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Telecommunications Reform in Côte d'Ivoire

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Abstract

This paper analyzes Côte d'Ivoire's experience with telecommunications liberalization and privatization. Côte d'Ivoire privatized its incumbent operator in 1997, and granted the newly privatized firm seven years of fixed-line exclusivity while introducing "managed competition" in the cellular market and free competition in value-added services (VAS). By March 2001, three cellular operators and a number of VAS providers had entered the market. Reform has thus significantly changed the landscape of Côte d'Ivoire's telecommunications sector and has brought with it tremendous improvement in sector performance. Between 1997 and 2001, fixed-line telephone penetration grew from 1.03 to 1.80 per hundred people, while mobile penetration skyrocketed from 0.26 to 4.46. But it is still too early to assess the validity of granting exclusivity to the incumbent operator. While penetration increased, the operator did not meet objectives regarding rural telephony and service quality. Moreover, fixed-line penetration increased in areas where the operator faced competition from mobile providers.

This paper—a product of Regulation and Competition Policy, Development Research Group—is part of a larger effort in the group to promote telecommunications competition, liberalization, and privatization in Africa. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Sintim-Aboagye, room MC3-422, telephone 202-473-8526, fax 202-522-1155, email address psintimaboagye@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. Jean-Jacques Laffont may be contacted at laffont@cict.fr. September 2002. (56 pages)

TELECOMMUNICATIONS REFORM IN CÔTE D'IVOIRE

by

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INTRODUCTION

Under the pressure of technological progress and of the increasing influence of the liberal theories, the telecommunication sector has been in deep mutation in the last twenty years. This transformation, which started in 1984 with the divestiture of the monopoly ATT in the USA, has already occurred in Japan, Western Europe and to a less extent in Eastern Europe (Czech Republic, Slovak Republic, Hungary) and in some LDCs such as Argentina and Mexico. Africa has been left apart from this trend until recently and where it has occurred it was often under the pressure of international institutions such as the World Bank and the IMF.

Côte d'Ivoire has followed this path since 1991. Indeed, the restructuring of the telecommunications sector began in 1991 by the financial and technical diagnosis of the public operator as well as with the project to update the old signaling code. The coming into force of this new code in 1995 (Law n°95-526 of July 07th, 1995) has given a boost to the reforms and totally transformed the Ivoirian telecommunications space. The final touch to the restructuring was completed by the grant of a twenty-year concession for the fixed lines and a 51% capital offering of the public operator to the company *France Câbles et Radio* after an international invitation to tender.

This work aims at analyzing the main features of the reform as well as its main consequences. First, we will comment on the economic and political factors that gave rise to this reform. We will also draw a broad picture of the technical and financial state of the public operator before its privatization. Then, we will analyze several aspects of the reforms undertaken trying to pin down not only its results but also the problems linked with its implementation.

1- ECONOMIC AND POLITICAL CIRCONSTANCES OF THE REFORMS

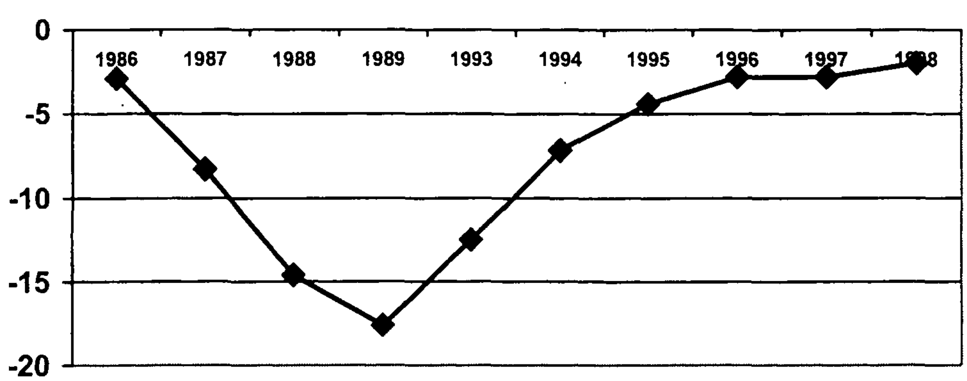
1.1- The economic and social environment

The history of Côte d'Ivoire since independence in 1960 is a sequence of fast growing periods (65-75) (83-86) interrupted by external shocks on the prices of coffee and cacao. In particular the successful adjustment period of 1981-86 ran into a collapse of the coffee and cacao prices at the end of 1986 which sent back the country into crisis.

According to the World Bank, the terms of trade went down by 18.2% in 1987, 10.4% in 1988, 13.7% in 1989 and 7% in 1990. It represents a fall of more than 41% between 1986 and 1990. During those years, the real effective exchange rate appreciated by more than a third because of the drop in the value of the dollar. The GDP fell in real terms by 2.45 on annual average between 1986 and 1990. Taking into account the population growth, the annual average drop was of 5.2% during the same period. This represents a fall in revenue per capita of 22.6% in four years. In 1990, Côte d'Ivoire fell, for the first time, in the group of countries eligible for international aid with a GNP per capita slightly lower than 740 dollars.

At the beginning of the crisis, the government adopted a wait-and-see policy, suspending the debt servicing in June 1987, delaying the sale of the cocoa crop until the French intervention and refusing to lower the coffee and cocoa producers' prices until July 1989 when a first drop occurred, followed by a second in October 1989. In a crisis situation such as the one Côte d'Ivoire suffered from after 1986, such a policy was unsustainable. The Agency for Stabilization (CAISTAB) who had a profit of 4.2% of the GDP in 1986 turned to be in deficit because of the stabilization operations of 1.9% of the GDP in 1987, 3.5% in 1988 and 5.4% in 1989. The stabilization of the cocoa price was the operation that cost the most to the CAISTAB with a maximum of 4.2% in 1989. The budget deficit, including the interest on the national debt, constantly increased until 1989. Figure 1 depicts the movement of this deficit until 1998.

Figure 1: Budget Deficit on a GDP Percentage Basis.



Source: IMF.

Besides, the amount of the budget deficit was estimated at 11.2 billions $ in 1990 and the country was listed by the World Bank among the 17 most indebted countries in the world. The level of its debt per capita was the highest in Africa. Meanwhile, the current account of the balance of payments was worsening and reached a deficit of 10.5% of GDP in 1990 (from an equilibrium position in 1985). Table 1 represents this series.

Table 1: Current Account of the Balance of Payments

	1985	1986	1987	1988	1989	1990
% PIB	0.7	-3.7	-7.6	-9.8	-10.4	-10.5

Source: IMF

All in all, forced to give up his position of planters' defense, lowering the producers' prices and abandoning the project to support unilaterally the international price of cocoa, President Houphouêt Boigny had also been weakened by the political situation of his country and by the actions of the international institutions. In particular, he lost the collaboration of Antoine Césario, the soul of the *Direction et Contrôle des Grands Travaux* (DCGTX, now called *Bureau National d'Etudes Techniques du Développement* (BNETD)), who had been the head of the presidential committee for economic issues. He had no option but to let the government announce the drastic austerity measures of spring 1990, including a wage reduction in the public sector and enterprises. From this period, the social unrest grew with an unknown vigor in the history of the country. On top of the traditional opponents, the students and their teachers, all the other economic and social classes, in particular the policemen and the soldiers, contributed to this unrest. In order to save the regime and the country close to chaos, two important measures were decided.

First, following the recommendation of the international institutions, Alassane Dramane Ouattara, the governor of the West African States Central Bank (BCEAO) and formerly IMF employee was appointed on April 18th, 1990, the head of the interdepartmental board of coordination, responsible for implementing a new program of economic revival negotiated with the IMF and the World Bank. His first speeches concerned the « suspension of all the measures announced the latter days ». Secondly, on April 30th, 1990, the politburo of the PDCI (*Parti Democratique de Côte d'Ivoire*) invited the government to apply the 7th article of the Constitution concerning the integral multiparty system and on May 30th, 1990, 9 political parties were legalized, including the *Front Populaire Ivoirien* (FPI) of the historian Laurent Gbagbo and the *Parti Ivoirien des Travailleurs* (PIT) of the lawyer Francis Wodie. From then on, the social unrest diminished gradually until the general elections that reinforced the power of the President and of the PDCI. Indeed, Houphouêt Boigny was reelected on October 28th, 1990, with 81.67% of the votes and the PDCI obtained 166 out of 175 seats at the National Assembly. Meanwhile, the position of Alassane Ouattara, appointed as Prime Minister in November 1990, was reinforced and he was then able to implement his stabilization plan with a certain room for manœuvre and envisionned structural reforms.

Those internal adjustments, in spite of the cost reduction and the restructuring of the coffee and cocoa industry, did not remedy the increased deterioration of the country terms of trade whereas the exchange rate did not really improved. Thus, the production of the export crops stagnated with the fall in the producers' price. The secondary and tertiary sector activity was affected by the contraction of domestic demand resulting in a wage fall and some difficulties of the financial sector. The gross domestic investment remained constant during the period 1989-1993, accounting approximately for 9% of the GDP, whereas the domestic saving fell to reach 10% of the GDP, to be compared to 28.4% in 1985, before the beginning of the recession. Besides, the fiscal measures did not compensate the erosion of the taxation basis due to both the extension of fraud and to the regular contraction of GDP. The administrative reforms did not result in any increase in the amount of taxes collected. Similarly, although the public sector wage bill decreased of about 5.5% in nominal value between 1989 and 1993, it represented then 75% of the fiscal revenues in 1993 against 56% in 1989.

As a consequence, in spite of the initial reduction of the primary budget deficit from 7.8% of the GDP in 1989 to 1.4% in 1992, the scheduled primary surpluses were not obtained. The budgetary constraints, which had worsened in 1993, prevented an important rationalization of the fiscal system and of the incentive structures. The mass of domestic overdue and the considerable external debt hampered the return of the investors' confidence.

Thus, it clearly appeared that, without any deep rearrangement of the adjustment strategy, based so far exclusively on internal measures, it would be difficult for Côte d'Ivoire to improve the financial and economic situation and obtain the necessary means to compensate the lack of domestic savings. Houphouêt Boigny, the fiercest opponent of the CFA franc devaluation died on December 7th, 1993 and was replaced, by virtue of the constitution, by the more liberal Henri Konan Bédié. Alassane Dramane Ouattara resigned and his ministry for finance and economics, Daniel Kablan Duncan, took his position as Prime Minister. Consequently, Côte d'Ivoire accepted the inclusion of the modification of the CFA franc parity in its structural adjustment policy, in cooperation with its partners of the Franc area all more or less subject to the same difficulties. It was fixed at 100 CFA francs for 1 French franc from January 12th, 1994, representing a 50% reduction of the CFA franc value.

During 1994, the Ivoirian economy reacted in a positive way to the redirecting of the relative prices and to the large improvement of the productive sector competitiveness, consequence of the CFA franc devaluation. In spite of the fall in the real disposable income, the GDP rose by 1.7% while it had fallen of 0.8% in 1993. Finally, the austerity of the budgetary policy of 1994 played a large part in this general improvement. The redirecting of the fiscal policy, the strict control of public spending and the reduction of the interest arrears jointly contributed to the positive reaction of the economy to the parity change. The public finance policy in 1995 and after was to consolidate this progress. From 1995, the government committed himself to deepen its structural reforms program in order to make the national economy more competitive, through the focus of the State activities on regulation, control and security. Thus, some large reforms were decided on the telecommunications sector leading to the introduction of competition for the cellular and the privatization of the fixed telephony firm in 1997.

1.2- The privatization movement

The first privatization which took place was in the electric sector. The public firm (Energie Electrique de Côte d'Ivoire (EECI)) which was a monopoly was in a situation of bankruptcy. Privatization of this vital sector was decided in urgency leaving no time to the public, the workers or the parlement to react. Decided in August 1990, an agreement was reached with BOUYGUES without any serious study on the sole argument that BOUYGUES was running satisfactorily the water sector since the sixties. In November 1990, BOUYGUES created the Compagnie Ivoirienne d'Electricité.

The frustrations caused by this decision convinced the leaders that privatization should be planned on the basis of serious economic studies. This led to the creation in December 1990 of the Comité de Privatisation. Its first major operation was the privatization of telecommunications.

The Comité de Privatisation established a strategic approach to the privatization of telecommunications with the following steps:

1991: Determination of the method for elaborating the strategic objectives of the sector at the horizon 2000.

1991-1995: Elaboration of a consensus over strategic objectives. The need to convince the workers and members of the parlement opposed to the privatization of a strategic sector explains the length of the process. Some members of the Comité de Privatisation evangelized the benefits of privatization for several years. Some opposition came also from the fact that at the time of nationalizations in the sixties, it was claimed that these nationalized firms would be sold back later to Ivoirians and not foreigners . Workers in the telecommunications industry were rather easily convinced by:

- the perspective of private sector wages which were at the time much higher than in the public sector,
- the argument that the sector would strongly develop and that there was no risk for their employment,
- the settlement reached about pension funds.

The accession to power of Konan Bedié after the death of Houphouët Boigny accelerated the process. Indeed, K. Bedié was before the head of the Parlement and was opposed to privatization because of the lack of a proper law providing a transparent framework. As soon as he became President the loi d'habitation des privatisations was passed and this settled that issue.

1995: Adoption of strategic objectives and of the approach to privatization. The major conclusion of that work was the recognition of the need to find a balance between the imperative of attracting capital with monopolistic restrictions and the need for competition to achieve efficiency.

July 7, 1995: Adoption of the new Code des Télécommunications.

July 19, 1995: Creation of the regulatory bodies (Agences des Télécommunications, Conseil des Télécommunications). Quite wisely, regulatory institutions were designed well in advance of privatization, unfortunately not without some confusions about responsabilities (see below).

February 1997: Privatization.

2- FEATURES OF THE SECTOR BEFORE THE REFORMS

2.1- The evolution of the sector

Just after the independence, the supervision of the postal and telecommunication services of Côte d'Ivoire was shared by several administrations but the revenues were directed to the general budget. In 1965, the postal and telecommunication administration was created under the form of a public utility of administrative nature, with its own budget. In 1969, the *Société des Télécommunications Internationales de Côte d'Ivoire* (INTELCI, the national company for international telecommunications) was created (Decree n°69-70 of February 24th, 1969), under the structure of a government-controlled corporation, with a State majority share-holding of 52% of the 500 millions of CFA francs of nominal capital and 48% for the Company France Câble Radio. Côte d'Ivoire then carried out the privatization of international telecommunications which represented 60% of the revenues of CI-TELCOM in 1996. The company INTELCI was the owner of the infrastructures it used. In 1975, the *Office des Postes et Télécommunications* (OPT, Post and Telecommunication Office) was created with two autonomous offices, the *Direction Générale des Télécommunications* (DGT, General Office of Telecommunications) and the *Direction Générale des Postes* (DGP, General Post Office). The 1976 telecommunications code granted the State monopoly to the OPT, for the national and the international services. The State's share in INTELCI capital was then brought up to 80% after the capital had increased to 2 billions of CFA francs. In 1981, INTELCI was transformed in a public firm with a State share holding of 100%. Following the 1984 breakup of the OPT into two offices, respectively in charge of the postal services (ONP) and of the telecommunications (ONT), the company INTELCI was dissolved. Its activities and those of the DGT were put under the authority of the ONT, set up under the form of a State-Owned Enterprise of Industrial and Commercial Nature (*Etablissement Public à caractère Industriel et Commercial* (EPIC)) in application of the decree n°86-1129 of October 08th, 1986. The same decree gave the Ministry the responsibility for the elaboration and implementation of the policy of the post and telecommunication public services policy and regulation. It had also the responsibility for the functioning of these services throughout the public bodies put under its administrative and technical control (in particular, the ONT).

Up to 1991, this State-owned Company (ONT) had managed, on behalf of the State, the monopoly of all the telecommunication sector except radio and television. Since 1991, some new objectives were defined by the government for this sector. The pursuit of these objectives led to the questioning of the absolute monopoly of the ONT on the telecommunication services and to the redefinition of the Ministry's mission. Indeed, on the one hand, the decree n°91-72 of February 2nd, 1991 on the organization of the Ministry of Post and Telecommunications, created within this Ministry some regulation and technical control bodies namely:

- the Office for General Regulation (*Direction de la Réglementation Générale*)
- the Office for Planning and Development (*Direction de la Planification et du Développement*)
- the General Inspectorate (Inspection Générale).

On the other hand, the restructuring scheme of the telecommunication sector adopted on March 6th, 1991, chose for the management of telecommunication services and networks:

- A government-controlled corporation with the structure of a limited company for the services linked with the State monopoly. So, on May 14th, 1991, the Ivoirian Telecommunications Company (CI-TELCOM) was created, according to the common law, with, in a transitory phase, a nominal capital of 4 billions francs, 98% owned by the State and 2% by the staff. CI-TELCOM took over the ONT whose new missions were redefined.

- Some private companies for operating the services open to competition in association or competition with CI-TELCOM. Those companies were granted an operating license.
- The temporary survival of the ONT with for its main missions the control of the management made by CI-TELCOM of its assets.
- The updating of the legal framework aiming essentially at completing and adapting all the regulatory and legislative acts dealing with this sector in Côte d'Ivoire to the new area of telecommunication.

Thus, the liberalization of telecommunication services supply, apart from the reserved services, and the separation of the regulatory task from the operation of the networks generated a new structure for the telecommunication space in Côte d'Ivoire. Before dealing with this reform strictly speaking, let us draw a broad picture of the technical and financial situation of the telecommunication sector in 1996.

2.2- The situation and the main problems

2.2.1. The bad technical results of CI-TELCOM

The telecommunication and information processing infrastructures are made up of telephone infrastructures (switching exchanges, subscribers network, local, long-distance and international connections), broadcasting and computing infrastructures. The services provided by the communication networks are: telephony, telex, telegraph, data transmission, television and radio. This brief summary enables to look upon the limits and problems of this infrastructure.[3]

The equipment decay.

The grid of the CI-TELCOM network for national transmissions, organized in primary and secondary channels, is rather weak. It is numerical for 59% and analog for 41%. The main transmission media used by this network are:

- 2.494 km of analog radio links;

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[2]Côte d'Ivoire Télécom: DPPE Office for Planning and Equipment Programming (conclusions of the commission "Infrastructures" October 1996).

- 3.085 km of digital radio links;
- 545 km of optic fiber cables.

The radio links represent 90% of the national transmission and the fiber optics 9%.

The network of international transmissions is made of:

- One land station located at Akakro, with 3 antennas oriented towards some geostationary satellites.
- Two systems of submarine cables called FRATERNITE linking Côte d'Ivoire to Senegal and UNION linking Côte d'Ivoire to Nigeria out of order since July 1995.
- Two telephone exchanges of international transit, one digital and the other analog.
- One exchange of telegraphic and telex switching.
- Two centers of exploitation.

This international network has 4.300 circuits of which 950 are exploited (hence a use rate of 22%). One must observe that the digitization rate of these circuits is 40%. The international transmission use three main supports:

- Satellite, with a use rate of 82% and a digitization rate of 37%
- Submarine Cables, totally analog with a use rate of 36%
- International electromagnetic waves which cover for 98% the domestic needs and for 2% the international needs.

The analog transmission channels analyzed above are between 11 and 26 years old whereas the life expectancy is about 15 years. As far as the numerical transmission channels are concerned, they are obsolete and unsafe. Some urban networks, built 15 or even 20 years ago, have not been significantly updated since whereas the average life expectation of a cable is 10 years. The decay of these networks has a negative influence on the quality of the service.

As far as Switching is concerned, the total number of subscribers amounts to 152 449 spread out among 114 telephone exchanges with:

- 43 analog telephone exchanges
- 50 digital telephone exchanges
- 21 annual commutators

The analog telephone exchanges located inside the country are obsolete leading to most of the communication breakdowns. As for the digital telephone exchanges of Bouaké and Yopougon brought into service in the eighties, they mainly suffer from a shortage of supply in spare parts that are not produced any more.

Lack of optics fiber in the transmission network. It only represent 9% of the transmission. This proportion was very small in the perspective of the information highways.

Insufficient maintenance. The maintenance plan had been perturbed by a shortage in spare parts. The delivery delays are very high. Moreover, there is a total lack of preventive maintenance in data networks.

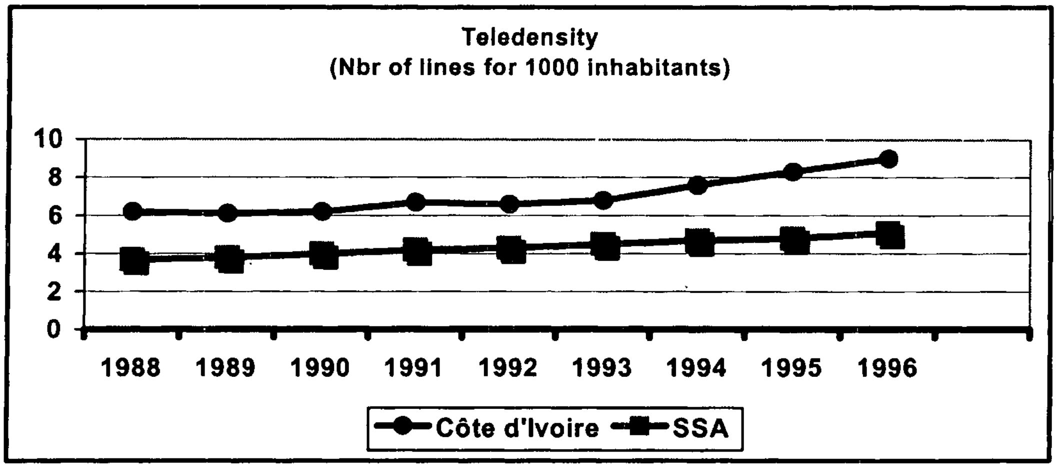
Network engineering. The growth of the telephone infrastructures is not in phase with the fast urbanization and the plans of development of social equipment (housing, school, plumbing facilities,) in the urban areas. This situation has sometimes induced Côte d'Ivoire to connect some new subscribers without taking into account the engineering rules.

Unsatisfied demand. In December 1995, there are 56 000 demands pending. One must also add the unexpressed demands. Indeed, taking into account the average delay of 3 years for connection, some people do not express a demand any more.

Low accessibility

Weak telephone density. The computation of the telephone density, defined by the number of main lines for 100 inhabitants, provides a technical index of the network development which, compared to Africa or to the Developed Countries, was very low. In Figure 2 below, one can observe that, although it is higher than the index of Subsaharan Africa, it remains smaller than 1 (or 10 for 1000 inhabitants).

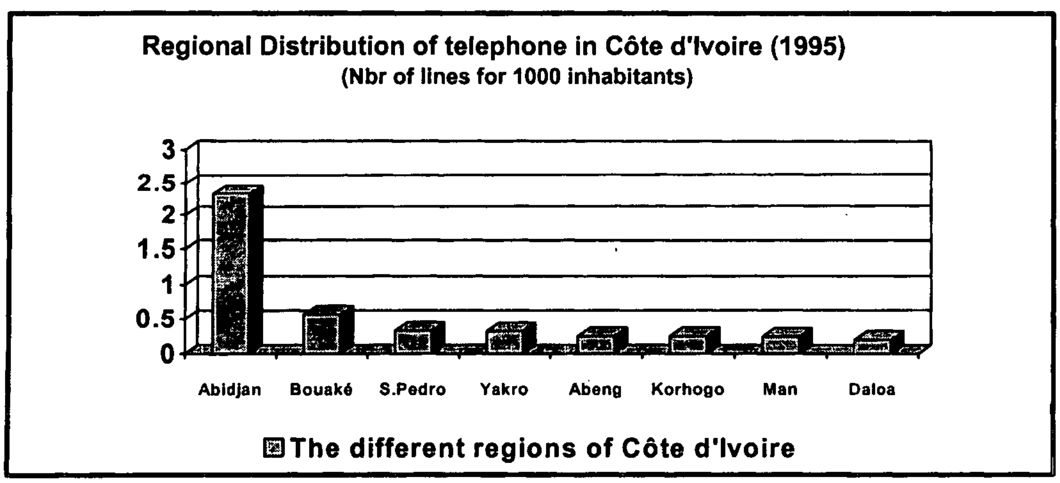
Figure 2: Number of Lines Per 1000 Inhabitants



Source: ITU

Unequal regional distribution. In 1995, almost 75% of the lines are in the economic capital (Abidjan). Figure 3 shows the existing investment distortions between Abidjan and the rest of the country.

Figure 3: Regional Distribution of Telephones in cote d'Ivoire (1995)



Source: Computations made using the data provided by the ATCI, CI-Telecom and the INS.

Small number of call boxes. The number of call boxes is another important index of accessibility. It is all the more important in a country like Côte d'Ivoire that, as observed by the ITU, call boxes are used a lot in the countries with a low telephone equipment rate (Report on the world telecommunications development, 1998, ITU). Before the reforms, there were almost no call boxes. There were only a few (174, installed in 1994) in Abidjan, Bouaké and Yamoussoukro. In 1996, the year before the license was granted, there were 277 call boxes in Côte d'Ivoire, representing only 0.019 for 1000 inhabitants. Using the database of the ITU, one can compare this number with the world average (based on 43 countries) for 1996.

Table 2: Number of call boxes for 1000 inhabitants in 1996

Côte d'Ivoire	African Average	World Average
0.019	0.29	1.79

Source: Computations made using the ITU database.

Table 2 reveals that the call boxes rate in Côte d'Ivoire is really low, even one of the lowest of the African countries and of the world.

Low productivity

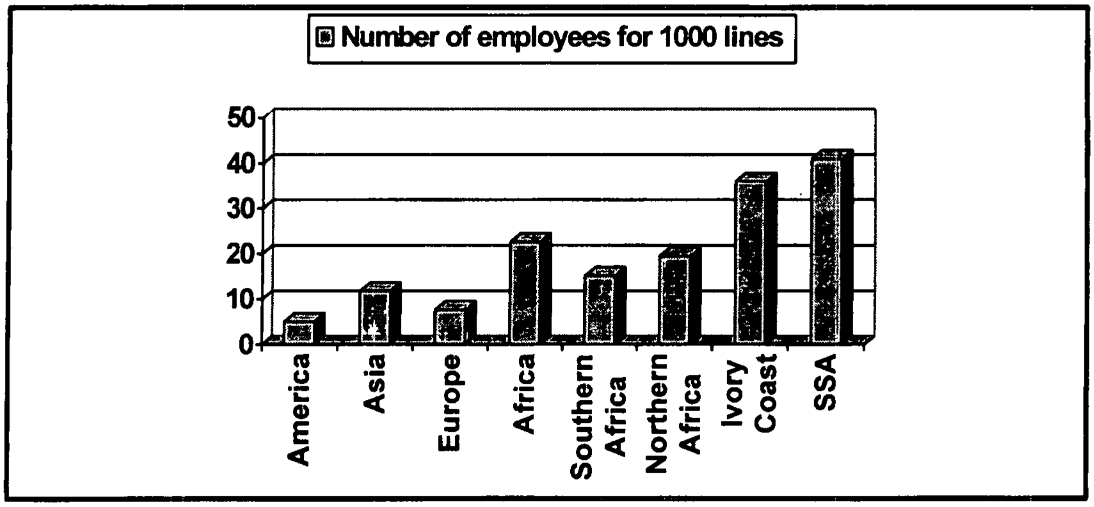
The productivity indicator, defined by the number of agents for 1000 main lines, is quite bad for the African operators of the telecommunication sector, in particular for CI-Telcom. In 1994, the productivity index in Côte d'Ivoire was 36.12. Even if it was lower than the one of the sub-Saharan countries, it was quite high compared with the African or the average of the developed countries (see Figure 4). Two factors can explain this bad result. The hiring had been made for long on social or political bases, the operator being under the control of the Government. The delay in the introduction of new technologies using fewer workforces had also been a negative factor.

Table 3: Number of Employees per 1000 Inhabitants (1994)

America	Asia	Europe	Africa	Northern Africa	Southern Africa	IC	SSA Africa
5.08	11.94	7.65	22.63	19.43	15.29	36.12	40.99

Source: CI-Telecom (DPPE: Office for Planning and Equipment Programming)

Figure 4 : Number of Employees per 1000 Inhabitants (1994)



Source: CI-Telecom (DPPE: Office for Planning and Equipment Programming)

Investment Cost per line

The investment cost per line is quite high, mainly due to poor investment planning, high equipment and some execution delays. This cost estimated to 3567$ in 1994 was below the African average, (5600$), but greatly above the one of the developed countries, 1500$ (ITU 1996).

Quality of the service

The volume of the Ivoirian telecommunication infrastructures is the highest of the sub-region after the one of Nigeria. Nevertheless, its growth rate (10% between 1984 and 1994) is lower than the ones of Senegal (13%) and Burkina Faso (11,9%).

Moreover, CI-Telcom has one of the highest failure rates (88% in 1994 and 75% in 1995) for an objective of 3% for the ITU. This high failure rate is explained by the poor state of the telecommunication network. The subscribers' connecting delay, which is about 3 years and a half, is quite high even compared with the ones of Benin (2 years and a half) and Togo (2 years). This long connection delay can be explained by the stock outage, the network and switching exchanges saturation. As for the efficiency rate, it remains low (<40% for the national, <70% for the local). A look at the Table 4 and 5 below allows a comparison between some quality indices.

Table 4: Service Quality Indicators (1994)

Country	Number of ML in 1984	Number of ML in 1994	Growth rate	Failure rate	Average Connecting Delay (years)
Benin	10 600	19 300	6.17%	90%	2.4
Burkina Faso	7 800	24 100	11.90%	88%	
Côte d'Ivoire	51 700	103 268	10%	80%	3.7
Ghana	38 100	58 500	4.3%	176%	> 10
Mauritania	3 800	8 400	8.25%	206%	4.4
Nigeria	192 600	368 700	6.70%	327%	1.2
Niger	7 900	10 500	2.90%	78.90%	3.3
Senegal	21 100	72 000	13%	39.40%	1.2
Togo	8 400	21 400	9.8%	20%	2
South Africa	2 153 000	3 884 500	6%	-	1
Tunisia	168 800	474 300	10.90%	92%	2.8
Morocco	215 400	992 800	17%	67%	0.7

Source: CI Telcom (DPPE: Office for Planning and Equipment Programming)

Table 5: Indicators of the quality of the service (1995)

Indicators	Observed values for Côte d'Ivoire	Observed values for Africa	Typical European values	ITU
Efficiency rate of automatic calls Local National International	 50 – 70% 27 – 40% 53 – 56%	 50 - 70% 20 – 25% 20 – 30%	 60 – 70% 55 – 65% 35 – 40%	 > 70% > 60%
Dialing tone delay % of calls with a dialing tone obtained in 3 seconds	> 90%	< 80%	99%	
International Efficiency rate of automatic calls In 1 hour In 2 hours Global	 -	 40% 60% 70%	 80% 90% 95%	
Operators reply delay % of calls with a reply in 10 sec.	-	Non available	90%	
Number of failures per year per lines	0.8	1.4 – 6	0.25 – 0.5	
Speed of replacement in case of failure % replaced the same day % replaced day D+1 % replaced in 7 days % replaced in 30 days	 30 – 56% 76 – 92% >95%	 10 – 35% 40 – 60% 60 – 80% Non available	 70 – 90% 80% 99% 100%	

Source: CI Telcom (DPPE: Office for Planning and Equipment Programming)

2.2.2. The bad financial results of CI-Telcom

The bad state of the CI-Telcom financial indicators is another factor that promoted the advent of the reforms and the privatization of this firm. Indeed, some bills were not paid. The collection rate was very low, about 65% in 1996.

The operating cost per line amounted to 528422 CFA (927 $) in 1995, well above the average cost of 380$ according to the computation of the ITU.

The poor operating result of CI-Telcom was also one of the main reasons leading to the decision of a concession to a private operator. In 1994, the firm suffered from a net loss of 4.8 billions CFA francs, partly due to the CFA franc devaluation. The same year, the net worth was very low (64 888) as well as the turnover. Table 6 sums up those financial indicators before the privatization.

Table 6: Financial results of CI-Telcom before privatization

(in millions of f CFA)	1994	1995	1996
Losses and Profits			
Turnover	62 429	95 223	85 229
Net result	- 4 848	4 562	350
Net result / Turn over	- 7.8%	4.79%	0.4%
Balance sheet			
Fixed assets	128 658	131 488	135 731
Working capital	63 158	71 676	62 363
Net worth (1)	64 888	69 352	69 305
Long term Liabilities (2)	40 349	56 007	48 211
Current Liabilities	86 579	77 805	80 578
Profitability (3)	- 7.47%	6.58%	0.51%
Debt ratio (4)	38.34%	44.68%	41.03%
Bills collection Rate			65%

Source: CI Telcom (Financial reports 1994, 1995 and 1996)

(1) Net worth = Net worth + exceptional funds + Net result - unaffected losses.
(2) Long term Liabilities = Long term Liabilities + provisions
(3) Profitability = Net result / Net worth
(4) Debt ratio = Debts / Debts + Net worth

3- THE RESTRUCTURING OF THE SECTOR

The liberalization policy was initiated by the introduction of a new telecommunications code in order to encourage private operators while maintaining the prerogative of the authorities on the telecommunications sector. In order to promote performance, competition was extended to all the services but the telephone services between fixed points and the telex that have remained a monopoly.

3.1- The new legal and institutional framework

Indeed, the law N° 95-526 of July 7th, 1995 concerning the telecommunications code established a new legal code and as well as a new regulatory framework. The legal code provided for three possible regimes according to the type of activity.

The regime of State's Exclusive Rights, with the possibility of concession of all or part of those rights to one or several natural persons or legal entities. This regime included:

- The construction of public telecommunication networks, with the exception of the radio networks.
- The provision of telephone services between fixed points.
- The provision of the telex.

To work in those fields, the firms concerned must be granted a concession signed by the State.

The regime of regulated competition or of permit. The activities concerned by this regime are:

- The building and operating of radio networks as well as the provision of radio services.
- The construction of private networks.
- The provision of support services.

To work in those fields, the firms concerned must be granted some authorizations delivered by the Telecommunication Agency of Côte d'Ivoire (see below).

The regime of open competition. The activities submitted to this regime are:

- The internal networks
- The independent networks others than radio networks such that the ending points are distant from one another by less than 300 meters and such that the connecting capacity is less than 2.1 megabits per second.
- The radio installation exclusively made of low power and small range equipments.
- The sale of approved terminal equipments.

The institutional framework was organized as follow: The responsibilities allocated to the government through the Office of Policy and International Affairs for Post and Telecommunications (*Direction des Politiques et Affaires Internationales des Postes et Télécommunications*, DPAI - PT) are:

- To define the policies, to design and propose the laws it judges the best to fill the telecommunications needs;
- To propose the orientation, the directing principles and the objectives to promote a dynamic and balanced development of the telecommunications sector;
- To ensure an adequate representation in line with the priorities of Côte d'Ivoire inside the national and international bodies and institutions;
- To define the norms and the technical specifications to be applied in Côte d'Ivoire, in accordance with the relevant national and international bodies in this matter;
- To check that, on the one hand, the regulation functions and the control activities of this sector, and on the other hand, the network operating or the telecommunications services provisions functions are made in a independent manner.

The regulatory institutions of this sector are the Telecommunication Agency of Côte d'Ivoire (ATCI) and the Telecommunication Council of Côte d'Ivoire (CTCI).

The responsibilities of ATCI, whose mission consists in exercising the attributions, rights and obligations devolved to the Civil Service by the telecommunications code, are:

- To enforce the regulatory acts as far as telecommunications are concerned;
- To define pricing and to authorize prices of principles for services provided under the monopoly regime;
- To deliver the operating authorization of the telecommunication services;
- To grant the consent of the terminal equipments;
- To take care of the monitoring and to follow the use of the radio frequency spectrum through;
- To play a part in exercising the State missions as far as defense and public safety are concerned;

- To play a part in exercising any other public mission in the telecommunications sector that the government could entrust him with on behalf of the State.

The Agency is submitted to the administrative supervision of the telecommunication and civil service ministries, to the technical supervision of the telecommunication Ministry and to the economic and financial supervision of the finance Ministry. A nine-member board, chosen for their renown and competence in the telecommunications area manages it. Their positions are incompatible with having an activity in the telecommunication sector or holding some financial position in a firm of this sector. The agency checks the implementation of the government policy in the sector. To that end, it takes all the relevant decisions in the operating and managing areas. Public Utility with a special status when created, the ATCI became a State-owned Enterprise November 11th, 1998.

Moreover part of the resources devoted to ATCI are intended to the supervision and the enforcement control of the concession agreement of CI-Telcom and of the authorization clauses of the mobiles and call boxes operators, to control the antagonistic relations between CI-Telcom and the other operators (for example the drafting of an interconnection contract), to carry out technical researches and to maintain a sector-related database.

The CTCI, high independent authority, is commissioned:

- To watch over the respect of the equality principle in the treatment of the telecommunications sector operators;
- To watch over the respect of the stipulations of the concession agreements, of the specifications and of the authorizations granted by the Civil Service;
- Before any legal appeal, to deal with the conciliation and the arbitration of the disputes between the Civil Service and the operators regarding the exercising of the administrative attributes.

To carry out those missions, the CTCI can:

- Collect (directly or indirectly) from the Civil Service, the telecommunication companies or the concessionaires all the technical, administrative or financial information related to the investment programs ;
- Investigate or ask any specialized body to investigate the concessionaires and the other telecommunications companies.

The CTCI is made up seven members of whom one president. Those personalities are chosen for their experience, their interest in telecommunications and their integrity. They are appointed by decree for a five-year term. Their position is compatible with exercising a professional activity. Nevertheless, the CTCI members are not allowed to have an activity or to hold some financial positions in a firm of the telecommunication sector.

The Council meets as often as necessary. Its deliberations are legitimate only if at least five members are present. Those deliberations are ratified with a majority of four of the attending members. The Council informs the authorities of any assessed breach of the legal and regulation stipulations regarding the duties included in the concession agreement.

The CTCI has already intervened in a series of conflicts, notably on the questions related to the final granting of the Publicom licence, to the authorization of subcontractors for CI-Telcom, to the payment made to the rural development funds and to the conflicts between the call boxes operating companies and CI-Telcom concerning the granting of new telephone lines. We will comment on some of these conflicts in the section devoted to the regulatory problems.

The third level of supervision of the telecommunications sector includes *the operators* who are all private or with a private majority shareholder for the main operator managing the basic services. Those operators can operate all the networks and services belonging to the competitive sector, notably the cellular networks (we will come back to this point in the paragraph devoted to the market structure).

3.2- The privatization of the public operator

The privatization process of the telecommunications sector, which started in 1991 under the pressure of the World Bank and of some investors, was part of a large privatization program of about fifty enterprises. In the light of the importance of telecommunications in the Ivoirian economy, the implementation of the privatization required the preparation and the execution of some key stages necessary for the success of the operation. The Privatization Committee, jointly with the Ministry of Telecommunications, CI-Telcom, the Telecommunications Agency and the Office for Supervision of Public Works (DCGTX), prepared a schedule of actions prior to the privatization.

The first stage consisted in making a technical and financial audit of CI-TELCOM in 1991. This diagnosis was necessary to assess the investment program execution of the company, the state of repair of its technical infrastructures and its financial situation.

The second stage, started in 1992, concerned the review of the legal and regulatory framework of the sector in order to match the liberalization objectives and the private operators' intervention in the operating and financing of the telecommunication activities. The review led to the passing of the telecommunications code in July 1995 (Law n°95-526 of July 7th, 1995). This code has reorganized the telecommunications sector differentiating the function linked to the policy definition (exercised by the Ministry of telecommunications), the regulatory activities (carried out by the Telecommunication Agency of Côte d'Ivoire and the Telecommunication Council of Côte d'Ivoire) and the networks operating function exercised by CI-TELCOM and the cellular networks operators.

In the third stage, the privatization strategy for CI-TELCOM was defined. The plan chosen by the government in 1995 consisted in privatizing the public operator by integrating the assets and the operating tasks in order to maximize the telecommunications efficiency and productivity. Moreover, to speed up the network development, the exclusivity period between 7 and 10 years has been granted to the network operator. It was also planned to sell 51 to 55% of the capital, to keep a State share holding of 35%, to give 1 to 2% to the employees and the rest through the Abidjan Stock Exchange.[4]

The pricing of the firm financial value by an international and independent auditor, Deloite et Touch, was the fourth stage. The pricing took into account the financial situation but, most of all, the significant growth potential of the number of telephone lines in Côte d'Ivoire.

The fifth stage of the process was the definition of a pricing policy framework for the telecommunication services. Moreover, a project of Concession Agreement defining the reciprocal commitment and responsibilities between the State and the future buyer was adopted. The last stage of this long process consisted in choosing a merchant bank, Rothshild and Cie Bank, to set up the transaction.

The privatization entered into the final stage in June 1996 with the competitive international invitation to tender. To avoid endless talks after the privatization, the concession agreement already written and on a take-it-or-leave-it basis was included in the application form. Each bidder had to sign each page. Moreover, the invitation to tender required that the applicants first be a renowned telecommunication operator (or part of a consortium with one operator of that kind) and second have the sufficient financing capacity to face the important financial needs. Besides, the invitation planned a two-round auction; the first aimed at

[4] Given then difficulties of the stock market the sale to the public never occured.

preselecting and the second for the final offers. At each round, the bidders could make two bids depending on their wish to benefit or not from the investment code which provided for tax exemptions on the equipment imports for any investment above 500 millions CFA francs. They had also to submit a restructuring and firing plan for the firm's employees and accept the responsibility for the debt of 69 billions CFA francs.

Eight application forms were asked but only four applicants were present at the first round:

- Africa Bell in a consortium with Atlantic Telecom Network (ATN) and TCI with the technical help of ATT
- France Câbles et Radio
- Telekom Malaysia
- Georges Sankara Holdings (GS Holding) in association with Bell Canada.

The first round occurred on September 13th, 1996 and table 7 below shows the different bids.

Table 7: first round bids

Bids in billions CFA / Operator	Bids without the code benefit	Bids with the code benefit
GS Holding	36.6	58.7
FCR	43	51
Africa Bell	70	125
Telekom Malaysia	92	No offer

Source: Privatization Committee

As it can be seen, the GS Holding's bid was low but, most of all, it had not been able to prove its alliance with Bell Canada. It was excluded while the three others could compete in a second round. That round took place between the 14th and the 25th of November 1996. Table 8 above depicts the bids with the code benefit since this condition was imposed to simplify the auction.

Table 8: second round bids

Bids in billions CFA / Operators	Bids with the code benefit
FCR	103
Africa Bell	106.3
Telekom Malaysia	82.4

Source: Privatization Committee

Africa Bell was then present without the ATN and TCI operators but still with the technical help of ATT. It was given a one-week delay to include ATT in the core shareholders and to give a banking guarantee. As it had not been able to do it, it was eliminated in spite of the fact that he made the best bid.

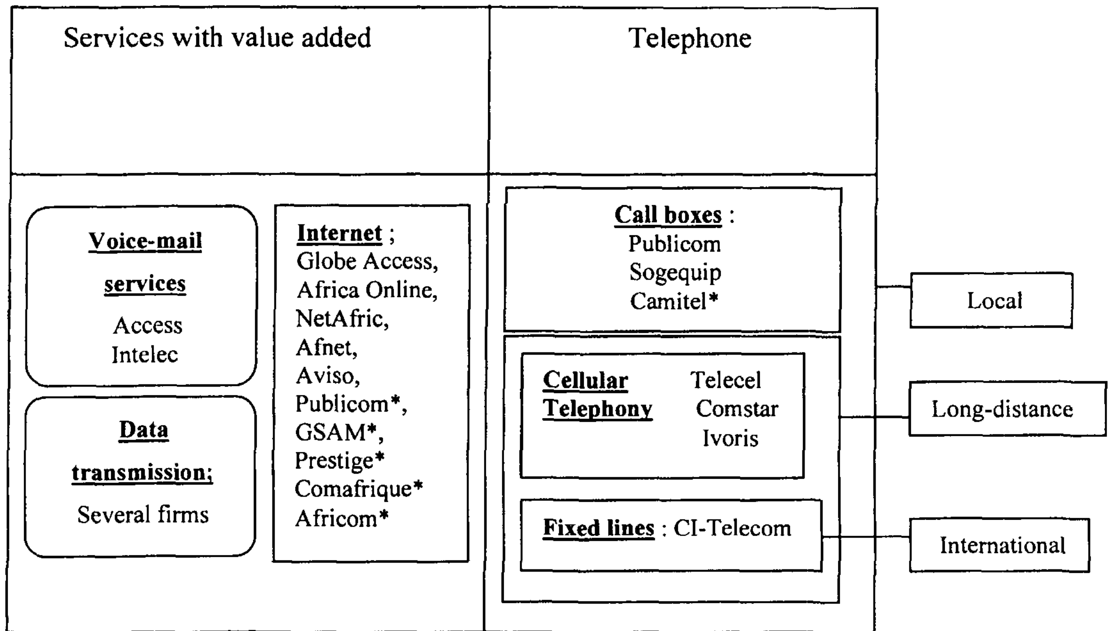
Since each bidder still in competition had some problems and since none of the bids was considered as satisfactory in view of the government's objective, the Privatization Committee decided to set up a third and last round. This last round occurred from December 20^{th}, 1996 to January 8^{th}, 1997 and FCR won with a 105 billions CFA bid to 104 billions CFA for Telekom Malaysia. The Concession agreement was signed on February 3^{rd}, 1997, at Abidjan with the payment of the bid by check.

3.3- The new structure of the telecommunications market

Before the 1995 Law, only the public operator (with 98% of the shares hold by the State and 2% by the employees) was active on the market. Since the coming into force of this law, the market structure has changed considerably. It now includes the following participants (see Table 9):

- Côte d'Ivoire Telecom, the operator of the telegraphic network,
- Three mobile operators: Ivoiris, Telecel de Loteny and Comstar,
- Two voice mail operators: Globe Access and Intelec Peyrissac,
- Three call boxes operators: Publicom, Camitel and Sogéquip,
- Ten Internet providers: Africa Online, Access Telecom, Aviso, Afnet, NetAfric, Africa Connexion, Africom, Comafrique, GSAM and Publicom.

Table 9: market structure



*Firms with an authorization but non operating

Although they all belong to some private operators, with the exception of Côte d'Ivoire Telecom, there are some cross-shareholdings. The Internet provider Aviso is a subsidiary of Côte d'Ivoire Telecom whereas one of the mobile operators, Ivoiris, is held for 70% by France Telecom which, through its subsidiaries, holds 51% of Côte d'Ivoire Telecom.

According to the legal framework, there are three regimes corresponding to the different forms of participation in the sector.

The *main telecommunications operator (MTO)*, the company *Côte d'Ivoire Telecom*, operates under the regime of Exclusive Rights. It is a company of Ivoirian law with a nominal capital of 15 billions CFA francs held for 51% by the company France Câbles et Radio, for 47% by the State[5] and 2% by the employees. To reach its strategic objectives in the telecommunications field, the State has granted Côte d'Ivoire Telecom a concession of Exclusive Rights for twenty years from February 3rd, 1997.

During the first five years of the concession, Côte d'Ivoire Telecom is bound to carry out some works to extend the geographic cover, to develop the network and to improve the quality of service. It operates the exclusive rights at its own risks, finances the works, the equipment and the other responsibilities linked to the execution of the concession agreement without any use of the State credit or its guarantee. It cannot claim any compensation or help from the State.

The exclusive rights can be exercised on the extent of Ivoirian territory, its waters and on its international access by land, sea and satellite ways according to the international treaties. The MTO can provide, in accordance with the laws and regulation in force for the competitive sector, any telecommunication service open to competition. The concession agreement being valid for twenty years, three years before its end, Côte d'Ivoire Telecom must inform the State of its wish to ask for the renewal. Besides, during the first seven years of the agreement (until 2004), it will provide the exclusive services granted under the monopoly regime, in the sense that during this period (called the « monopoly period »), the State will abstain from providing or granting part or all of the exclusive services to a third party. This duration takes into account the period of several years necessary to improve the current operation of the MTO and the important requirements of public utility and of regional development, which have been imposed. This duration cannot in any case be renewed; it may even be shortened if, with the exception of a *force majeure*, the grant holder is in one of the default cases[6] provided for the concession agreement.

Beside, Côte d'Ivoire Telecom is due to pay to the ATCI, in addition to the standard firm tax paid to the State, a list of duties:

- The monthly contribution to the regulation cost – the regulation Contribution – equal to 0.5% of the turnover of the exclusive rights;
- A monthly contribution for financing the development fund of rural telephony in the area excluded from the concession agreement – the Telecommunications Fund – equal to 1% of the turnover of the exclusive rights;
- A yearly contribution to search and training in the telecommunications sector, equal to 0.5% of the turnover of the exclusive rights;
- A set of duties related to the use of the radio spectrum (a start duty, some taxes for the stations control, some operating commission and the fees for the use of frequencies).

[5]In the light of the strategic importance of telecommunications and of the monopoly licensing to a private operator, the State has remained shareholder in the new firm with enough power to have a minority block. It has not succeeded yet in selling 14% to private Ivoirian interests as planned.

[6] Among these cases, the holder's bankruptcy, its liquidation, a delay or non-execution of the works planned, its refusal to comply to the regulation bodies,...

The regime of regulated competition applies to cellular telephony, the call boxes and to voice-mail services.

The three current mobile operators were granted some authorizations before the privatization of Côte d'Ivoire Telecom; Comstar and Telecel in March 1995 followed by Ivoiris in October 1996[7]. Contrary to the case of Côte d'Ivoire Telecom, the granting to the mobile telephony operators was not competitive, even if they had to fulfill some preliminary conditions. The authorizations were granted by an administrative decision to the three main companies who had express an interest in this service provision before the governmental decision to open the market. This approach was chosen since, without any clear view of the demand or of the potential growth of the cellular market, the government did not consider as necessary the setting up of any costly auctions on the radio spectrum or an invitation to tender. Nevertheless, the operators were only granted some temporary (yearly) authorizations, submitted to one restrictive condition: those authorizations could only become permanent after a careful audit of their operations and networks by the ATCI[8].

There are several norms of cellular networks throughout the world. The existing one in Côte d'Ivoire is GSM, used in several European countries. These networks are connected to the telephone network operated by Côte d'Ivoire Telecom.

The operators of cellular networks, contrary to the operator of basic services, benefit from the freedom to set their prices, the freedom of the global pricing system, and the freedom of their marketing policy. They also benefit from a five-year tax exemption starting at the beginning of their activity.[9]

Moreover, the direct access to the international telephone service through the cellular operators is not currently authorized. The State retains the right to modify this provision in the future. If such modifications were to occur during the Monopoly period, the State would take some measures to compensate the MTO in the light of the rules of pricing control provided for the concession agreement.

As for Côte d'Ivoire Telecom, the mobile operators must pay several duties to the legal authority, notably some contributions for the use of the radio spectrum, for covering the regulation cost of the sector, for research and training and for the financing the development

[7] One must nevertheless observe that, for administrative reasons, those firms started their operations the last term of 1996.

[8] Some operators have complained about this situation which was a handicap *vis-à-vis* some investors. Nervertheless, the audit is on its way and all the operators have confidence in the imminent granting of the final authorizations.

[9] The government had to give these facilities in order to develop the service since all the market studies were very pessimistic as regards its expansion in Côte d'Ivoire.

fund of rural telephony in the area excluded from the concession agreement of Côte d'Ivoire Telecom.

Whereas there is no fixed formal limit to the number of mobile operators that could be granted a license, the three companies have been already granted all the capacity of the frequency spectrum in the range of 900 Megahertz and the Government does not plan to grant some other licenses for the mobile telephony.

The operating of private call boxes is also included in the regime of regulated competition. Côte d'Ivoire Telecom is bound to connect in priority, in the geographical limits and service delay set by the specifications of the concession, and to provide free of charge a priority service of failure replacement to the authorized operators wishing to operate private call boxes. In other terms, the call box operators do not create any telephone lines but buy some to Côte d'Ivoire Telecom and sell them back.

The connection duty depends on the following conditions:

- Presentation by the operator of the authorization granted by the ATCI or of the receipt of its declaration to the ATCI as well of the approval certificate of its equipment,
- Payment of the connection costs and of a security computed in the light of the fixed rules and updated at regular intervals with the consent of the Telecommunications Agency.

Côte d'Ivoire Telecom has the ability to suspend the service of private call boxes in the same conditions as for any other subscriber in case of non-payment of the subscription, rental and traffic bills.

In this case also, there is no fixed formal limit in the number of operators that could be granted a license. Up to now, three companies have been granted an authorization: Publicom, Camitel and Sogéquip. Although its activities are not prosperous, Publicom is the only one who has been able to set up some boxes (in Abidjan only). The companies of this sector can hardly face the competition of their unique provider, Côte d'Ivoire Telecom. The call boxes operators must pay the same fees as the mobile operators. They complain about that since they consider they pay the same fee twice for the same line.

The regime of open competition, in which the operators do not need any authorization, applies to the Internet access providers. There are currently three operators (Africa Online, Access Telecom and Aviso) and the number of subscribers remains quite low. The main problem for thc development of the communication medium lies in the high prices of terminal equipments (the computers).

4- THE RESULTS OF THE REFORM

4.1- The technical results

Before the privatization of Côte d'Ivoire Télécom, there was a real shortage of telephone exchanges. For Abidjan, only four telephone exchanges were operating. After the privatization, this number has risen significantly on the national territory, even if it remains insufficient. For Abidjan, in addition to the four telephone exchanges which were there before, two have been added, namely Plateau IV (OCB 283 installed in 1998) and KM4-III (OCB 283 installed in 1998)[10].

For Plateau IV, there is one equipment, at Adjamé (CSN-Plateau IV), brought into service in 1998. These two equipments have a total capacity of 9872, a connected capacity of 1235 and an average connecting rate of 6%.

As far as KM-III is concerned, there are eight CSN-KM4 equipments that have been installed in 1998. These equipments provide a total capacity of 22670 and a connected capacity of 10552, thus an average connecting rate of 46%. Still in Abidjan, the telephone exchange of Banco (OCB 283 installed in 1997) has been renewed. In addition to this telephone exchange, seven CSN Banco have been brought into service for an occupied capacity of 39 104. In July 1998, the total connected capacity was 21 154, so an average connecting rate of 54%. These improvements have increased the equipped capacity for the city of Abidjan. These efforts are been extended to the cities inside the country where some new telephone exchanges of the last generation have been brought into service.

In 1997, the telephone exchange of Bouaké (OCB 283) has been brought into service with eleven equipments CSN-Bouaké, a total equipped capacity of 24 445 and a total connected capacity of 11 529, so a connecting rate of 47%. The telephone exchange of San-Pedro (OCB 283) was built in 1998. Six equipments CSN-San Pédro with a total equipped capacity of 7048 and a connected capacity of 3775 go with it. The average connecting rate is 53%.

[10] The information related to the telephone exchanges comes from Côte d'Ivoire Télécom.

Teledensity

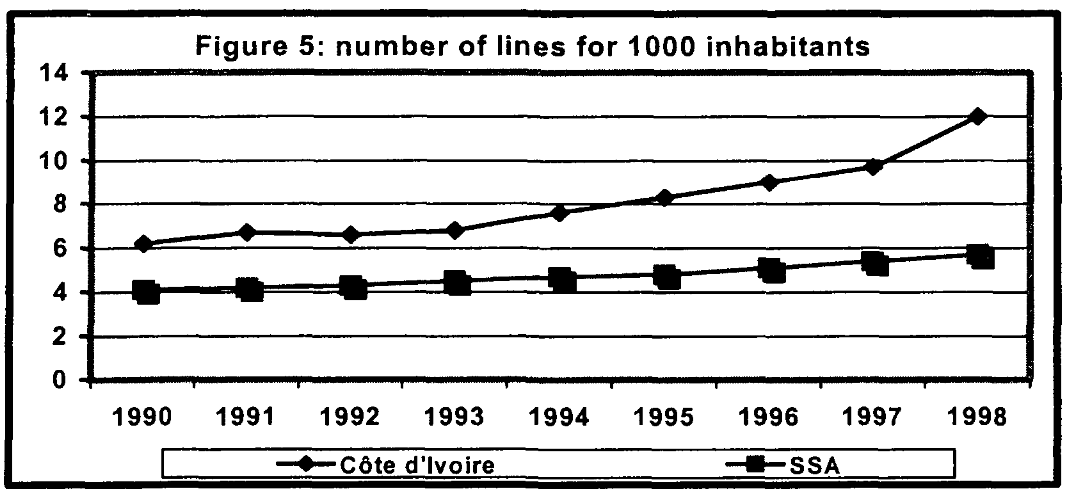
Table 10: Lines installed since the end of 1995

(end of the year)	Population	Number of fixed lines	Teledensity (for 100 in.)
1990	11 706 000	72 753	0.62
1991	12 178 000	81 284	0.67
1992	12 669 000	83 869	0.66
1993	13 180 000	90 165	0.68
1994	13 600 000	103 268	0.76
1995	14 000 000	115 790	0.83
1996	14 300 000	129 808	0.90
1997	14 700 000	142 322	0.97
1998	15 100 000	180 131	1.2

Source: computations made using the information obtained from the ATCI and CI-Télécom.

The data of Table 10 reveal the large increase in the number of fixed lines, before as well as after the concession granting. One must nevertheless note that the increase during the two years preceding the concession has been at least as large as the one achieved during the first year of the concession.

The data of Table 10 also show that there has been a 39.4% increase in the number of fixed lines during the first two years of concession operating since the end of 1996. The growth rate was especially high in 1998. Figure 5 shows that this increase had a positive impact on the teledensity.



Source: ITU

Tables 11, 12 and Figure 5 show the investment distortion between Abidjan and the rest of the country. The situation the concessionaire has inherited at the end of 1996 presented a high degree of disparity of telephone equipment rate between Abidjan and the rest of the country. Since then, the improvement of teledensity has been proportionally slightly larger outside Abidjan (38%) than inside. Nevertheless, considering the large initial disparity, the investment in the new line installation has not really restored the balance. In fact, since 1996, twice as many new lines have been installed in Abidjan than in the rest of the country.

Table 11: Teledensity comparisons (Abidjan vs. the rest of the country)

End of Year	Abidjan			Rest of Côte d'Ivoire		
	Population	**Fixed lines**	**Teledensity**	**Population**	**Fixed lines**	**Teledensity**
1994	3 000 000	85 383	2.75	10 600 000	20 885	0.20
1995	3 100 000	88 000	2.84	10 900 000	27 790	0.25
1996	3 200 000	98 800	3.09	11 200 000	31 008	0.26
1997	3 200 000	105 000	3.28	11 500 000	37 322	0.32
1998	3 300 000	133 666	4.05	11 700 000	46 465	0.36

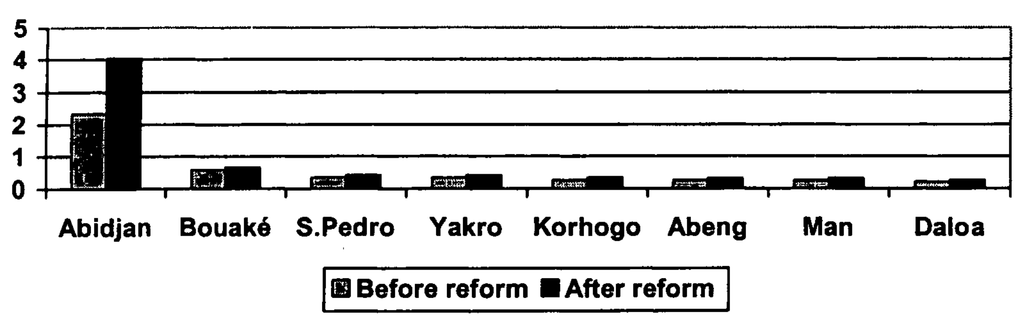
Source: Computations made using the data provided by the ATCI and CI-Télécom

Table 12: Regional distribution of the teledensity before and after the reform

	Abidjan	**Bouaké**	**S. Pedro**	**Yakro**	**Abeng**	**Korhogo**	**Man**	**Daloa**
Before reform (1995)	2.34	0.57	0.33	0.32	0.25	0.25	0.24	0.20
After reform (1998)	4.05	0.65	0.40	0.40	0.3	0.32	0.31	0.25

Source: Computations made using the data provided by the ATCI, the INS and CI-Télécom

Figure 6: Regional distribution of the teledensity before and after the reform



Source: made using table 12

If the teledensity measures represent a useful benchmark, they do not reflect perfectly the access to telecommunication services in the whole country. Since some people can have several lines, the percentage of household equipped with the telephone would be a more accurate measure.

The Call boxes

The number of call boxes is another important measure of the accessibility for which some data are available. Before the reform and, most of all, before privatization, the call boxes rate was especially low. There is a debate as regards the development of call boxes since the concession granted to Côte d'Ivoire Télécom. This operator claims that 655 call boxes were in operation at the end of 1998 whereas ATCI maintains that they were only 448. Taking into account the 178 call boxes operated by Publicom, it suggests that a minimum of 626 call boxes were in operation with an equipment rate of 0.04 for 1000 inhabitants. Even if it represents a significant improvement compared with the situation at the time the concession was granted (table 13), the level is still very low in comparison with the international references.

Table 13: Number of Call boxes

1994	1995	1996	1997	1998
172	162	277	404	655

Source: ATCI and CI Télécom

Table 14: network growth objectives and achievements

Year	1997	1998	1999	2000	2001
Additional lines to build (**Objective**: Concession Agreement)	35 000	45 000	60 000	70 000	80 000
Results of additional lines (Côte d'Ivoire Télécom)	12 514	37 809			
Additional call boxes (**Objective**: Concession Agreement)	400	400	500	500	600
Results of additional call boxes (Côte d'Ivoire Télécom)	105	251			

Source: Concession Agreement and Côte d'Ivoire Télécom

There is indeed a real bettering of the situation. The concessionaire has not achieved its objectives as regards the growth of the number of call boxes and, as it has been noted, the call boxes operators had some problems to start their activities. At the end of 1998, there were

178 call boxes brought into service by Publicom, only one more than at the end of 1997 and none of them were located outside Abidjan. The two other authorized operators have not put any call box into service. Nevertheless, there is a growth in the number of private telecenters (1922 at the end of 1998). Those centers notably improve the access to the telephone in Côte d'Ivoire.

Mobile telephony

The mobile telephone market displays an impressing growth in Côte d'Ivoire since the start of this service in October 1996, as the above table shows.

Table 15: Evolution of the number of mobile subscribers since end of 1996

(end of the year)	Number of mobile subscribers	Population (millions)	Subscribers for 100 inhabitants
1996	8 000	14 300 000	0.056%
1997	35 723	14 700 000	0.25%
1998	71 064	15 100 000	0.47%

Source: Telephony operators and ATCI

The above data do not take into account an important element concerning the development of mobile telephone use: the prepaid telephone cards. There is no connection or rental cost for this service that allows access to the telephone for some people who could not afford a mobile telephone. Moreover, these cards allow the users to limit their use and to receive the calls during a limited period after the card expired. Because of the launching of this system at the end of August 1998, Ivoiris has attracted about 17000 additional customers and Telecel 16000. According to Telecel, the revenues from these prepaid cards represent about 80% of its turnover.

Including these customers would put the total number of mobile telephones subscribers up to 104 064 in 1998, which would imply an equipment density in mobile telephones of 0.69 for 100 inhabitants (in 1998). Even without the inclusion of these prepaid cards users, the growth of this part of the mobile telephone sector is quite high, corresponding to the multiplication in the number of subscribers by 4 between the end of 1996 and the end of 1998. This impressive result in a context of a low fixed line equipment rate suggests that there has been a high degree of substitution between those two services in Côte d'Ivoire.

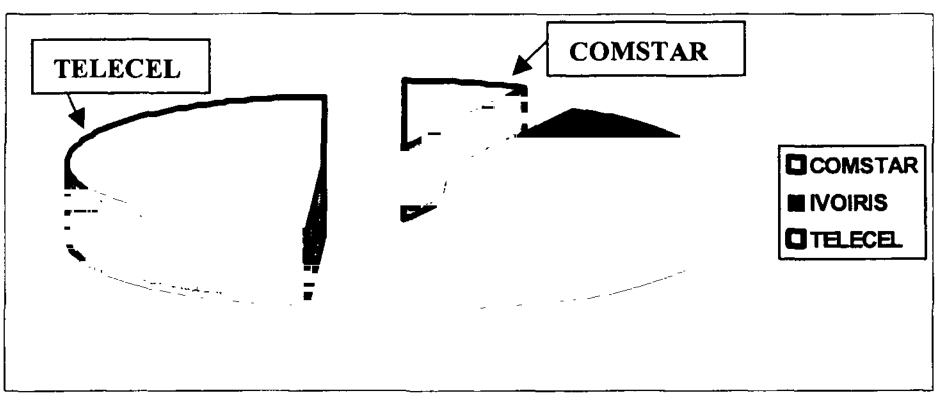
In terms of geographical cover, the mobile telephone services are mainly available at Abidjan. There are only two operators, Telecel and Ivoiris, who have some subscribers outside Abidjan (this represents 20% of their subscribers). One must remark that 12 cities outside Abidjan (Abengourou, Anyama, Bingerville, Bouaké, Dabou, Daloa, Gagnoa, Grang-Bassam, Korhogo, San Pedro, Soubré and Yamoussoukro) are now connected to the network. Table 16 shows the evolution of the mobiles (see also Figure 7).

Table 16 : Cellular operators' technology, capacity, and number of subscribers

	1996	1997	1998
COMSTAR			
Technology	GSM		
Number of cell sites	4	4	4
Capacity	40 TRX	40 TRX	40 TRX
	10 000	10 000	10 000
Number of subscribers	3500	6372	7980
IVOIRIS			
Technology	GSM		
Number of cell sites			
Capacity			
Number of subscribers		15045	28 084
Number of Prepaid			17 051
TELECEL			
Technology	GSM		
Number of cell sites	11	23	51
Capacity	45 TRX	103 TRX	257 TRX
Number of subscribers		14 311	35 000
Number of Prepaid			16 000

Source: mobile telephone operators

Figure 7: market shares of each operator (prepaid included)



Source: The cellular operators (1998)

Internet

The market for Internet provision services remains relatively under-developed in Côte d'Ivoire. The number of subscribers is estimated at 5000. In 1998, Africa Online and Globe Access had the highest number of subscribers. Côte d'Ivoire Télécom has just entered (1999) the market (Aviso) and is already considered as a serious competitor.

Efficiency

This section presents three efficiency indicators for the fixed lines operator: the number of main lines per employee, the turnover per employee and the operating cost per line. Table 17 shows the evolution, from early 1997, of the number of main lines, the number of employees, of the turnover and of the ratios one can derive from these numbers.

Table 17: Increase in the productivity since January 1997

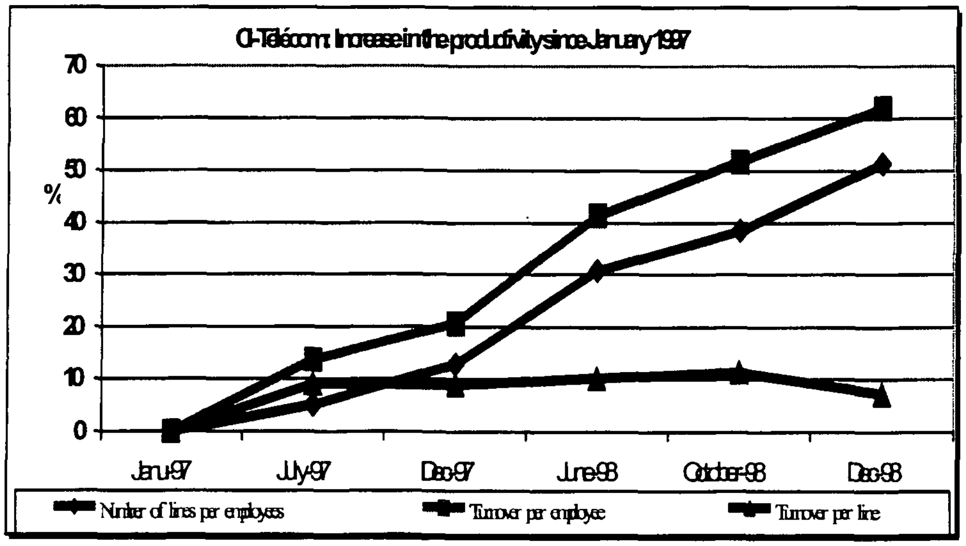
Indicator	January 1997	July 1997	December 1997	June 1998	October 1998	December 1998
Number of lines	130 000	135 000	142 000	160 000	170 000	180 131
Turnover (in billions of francs CFA)	96	109	116	130	140	143
Number of employees	3 328	3 275	3 243	3 164	3 150	3 035
Number of lines per employees	39	41	44	51	54	59
Turnover per employee (in billions of francs CFA)	29	33	35	41	44	47
Turnover per lines (in billions of francs CFA)	740	808	806	815	824	793

Source: Côte d'Ivoire Télécom

There has been therefore an important improvement of the productivity since the concession was granted. Each of the efficiency indicators has been increasing during this period, with the exception of the turnover per line which first slowed down and then declined at the end of 1998, due to a higher growth of the number of lines than that of the turnover. The number of lines per employees as well as the turnover per employee has increased by more than 50% in less than two years.

Figure 8: CI-Télécom : Increase in the productivity since January 1997

(Increase in productivity in percentages)



Source: taken from table 17.

The operating costs per line have slightly decreased during the past three years. This decrease has been particularly strong since the concession was granted as it can be seen below:

Table 18: Operating Costs Reduction of CI-Télécom since 1995

Indicators	1995	1996	1997	1998
Number of fixed lines	115 790	129 808	142 322	180 131
Operating cost per year (in billions of francs CFA)	61 186	63 423	47 000	51 542
Operating cost per line (in francs CFA)	528 422	488 591	330 237	286 136

Source: Côte d'Ivoire Télécom

The operating cost has decreased by 50% during the past three years. The current unitary cost is 286 131 francs CFA, i.e. 477 US \$. Thus, the annual operating costs per line are getting closer to the average cost of 380 US \$, according to the computations made by ATCI on the basis on a 1995 data sample of 10 operators from different regions and countries with various income levels (see the report on the world telecommunications development, ITU 1998). Table 19 compares the situation of Côte d'Ivoire with the situation of some neighboring or similar countries.

Table 19: International comparison of performance indicators

	Population	Number of fixed lines	Teledensity (for 100 inhabitants)	Turnover per line (US $)	Number of employees for 1000 lines
Côte d'Ivoire	14 700 000	142 322	0.97	1 343	17
Ghana	18 338 000	106 000	0.58	1 284	38
Cameroon (1996)	13 937 000	70 558	0.52	1 091	36
Senegal	8 762 000	116 000	1.32	1 148	86
Philippines	71 900 000	2 080 000	2.89	611	98
Bolivia	7 770 000	535 000	6.88	391	3.5

Source: ITU

Quality / reliability

The current concession agreement of Côte d'Ivoire Télécom includes a set of improvement objectives for the quality of service. The concessionaire must attain some minimal norms recommended by the ITU from the third year of the concession. When these objectives are attained, the performance must improve again to attain some more ambitious objectives. The concessionaire must express the progress made each year. The planned objectives and the results attained are shown below:

Table 20: Quality and reliability indicators

Indicator	ITU	Objective	Result in July 1998
Percentage of delayed demands for a main line	<5%	3%	26.8% (=48.479 demands)
Waiting time for a connection	<60 days	30 days	348 days
Percentage of failures	<3%	2%	9.24%
Percentage of failures repaired in 48 hours	>80%	85%	51.66%
Percentage of successful local calls	>70%	85%	42%
Percentage of successful long-distance calls	>60%	80%	36%
Percentage of successful international calls	>60%	75%	34%
Percentage of failures (call boxes)	<2%	1%	47%
Percentage of failures repaired in 4 hours (call boxes)	>80%	90%	81%
Percentage of bills complaint	<1%	0.8%	3.57%

Source: concession agreement / Côte d'Ivoire-Télécom

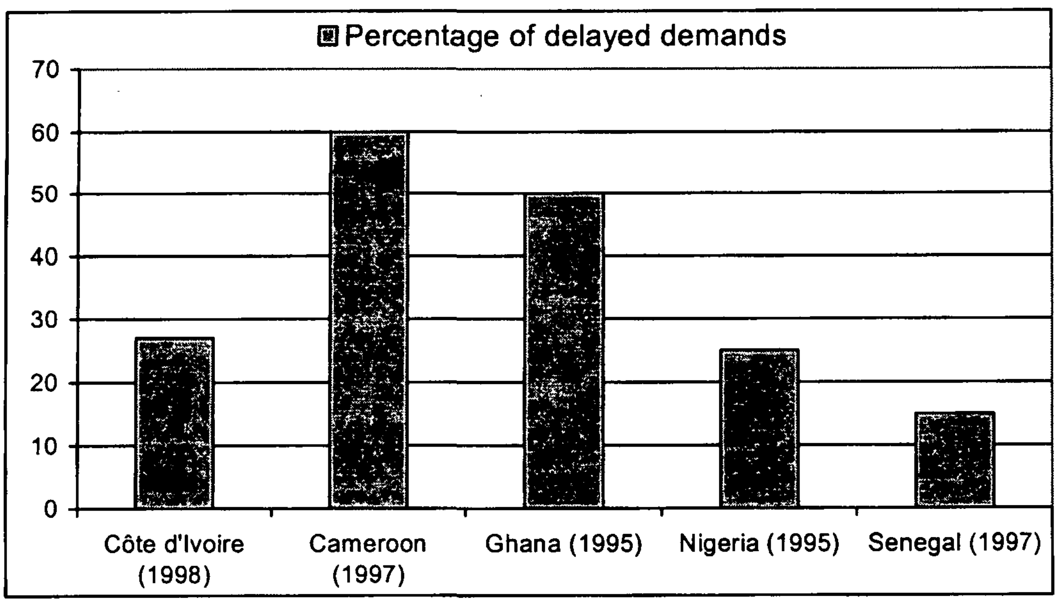
For several domains, the quality of the service is lower than the ITU norms and the concessionaire will need to increase its effort to attain the objectives planned for the year 3. Nevertheless, a recent survey of the ATCI has shown that 83% of the people believe that there has been an improvement in the quality of the service whereas 75% feel an improvement in customers' service.

The quality of service in Côte d'Ivoire has also been compared with the ones in the neighboring countries: Ghana, Nigeria, Senegal and Cameroon. Figures 9 and 10 show the respective results of these countries as regards:

a) the ratio (in percentage) between the number of delayed demands and the number of subscribers to a fixed line,

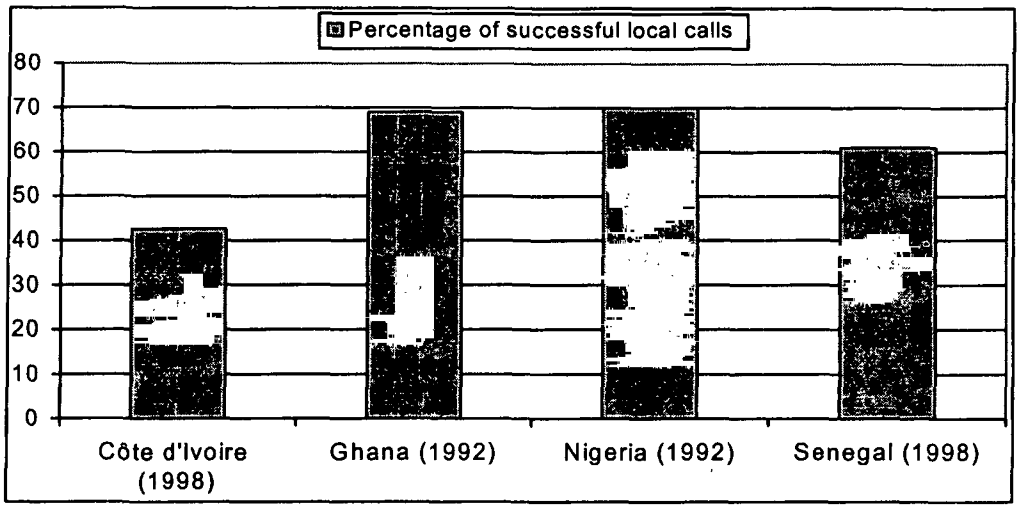
b) the percentage of successful local calls.

Figure 9: Ratio (in %) between the delayed demands and the number of subscribers – West African Countries



Source: ITU

Figure 10: Percentage of successful local calls - West African Countries.



Source: ITU

As it can be seen on the above figure, the Ivoirian results as regards the delayed demands are reasonably good compared to some of its neighbors. On the other hand, its results on the rate of successful local calls are very poor. Whereas Ghana, Nigeria and Senegal are close to the ITU norms, Côte d'Ivoire is still quite far.

4.2. Operating results

As we have mentioned before, the bad operating results of Côte d'Ivoire Télécom has been one of the main factors that led to the decision to grant a concession to a private operator.

Financial results

The total turnover of Côte d'Ivoire Télécom rose by 70% between 1995 (87 billions of FCFA) and 1998 (142 billions of FCFA). The net result, which decreased in 1996 and 1997, increased in 1998 to reach 4.3 billions of FCFA. The bill collection rate of the private customers approaches 85%, against 65% before the privatization. The main financial performance indicators of the company before and after the concession are presented in Table 21.

Table 21: Indicators of financial performance

(in millions of f CFA)	1994	1995	1996	1997	1998
Losses and Profits					
Turnover	62 429	95 223	85 229	136 954	142 762
Net result	- 4 848	4 562	350	1 050	4 324
Net result / Turn over	- 7.8%	4.79%	0.4%	0.77%	3.0%
Balance sheet					
Fixed assets	128 658	131 488	135 731	138 442	145 757
Working capital	63 158	71 676	62 363	79 695	N/A
Net worth	64 888	69 352	69 305	81 207	84 289
Long term Liabilities	40 349	56 007	48 211	57 698	58 313
Current Liabilities	86 579	77 805	80 578	79 232	N/A
Profitability	- 7.47%	6.58%	0.51%	1.29%	3.03
Debt ratio	38.34%	44.68%	41.03%	41.54%	40.89%
Bills collection Rate (private customers)			65%		81%

Source: Côte d'Ivoire-Télécom

The main financial performance indicators of the other companies of the sectors, in particular the mobile telephone operators and the call boxes operators, are shown below:

Table 22: Financial results of the mobile telephone operators 1997-1998

	Comstar		**Ivoiris**		**Télécel**	
(in millions of f CFA)						
Losses and Profits						
Turn over	2 600	2 300	7 500	17 000	7 584	16 500
Net result	- 2 196	- 707	473	6 000	- 123	2 500
Net result / Turn over	- 95.4%	- 30.7%	6.3%	35.2%	- 0.02%	15.2%
Balance sheet						
Capital	2 300	2 300	4 136	4 136	2 865	2 865
Profitability of capital	- 95%	-31%	+11%	145%	- 4%	87%

Source: Mobile telephone operators / ATCI

Whereas the 1997 results were not really favorable (as far as Telecel is concerned, they have reflected a provision of 200 millions of FCFA for the loss of use of its satellite), the 1998 forecasts for two operators reveal that the operating margin and the profitability of capital are very impressive, with the exception of Comstar who seems to face some difficulties in expanding its market share.

The other operators of the sector who have not faced such a growth, such as the call boxes operators and the Internet providers, have suffered from various unfavorable evolutions. The losses of Publicom have increased since the creation of the company three years ago (with a loss of 437 millions of FCFA in 1998) whereas Access Telecom, who started its activities at the end of 1997, chalked up losses of 50 millions of FCFA last year.

Pricing policy

The main objectives of the concessionaire's pricing policy are to provide customers with fair and competitive prices, to give it some reasonable expectations as regards the rate of profit while inducing it to improve its productivity and allowing to implement a progressive set up of prices in relation with the costs but also uniformly over the country.

The connection costs have decreased compared with the time when Côte d'Ivoire Télécom was a public operator. In 1990, the connection costs were 98 124 FCFA, i.e. 360 US $ and, in 1997, there were only of 46 667 FCFA, i.e. 65 US $.[11] On March 28th, 1999, the connection costs decreased again by 7778 between 1997 and 1998, to reach 38 889. Expressed in current F CFA, the subscription costs have increased from 3860 (per month) in 1990 to 4244 in 1999. Table 23 sums up the evolution of those prices.

[11] This decrease in US $ is magnified by the CFA devaluation which occurred in 1994.

Table 23: Evolution of the telephone price list of Côte d'Ivoire Télécom

Time	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Connection	98124	68820	68820	46660	46660	46660	46660	46660	46660	38 889
Monthly subscription	3860	3860	3860	3860	3860	3860	3860	3867	3867	4244
Local Calls (< 60km)	64f /6mn	64f /6mn	64f /6mn	64f /6mn	64f /6mn	64f /6mn	64f /6mn	64f /6mn	64f /6mn	64f /5mn
Long Distance										
61 – 120 Km	64f /30sec	64f /30sec	64f /30sec	64f /30sec	64f /30sec	64f /30sec	64f /30sec	**64f / 19.35 sec**		**64f / 20.5 sec**
121 – 270 Km	64f /18sec	64f /18sec	64f /18sec	64f /18sec	64f /18sec	64f /18sec	64f /18sec			
> 270 Km	64f /15sec	64f /15sec	64f /15sec	64f /15sec	64f /15sec	64f /15sec	64f /15sec			
International **										
UK (Peak hours)	64f /2.5sec	64f /2.5sec	64f /2.5sec	64f /2.5sec	64f /2.5sec	64f /2.5sec	64f /2.88sec	64f /2.88sec	64f /2.88sec	64f /2.88sec
USA (Peak hours)	64f /1.87s	64f /1.87s	64f /1.87s	64f /2.5s	64f /2.5s	64f /2.5s	64f /2.47s	64f /2.47s	64f /2.47s	64f /2.47s
France (Peak hours)	64f /3.5s	64f /3.5s	64f /4.5s	64f /4s	64f /4s	64f /4s	64f /3.46s	64f /3.46s	64f /3.46s	64f /3.84s
Nigeria (Peak hours)	64f /4.5s	64f /4.5s	64f /4.5s	64f /4.5s	64f /4.5s	64f /4.5s	64f /2.88s	64f /2.88s	64f /2.88s	64f /2.88s

Source: Côte d'Ivoire Telecom

** In this case, the prices are set by area and by continent according to 6-area classification.

AREA	PRICE (ATI in CFA)
Area 1 (/ 6.5 sec)	64
Area 2 (/ 3.48 sec)	64
Area 3 (/ 2.9 sec)	64
Area 1 (/ 2.48 sec)	64
Area 1 (/ 1.74 sec)	64
Area 1 (/ 1.09 sec)	64

The price modulation system is only at the beginning. Indeed, the concession agreement has set up a pricing regime with four stages in the price control during the concession duration. These stages are:

- Steady prices until September 1997,
- Until September 1998, the price basket of Côte d'Ivoire Telecom must remain the same on the whole as the preceding one in nominal value, with the possibility of rebalancing of some prices against some others (in any case, the price of a particular good of the basket shall not increased by more than 10% per year in nominal value),
- From September 30th, 1998, to September 30th, 2001, the price cap formula shown below will be applied to the basket:

$$\mathbf{P_{n+1} = P_n \times (1 - 7\%) \times (1+inf)}$$

With **P_{n+1}** the new price cap to be applied from October 1st of a given year to September 30th the year after.

P_n the price cap to be applied for the year preceding **P_{n+1}**.

Inf is the inflation rate equal to the change rate of the « African Worker » index published by the National Institute of Statistics.

- After the transition period (February 3rd, 1997 to September 30th, 2001), some prices reevaluation will occur every 30 September (the first time in 2001) taking into account the rate of return of the capital invested by Côte d'Ivoire Telecom, the telecommunication prices in the neighboring countries and the structural pricing in force in Germany, France, Great-Britain and Italy.

Since some difficulties occurred in the enforcement of this pricing system because of a lack of understanding between the ATCI and Côte d'Ivoire Telecom, the second stage was extended until March 28th, 1999.

<u>Initialization and implementation of the price cap system for CI-Telecom</u>

In principle, the price cap system was supposed to start with the basket provided for the concession agreement and in place since 1990 (see table 23). Nevertheless, before the privatization process reached its term, the previous managing team slightly changed the composition of the basket. The prices for long distance calls have been made uniform (64 f / 19.35 sec) and the invoicing is now monthly (instead of every two months). Since this change was more profitable (more than 50% of the long distance calls were between 61 and 120 km), the new managing team has kept it until the first price updating provided for the concession. For this updating, the following procedure has been chosen.

Determination of the variation rate for the price of every basket component.

Let X be the price of a given basket component.

X = (connection, subscription, local call, long distance call, international call).

$\mathbf{X_{n+1}}$ is the new price to be applied from October 1st of a given year to September 30th the year after.

$\mathbf{X_n}$ is the price to be applied for the year preceding $\mathbf{X_{n+1}}$.

$$\Delta X = \frac{X_{n+1} - X_n}{X_n}.100$$

The ΔX found for each basket component must be less than or equal to 10%.

As far as *local calls* are concerned, there have been some divergences between the method proposed by the regulators and the method proposed by the operator. According to the former, the variation must be computed using as reference price the ratio of the standard price (64f ATI) to the allowed duration (6 min). In this case, we obtain $\mathbf{X_L}$=10.67 F and this is used to compute ΔX. According to the operator, this variation has no bite on its turnover since a survey has shown that 81.6% of the local calls last for 1 to 3 minutes. Thus, for a 10% change in its turnover (for this type of call), it proposes rather a fall in the communications duration from 64 f ATI / 6 min to 64 f ATI / 3 min 18 sec.[12]

An agreement was finally found in March 1999 and the final price was set to 64 f / 5 min.

For the long distance calls, the variation rate has been computed using the price for a one-minute call, i.e., $\mathbf{X_D}$=108 F.

For the international calls, it has been computed using the average price of a one-minute call (the price for each area is included in this average with a weight depending on the proportion of traffic to this area). Then, the reference price, $\mathbf{X_I}$, can be found.

The following table provides the details of this computation.

[12] This reflects the difficulty of price cap for non-linear pricing schemes.

Table 24: Computation of the average price for international calls

Distribution of the traffic according to the area			
	Price NIT (z_i) / min	Traffic (Ti) (min)	Weight of the traffic ($t_i = T_i / T$)
area 1	$z_1 = 535$	8 680 764	$t_1 = 21{,}6\%$
area 2	$z_2 = 995$	15 571 982	$t_2 = 38{,}8\%$
area 3	$z_3 = 1\ 200$	6 262 231	$t_3 = 15{,}6\%$
area 4	$z_4 = 1\ 392$	6 040 017	$t_4 = 15{,}0\%$
area 5	$z_5 = 2\ 047$	3 114 263	$t_5 = 7{,}8\%$
area 6	$z_6 = 3\ 163$	472 519	$t_6 = 1{,}2\%$
	Total	**T = 40 141 776**	**100%**
Weighted average (by the traffic) of the international call price per minute.			
	$\mathbf{X_I} = \sum_i t_i z_i = \mathbf{1\ 094\ F}$		

Determination of the variation rate of the unitary basket

From the price cap formula provided for the concession agreement,

$$\mathbf{P_{n+1} = P_n \times (1 - 7\%) \times (1 + inf),}$$

it is possible to find the targeted basket variation rate to reach,

$$\mathbf{\Delta\ P_{target} = (1 - 7\%) \times (1 + inf) - 1.}$$

Moreover, the weight of each component of the basket is equal to the proportion of the takes it represents in the total takes of the basket. Thus, the following weights have been applied:

Table 25: Determination of the basket component weights

Basket component	**Takes (T_k)**	**Weight in the basket ($W_k = T_k / T$)**
Connection	T_C	$W_C = T_C / T$
Monthly subscription	T_S	$W_S = T_S / T$
Local calls	T_L	$W_L = T_L / T$
Long distance calls	T_D	$W_D = T_D / T$
International calls	T_I	$W_I = T_I / T$
Total	Basket total takes (T)	**100%**

Then the impact on the basket of any price change is computed as follows :

$$\Delta P_{impact} = \sum W_k \Delta X_k$$

where $W_k = (W_C, W_S, W_L, W_D, W_I)$ and $X_k = (X_C, X_S, X_L, X_D, X_I)$.

At last, one must compare ΔP_{impact} with ΔP_{target} and the former should be equal or greater than the latter. The table below shows how the price updating is performed.

Target variation rate of the basket

Formula to use: $\Delta P_{target} = (1 - 7\%)(1 + \inf) - 1$

For an inflation rate equal to **4 %**, ΔP_{target} **= -3.28%,** so the basket price must decrease by at least 3.28 %.

Impact of the variations on the basket

Table 26: Impact of the price variations on the basket

Basket component	Weight in the basket W_k	Variations ΔX_k	$W_k * \Delta X_k$
Connection	1%	- 14.3 %	-0.1%
Subscription	6%	9.9 %	0.6%
Local	17%	10,0%	1.7%
Long distance	35%	-5.9%	-2.1%
International	41%	-10%	-4.1%
Total	**100%**		ΔP_{impact} **=-4%**

There is a -4% change in the basket prices, which is equivalent to a 4% drop in the basket. In this example, the effective fall (4 %) is higher than the required fall (3.28%). The results therefore comply with the criterion on the basket variation.

Mobile phone prices

The mobile operators are free to set their prices as they wish. The price list of the three operators is shown in following table. It remained stable during the period 1997-1998.

Because of the important differences in the cost of living between countries and of the difference in the government policies (for example, the subsidies granted to some users), it is difficult to compare the prices of telephone services across countries. Nevertheless, we have tried to provide some comparison elements by showing in the tables the figures for the standard services and for the mobile telephone of Côte d'Ivoire, of its neighbors and of some countries from Latin America or Asia.

Table 27: Telecommunication price list in Côte d'Ivoire and some similar countries

(in $ US)	Côte d'Ivoire	Burkina Faso	Ghana*	Senegal	Philippines	Bolivia
Fixed Service						
Connection cost	73.7	37.9	28.7	41.1	13-16	168
Monthly subscription (minim.)	6.1	3.7	2.0	4.9-11.9	10.1-23.1	2.0
Local call (3 minutes maximum)	0.1	0.1	0.1	0.2	N/A	0.01
Average call to the US (per minute)	2.4	2.5	2.3	1.5	2.07	1.01
Mobile service						
Connection cost	61.4-66.3	88	100	64.7	57	9.3
Monthly subscription (minimum)	21.1-26.3	17.5	N/A	17	4.5	15.0
Local call (1 minute)	0.3-0.7	0.3	N/A	0.2-0.4	0.91	0.51

Source: Data from the operators and the ITU. Those of the Senegal are for 1998. * Approximations in 1997

Even it is hard to estimate its magnitude, there exists a large unsatisfied demand in Côte d'Ivoire, which justifies some important investments in the sector. But it is hard to assess precisely the level of the future demand because of the transfers that seem to happen from the fixed services to the mobiles.

4.3- The regulation bodies and their difficulties

The regulation bodies in the telecommunications sectors as they exist do not have a very long history. Nevertheless, after four years of existence, it is possible to analyze their activities and the problems they have faced in the resolution of conflicts. The current structure of the sector provides for two levels of intervention.

The Telecommunications Ministry, through the Office of Policy and International Affairs for Post and Telecommunications (DPAI - PT), is commissioned to design the regulation.

Two regulatory bodies, the ATCI and the CTCI, are in charge respectively of ensuring that the regulation is applied and supervising the way it is applied. These structures are favorable to the harmonious development of the sector. Nevertheless, some inefficiencies have been observed as regards the exercising of the respective responsibilities.

As for the Ministry, although essential to the new telecommunications landscape, the DPAI - PT has not been able to fulfill its mission. So, after its two assistant directors, its director and many others agents left successively, the structure has been emptied of its human substance and has not able to exert any influence. From this, its activities are now often exercised by the ATCI. Indeed, the telecommunications code (the Law) lacks precision on the implementation of the supervisory Ministry function. Indeed, this code does not say anything on how the DPAI-PT should fulfill its missions.

Within its current regulatory framework, the spirit of the law gives to the ATCI the responsibility of regulation at the first stage and to the CTCI the arbitration and conciliation role if the operators are unhappy with the decisions taken by the ATCI. Nevertheless in its letter, notably the stipulation of the Telecommunications code, the concession agreement of Côte d'Ivoire Telecom and of the other legal texts, it appears in many aspects confusion in the interpretation of the powers and responsibilities of the ATCI and of CTCI[13].

The essential question concerns the status of the CTCI: should it be considered as a conciliation authority or as a quasi-judiciary authority whose decisions are compulsory? The CTCI has not been put into question so far, but there is a risk that its role in the resolution of conflicts be contested in the near future if there is no legal clarification of its role and its proper authority. Nevertheless, the CTCI is not the last resort for the operators since they can

[13] This overlapping of functions is probably the consequence of the late decision to create two regulatory bodies. Originally, the project did not include article 51 creating the ATCI, but only the 50th concerning the CTCI (with the same three responsibilities).

take the matters to court in case of failure of the arbitration and conciliation of the CTCI[14]. Nevertheless, this resort, although it ensures the fairness of the decisions, if it is too easy to exercise or if it applies to daily regulation, could harm the regulatory process and increase its costs and delays. Therefore, it is very important that the law not only clarifies the role and attributions of the ATCI and the CTCI, but also makes clear the qualification of the orders of the CTCI as well as their seniority compared to those of the ATCI in the conflict resolution area.[15]

The ignorance of the texts and laws in force in the telecommunications industry displayed by the economic agents and the public is another major problem of this sector, it is strong handicap for the public accountability. For example, the absence of publication of the concession agreement of Côte d'Ivoire Telecom prevents the other operators and the consumers from exercising their rights towards this concessionaire which operates at the same time all the basic services (fixed telephone and telex services).

As far as the supervision mechanisms used by the regulatory bodies are concerned, they are all in all in conformity with those used all around the world. Indeed, the pricing rules are of price-cap nature with some additional norms for the quality of the service and the performance of the network close to the ones defined by the International Telecommunication Union (ITU). However, the updating delay of the price cap remains too short (three years against five years in general); this can hamper the operator's incentives to increase efficiency.

The CTCI has settled several conflicts between the operators and the ATCI. In several cases, the CTCI has turned to be a strong defender of the rights of the operators. For example, in a conflict between Côte d'Ivoire Telecom and the ATCI on the procedure of choice of subcontracting firms, the operator had been sentenced to a fine of 20 millions of FCFA by the regulators. The CTCI denounced the illegality of the fine and the operator was reimbursed.

4.4- Competition policy and the conflicts between operators

When the telecommunications market has been opened to competition, there was a debate on whether the authorization granting operation to operators under regulated competition should be made before or after the concession of the basic services. Finally, the authorizations were given before the privatization. This step has fostered a rapid growth of the mobile telephone market but has led to some contradictions between the concession

[14] For Côte d'Ivoire Telecom, the concession agreement stipulates in its 26th article that the last resort after the CTCI is the International Chamber of Commerce of Marseille in France.

[15] As of February 2001, no clarification of the respective roles for the ATCI and the CTCI has been made.

agreement and the Law and then *de facto* with some denials of the authorizations given to the mobiles operators.

Indeed, whereas there is no stipulation of the Law forbidding a direct international access for the mobiles operators, the article 4.2[16] of the concession agreement forbids them to do so. But before the contract was signed, one of the mobiles operators (Telecel de Loteny) had already acquired its infrastructures – a land station for satellites of 200 millions of F FCA- and was operating some international calls. Its authorization was totally withdrawn (decision n° 96699 of November 28th, 1996, of the Ministry for economic infrastructures).

The concession has also led to a renegotiation of the interconnection agreements signed before privatization and the concessionaire has put into question the authorization given to Publicom.

Since the liberalization of the markets, several conflicts occurred between the actors of the sector. According to the Telecommunications Code (Article 4), the government must see that the conditions for a fair and open competition are satisfied each time entry is not limited to one operator but it is not specified which institution should exercise this function. Paradoxically, it is in the concession agreement (Article 36.2.1) that this role is allocated to the ACTI. However, both the ATCI and the CTCI have been implied in the settlement of conflicts. Here again, the procedure has been first to turn to the Agency and then to the Council.

The authorization of Publicom was the first conflict between operators for which the regulators intervened. Considering that the terminal equipment of the call boxes was fixed, Côte d'Ivoire Telecom claimed that this service was also part of its exclusive rights. Dismissed by the ATCI, the concessionaire tried to stifle Publicom by resorting to unfair pricing. Whereas the access price paid to him by Publicom was of 65 f /impulse (IAT), the same impulse was of 73f in its own call boxes. The margin of 8f/impulse given to the competitors was too low for them to cover their cost. The regulators intervened on August 8th, 1998, to set a minimum price of 85f/impulse in the call boxes. In spite of all these interventions, the operators of the sector are not out of troubles since Côte d'Ivoire Telecom has kept on excluding them by line denials.

Whereas many steps have been taken to settle the conflicts between operators, some problems remain unsolved.

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[16] This article was in fact added to the initial version of the concession agreement under the pressure of the buyers on the one hand because of the bad state of the infrastructure and of the fact that the international

First, do the regulators manage to enforce their decisions by the operators? Indeed, in the call boxes conflict, the ATCI took some decisions, in particular by setting a minimum price. But, up to December 1998, Côte d'Ivoire Telecom had not put this measure into practice.

Then, it is necessary to clarify the question of the intervention of the CTCI in the conflicts between operators. According to the clauses of the Law, its role is limited to the conflicts between the Civil Service (ATCI) and the operators. In principle, the competition commission created by the Law 91-999 of December 27th, 1991 should manage the topics linked with competition. This commission can issue some notices for the settlements of conflicts about cartels, abuse of dominant position, the increase in the market power, predatory pricing or any other event creating and reinforcing a dominant position. But in practice, the small influence of this commission added to the general approach of the regulation of the sector in Côte d'Ivoire – i.e. using specific laws and institutions to solve the problems – have resulted in almost all the competition disputes being settled by the regulatory bodies.

Finally, like the conflicts between operators, the Law does not provide for the intervention of the CTCI in the conflicts between operators and consumers. This is all the more worrying that most consumers do not know their rights towards the operators and that the UCOCI (Consumers Union of Côte d'Ivoire), in charge of representing them, has not the means to implement its policy. This situation is all the more exacerbated by the lack of publication of the concession agreement of Côte d'Ivoire Telecom and the freedom of setting the prices given to the mobile operators. Thus rationed on the fixed telephone (the average connecting delay is of about 348 days), the consumers are turning to the mobile telephone which is overpriced (the prepaid cards are one of the examples). Indeed, the mobile operators, aware of this rationing, are making an implicit cartel on the prices rather than waging a price war.

Meanwhile, the CTCI often consults the UCOCI and the ATCI and makes its own survey to appraise the degree of consumers' satisfaction. Consumers are not represented in the regulatory institutions but participation in some national projects such as the move from 6 to 8 numbers for telephone identification.

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represented 60% of the revenues of CI –TELCOM before the privatization and on the other hand competition on this part of the market could be suicidal for the concession holder.

4.5- Interconnection

The reality of the competition induced by the liberalization relies on the quality of the interconnection agreements.

CI-Telecom is a vertically integrated firm that is the only one to provide local and long distance fixed telephony. The only interconnection problem is therefore with the other mobile operators.

There is an interconnection agreement between CI-Telecom and the other authorized cellular operators. This agreement, originally signed between CI-Telecom and Comstar Cellular, has been extended to the other operators. The agreement includes a commitment to realize the networks interconnection and to maintain it "wisely".

Since CI-Telcom is responsible for the telephone directory, the mobile operator can include their own subscribers in this book provided they pay the publishing costs.

Come into force on September 9th, 1997, the agreement can be revised by mutual agreement (after 3 months) or terminated with a 24 months' notice or in case either of a refusal to comply to the duties or of bankruptcy.

Any dispute lasting for more than 30 days concerning the enforcement of the agreement will be referred to the arbitration of the Telecommunication Council and in case of absence of conciliation to the Court of Abidjan.

The interconnection nodes are provided for the agreement, namely the numerical exchanges with autonomous delivery with the CCITT n°7 ISUP signaling. The Cocody exchange is the only one having these features.

The interconnection costs are divided between fixed and variable costs. The fixed costs include mainly the costs of technical building and land renting; the cost of pylons and connection renting are mainly determined as a function of the current economic conditions. The objective is to cover the real costs.

As far as the connection links are concerned (and since CI-Telcom also uses these lines for its own use), the fixed costs are divided by 2. The way these costs are set seems to be a sort of cost-plus system with a margin of 30% (inclusive of all the overheads).

The pricing of the communication delivery is based on the idea that it should be as close as possible to the costs of CI-Telecom (taking also into account some reasonable margins compared with the international competition).

The prices are 10 F (NIT) / min for local (0 to 60 km)
180 F (NTI) / min for long distance

excluding the subscription costs representing on average 15% of the bill. Nevertheless, the prices are not balanced and the local prices are below the costs.

If one leaves aside the cover for outstanding payments fixed by the cellular operator, the access prices for a call from a mobile to a fixed network are:

$a_L = 25$ F for a local call

$a_D = 130$ F for a long distance call

The agreement also stipulates the prices paid to CI-Telecom by its subscribers calling a cellular subscriber:

$p_L = 25\text{ F} + b_L$ for a local call

$p_D = 130\text{ F} + b_D$ for a long distance call

where b_L (resp. b_D) is the access price fixed by the cellular operator.

The way the prices a_L and a_D have been chosen is not specified but for the fact that they are supposed to be closer to the costs than the internal prices chosen by CI-Telecom for its subscribers.

The establishing of the CI-Telcom prices to the cellular is interesting. Indeed, if one assumes that the competition in the mobile sector will lead to prices (b_L, b_D) close to marginal costs, the prices (a_L, a_D) appear to be determined by the ECPR (Efficient Component Pricing Rule) logic

$$25 = p_L - b_L$$

$$130 = p_D - b_D$$

following the idea of the opportunity cost of loosing a customer.

If CI-Telcom (or its subsidiary) loses a cellular customer, it loses the income p_L (or p_D) minus the spare cost b_L (or b_D).

Alternatively, if one starts by the prices set by CI-Telcom for its customers to the cellular customers:

$$p_L = 25\text{ F} + b_L$$

$$p_D = 130\text{ F} + b_D$$

the access prices are established following the ECPR:

$$a_L = p_L - b_L$$

$$a_D = p_D - b_D.$$

It is a way to construct the ECPR access prices before any rebalancing if one considers that p_L, p_D are chosen by the regulator. At last, one must remark that the access prices between mobile operators are set equal to zero (*the bill and keep* doctrine) but the operators must pay some interconnection charges of 25 F to CI-Telecom.

Nevertheless, it is unlikely that the competition will influence the access charges of CI-Telecom to the mobile phones. Indeed, even if the mobile operators compete in the price proposed for the calls to CI-Telecom and to the other mobiles, it is in their interest, as long as CI-Telecom remains a monopoly, to charge the monopoly access prices for the calls from CI-Telecom to the mobiles.

It is the lack of regulation that explains the high profits made by the mobile operators. It is therefore urgent to regulate the access prices (since a real competition on the fixed lines cannot be expected shortly) either by setting some price cap or by integrating in the price cap of CI-Telecom the price of the calls to mobile phones. It would give CI-Telecom some incentives to negotiate lower access prices. Nevertheless, since there is no freedom of choosing its own access price, these incentives are unlikely to be sufficient to succeed.

5 – PROSPECTS OF ENTRY OF NEW OPERATORS

Apparently, there are four domains for the involvement of some new private actors in the sector. As it has been said, a development funds for rural telephony has been created by a ministerial decree. It is mainly financed by the contribution of the operators completed by the help of the State. This fund is managed by a board composed of representatives of the supervisory ministries, of the BNETD, of the CAA and of the regulatory authority. A technical committee that consists of some representatives of Côte d'Ivoire Télécom can give him some advice.

The necessary investments for the fixed lines and the mobile telephone have been estimated to 257 billions of FCFA (450 millions of $ US). The allocation of the figures is shown in the table below:

Table 28: Investments realized and scheduled (millions of FCFA)

Investment	1998	1997	1996	Total	1999	2000	2001	2002	Total
Fixed Lines	39,553	31,700	28,482	99,735	60,000	55,000	50,000	40,000	205,000
Mobiles	12,638	15,821	5,146	33,605	20,000	12,000	10,000	10,000	52,000
Call boxes	N/A	300	700	700	N/A	N/A	N/A	N/A	N/A
Internet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Investment	52,191	47,821	34,328	134,340	80,000	67,000	60,000	50,000	257,000

Source: telecommunication operators

The end of the period of statutory monopoly of Côte d'Ivoire Télécom will enable new fixed lines operators to enter the market which could be centered at first in the business district.

There are two other possibilities for the involvement of private actors in the mobile telephone:

- The concession agreement allows the government to grant to mobile telephone operators the possibility to use their own infrastructure for international communications. Since one of the operators has already such an infrastructure (which is currently used for the data transmission only), the government could exercise this option before the end of the statutory monopoly of Côte d'Ivoire Télécom in order to lower the cost of long-distance services in Côte d'Ivoire.

- When the new capacity of the radio spectrum will be available, it will be possible to give to some new operators the right to enter the mobile telephone market by allocating the frequencies in the context of a competitive procedure and maybe to create a secondary market on the frequencies permits.

Besides, for the Internet services and the E-Business, the low level of activity suggests that there is space for additional investments. But the future prospects could be dependent on a change in the tax system (reduction of the import duties on the computer equipment).

CONCLUSION

It is too soon to evaluate the validity of the approach granting monopoly to CI-Telecom. Concerning performance, one must stress that after a difficult first year, CI-Telecom has met the objectives of the concession contracts for main lines and call boxes in 1999 and 2000. Objectives concerning rural telephony and quality of service have not been met. Penalties have been assessed by the ACTI but not enforced. CI-Telecom has been able to argue that the public administrations have not paid their bills. Tariffs have been slightly rebalanced twice (see Table 29 in FCFA).

Table 29: Fixed Line Tariffs in Cote d'Ivoire

	Before March 18, 1999 (VAT 11,11 %)	From March 18, 1999 (VAT 11,11 %)	From December 2, 2000 (VAT 20 %)
Connection	42000	35000	35000
Subscription	3400	3820	4200
Local	58/6 mn	58/5 mn	58/4 mn
Interurban	180/mn	150/ mn	160/ mn
International	535-3200	535-3200	537-2000

The revision of the price is under way to occur starting October 2001.

To conclude, one can say that the regulatory institutions carefully put in place before privatization are functioning reasonably well (much better than competition policy for example) for an African country. Unfortunately the political events which have happened in the last two years will garble considerably the experiment of Côte d'Ivoire. It will be difficult to assess the "monopoly experience" for comparison with other policies.

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