However, according to conventional wisdom (largely based on the De Villiers Report), a large proportion of subscribers (particularly new, usually nonwhite subscribers) make very few calls per day. As a result, telephone revenues rested on a narrow base of subscribers. According to the *De Villiers Report*, 6 percent of subscribers (of whom about 78 percent are business and 22 percent residential telephone subscribers) contributed 50 percent of South Africa's total telephone revenue in the late 1980s (De Villiers 1989, pp. 25, 8).³⁶

12.5 Telkom's Current Condition and Financial Health

In 1994, Telkom had a monopoly in South Africa's various service areas, the most significant of which was the running of the public-switched telephone network. Telephone instruments, telex/teletex terminals, and data network terminating units connecting into the public-switched network remained Telkom's exclusive business. Private lines that were not confined to the boundaries of a client's premises were still monopolized by Telkom. With a payroll of some 62,000 people and assets valued at nearly R15 billion in 1994, Telkom had an annual operating expenditure of more than R5 billion.³⁷

Notwithstanding Telkom's commercialization and its trumpeting of a new corporate culture, several factors clouded its prospects. Over the period 1987–91, Telkom's operating revenues grew by an average of 1.9 percent per year in real terms, whereas operating expenses grew nearly twice as fast, by 3.7 percent. As a result, Telkom's gross profit margins declined significantly, from 42 percent of turnover in 1987 to 30 percent in 1991 (Coopers & Lybrand 1992, pp. 16–18), a figure that would remain unchanged through 1994. Moreover, despite expected moderate surpluses in telephone services (R790 million) for the year ending March 1992, very large losses on telex (R230 million), gentex (R94 million), and postal services (R268 million) largely wiped out the surplus (Department of Posts and Telecommunications 1992b, p. 11).

Telkom's debt to equity ratio of 1.8 made it unlikely that it could easily raise more debt financing without state guarantees, although Telkom had substantially improved its financial position since the early 1990s.³⁸ Indeed, Telkom's capital expenditure since its commercialization (R2.2 billion in 1994) has come from internally generated funds only (Telkom 1993, p. 4). At the same time, an outflow of funds from the Post Office Savings Bank—a net amount of R521 million from 1989–90 to 1990–91—represented a loss of access to cheap capital, 64 percent of

which had historically been invested in telecommunications assets (Department of Posts and Telecommunications 1992a, p. 6). In 1991–92, Telkom's total financing costs were expected to be R1.7 billion compared with a net operating profit of R2.4 billion (Coopers & Lybrand 1992, pp. 16–18). Approximately 20 percent of Telkom's budget was allocated to service its borrowings. According to Telkom's 1994 report, its official net interest bearing debt stood at R8.8 billion. The terms of its commercialization entailed government-imposed constraints on Telkom with regard to the retrenchment of staff (namely, no retrenchment as a result of commercialization), real increases in tariffs (which remain subject to the approval of the Department of Posts and Telecommunications in its role as interim regulator), recourse to external finance, and the honoring of long-term contracts with local suppliers. In addition, in 1990–91, Telkom was obliged to contribute R367 million to the postal deficit, with the expectation that it would be responsible for R500 million annually until 1995–96, to be met through taxes and dividends paid to the government. As if this were not enough, the Telkom Pension Fund was found to be short R1.59 billion and would have to be fully funded, though by the end of 1994, Telkom had succeeded in reducing the deficit to R1.1 billion.

Thus, even as revenues were declining in the period between October 1, 1991 (when it became a company), and March 1995, Telkom found itself contributing R209 million to the postal deficit, R446 million to the pension fund deficit, and R410 million in taxes (Telkom 1993, p. 56). Telkom's poor financial status translated into a significantly lower amount of capital investment—precisely at the moment when the end of apartheid dictated a vast expansion of the network. In the period 1975–86, telecommunications investments as a percentage of revenue typically averaged around 45 percent, but beginning in 1987 that figure dropped precipitously and in 1994 registered just 27 percent. At R2.227 billion, 1994 nominal values of capital investments in the network were 51 percent higher than the 1987 levels of R1.471 billion—but allowing for 15 percent average annual inflation, this was in fact negative real investment growth overall.

Moreover, according to Telkom's 1993 annual report, it spent R1.8 billion on capital programs, representing just under 17 percent of turnover (Telkom 1993). Telecommunications investments as a share of GDP, which peaked at 1.07 percent in 1986, fell to 0.64 percent in 1994. This parlous state was compounded by Telkom's depreciation rates, which, at an average of 4.7 percent between 1980–81 and 1990–91, were too low to continue the modernization of South Africa's network—particularly in those areas where it would be subject to competition (Department of Posts and Telecommunications, various years). In data and value-added services, equipment changes quickly. Without provision for replacement, Telkom cannot buy new equipment and easily retain business customers. Telkom recently went to a fifteen-year depreciation schedule for transmission and switching equipment, and ten to twenty years on cable, but some knowledgeable observers viewed even the new depreciation rate as too low (Telkom 1993; Hainebach 1993).

In short, in the late 1990s Telkom faced a difficult future. On the one hand, the end of apartheid imposed new equity-based demands on it to expand the basic

telephone network to populations and areas historically denied access. The black Postal and Telecommunications Workers Association (POTWA), a mainstay of the powerful Congress of South African Trade Unions (COSATU), strongly supported the expansion of the telecommunications infrastructure both for reasons of equity and to safeguard its members' jobs.

In response to the demand to expand the network, during the 1992–93 fiscal year Telkom made a special allocation of R40 million for purchasing and commissioning “Community Telephone” facilities in remote and rural and inaccessible areas, such as squatter camps. Its objective, which was to install 250,000 phones a year between 1992–93 and 1997–98 (with emphasis on “community phones”), would be accomplished by the installation of a high-frequency radio network (Rurtel) and the establishment of base stations throughout the country. Rather than attempting to provide each household with a telephone, Telkom installed phones in all businesses and set up call boxes or card phones within “reasonable access” of everyone (Strachan 1992). Nevertheless, the R40 million earmarked for community telephony was a paltry sum when one considers the pressing needs of South Africa's disadvantaged and Telkom's R2.14 billion capital budget for 1992.³⁹ But the program, supplemented by offerings and subsidized rates from the cellular companies, has been a success in spreading telephony.

On the other hand, South Africa's businesses, feeling themselves restricted under a traditional, natural monopoly telecommunications structure, wanted enhanced and value-added services to be liberalized. Under the Post Office rules, it was illegal, for example, for an automobile dealer to use the data network of his or her supplying company to get information, since this constituted transferring data outside of the SAPT provision or control. The patent economic irrationality of such rules in an age of rapid information transfer, as well as the pressure brought by South Africa's National Telematics User Group (NTUG), prompted Telkom to allow companies to register a value-added network (VAN) services company in the early 1990s. Yet these agreements forced a VAN provider to become a separate company whose network and revenues were audited by Telkom in order for Telkom to ensure that the VAN was in fact a VAN and not a second telecommunications operator in disguise. The difficulties and improprieties posed by Telkom acting as regulator of competitors on the edge of its monopoly prompted an outcry among VAN providers, and in the early 1990s the VAN license recommendations again came up for negotiation (Davies 1993).

Telkom's actions surrounding the VANs issue, if blunt and heavy-handed, did, however, reflect a legitimate concern. If and when value-added services are liberalized, Telkom must rebalance its general tariffs in order to compete. In 1993, telephone traffic accounted for over 92 percent of South Africa's telecommunications income, and that traffic was growing at about 7.5 percent per year (although, with the recession of the early 1990s, telephone traffic actually declined 1.5 percent in the twelve months prior to April 1993 [Telkom 1993, p. 3]). However, it is in leased circuits and enhanced services that the growth potential for South Africa's telecommunications sector really lies. Leased circuit growth for 1991–92 topped the previous year by over 20 percent (Department of Posts and Telecommunica-

tions 1992b, p. 11; International Telecommunications Union 1992, p. 353). And it was precisely in these areas that Telkom faced potential competitors. Value-added voice and data services that allow operators to employ lines leased from Telkom for third-party traffic were a contested area in the early 1990s and represented a potential threat to Telkom. Large users want the freedom to carry third-party traffic and supply all services (including internal voice traffic) in an economically centralized way. Telkom, essentially acknowledging this as inevitable, wanted time to establish fair competition in value-added services and create a "level playing field." This could not mean anything other than moving toward cost-based pricing in all areas of service (see Knott-Craig and Hanekom 1990; National Telematic User Group 1991). Such a move, however, pointed to a fundamental tension between the need to rebalance tariffs so as to liberalize VAN services for business and the pressing need to expand the network for basic service.

In addition, because of the immense amount of data traffic they pass every day, South Africa's large users (banks in particular) were leery of total dependence on the Telkom network and thus keen to have a redundant network (or networks) available. Waiting in the wings were two and perhaps three organizations that already had the capacity to provide alternative networks. Eskom, the electricity supply monopoly, and Transtel, the now for-profit subsidiary of the commercialized transportation monopoly Transnet (formerly South African Railways and Harbours), each have large internal networks that could be made available to third parties on a point-to-point basis. Eskom operates a sophisticated microwave network and powerline carriers. Eskom and Transtel could also act as contractors for building new capacity to order, connecting their clients' private networks.⁴⁰ The South African Broadcast Corporation's signal distribution division could also, in theory, evolve into a carrier of point-to-point third-party traffic. Telkom's most likely potential competitor is Transtel, which in 1993 already operated a nationwide high-capacity digital microwave network consisting of several 34-megabit systems, a trunked radio network, and a 140-megabit fiber-optic network in the PWV and Natal (Transtel n.d.). Because South Africa's main roads and town arterials follow rail lines, Transtel's radio network extends to geographic areas not covered by the Telkom network. In addition, Transnet's connection to the PanAmSat would reduce the difficulty of reaching remote rural areas. In capacity, Transtel's network is hardly a rival to Telkom's. However, now that it has been transformed from a state enterprise into a commercialized business, Transtel is looking to maximize the utilization of its facilities in profit-making activities.⁴¹

Finally, due to competition from international discount carriers, in the 1990s Telkom was under pressure to offer international telephone connections at U.S. carriers' rates. Several international resellers, including Diners Club, IDT, and Word-Phone, began operations in South Africa in the early 1990s, and Telkom responded by cutting its own international rates ("Networking Pays Off" 1993). The reduction of rates by approximately 30 percent threatened to erode Telkom's earnings in overseas long distance, further undermining its ability to cross-subsidize the expansion of the basic network. An additional threat was the Internet and its use for telephony. Seizing on this potential, Telkom claimed in 1997 the right

to be the country's exclusive Internet service provider. However, the regulatory authority SATRA decided to open the market to other ISPs. Undaunted, Telkom went to court and won, at least temporarily, on procedural grounds.

On the other hand, SATRA was supportive of Telkom when it outlawed the call-back operators that function worldwide as arbitrageurs.

12.6 Privatization and Current Political Trends

The ANC-led Government of National Unity (GNU) inherited the issues left unresolved since the commercialization of the telecommunications industry. First, the direction of the industry had remained uncertain. Telkom was the monopoly provider of most telecommunications services, but a liberalized cellular market had claimed 400,000 subscribers by the end of 1995—10 percent of all the lines Telkom operated. Potential competitors in the equipment manufacture, cellular, and service industries demanded greater openness. And despite heightened demands for “universal access,” no consensus emerged about the definition of the term.

Second, Telkom had essentially remained unregulated since its founding. Tariff setting and labor market policies, for example, had remained unchanged since the apartheid era. A new regulatory body was needed to create a framework for the growing competitiveness of the market, to determine its limits, if any, and to chart the appropriate course for the social and economic goals of the GNU.

Third, the role of Telkom itself needed to be clarified. The “commercialization” of Telkom was no more than a partial step taken as a political compromise. Issues such as its future ownership, its financing, and its obligations toward its workforce, consumers, and society remained unresolved. With its poor service record and inadequate investment in network expansion, Telkom was an unsuccessful agent of the government's goals. At the same time, its precarious financial position and inefficient operations rendered it a poor prospect for success in a competitive business environment. The Cooper's & Lybrand report framed the issue as, essentially, a choice between social responsibility and fiscal responsibility; the government could either expand its network rapidly to provide service to disadvantaged people, at a high cost, or proceed less aggressively, improve the financial performance of Telkom, and slowly establish a viable competitive environment.

Responding to political pressure from business, consumer groups, and labor, the ANC would attempt to pursue both objectives. Three events consequent to the 1994 elections began to move telecommunications policy in this direction. The long-delayed establishment of a National Telecommunications Forum (NTF) finally engaged government, business, labor, and civic organizations in the consultative processes that stakeholders in other sectors had established years earlier. A broad, Keynesian-inspired development plan for postapartheid South Africa (the Reconstruction and Development Programme or RDP) set goals for telecommunications development, including a specific goal that telephones be provided to all existing schools and health clinics within two years. And the new (ANC) minister for Posts, Telecommunications and Broadcasting, Dr. Z. Pallo Jordan, put in

motion a Green Paper/White Paper process to develop telecommunications policy. This process, which would take place *outside* the old regime-identified Department of Posts and Telecommunications, tied the politics of telecommunications reform to the more open, consultative forums and mechanisms of which the NTF was the guiding spirit.

12.6.1 The Consultative Process

The Green Paper was published in July 1995 in several languages and put on the World Wide Web (Department of Posts, Telecommunications and Broadcasting 1995a). By October, when the period for submissions closed, 131 submissions had been made, amounting to over 4,000 pages of commentary. There were many points of consensus, including the need to expand the sector through new sources of investment; the need for operators, service providers, and equipment manufacturers to commit to retraining and redeployment of staff; the idea that universal *access* is a reasonable movement on the way to the goal of universal service; and the need for an independent regulator to supervise the system. On the major questions of market structure and ownership, there was a wide range of opinion, from the maintenance of state control to full competition and privatization. While most of the value-added network players, some important users, and potential competitors to Telkom (both South African and international) stressed that full-scale liberalization and the privatization of Telkom had to occur very soon, the labor unions and an important black business group (the Foundation for African Business and Consumer Services) held out strongly for minimal change and continued state control and ownership of Telkom. Telkom itself proposed a fairly long period of exclusive concession to enable it to mobilize capital and its large workforce in order to extend the network to the disadvantaged and rebalance tariffs to prepare for competition. It also advocated that it be permitted to take on strategic equity partners. The Department of Posts and Telecommunications submitted a proposal not dissimilar to Telkom's but with a much shorter period of exclusivity and a stronger endorsement of competition.

The NTF, which met in November 1995 as the National Colloquium on Telecommunications Policy, seemed unable to take a strong, coherent stand (Department of Posts, Telecommunications and Broadcasting 1995b). The colloquium's hoped-for "sufficient consensus" always meant that the key players—Telkom (which was owned by the government) and organized labor (which was allied with the government)—had to arrive at some accommodation for policy to move forward. Hence, notwithstanding the broad range of responses to the Green Paper that urged liberalization, the effective compromise had to include at least some period of exclusivity for Telkom in the public-switched voice and data networks. How much time Telkom would have exclusive reign, and when the network would open up in which market segments (and how such a process could be properly managed) were the key market structure questions. How Telkom would access sufficient capital to roll out the network while becoming more efficient in preparation for competition was the other key question.

The colloquium did and didn't arrive at sufficient consensus. A strong majority agreed that Telkom should have the primary role in universal service provision and that there would be no competition with Telkom during a three- to five-year period of exclusivity. The telecommunications infrastructure of other parastatals should be complementary, made available to Telkom under commercial conditions. Thereafter, the sector must be guided toward competition. The same majority backed Telkom's taking on strategic equity partners and/or private equity participation.

Labor continued to oppose the equity sale, supporting full state ownership and complete monopoly for Telkom indefinitely. These were "mandated" positions, laid out in the Green Paper submissions of POTWA and NUMSA, and could not be changed without further consultation. This development threatened to stymie further movement in the colloquium. The solution was to kick the problem upstairs. The question of market structure was referred to an Eminent Persons Group, a group of five "wise persons" to be nominated by the Colloquium Plenary to the Minister, whose main task, to oversee the Technical Task Team, embodied the letter and spirit of the colloquium in the writing of the White Paper. The ownership question, and whether Telkom could take on private equity, was determined to be a general government policy issue with ramifications across other state assets and was referred to Minister Jordan (Department of Posts, Telecommunications and Broadcasting 1995c). The specific question of Telkom's ownership was now recognized as just one part of a much larger debate taking place under the auspices of the Ministry for Public Enterprises on whether and how to restructure state-owned assets.

Labor's concerns were, and are, not trivial. Parastatal reform does pose dangers. Among these is the retrenchment of labor, and in a country with over 40 percent unemployment this is no small matter. Labor also harbors concerns that its collective bargaining position would be weakened consequent to any privatization. In addition, there is always the danger that a privatized monopoly, given new freedoms and having to pay dividends to shareholders, will stray from its supposed developmental mission. As an influential COSATU-associated report argued, privatization may bring greater commercial efficiency, but it is typically at the price of service delivery and developmental priorities. Because capital always attempts to maximize return on its investment, Telkom's private partner would surely push hard to increase tariffs, thus pricing the service beyond the ability of the disadvantaged to pay. Examining the privatizations in Eastern Europe, the report charged that schemes aimed at transferring ownership of state-owned corporations to disadvantaged communities have the consequence of leaving decision-making power with parastatal managers, investment funds, and stock brokers. Such schemes reduce state influence and enhance management's control. Similar criticisms were aired in the main publication of the South African Communist Party.

Notwithstanding the dangers of reform, *not* reforming poses even greater dangers. This was the understanding of at least some of the colloquium stakeholders who sided with the majority position. The abuses of monopoly providers in general, and Telkom in particular, were well understood. But politically motivated tariff schedules, poor service, and excessive labor costs were only part of the problem. The monopoly carrier was simply not equipped to supply the needs of consumers in

an era of rapid technological innovation. At the time that the cellular market was liberalized, for example, Telkom provided service in a limited geographic area to 13,000 subscribers. Eighteen months later, 400,000 subscribers to the MTN and Vodacom networks could use cell phones in all but the most remote regions.

12.6.1.1 The Government Plan: The Reconstruction and Development Programme

The Reconstruction and Development Programme (RDP) dovetailed with developments that had been taking place on another front. It obliged Telkom to provide connections to schools and clinics—an obligation deceptively larger than it appears. Given Telkom's financial difficulties, the company forecast that it would need to borrow R6 billion over the next five years to fund its RDP obligations. The company put out a request for proposal (RFP) in June 1995 to provide 1 million lines in various rural areas where telephone density was below 5 percent. The government planned to work with two or more private partners, possibly chosen from the original equipment licensees. The government insisted on full ownership for Telkom, effectively precluding project financing schemes such as build-operate-transfer. Even so, the tender document stated that provision of the required infrastructure was to have no material effect on Telkom's debt/equity ratio.

Telkom learned some important things with the million-line RFP. First, it learned that the arrangement could not be done without some kind of equity transfer. The notion that it could gain an operating partner without this altering the company's debt/equity ratio was fantasy. Second, Telkom learned that an RFP on this scale brought much better prices than it saw previously—on the order of 30 to 40 percent lower. With these two lessons in tow, Telkom opened up the process to a much bigger affair. In November 1995, Telkom unveiled a broad expansion plan—which it called Vision 2000—of which the million-line tender was just a part. Scheduled over the next five years, the plan aimed at increasing the network by 75 percent with the addition of 2 million lines in rural and urban underserved areas and 1 million lines in areas that already have well-developed telecommunications infrastructure. Another 1.2 million lines would replace obsolete lines, aiming to complete the digitization of the network.

Telkom's normal rate of installation in the early nineties has been less than 200,000 new lines per year. The expansion of the network between 1994 and 1995 was at a rate of less than 5 percent. For the elections it was able to double that rate. (Telkom also services 800,000 transfers or disconnects per year—a very high figure.) Because some of the Vision 2000 rollout projects would be “turnkey” (that is, successful bidders would be responsible for end-to-end operation), particularly in areas where telecommunications expansion would be breaking new ground, Telkom's expectation is that it could install as many as 800,000 lines per year. This would amount to approximately a 15 percent rollout per year for five years. By way of comparison, network rollout in Mexico was contracted at a minimum of 12 percent per year, a target that was met and even slightly exceeded. Telkom's performance proved impressive. Between 1994 and 1997 the company added four million lines—an enormous increase—and cellular telephony reached one million subscribers in three years.

The financial terms of Telkom's Vision 2000 are sketchy and somewhat speculative. Telkom itself announced the cost—at today's prices and without provision for price escalation, costs of financing, and so on—at something in excess of R16 billion. This is probably too low. It means that the average cost per line would be less than R4,000, a figure never before seen in the South African context. The Department of Posts and Telecommunications estimated, conservatively, that the Vision 2000 project would cost R20 billion, and the department averaged every service to the lowest figure (Department of Posts and Telecommunications 1995). However, potential equipment suppliers confirmed that the R16 billion was a reasonable figure, in large part because of the deployment of cheaper radio-based technologies in local loops. More recent Telkom estimates put the figure at R30 billion.

Regardless as to the most accurate number, this is a very large amount of capital to be raised and deployed in a very short period of time. Where will the capital come from? Telkom's current capital investment of about R2.4 billion per year, generated from internal funds, expands the network at a rate of less than 200,000 lines per year. If the big rollout requires an average of 800,000 lines per year, it is reasonable to assume from these numbers (admittedly on a simplified basis) that nearly three-quarters of the new lines will have to be financed by new capital.

12.6.1.2 The Government Plan: The White Paper

Though Telkom's plans seemed optimistic, they were generally in line with the broad terms of the consensus reached at the colloquium, and this consonance entered into the first draft of the White Paper. The White Paper articulated a market structure scenario that gave Telkom essential exclusivity for five years, after which parts of the network would be opened up to phased entry and competition.

The specific timetable includes the following:

- In year one, fully deregulating the equipment market and ensuring that cross-subsidies flow only to noncompetitive activities (e.g., from business subscribers to low-income subscribers).
- In year three, issuing a third cellular license if appropriate.
- In year four, rebalancing Telkom's tariffs to remove cross-subsidies; allowing resale of excess capacity by private network carriers through interconnection with Telkom's network. All competitors would contribute to a Universal Service Fund that would be used to fund network expansion.
- In year six, allowing development of local loop service by local providers in cooperation with Telkom; liberalizing the long distance market; and allowing "metropolitan area networks," or networks of private networks providing service to major cities.
- In year seven, licensing a second network provider and liberalizing the international call market.

The White Paper market structure scenario reflects the particularities of the South African situation and is at the same time reasonably parallel to reforms undertaken in other countries. It gives the public telecommunications operator a period of time to expand even as it facilitates the growth of value-added and private-network entrants, and it phases in regulated competition. In this respect the plan commits the system toward a massive network rollout while also permitting the development of

sophisticated value-added services through the phased regulation of competition—first at the margins, then at the core of the infrastructure. And the massive expansion of the network may alleviate the problem of potential labor retrenchments, inasmuch as network expansion will require considerable manpower. In the end, after considerable struggle, the decision was to limit the Telkom monopoly to five years (six if the terms of the license were closely met), until 2002 or 2003.

However, the plausibility of this policy is contingent upon two crucial things. First, the government must establish a competent regulatory authority very quickly, for the regulator will be expected to oversee many complicated processes and resolve a great number of technically intricate disputes. Guiding a sector into a competitive market structure is no easy task. Regulatory disputes are very likely to be dominated by Telkom, particularly at the beginning, inasmuch as it possesses most of the key information. The regulator will have the difficult task of monitoring Telkom's activities to distinguish between actions that facilitate the central goals of the sector in terms of reconstruction and development, and actions whose effect will position Telkom so powerfully as to undermine eventual competitors. The White Paper proposed the creation of a Universal Service Agency alongside the regulator to ensure that universal service remains a central focus. It also may be advisable to write as many obligations and understandings into Telkom's license as possible, particularly because it will take time to build capacity in the regulator. Performance and regulatory contracts have worked in some countries, Mexico being perhaps the best example. These would provide needed initial stability for the new market structure and at the same time afford the regulatory body time to build up its capacities. The regulatory agency created was the South African Telecommunications Regulatory Authority.

Second, assuming conservatively that Vision 2000 costs R16 billion, Telkom will need another R12 billion, or R2.4 billion per year, for the plan to work. Telkom cannot effectively expand considering its present financial state. It is the most highly "geared" (net debt as a percentage of shareholders' funds) of any telecommunications company in the world. Its capital expenditure is below other comparably situated national telecommunications operators, and this is reflected in the low rates of network growth. Without new capital, Telkom cannot expand the network in anything approaching the rapidity envisioned by the White Paper—a speed both expected by the South African majority and necessary if Telkom is to meet the challenge of competition from international operators.

12.6.2 Financing Reform

There may be several ways to infuse capital into a debt-burdened Telkom. Government funding is not an option at this time given the severe budget constraints facing the Government of National Unity. General sale of equity on the Johannesburg Stock Exchange is a possible option, but such a gambit risks replaying the consequences of the previous government's strategy because it would tend to concentrate ownership in the white elite. A giveaway of shares to favored, previously disadvantaged constituencies would increase social equity, but it would not raise capital for Telkom. Although the million-line tender has prohibited this option, build-operate-transfer (BOT) arrangements, which grant large, usually

international contractors an exclusive right to a project's revenues under a time-bound concession agreement with the government, have worked in other countries, including, apparently, South Africa in the case of Water Sanitation Services South Africa's arrangement with the French company Lyonnaise des Eaux. However, governments are not always able to manage the impact of levies or tariffs on the public.

In 1996, the government enlisted an investment bank, Goldman Sachs, to help it find a strategic equity partner SEP. Such a partner was considered the most propitious way to facilitate an infusion of capital into Telkom. Not only would this raise capital quickly, but the participation of an international telecommunications operator would likely bring much-needed management and technological capabilities as well. The book value of Telkom's investments, including buildings and so on, is only about R15 billion, but the parastatal's potential market value is estimated between R31 and R35 billion. Telkom's Chairman of the Board Digang Moseneke was quoted in the press as looking for a strategic equity partner of between 20 to 30 percent. If Telkom's market value is, for purposes of argument, R30 billion, an SEP would represent a direct infusion of capital between R6 and R9 billion. Telkom would probably also borrow new money on the local and international capital markets, hoping to leverage the SEP's contribution toward a favorable interest rate. Even so, it seems that even with the SEP, Telkom will have difficulty funding its obligations under the RDP and Vision 2000 and becoming a viable competitor within five years. In 1997, the privatization process led to its cautious next step. Thirty percent of Telkom SA was sold to a private foreign consortium of a Western company (SBC, then the largest of the American Bell companies) and a non-Western firm (Telkom Malaysia). Soon, Telkom further integrated itself into the global framework of private telecom carriers by joining, in 1998, the AT&T-led global alliance World Partners. But its main focus was the development of the domestic network. Under its license, Telkom was required to install 2.8 million lines; 120,000 pay phones; 24,000 lines for schools and hospitals; and Internet access to 2,000 institutions serving the historically disadvantaged population. Furthermore, Telkom had to spend almost a half billion U.S. dollars on staff training, mostly for nonwhites, and hire at least one third of its manager from such population groups. All this was going to cost over \$10 million, on top of the purchase price of \$1.2 billion to SBC and Malaysia Telekom for their 30 percent of equity. To accomplish this goal, SBC brought in one of its managers, R. Geschwind, or the new chief executive of Telkom.

12.7 The Future

Continued sectoral reform requires the government and organized labor to come to a reasonable and rapid settlement of the political problem on the restructuring of state assets, a debate that pits the principal coalition partners of the ANC and COSATU against each other. The White Paper itself specifically leaves the question of ownership to future discussions, although by the end of 1995, the government had begun discussions with several international firms. In January 1996,

COSATU announced its intention to hold a general strike in response to the impending partial privatization. Fearing the economic and political consequences, the government agreed to delay the sale of equity during talks that resulted in the National Framework Agreement. This agreement permitted labor a voice in the restructuring process and some degree of control in any layoffs that would result. In exchange, COSATU dropped its unconditional opposition to privatization, though it continued to voice its preference for state control of its parastatals.

The telecommunications reform process was thrown into uncertainty due to the dismissal of Minister Pallo Jordan from the cabinet, effective April 4, 1996. The cabinet reshuffle also dismantled the RDP, distributing its functions to line ministries. Jay Naidoo, head of the RDP, was given Jordan's Posts, Telecommunications and Broadcasting portfolio. Speculation on Jordan's dismissal rested not on job performance so much as his maverick style and the fact that he had crossed President Mandela on several occasions.

Potential investors were initially alarmed at the elevation of the former labor leader and opponent of liberalization to a position responsible for the future of the telecommunications industry. Naidoo issued several statements proclaiming his commitment to the reform process, and analysts began to speculate that he might actually command a better bargaining position from his former colleagues than the intellectual and apparently aloof Jordan. Draft legislation issued in May 1996 suggested that Naidoo would continue in the spirit of the NTF and the White Paper. The bill further delineated distinctions between policy, regulation, and operations by creating a regulator (the South African Telecommunications Regulatory Authority, or SATRA) and the Universal Service Agency and consolidating policy authority under the renamed Department of Communications.

SATRA exhibited independence from the government and from the major company, Telkom. Eventually SATRA will absorb the national regulatory body for the broadcasting industry, the IBA (Independent Broadcasting Authority). This move was designed to better reflect the convergence of data communications and broadcasting technologies that is occurring within the telecommunications industry. For example, folding SATRA and the IBA into one body, broadcasters who want to apply for a license to offer data services and Internet service providers who want to apply for a license to offer video via the Internet will not have to approach two separate regulatory bodies.

12.8 Conclusion

The Telkom debate is only a part of a greater debate over the future of the large number of state-owned enterprises in South Africa. At stake for the labor movement is not only lost jobs but also its long-term ability to control, through its traditional alliance with the ANC, large portions of South African industry. Private ownership of assets means a loss of political clout and collective bargaining strength. Investors, however, demand control in order to initiate cost-cutting measures and improve efficiency. As a financial investment, Telkom is a weak candidate (its projected rate of return is lower even than short-term interest rates), and its

appeal lies in its promise of future access to the country and the rest of Africa as the market grows. To take advantage of these potential opportunities, multinationals consider some degree of strategic control to be crucial; none wishes to share control with both government and labor.

The ANC-led government, therefore, must satisfy the demands of two seemingly incompatible forces: organized labor, which has the power to bring the economy to a standstill; and the international investment community, without which none of the RDP goals for telecommunications, a viable competitive industry, or the continued financial health of Telkom would be possible. Policy makers continue to seek solutions and pursue agreements with labor and business, but in the meantime progress must be made on the promise to bring telecommunications to the disadvantaged by the year 2000. Given South Africa's moral stature and economic power, all of Africa is watching.

Notes

1. At an exchange rate average of 3.016 Rand per U.S. dollar in 1991, South Africa's GDP translated to U.S.\$107.46 billion (Economist Intelligence Unit 1992, p. 3).

2. Constitutional changes in 1984 established a tricameral Parliament: a House of Assembly for whites, a House of Representatives for Coloreds, and a House of Delegates for Indians. The African majority remained excluded. A move from the former all-white, prime ministerial "Westminster" system to a strong presidency was designed to co-opt any genuine participation by Colored and Indian representatives. Among other features, a fixed 4:2:1 numerical ratio of white, Colored, and Indian representation in Parliament ensured white hegemony (Schrire 1991, pp. 59-69).

3. The Development Bank of Southern Africa estimated in 1989 that there were about 7 million people living in informal dwellings (reported in *The Star* 1989).

4. It should be noted that the processes of dismantling apartheid and exploring power-sharing options were begun under de Klerk's predecessor, P. W. Botha. Moreover, there is evidence that extensive deliberations on the end of white rule were held within the Broederbond, that secret Afrikaner fraternity, as early as 1986 (Keller 1992). The Broederbond, which began as a small Afrikaner cultural club in 1918 and grew into a formidable elite organization that sought to unite and mobilize Afrikaners against British economic power, was the closest thing to a "ruling class" one could find (see O'Meara 1983).

5. "State business enterprises" (in official government reports sometimes also referred to as "public authorities") can be considered the South African version of the more generic "state-owned enterprise," or SOE. In South Africa, "state business enterprises" were distinct from "public corporations." While both were public, as opposed to private, enterprises, public corporations were established by special legislation (hence were not chartered under the South African Companies Act) and were granted more autonomy than were state business enterprises. State business enterprises were run through ministries whereas public corporations were not. Although the SAPT was a state business enterprise, the Electricity Supply Commission (Eskom), in contrast, was a public corporation. The generic term that describes these publicly owned, utility-type enterprises, be they public corporations or state business enterprises, is "parastatals."

6. The lines in service per employee rose to about 58 in 1993 (Telkom 1993).

7. The policy of reserving certain skilled and semiskilled jobs for whites was partially ended in 1979. With the exception of the mining industry, the remaining categories were abolished in 1983 (Schrire 1991, p. 73). However, according to one source, there was still a

fair amount of salary disparity by race in the SAPT as late as the late 1980s, particularly in the lower salary grades ("Posts and Telecommunications" 1986, pp. 52–53).

8. The South African economy is characterized by extraordinarily concentrated ownership, organized into a small number of vast conglomerates. Until recently, when the Sanlam Group announced it would break up its industrial centerpiece, Gencor, just four colossal corporate groups controlled more than 80 percent of the value of all the stocks listed on the Johannesburg Stock Exchange. This concentration of economic power in English or Afrikaner conglomerates was another way in which white power historically manifested itself in South Africa—a kind of white cartel ("Gencor to Proceed with Unbundling" 1993; Keller 1993). In 1993, Gencor announced it would unbundle R6.9 billion of its R21 billion net asset value ("Gencor Stops Short of Total Unbundling" 1993).

9. The exception was the supply of underground copper wire cables, which was a competitive business. The SAPT purchased this cable on an approved list-tender basis ("Posts and Telecommunications" 1987, p. 21).

10. Moreover, according to one high-level Telkom manager (in a personal communication with the author in November 1991), local content may have been calculated fraudulently—at least in the case of one of the key suppliers. The designated company got subsidiaries to buy imported equipment, then turned around and showed this equipment as locally produced. This, of course, artificially boosted the percentage of local content. The company's high profits meant equivalent losses for the SAPT.

11. The costs of any innovation or product development carried out by companies for the SAPT were paid for by the SAPT as a separate item with an allowance for profit. Thus the companies bore no risk in the event of such innovation or development proving to be abortive. This feature of the agreements was intended to encourage innovation and product development. But because the decision whether to proceed with developing a new product was in effect removed from the contractor and placed with the SAPT, it may have actually reduced incentives for product development.

12. The growth in exports can be attributed to the following factors: (1) Telkom orders are down, pushing suppliers to become more export oriented; (2) Telkor won an important contract to supply pay phones to Hungary; (3) with the reunification of Germany, the underutilized Siemens South Africa factory could be used to service this new market; and (4) Alcatel, seeing Altech as its springboard into Africa, has taken a larger stake of Altech and pushed it to look to neighboring African markets.

13. Data on telephone penetration by race are now difficult to obtain. Telkom claims that it no longer compiles data on penetration according to race—that this kind of racial orientation is no longer acceptable in the "new South Africa." The 1989 data on penetration cited here come from Coopers & Lybrand (1992, p. 8). The following table provides a more detailed picture of penetration, showing telephone density per 100 residences by population group between 1978 and 1987.

Number of Telephones per 100 Residences

	Whites	Asians	Coloreds	Blacks	
				Metropolitan	Rural
1978	71.5	36.1	19.3	3.3	1.8
1982	83.3	61.5	46.2	24.0	8.3
1987	83.9	72.2	53.2	38.0	13.7

Source: De Villiers 1989, concise version, p. 3.

Note: Because density is measured by household, there is a built-in skew, inasmuch as household size varies by race—blacks have the largest, followed by Colored, Indian, and white, in that order.

14. As the Coopers & Lybrand report notes, while the white and black communities show levels of telephone penetration that are broadly consistent with the observed relationship between telephone penetration and per capita income, there are a number of countries that have similar per capita incomes to the black community in the Republic of South Africa but much higher telephone penetration. The Coopers & Lybrand report suggests that there is considerable suppressed demand in the black population (1992, p. 9).

15. Apartheid's legacy to infrastructure development can be seen in the fact that, while telephone service was virtually unavailable to rural Africans, it was extended to white farmers—and on a highly subsidized basis. Because of the historic economic and political power of the white farming community, the average white farmer had access to health, education, electricity, transport networks, and a telephone as a result of a commitment from the state to provide whites with such services through public-sector provision. According to one 1991 account, if tariffs for telephone service to the farming community were to be levied on a cost-related basis, the basic rental would increase from R24 to R114 per month. This compares to the calculation of an average monthly cost-related rental of R51.80 (Preiss 1991). Lest this read as a blanket statement, it should be acknowledged that some areas of black urban settlement, such as Soweto, have considerable infrastructure in place.

16. Interestingly, though, in the end the legislation was opposed only by POTWA, the black Postal and Telecommunications Workers Association, and the Conservative Party (which is well to the political right of the National Party). The union had opposed the original proposal to privatize the SAPT. It opposed the Post Office Amendment legislation because it felt it had not been properly consulted and held serious concerns over likely retrenchments and the commitment to universal service. The Conservative Party (CP), in some contrast, opposed commercialization because it believed this would jeopardize the provision of cheap communication services to its rural Afrikaner constituency. The CP also believed that commercialization would enhance the recent trend of government dismantling of the job reservation system, a system the CP heartily supported (Republic of South Africa 1991a, 1991b).

17. It should be noted, however, that notwithstanding its parliamentary form of government, South Africa is a state characterized by a strong executive. The state president and his ministers hold the bulk of political power. Hence vague legislation may have the consequence of giving the minister of Transport and Communications great discretionary authority to set basic policy.

18. In 1993, the minister of Transport and Communications administered both the policy and shareholding portfolios because the minister of Minerals and Energy Affairs and Public Enterprises, Dawie de Villiers, was too busy with his normal duties and his role as a chief negotiator in constitutional talks (Webb 1993).

19. The understanding of "representation," however, must be appreciated. Pretorius did not even like the word, because it carried with it the implication that commissioners would be representative of political parties. On the contrary, he warned, commissioners should be removed from politics. They should be "wise men" (sic)—not necessarily experts, but with access to experts on the agency staff. To ensure independence, commissioners would be appointed by the state president and could be dismissed only by Parliament, essentially only for cause. This model is similar to the protection of judges. There would be no public vetting upon appointment, due to the "political circus" this process encourages. The commission would have large powers to determine policy, though aggrieved parties could appeal decisions to court. Present grounds for judicial review are limited in South Africa, but Pretorius predicted that the South African Law Commission would liberalize and broaden the grounds of review to consider the "reasonableness" of agency decisions (Pretorius 1992).

20. And there is some evidence that the members of the progressive alliance in the Codesa Working Group had little understanding of the technical and economic issues involved in telecommunications or how broadcasting and telecommunications interact. This point was made by Michael Markowitz of the Film and Allied Workers Organization, which had been commissioned to comment on the government's communications regulation proposals for the ANC. Markowitz made this claim at a communications workshop sponsored by POTWA in Johannesburg, July 10, 1992. He voiced the opinion that with regard to telecommunications, the breakdown in Codesa talks may have been a blessing in disguise. In his estimation, the progressive alliance ran a serious risk of agreeing to things it did not understand fully and might well regret later. As for the actual content of the government's first proposals on the regulatory body at Codesa, Markowitz claims that 60 to 70 percent dealt with the problem of pensions (POTWA Communications Workshop 1992).

21. Codesa collapsed amid demands by the National Party alliance for very high majorities to pass legislation in the new government—interpreted by the ANC alliance as embedding a white veto. The second reason for the ANC-SACP-COSATU's suspension of its participation revolved around the intensity of township violence, which the progressive alliance attributed in part to the police and defense forces.

22. As more than one source explained, the ANC and POTWA were happy to meet with various players on a one-on-one basis, but they rarely attended the general meetings. The ANC alliance wanted forums to be seen as its initiative. Moreover, the ANC consistently refused to participate in a meeting or forum organized by the government or Telkom. This position has long been held by the ANC's chief player in the telecommunications debate, Information Systems head Andile Ngcaba (Ngcaba 1992, 1993a). Telkom participated in the forum, but rarely sent representatives with real managerial weight. Other participating parties had doubts about the propriety of BMI's sponsorship of the forum, citing potential conflicts of interest due to its business interests. This atmosphere of suspicion likely was an additional factor in undermining the success of the forum.

23. The evolution of the Policy Unit is revealing. During the period of the government's overt championing of privatization, it created a new ministry, the Ministry of Administration and Privatisation. Reflecting the political sensitivity of the idea of privatization following the February 1990 legalization of the ANC, the ministry's name was changed to the Ministry of Administration and Economic Coordination in March 1990. The privatization option was not dropped in toto, just made less visible. It was then embodied in a privatization policy unit of the ministry. A few additional ministerial changes later, a far less public Office of Privatisation operated under the auspices of the Ministry for Minerals and Energy Affairs and Public Enterprises. Thereafter the office's name was adjusted once again, to the Policy Unit on Public Enterprises (see Republic of South Africa, *Debates of Parliament (Hansard)*, various years).

24. Projections on the number of cellular subscribers vary. Coopers & Lybrand estimates 160,000 to 220,000 subscribers by the year 2002; M-Net Communications Technologies chief executive Ian Wilkinson calculates a potential base of 300,000 to 500,000 subscribers; Vodacom managing director Allan Knott-Craig projects a potential cellular market size of 1 million subscribers over the next five years ("Dial-a-Profit" 1993, p. 15). Another figure that has been floated in the press is that 70 percent of South Africa's population will have access to cellular phones within five years. Because worldwide industry figures show more than 70 percent of all cellular calls pass through the national carrier's network, Telkom's revenues would not suffer. Vodacom and MTN say that the cellular industry could create some 70,000 jobs indirectly and 4,500 directly within their companies ("Cellular Phones" 1993, pp. 10–12).

25. Whether this observation was a comment on Welgemoed's racial politics or rather a

comment on his sense of his duly constituted authority as minister of Transport and Communications is hard to say. But Postmaster General Oosthuizen clearly evinced at least the latter in an interview. He bristled when I suggested that the Negotiating Forum at Kempton Park was now in effect the interim government and that making consequential decisions for the telecommunications sector outside the evolving constitutional framework may not be a good idea (Oosthuizen 1993).

26. The Congress of South African Trade Unions claims that because the cellular tenders are being considered on their own, outside a strategy for associated economic or industrial development, they represent only the expression of an abstract hope that privatization will provide for universal service. The tender document's requirement for views on how applicants will provide service for disadvantaged communities thus is not a strategy but an afterthought (Fanaroff 1993b; Naidoo 1993).

27. Composition of the cellular ventures is as follows.

- Vodacom: Telkom (50 percent), Vodafone (35 percent), Rembrandt (15 percent).
- MTN: M-Net (30 percent), Cable & Wireless (30 percent), Naftel (30 percent), Transtel (10 percent).
- Cellstar: Grintek (Anglovaal) (51 percent), Telecom Finland (11 percent), Finnfund (11 percent), black business (unallocated) (27 percent).
- Reunert: Barlow Rand (34 percent), Deutsche Bundespost Telekom (34 percent), black business (unallocated) (32 percent).

28. Temple, a strong advocate of an open tender system on all telecommunications equipment, told me that Telkom asked Ericsson about its cellular base stations, then showed the figures to Siemens and Altech. The traditional suppliers then undercut Ericsson's price by 2 percent. But, according to Temple, the Ericsson base station is much larger and more powerful—so the comparison is apples and oranges. Ericsson is by far the largest cellular provider worldwide. Temple adduces that notwithstanding the commercialization of Telkom, the cozy and nontransparent relationship between Telkom and its traditional suppliers continues.

29. According to Knott-Craig, Vodacom's community service comprises the provision of at least 22,000 subsidized community phones to more than sixty townships that have already been identified for this service over the next five years ("Cellular Phones" 1993).

30. Knott-Craig's rejection of the claim that GSM call charges would be too expensive inadvertently points to another problem. Claiming that calls made from one cellular community telephone to another could cost less than 20 cents a minute—independent of distance—Knott-Craig ignored the effect on Telkom's public-switched telephone network (PSTN). The common riposte is that a successful cellular service would cause telephone traffic to increase in absolute terms and hence Telkom would benefit from interface charges. But Knott-Craig made an interesting comment (perhaps a slip) in an interview. He talked about Vodacom being 50 percent owned by the "government," not by Telkom. And, good entrepreneur that he is, Knott-Craig looked forward to competing with Telkom, expressing confidence that Vodacom could be bigger than Telkom in several years (Knott-Craig 1993b). Two things should be noted. First, interface charges between cellular services and the PSTN could undermine visions of a cheap cellular service. Second, in a competitive environment the threat of cellular bypass to the PSTN may be quite real.

31. The effect of cellular on retrenchments at Telkom greatly concerns COSATU. After all, cellular could in principle take revenues away from Telkom. Also, COSATU is more concerned than is the ANC about requiring foreign contractors to source some components within South Africa (Naidoo 1993; "COSATU Calls for Delay in Cellular Telephone Licenses" 1993). Here some of the fissures in general economic policy between the ANC

and COSATU are apparent. The ANC's Ngcaba is not convinced that the old Telkom Supply Agreements shouldn't be scrapped altogether—the protection of a few jobs in South Africa may not be worth the savings that could be gained from buying cheap foreign-made equipment. This, Ngcaba averred, required study (Ngcaba 1993a). The ANC's economists have been more sanguine about basic capitalist macroeconomics, some going so far as to embrace versions of trickle down theory. In contrast, COSATU was more forthright about the need to spur manufacturing in South Africa and create domestic employment. Its policy is captured by its slogan of “growth through redistribution.” In return for COSATU's support at the polls, the ANC has agreed in principle to adopt COSATU's reconstruction and development program (“ANC to Back COSATU's Reconstruction Plan” 1993).

32. The latter argument is a red herring, however, for several potential investors from the United States had made noises about an extension to the tender deadline. They were enjoined from putting forward a bid until sanctions were dropped. Indeed, there was some speculation in the industry that the ANC pushed hard to stop the tender process because it wanted a way to reward its foreign backers during the sanctions period (Makhanya 1993). On the other side, there were rumors that the government pushed ahead with the cellular tenders because it was under strong pressure from Britain on behalf of Cable & Wireless, Mobile Telephone Network's British partner.

33. This point raises the question as to whether the conclusions of the De Villiers Report were warranted. The SAPT was the last of de Villiers's investigations. According to W. J. Taylor, former deputy postmaster general for telecommunications, after finding real problems with the electricity and transportation parastatals, de Villiers came to the Post Office investigation with preconceived notions and, by then, a set agenda. Grossly ignorant of telecommunications, de Villiers insisted that the SAPT's decision to go digital had been a mistake and was a gross instance of goldplating. Yet nearly universal expert opinion argues that digital is more flexible and in the long run cheaper than electromechanical systems (Taylor 1992).

34. The waiting list reflects actual applications, hence it mainly reflects demand in areas where there is some infrastructure. The list does not adequately take underdeveloped areas into account.

35. The press minced no words in attacking Telkom. Typical was this editorial from the *Cape Times*. “The telephone service was far from perfect when run by the Post Office, earning its fair share of complaints from the public. But never did it arouse so enraged and sustained an outcry as Telkom has within a short time of taking over the service. . . . If this is the result of what is laughably called privatisation or commercialisation, then the telephone service should be re-nationalised without delay. Any private company which abused its clients in this way would quickly go out of business. But Telkom has no competition. Whatever similarity exists between its monopolistic stranglehold on telephonic communication and private enterprise is in the imagination only of the government which foisted it on the public” (*Cape Times* 1992, p. 8).

36. The uncertainty with regard to this conventional analysis stems from the difficulty of assessing black practices in the use of telephones. Telkom argued, for instance, that Soweto telephones do not generate much call traffic or revenue. But according to Alan Paul of BMI TechKnowledge, many Soweto telephones are routinely and continuously utilized for receiving calls. The revenue is generated elsewhere, but the Soweto phones—hence, by implication, black users—generate more call revenue than is ordinarily reported. Paul quoted a figure of 7 percent underreported (Paul 1992). The general point comports with the excellent ethnographic/sociological study of the rural-urban link in African telephone use by Mike Morris and S. E. Stavrou of the University of Natal. Morris and Stavrou argue that the strong rural-urban link between African family members leads to significant telephone use.

But because the rural dwellers do not have private telephones, the calls between city and village originate from pay phones located in rural areas (Morris and Stavrou 1991, 1990).

37. Until 1993, contrary to most accepted accounting practices, Telkom included the value of fully depreciated assets in its gross book value.

38. This ratio apparently is dropping. The net debt to equity ratio was down from 1.8 to 1 for 1994.

39. Some knowledgeable observers even suspect that much of the R40 million in actuality went to expand telecommunications facilities to white farmers and tourist-oriented game parks. Indeed, Telkom's annual report states that the company provided "about 300 community telephone services and purchased infrastructure equipment which will allow for the provision of another 1000 services in the first half of the 1993/94 financial year" (Telkom 1993, p. 25). This is hardly an awe-inspiring pace. Notwithstanding Telkom's difficult financial situation, its slowness in expanding service to the black population is disturbing. Concrete technology and sociological research have been available to Telkom to put in place a modest "agency" telephone system in townships for several years. The research of Mike Morris and S. E. Stavrou establishes the workability of authorizing a township telephone customer to operate an agency telephone out of his or her house. Temsa constructed a special meter that indicates the real-time cash charges of any call, thereby making charges transparent to the customer. According to Karl Hartyani of Temsa, Telkom made no commitment to the agency telephone (Morris and Stavrou 1991; Hartyani 1993).

40. Though the Post Office initially questioned the policy, Eskom and Transnet were permitted to provide their own communications links in a 1993 decision. In the case of Transnet, the cabinet determined that it was better for the railroads to take care of their own signaling because of accidents and related possible third-party problems.

41. In addition to the provision of redundant networks for large users, Transtel seeks to integrate Transnet's transport value chain, bringing Transnet's major clients directly into the company's information-communication-logistics network. And where it has infrastructure in place, Transtel would like to provide telephone service to those without. This not only would provide a public service but would make more efficient use of Transtel's plant (Webb 1993). Much of Transtel's commercial aggressiveness can be attributed to the fact that because of the terms of Transnet's commercialization, Transtel must compete with Telkom for Transnet's business; it cannot compete with Telkom outside of Transnet. Lindo Carvel Webb claims that Transtel has had a "galvanic" effect on Telkom with regard to Telkom's service. Telkom now services customers much more quickly because of the competitive pressure from Transtel (Webb 1993).

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