

DEREGULATION IN TELECOMMUNICATION MARKETS: THEORETICAL CONCEPTS AND RECENT DEVELOPMENTS IN SEVERAL COUNTRIES

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I. INTRODUCTION

Economic activities can be apportioned between the public and private sectors in one of three different ways. The government may carry them out, for example, internal and external security; private entities carry them out under industry-specific regulation, for example, banks and insurance companies under their designated regulatory agencies; or they are carried out by private entities operating under conditions of free competition.

In most countries telecommunication follows the first path. The United States has always been the prime example of the second approach. But during the last few years changes in these traditional structures have been set in motion. This article will commence some introductory remarks on the reasons for these developments. Then, in the first, rather analytical, section the possible goals of regulation and the appropriate methods, distinguishing between economic and non-economic goals will be discussed. In the second, more descriptive, section the latest reform developments in major countries such as the United States, Great Britain, Japan, and The Netherlands will be analysed and the relevant policy initiatives at the level of the European Community will be discussed. The article will conclude with a brief look at the reform efforts in my own country, West Germany.

1. The Reasons

Among the reasons for recent developments, four as outlined below carry special weight and are of particular relevance.

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There are the revolutionary technological developments that start with new transmission facilities (satellites, microwaves, fibre optic systems) continue with the transmission technique (digital instead of analogue transmission) and which finally lead to the technological and marketplace convergence of the formerly distinct sectors of telecommunications, data processing and office automation.¹ When computers and typewriters are connected to telecommunication networks, data processing and office devices become network terminal equipment. There is essentially no distinction left between digital switching centres and electronic data processing systems. These similarities at the equipment level are mirrored at the service level. Intelligence can be stored and processed in the network while at the same time we see customer premises equipment with transmission and switching functions. This all means a conflict between previously rather heavily regulated sectors and essentially unregulated ones.

The AT&T divestiture² eliminated restrictions that the 1956 Consent Decree had imposed on the enterprise, AT&T can now expand into the computer and office automation markets. Conversely, IBM tries its hand in the classic telecommunication sectors. This results in competitive pressures that can be felt in many countries.³ It is accompanied by more or less gentle pressure from the American government to reduce barriers of entry to national markets for American suppliers. This, for example, has influenced the liberalization in Japan. In summary it can be said that the deregulation which takes place in the USA has a worldwide effect.

A third reason is the general conviction that the telecommunication industry will develop into a key industry, comparable with the position of the automobile industry during the last thirty years. Efficiency in this sector has effects on the competitive position of many firms dependent on telecommunication services (one example, for instance, is the banking industry). But it is true for the telecommunication firms themselves: whoever is not able to sell certain equipment in his own country because of an existing PTT monopoly, is subject to an enormous handicap in the world market. Recently the Commission of the European Community in Brussels estimated that about 1,500 Billion DM will be invested in this sector within the European Community in the next twenty years. To illustrate the magnitude of this figure, Rome is said to have been founded in 753 BC. If one had opened an account in that year and paid in one and a half Million DM

1 See U.S. Department of Commerce, "Issues in Domestic Telecommunications: Directions for National Policy", *NTIA Special Publication* 85-16 (1985) Ch. 2; OECD (ed.), *Telecommunications - Pressures and Policies for Change* (1983).

2 See D. Evans (ed.), *Breaking Up Bell* (1983); U.S. Department of Commerce, note 1 *supra*, 34-58; H.M. Shooshan (ed.), *Disconnecting Bell: The Impact of the AT&T Divestiture* (1984); D. Baker and B. Baker, "Antitrust and Communications Deregulation", (1983) 28 *Antitrust Bull* 7-38, S. Bersen and J. Woodbury, *Regulation, Deregulation and Antitrust in the Telecommunications Industry* (1983) 28 *Antitrust Bull* 39-68.

3 Cf. The sequel of E. Le Bocher and J.M. Quatrepoint, "La Guerre Mondiale de la Communication", *Le Monde*, 11-14 January 1984.

every day from then until the end of 1986, it would add up to that sum. Neither weekends nor bank holidays are excluded. Interest, of course, is not taken into account!

A fourth reason might be that the academic debates about the usefulness of industry-specific restraints to competition have led to some cognitive progress.⁴ It has been recognized that the pros and cons of each solution have to be evaluated when choosing between different social arrangements, and that it does not make sense to compare any market failure with a Nirvana situation. Apart from market failure there exists governmental failure and regulatory failure as well.

II. GOALS AND METHODS

1. *Economic Level*

From an economic point of view the organization of the telecommunications sector can only be aimed at creating a framework for providing telecommunications services that are inexpensive, reliable and as varied as possible under the ancillary condition of covering the cost. The principal answer to that is competition. This is usually the most appropriate method to produce cost-oriented prices and to discover new cost-saving and application possibilities. From this follows the rather self-evident thesis: as much competition as possible, as much regulation as necessary.

A genuine economic reason for regulation can be market failure. It is put forward in two variants.

- The hypothesis of natural monopoly,
- The requirement for communication compatibility which the market alone purportedly cannot create in some instances.

(a) *Natural Monopoly*

One speaks of a natural monopoly when a single seller can supply a service at less cost than any larger number of firms. This might be caused by economies of scale (in case of a single-product firm) or by economies of scope (in case of a multi-product firms). This article will not address some refinements that this theory has undergone during the last few years (the implication of sunk costs, the distinction between sustainable and unsustainable monopolies).⁵ The assumptions of this still static theory are such that they hardly can be tested in the telecommunications sector. It was a rather intuitive concept that such a natural monopoly was believed to exist in the network sector. This belief has begun to sway in the sector of long-distance traffic due to new technological developments (microwaves,

⁴ Cf. S. Peltzman, "Toward a More General Theory of Regulation", (1976) *J Law & Econ*, vol. XIX, 211-240; G.J. Stigler, *The Citizen and the State: Essays on Regulation* (1975); L.J. White, *Reforming Regulation* (1981); G. Fromm (ed.), *Studies in Public Regulation* (1981); W. Baumol, J. Panzar, R. Willig, *Contestable Markets and the Theory of Industry Structure* (1982).

⁵ *Ibid.*

satellite transmission). It still survives in the sector of local traffic despite some doubts, for example the problem of bypassing⁶ in the United States. Regarding terminal equipment such a monopoly was essentially rejected. Some people suspect that installing an Integrated Services Digital Network (ISDN) will lead once again to a natural monopoly in the network. At present a narrow band ISDN (transmission rate of 64 Kbit/sec) is being built in West Germany (estimated cost about 35 Billion DM). In the long run it is to be replaced by a broad band ISDN on an optical fibre basis (estimated cost 300 Billion DM). Later on it should be transformed into a broad band universal network in which radio and television programs could also be transmitted.

Milton Friedman once said "[t]here is no such thing as a free lunch." By this he had in mind the opportunity cost of the supposedly free lunch. The given examples should make clear that there is no such thing as a natural "natural monopoly" in the telecommunications area. It is created only by the predefinition of needs (for example ISDN compared to the island-like local area networks⁷ that could be connected step-by-step). The same is true with respect to the chosen technology: in Germany the network termination, the so-called interface, is integrated in the telephone apparatus itself as far as the standard telephone main station is concerned. Therefore, the Post has always postulated that this main station is part of the network. Consequently, the German PTT is the sole provider of such equipment. If the interface is shifted into a plug outside the apparatus as in the United States and, since January 1985, also in Great Britain, the claim loses its basis. One could also say that only regulation itself creates the natural monopoly here and thereby the possible need for additional regulation.

(b) Compatibility

Communications compatibility has two aspects. The first can be named open communication: telecommunication facilities are the more useful the larger the circle they serve and the greater the number of potential users. An international dimension is also involved for markets do not necessarily stop at the boundaries. Today the telephone network connects 600 million subscribers and every day about two billion telephone calls are made in the world. This touches the issue of standardization. There are predominant indications that regulation of *such* a nature achieves compatibility at lower transaction costs than the free market process. Naturally conflicts of goals can arise with respect to innovative competition and associated entrepreneurial gains. For example the Open Systems Interconnection (OSI) reference model of International Standardization Organization (ISO) and the

6 This is the use of transmission facilities, usually for data, which avoid local telephone company networks. Examples of technologies used in this manner include private microwave networks, coaxial cable and satellites.

7 Privately owned digital communication systems that link a variety of devices, generally computer terminals in a small area; see U.S. Department of Commerce, note 1 *supra*, 25.

proprietary concept of Systems Network Architecture (SNA) by IBM.⁸ One might deduce from this, on the one hand, that such standards should be open as well as international. On the other hand, they should be formulated so cautiously and so openly as to their specific characteristics that innovation is hindered as little as possible. The adaptability of standards is a factor also. Ultimately this is a question of proportion and degree. Apart from that, there are already quite a number of successful cases of national and international standardization.⁹ This does not mean, of course, that the telecommunication sector should be regulated *beyond* that very point.

The second aspect is the one of requisite minimum quality: no equipment should cause damage or even disturbance to the network, other terminal equipment, or man himself. In this respect also, regulation might reduce transaction costs. Certainly it should be confined to the minimum intervention necessary. So far the optimal solution appears to be realized in the United States (self-verification by manufacturers, registration with the FCC, and opportunity for objection within thirty days).¹⁰ Most widely spread, however, is the solution, that a national Post administration, which already is the decisive authority for standardization, also controls the admission of competitive equipment and, additionally, acts as a supplier. This is as if the roles of rulemaker, referee, and player coincided in a single person during the same football game, and thus represents a poor solution. Referring to a finding formulated by the Supreme Court of the State of Ohio in a suit against the Standard Oil Company as long ago as 1892: "... it is the policy of the law to regard, not what may, but what usually, happens. Experience shows that it is not wise to trust human cupidity where it has the opportunity to aggrandize itself at the expense of others".¹¹

(c) *Midwife Function*

Market failure is also argued in a further variant: a public enterprise must be present in the terminal equipment market in order to facilitate, where necessary, presentation and acceptance of a new service. The speech is about the midwife function.¹² The thesis calls to mind the infant industry argument regarding governmental subsidy policy. Two points are to be noted here, such a thesis also rests on a predefinition of merely possible needs, it is hence in the aftermath of a regulation. Moreover, while such a thesis might be true during an introductory phase, it is not true in the long run.

8 The OSI-model has been developed jointly by manufacturers of the telecommunication industry and of the computer industry. There is a certain rivalry to the SNA-standard of IBM.

9 J. Scherer, *Telekommunikationsrecht und Telekommunikationspolitik* (1985) 335.

10 See NTIA *Competition Benefits Report* (1985) 13.

11 *State of Ohio v. Standard Oil Co.* 30 NE Rep 279, 290 (S. Ct. Ohio 1892).

12 See C. Chr. von Weizsäcker, "Wettbewerb im Endgeräteegebiet" (1984) *Jahrbuch der DBP* 578, 582; G. Tenzer, "Aspekte der Endgeräteegebiet", (1985) *Jahrbuch der DBP* 528-550.

2. *Non-economic Goals*

The situation becomes more complicated if non-economic goals are brought into the regulatory debate.

(a) *An Historical Look*

From an historical viewpoint, the governmental takeover of electronic message communications was also supported on military grounds, occasionally even on aspects of a certain police-minded supervision.¹³ All this is obsolete today. Partly entrepreneurial reasons were added: existing Post administrations that had created the mail and parcel services resolutely seized these opportunities to expand into sectors with a promising future. Sometimes this root survives in the regulatory scheme, in that a public monopoly is subject to a specific fiscal tribute. Under today's conditions granting a monopoly to governmental enterprises for the sake of income is usually an inappropriate and, in any case, an excessive tactic. Experience has shown that taxation of private firms that act in competitive markets is much more profitable for the State.

(b) *Public Enterprises as Instruments of Economic Policy*

There is the view that public enterprises should be instruments of specific economic policy, for example of cyclical trade or full employment policy. Of course, such a view deviates from the concept of free competition. The telecommunications sector is preferred precisely because of its economic weight. For example, the German Postal Service is the largest firm in Europe with its 500,000 employees, of which 175,000 are in the telecommunications sector (in comparison with AT&T which had about one million employees before the divestiture). In 1985 the revenue amounted to 50 billion DM. The investments in tangible fixed assets were 17.2 billion DM, that is more than one quarter on all such investments made in Germany by all other industry and craft units with more than twenty employees. Its contribution to the gross domestic product was 3.6%. Such arguments in support of regulation are propagated particularly by labour unions and sympathetic socialist parties. To American thinking such ideas must seem rather exotic. It is worth noting that steering an economic sector necessarily appears to be an alien element within a market system that is founded on individual economic liberties.

(c) *Uniform Quality of Life*

In any case, in Europe the most important argument yesterday and today has been the view that living conditions should be uniform for all inhabitants. Telecommunication is viewed as a responsibility of the public infrastructure comparable to road construction. In the German language there is a

¹³ Cf. P. Badura, *Das Verwaltungsmonopol* (1963) 202; K. Knies, *Der Telegraph als Verkehrsmittel* (1857) 245; E. Schilly, "Nachrichtenwesen", in K. Jeserich, H. Pohl, G.C. von Unruh (eds), *Deutsche Verwaltungsgeschichte*, Vol. III (1984) 385, 386; K. Sautter, *Geschichte der Deutschen Post*, Part 3 (1951) 54, 209.

weasel-word for that: "Daseinsvorsorge" (care for existence). It is said that access to the same telecommunications services should be feasible everywhere and on equal terms. This is also called the principle of uniform rates throughout the area.¹⁴ Such views necessarily imply that rates cannot be cost-oriented in every sector. Internal cross-subsidizations between different groups of users occur. Worldwide, for instance, local communication is subsidized by long-distance communication. If such objectives are to be pursued, free competition would result in "cream skimming" and, in the long run, frustrate the stated objectives. The claim for uniformity of living conditions is of some political appeal in Europe. This is due to the fact that European countries are of relatively small size and are more densely and evenly populated than the United States.

There are several reasons to be skeptical about such a claim. First, depending on the approach this claim has some credibility, if any, in the basic sectors of telephone, telex and data transmission. It is hardly justifiable, however, in the sector of specialized services. Secondly, in many instances it is questionable whether the intended goals are really served by the instrument of granting a monopoly. In Germany, for example, 85% of the telephone lines are subscribed to by residential customers and they pay 55 % of the total revenue. It is possible that these residential subscribers, in sum, subsidize the commercial users. This is a result the proponents of "uniformity of living conditions" certainly did not want. Thirdly, the crucial question is whether the price paid for the extensive suppression of competition is going to be too high. This is all the more true since there are less restrictive means of attaining the stated goals. These means are oriented toward two principles. First, questions of distribution should be answered independently from the problems of allocation, wherever possible. Secondly, direct personal transfer payments are to be preferred to subsidizing faceless objects.

Coming from this point of view one could consider the following options¹⁵:

- The common carrier who is burdened with the responsibility for maintaining the infrastructure should get compensation from the treasury, for example, by way of tax privileges.
- Carriers who indulge in "cream skimming" should be enlisted to

14 Cf. K. Thomas, Th. Schnoering, "Regionalpolitische Aspekte beim Angebot von Telekommunikationsdiensten", (1985) *Jahrbuch der DBP* 551-557; H. Schoen, K.H. Neumann, "Mehrwertdienste in der ordnungspolitischen Diskussion" (1985) *Jahrbuch der DBP* 478-527; K.H. Neumann, "Das Prinzip der Tarifeinheit als Grundlage der Gebuehrenpolitik oeffentlicher Unternehmen", *Heft 1 der Reihe Diskussionsbeitraege zur Telekommunikationsforschung* (1983).

15 Cf. for these considerations G. Kineps, J. Mueller, C. Chr. von Weizaecker, *Die Rolle des Wettbewerbs im Fernmeldebereich* (1981) 86; G. Knieps, "Entstaatlichung und Wettbewerb im nationalen Telekommunikationsbereich", in R. Windisch (ed.), *Studien zur Privatisierung natuerlicher Monopole* (1987); C. Chr. von Weizaecker, "Free Entry into Telecommunications?" (1984) *Information Economics and Policy* 197-216.

contribute to the support of the infrastructure on a proportional basis. This could be effected, if necessary, by means of surcharges.

- The erstwhile monopoly and new entrants should be treated on a par by applying a system of graded sales taxation. Services that are defined to warrant aid should not be taxed, or could even be negatively taxed, while other services would be subject to the standard tax rate.
- One can imagine solutions such as “universal service funds” as they are realized in the United States.¹⁶
- Conceptually the most conclusive solution might be to give designated beneficiaries direct transfer payments from the treasury. That would guarantee that *only* those who need them, but at the same time *all* those who need them, receive such payments. Moreover, such transfers would have public visibility and would be financed according to the general requirements of just taxation such as, for instance, the requirement of the single taxpayer’s ability to pay.

(d) *Fiscal Policy*

Quite the same considerations arise if one seeks to justify regulation on grounds of fiscal policy. This gains importance when, as is common, mail services and telecommunications services are supplied by one firm and cross-subsidies take place. In Germany, for example, the mail sector, which includes the letter, parcel and postal newspaper services, is subsidized by the telecommunications sector with about two billion DM per year. This has the effect of a blind consumption tax to the detriment of telecommunication users. Typically no one knows precisely who lines whose pockets. Since 80% of the mail sector is used by business customers, it is quite possible that the residential customers subsidize the business sector in this respect also. The general public does not know much about that.

3. *Factual and Legal Constraints*

When discussing the deregulation question one must keep in mind, of course, some factual and legal constraints. The distinctions of size between the United States or Canada and the European countries or Japan have already been pointed out above. Some of the seven regional Bell Operating Companies (BOCs) that emerged from the divestiture of AT&T, for example, are of a size that quite exceeds the size of some European Post administrations.¹⁷ Further limits arise from political traditions. One example is the distinctly state-oriented concept that prevails in French economic policy. Variations in willingness to accept new techniques must be recognized as well. The Japanese attitude which appears to be quite euphoric in this respect is probably not shared in a good many European countries, amongst them Germany. The cut-back in regulation may furthermore be

¹⁶ Survey in NTIA note 10 *supra*, lifeline service at 40; high cost assistance fund at 45.

¹⁷ Details in B. Wieland, *Die Entflechtung des amerikanischen Fernmeldemonopols* (1985) 45.

impeded by the law. For example, the constitution of Germany states that the Bundespost is managed as a federal authority (Article 87 section 1 GG). It is disputed whether this rule regulates merely the competence between the federal government and the states, or whether this rule has some material meaning such that at least the central post (including telecommunication) sector has to be served by public administration.¹⁸ In any case, if far-reaching solutions such as total privatization of the public telecommunications sector are pursued, constitutional risks arise which the political forces hesitate to incur. Changing the constitution itself could be done only by a two-thirds vote. Difficulties may arise out of the civil service law regarding status of officials. One can try to offer a golden parachute. This, indeed, is not easy to do because, as a rule, the civil service in European countries, and especially in Germany, is not more poorly paid than a comparable profession in the private sector, unlike the situation in the United States. Within the EEC Member States, however, one can expect a positive impetus from the Treaty of Rome itself. Certain provisions of the Treaty set limits on economic activities of the Member States.¹⁹ The Treaty is possessed of a supranational constitution-like legal status and overrides any regulation at the State level.

4. *The Dimension of Transition*

Finally, the dimension of transition must be considered. The starting positions may be very different. On the other hand, deregulation does not necessarily require perfect and complete solutions,²⁰ it can be done step by step. In addition, all emerging problems need not be solved at the outset, for example questions of rate policy. In that case, however, it is important that the system remains adaptable and open to corrections.

III. DEVELOPMENTS IN CERTAIN COUNTRIES

Having come from this analytical background, it is useful to discuss developments within certain countries where the telecommunications sector is, or will be, deregulated.

1. *The United States of America*

It must be remembered that in the United States the starting position for facilitating more competition was in some respects worse than in many other

18 See P. Lerche, "Das Fernmeldemonopol — öffentlich-rechtlich gesehen" in E.J. Mestmaecker (ed.), *Kommunikation ohne Monopole* (1980) 139-159; J. Scherer, note 9 *supra*, 609; A. Hesse, *Die Verfassungsmaessigkeit des Fernmeldemonopols der Deutschen Bundespost* (1984) 44; P. Lerche, Ch. Graf von Pestalozza, *Die Deutsche Bundespost als Wettbewerber* (1985) 28.

19 Cf. II. 5 *infra*.

20 H. Schellhaass, U. Neumann, "Schrittweise Deregulierung eines natuerlichen Monopols — eine andere Betrachtungsweise" (1986) 36 *Wirtschaft und Wettbewerb* 196-201; against B. Wieland, "Probleme bei der schrittweisen Deregulierung eines natuerlichen Monopols — das Beispiel AT&T" (1985) 35 *Wirtschaft und Wettbewerb* 93-98.

countries.²¹ By this it is meant the fact that AT&T has always been, not only a common carrier and terminal equipment provider, but also through Western Electric, now designated AT&T Technologies, the largest manufacturer of telecommunication equipment in the USA. The effect of market foreclosure which resulted from this vertical integration was reduced substantially by the FCC's terminal equipment deregulation and separate subsidiary requirement in the Second Computer Inquiry,²² and further by the divestiture of the twenty-two Bell Operating Companies under the 1982 Modified Final Judgment.²³ Outside the United States however, Post administrations are rarely manufacturers so that some competition in the procurement market has existed for generations.

Network competition which has been made possible outside the 165 local access and transport areas²⁴ ('LATAs') has resulted in considerable reductions in long-distance rates. Certainly AT&T Communications continues to be the dominant provider of long-distance services, but the regional BOCs no longer have any reason to give preference to AT&T over other competing carriers. So far in other countries one can only dream of television spots like "You don't talk too much, you pay too much."

It is uncontested that the markets for customer premises equipment and for new services have experienced explosive growth. There is now more supply and better performance of the equipment. Prices have been reduced substantially. Numerous suppliers, including foreign ones, have entered the markets. It was certainly not deregulation alone that caused these developments, but it gave them a lasting impetus.²⁵ The subsidization of local calling by long-distance traffic has been reduced. The rates in the local sector are said to have increased by 21% on average, but they are still among the lowest in the world.²⁶ However, local rates are not yet totally calculated on the basis of real costs. The FCC's efforts in that direction brought

21 Cf. the references note 2 *supra*.

22 *Computer Inquiry I* and *Computer Inquiry II* were landmark FCC proceedings leading to regulatory distinctions between communications and information processing services. The purpose was to determine those services that should be subject to common carrier regulation: "Regulatory and Policy Problems Presented by the Independence of Computer and Communications Services and Facilities" 28 FCC 2d 291 (1970) (Tentative Decision); 28 FCC 2d 267 (1971) (Final Decision and Order), affirmed in part *sub nom. GTE Service Corp v. FCC* 474 F 2d 724 (2nd Cir. 1973), decision on remand, 40 FCC 2d 293 (1973). See generally Amendment of Section 64.702 of the Commission's Rules and Regulations (*Second Computer Inquiry*) 77 FCC 2d 384 (Final Decision), reconsideration 84 FCC 2d 50 (1980), further reconsideration 88 FCC 2d 512 (1981), affirmed *sub nom. Computer and Communications Industry Association v. FCC* 693 F 2d 198 (D.C. Cir. 1982), cert. denied, 461 US 938 (1983).

23 Agreement of 8 January 1982 between AT&T and the Department approved by US District Court Judge Harold H. Greene on 24 August 1982; see *United States v. AT&T Co.* 552 F Supp 131 (1982) (text of the decree), affirmed *sub nom. Maryland v. United States* 460 US 1001 (D.D.C. 1983); and *United States v. Western Electric Co.* 569 F Supp 990, 1057 (1983) (approving the plan of reorganization).

24 Geographic regions within which local exchange carriers (e.g. New York Telephone) may complete calls. Such carriers are not permitted to carry traffic between LATAs. Telephone calls may be either IntraLATA or InterLATA.

25 Details in NTIA Report note 10, *supra passim*.

26 Survey and discussion in NTIA Report note 10 *supra*, 37-47.

consumer lobbyists and small business champions into the Congressional arena. For this reason the FCC's proposal which was known as Pure II has been realized only in a considerably diluted form.²⁷ Most recent is the so-called deaveraging of tariffs. This means that the price of a connection is not only calculated on the basis of distance or time but, where appropriate, also on the basis of location. This precisely fits the logic of a competitive system. On the other hand, the new developments altered the easy life of monopoly service and caused some confusion. For example, some subscribers feared they would receive bills from several carriers, but this did not turn out to be the case unless they so chose. In case of faults there was no longer a single supplier responsible for all concerns, although this is now possible. Since these concerns came along with the increase in local rates, there was some displeasure among the public. Recent evidence indicates that these concerns have been overblown in the press and, in any event, are only transitory.

From the American experience it seems that constraints on fully effective competition exist in respect of the following aspects:

- The fact that, for political reasons, the rates are not wholly calculated on a cost basis, may cause economically "inefficient" market access or "uneconomic" bypassing. The reason for this is the stated half-heartedness.
- It appears ironic that the Modified Final Judgment (MJF) which freed AT&T to engage in virtually any business, at the same time requires the BOCs to return to the Court each time they wish to enter any business other than selling customer premises equipment and providing telecommunications services within their LATAs, and bars them completely from manufacturing and from offering information services. It should be noted that, under pressure from Congress, the government is reexamining this issue, with a report due early 1987.

Since a fundamental monopoly sector (regarding LATAs) is still acknowledged, there is a need to distinguish between regulated sectors and competitive sectors. If one considers the rapid development of telecommunications technology, such boundaries remain highly problematic as experience has shown. For example the boundaries established in the First and Second Computer Inquiries (regulated telecommunications services, non-regulated data processing services, hybrid services — basic services, enhanced services).²⁸ This would hardly change with the criteria adopted by the FCC in the recent Third Computer Inquiry where the structural separation requirements replaced with nonstructural safeguards, (that is the Open Network Architecture Plan to be filed by February 1, 1988).²⁹ But each

²⁷ Cf. NTIA Reportnote 10 *supra*, 43-47.

²⁸ Detailed discussion in U.S. Department of Commerce note 1 *supra*, 59.

²⁹ Amendment of Sections 64.702 of the Commission's Rules and Regulations (*Third Computer Inquiry*), Report and OrderCC Docket No. 85-229, FCC No. 86-252 (released 16 June 1986).

step in the process has broadened the areas open to competition and narrowed the scope of monopoly protection.

The use of economies of scope could well be inhibited by the structural safeguards that AT&T and the BOCs were subjected to under the Second Computer Inquiry. The disadvantages caused by the organization of American Bell, (now AT&T Information Services), as a separate entity, were estimated by the firm at \$1 billion per year. Yet this problem also appears to be only transitory. Many of the special restrictions imposed on AT&T were already waived in 1985, and alternative safeguards will be substituted for structural separation as a result of the Third Computer Inquiry.³⁰

According to certain sources, the established telephone carriers still effect a considerable deterrence on new entrants.³¹ Even if this is correct, it does not constitute a strong argument against a new beginning with less regulation and more chances for competition.

2. *Great Britain*

Great Britain is a fascinating example of liberalizing the telecommunications sector within a relatively short period and following a clear concept.³² The liberalization concerns a European type of Post administration, the British Post Office was a public enterprise under the responsibility of the Ministry of Trade and Industry. This policy was founded on three key elements:

- Separating the telecommunications sector and the postal sector. This was effected by the British Telecommunications Act 1981 and the postal sector which was in deficit at the time, is now profitable.
- Making competition possible in the sectors of network and terminal equipment as well as in services.
- Privatisation of British Telecom (BT) by the Telecommunications Act 1984.

At present common carriers need a licence from the Department of Trade and Industry (DTI). Apart from BT, Mercury is also such a carrier today. Until at least 1990 there are supposed to be no further facilities-based carriers. In the meantime, Mercury has constructed a fibre optics network which has the shape of an eight and connects the most important centres of Great Britain, in the south, London and Bristol, the intersection is in Birmingham and the northern loop embraces Liverpool, Leeds and Nottingham. The network is primarily directed to commercial customers. A 1985 agreement guarantees Mercury access to the wide-spread network of BT not on a prohibitive basis but under cost-oriented conditions. Both

30 Cf. U.S. Department of Commerce note 1 *supra*, 37-58 and note 29 *supra*.

31 Booz Allen and Hamilton Inc., *The Future Prospect of GTE Telenet* (1985).

32 Detailed description in A. Heuermann and K.H. Neumann, *Die Liberalisierung des britischen Telekommunikationsmarktes* (1985); cf. additionally N. Garnham "Telecommunications Policy in the United Kingdom" (1985) 7 *Media, Culture & Society* 7-29.

carriers are subject to the oversight of the Office of Telecommunications (OFTEL), newly organized in 1984 and chaired by the Director General of Telecommunications.

The market for terminal equipment has been widely liberalized. In 1981 standardization responsibility was withdrawn from the Post Office and transferred to an independent organization, the British Standards Institute. Approval of terminal equipment is no longer the responsibility of the common carrier but the responsibility of the independent "British Approval Board for Telecommunications". BT no longer has a monopoly in terminal equipment. Its remaining monopoly in the single subscriber telephone was eliminated in January 1985 after a good three years of debate. But BT is allowed to market all terminal equipment, without the separate subsidiary requirements of the American model. BT's investment in a Canadian manufacturing firm, Mitel, has just been approved by the British Government.

Formerly there were only three telecommunications services that private firms offered on a leased line basis (the booking system of the airline companies, the SWIFT system of the banks, and a switched data network between the universities). Today there exist more than 700 of them which are supplied by about 120 firms, even though the gross sales at present are probably only modest. Simple resale of a leased line is not allowed. This limitation was imposed in order to stifle cream skimming so long as the rates are not yet fully cost-oriented; it will be reconsidered in 1989. Such a system led to a distinction between simple resale and all Value Added Network Services similar to the American distinction between basic services and enhanced services.³³ But like the United States, Great Britain saw the advantages of narrowing the scope of monopoly, or duopoly, protection and now proposes to allow competition on a resale basis in all services except voice and telex.

The period of time is too short for a full analysis of the effects of liberalization in Great Britain. At any rate, the potential competition of Mercury has already effected a reduction of tariffs up to 20% in long-distance communication and up to 30% in international communication. It should be noted that BT has reduced the rates for certain main connections, in a move similar to the American deaveraging policy. This implies a renunciation of the principle of uniform rates. In contrast, the rates for local traffic have been increased by about 60% which is not surprising considering how low they had been. But that increase remained under the inflation rate. There has been a strong boom in customer premises equipment. Foreign producers have entered the British market as well. One can also see that BT, the former monopoly, is going to be more efficient regarding organization marketing,

³³ Basic service means the mere transport of messages from one place to another with the information remaining unchanged. An enhanced service must offer additional features or service attributes (*e.g.* storage, code or protocol conversion). Enhanced services remain without any regulation with regard to market entry and tariffs.

accounting, procurement, *etc.* A DTI official has put the central goal of British liberalization policy into these words: "We wanted to improve the competitiveness of our suppliers by employing the most appropriate means, competition itself." They seem to be well on their way.

3. Japan

The Japanese system of telecommunications was modelled on the European systems.³⁴ Nippon Telegraph and Telephone Public Corporation, (NTT), was a publicly owned entity with about 340,000 personnel, but it had already been separated from the postal service in 1952. While controlled by the Ministry of Posts and Telecommunications (MPT), it was granted comprehensive monopoly rights with respect to the public network and public services. But in contrast to most other telecommunication administrations, it owned large research facilities, the four Electrical Communication Laboratories (ECL) with currently some 3,000 scientists. For this reason, NTT had always exerted considerable influence on the technological developments of its industrial suppliers. International traffic was managed by Kokusai Denshin Denwa Company Limited (KDD), which was separated from NTT in 1953. By legal status KDD was a private firm, in fact, however, it was so heavily controlled that one could essentially classify it as a public entity. In the years 1971 through to 1973 and in 1982 some small steps toward liberalization took place, especially with regard to leased lines. Three laws, however, which came into force on April 1 1985, created a whole new basis for telecommunications in Japan. The Telecommunications Business Law governs the licensing of common carriers, service suppliers, and terminal equipment. The NTT Company law converted NTT into a private joint stock company and defines its tasks and the responsibilities of the MPT. For the time being, NTT's shares are owned by the government. But upon approval of the parliament two-thirds could be sold. The third law revises and adjusts certain existing laws so that they will be consistent with the new regulatory scheme.

These laws distinguish two kinds of telecommunication service suppliers. Type I Carriers are those that supply services over their own transmission networks. Type II Carriers are those that offer services over leased lines. The latter are further distinguished as Special Type II Carriers, who serve greater markets or act internationally, and General Type II Carriers, who are the remainder and embrace, in particular, the majority of the VAN firms. The system is intentionally not founded on the American distinction between basic and enhanced services.

Type I Carriers are more heavily regulated. In all cases the regulation is exercised by the MPT. Their market entry needs licensing; their rates have to

34 Cf. T. Mushasi, *Japanese Telecommunications Policy* (1984); Y. Ito, "Telecommunication and Industrial Policies in Japan: Recent Developments", in M. Snow (ed.), *Telecommunications Regulation and Deregulation in Industrialized Democracies* (1986); Y. Nishizawa "A middle way — the Japanese Example" Usercom 85 Paper, Munich (1985).

be approved. Furthermore, NTT is required to supply the whole country and foreign equity investment in NTT is not allowed. The other Type I Carriers may confine themselves to supplying only selected areas, and foreigners may have an equity position of up to one-third. Type II Carriers, on the other hand, are not subject to any substantial regulation. Market entry and rates are free (except in the case of simple resale of leased lines) and there are also no foreign capital restrictions in this area.

Apart from NTT, six other firms have been licensed as Type I Carriers. Three of them plan to build up terrestrial networks which are for the moment confined to the conurbation between Tokyo and Osaka, where 60% of the population is living. The Daini Denden group which comprises more than 200 Japanese firms wants to install a microwave network. The Japanese railroad company (Japan National Railways) is going to construct fibre optics connections along the high speed railroad of Shinkansen. The Teleway Japan, a joint venture of firms that are close to the Japanese Ministry of Road-construction, intends to do the same along the highways. On the other hand, the three satellite systems want to supply the whole country. The principal shareholders are large corporations of the Japanese electronics industry (Itoh, Mitsubishi, Sony). These new entrants, however, are still constructing facilities and they will not be able to start actual business until October 1986 at the earliest.

Some regulatory questions are still open. The network suppliers are entitled to access to the local circuits of NTT, but they have to pay access charges for it. Such access charges can cover not only the direct costs, but also imply a contribution to the public infrastructure responsibility of NTT. One can expect that overcharging for long-distance service, which is particularly extreme in Japan, will be reduced at the expense of local communication charges. The reduction of rates is estimated to be 50% for the Tokyo-Osaka line. One can hardly imagine how NTT will then be able to maintain the current uniformity of rates. Market entry into the international business, that is competition to KDD, seems to be less attractive at present. The main reason may be the fact that the volume of Japanese domestic traffic is twenty-three times the volume of foreign traffic. In any event, by far the higher growth rates are expected to be with the Type II Carriers, that is those who only supply services. At present fifteen firms or joint ventures, with Japanese electronics firms behind them, want to engage in the business of Special Type II Carriers. They intend to supply the entire country with intelligent data communications networks. Foreign, particularly American, firms also plan to enter the market (AT&T, IBM, General Electric, GTE Telenet). Among the General Type II Carriers some 180 suppliers have already commenced operations. In essence, these are the VAN services that have been open to small and medium-size firms since 1982. NTT, also, is expanding into this sector.

The market for terminal equipment has been liberalized almost completely. NTT has lost its monopoly in the first telephone set (the so-called primary instrument concept), but it is free to supply all such equipment

without restrictions. It is not expected that NTT will produce terminal equipment on its own in the near future, but it is making considerable investments in software development. Terminal equipment standards are no longer determined by NTT, this function has been transferred to the MPT. The equipment is licensed by an independent organization, the Japan Approvals Institute for Telecommunications Equipment (JATE). It checks only whether the equipment complies with the established standards to ensure that there are no harmful effects on the network or its personnel or users. It no longer checks whether the terminal equipment is compatible with others, relying instead on the competitive marketplace to ensure compatibility. One can hardly prognosticate how things will develop in detail. This is because some imponderable factors may be present between the legal framework and its practical handling in Japan. In sum, compared with the traditional structures, the Japanese development can probably be called an almost revolutionary step.

4. *The Netherlands*

An interesting variant of deregulation can be found in the Netherlands. The Dutch PTT is a publicly owned enterprise with about 100,000 employees. Under the protection of a broad monopoly umbrella, it supplies traditional mail services as well as telecommunication services. Reform efforts are firmly intended to preserve this rather small country's attractiveness for industry and service providers by means of increased deregulation. The so-called Steenbergen Commission which was appointed by the Dutch Government submitted its recommendations on July 1 1985, after twelve months of work.³⁵ They have since been approved by the Dutch cabinet and are expected to pass the parliament in the course of this year.

The Commission proposed that the PTT be converted into a private joint stock company. This promises greater independence and flexibility of the management even if 100% of the shares are held by the government. The corporation would act as holding company of three legally and economically independent subsidiaries (organized as closed corporations): a sector of public telecommunication, a sector of commercial telecommunication³⁶ and a sector of postal services such as delivery of letters and parcels.

Cross-subsidization between the individual sectors is to be prevented or, at least, severely inhibited by the creation of independent subsidiaries. The public telecommunications sector is to be run under an exclusive license for the provision of basic services such as telephone, telex, data transmission, and leased lines. This network exclusivity is rather pragmatically justified, and future modifications are possible.

The commercial telecommunication sector will be wholly liberalized. It

³⁵ See Netherlands Postal and Telecommunications Services, *PTT in Motion* (1985).

³⁶ However, the government plans to keep the telecommunications sector in one entity for a transitional period.

embraces supply, installation, and maintenance of all terminal equipment as well as the supply of any services on a leased line basis, except for simple resale. Here, free market entry and competition will prevail. The standardization and licensing of terminal equipment will be separated from the PTT's responsibility and assigned to a special office of the Ministry in charge of telecommunications.

With respect to the separation of functions within the traditional monopoly firm, this proposal goes beyond the British or the Japanese solution. On the other hand, it maintains exclusivity at the level of network carriers.

5. *The European Community*

At the level of the European Community one must distinguish a legal³⁷ and a political dimension. Article 37 (trade monopoly), article 90, article 85 *et seq* (antitrust provisions), and article 59 *et seq.* (freedom of services) of the Treaty of Rome set limits to economic activities of the Member States which have not yet been fathomed out in all details. Yet, it appears certain that monopolizing terminal equipment that is separated from the network at an interface violates article 37. The Deutsche Bundespost tried to do this with respect to the cordless telephone, equipment which it had not previously offered. It had to give in when the European Commission brought an action against the German Federal Government for violation of the Treaty. The situation is less clear, but the result is probably the same, regarding equipment that has interconnection functions, for example, modems³⁸, but which need not be monopolized in order to maintain the network service. At present there are proceedings against the German Federal Government in this respect. Here again, the Deutsche Bundespost will probably not let it go as far as a definite decision by the Commission or the European Court of Justice; rather it will try to reach a settlement.

Further limits arise out of the antitrust provisions. Here there is an important decision of the Commission (*In re British Telecom*) when it was still a public monopoly.³⁹ This decision was upheld by the European Court of Justice in its judgment of March 20 1985.⁴⁰ The case had its origins in the fact that it was much cheaper to transmit a telex from the United Kingdom to the United States than from the European Continent. For this reason private

37 Cf. A. Pappalardo, "Die Stellung der Fernmeldemonopole im EWG-Recht" in E.J. Mestmaecker note 18 *supra*, 201-217; V. Emmerich, "Nationale Postmonopole und Gemeinschaftsrecht" (1983) 18 *Europarecht* 216-226; J. Scherer note 9 *supra*, 397-402, 428; S.A. Wall, "The British Telecommunications Decision: Toward a New Telecommunications Policy in the Common Market" (1984) 25 *Harv Int'l L J* 299-328.

38 Modulator — demodulator, electronic device which transforms digital bits into analogue signal and vice versa. It allows computer communication over telephone lines.

39 Decision 82/861 of 10 December 1982, (1983) 1 CML Rep 457; cf. therefore J.A. Usher, "Telecommunications, public undertakings and the competition rules of the EEC" (1983) *J Bus L* 330-334.

40 *Italy v. EEC Commission* (Case 41/83), (1985) 2 CML Rep 368; Cf. R. Schulte-Braucks, "Das 'British-Telecom'-Urteil: Eckstein fuer ein europaeisches Fernmelderecht?" (1986) 36 *Wirtschaft und Wettbewerb* 202-215.

agencies arose in England which transferred telexes from the Continent to the United States via the British network. Then BT issued an order proscribing such rate arbitrage. The Commission as well as the Court held that this order was a misuse of a dominant market position prohibited by article 86.

Still unclear are the implications of the freedom of services provisions of article 59 *et seq.* These may become relevant particularly, if certain telecommunications services that are embraced by the DBP's monopoly in Germany, for example, are supplied in other Member States by private industry. One would have to ask whether monopolies with authority to compel or to limit interconnection are protected under article 90 section 2, even when this would result in a total suppression of any private service across the border. There is some evidence that such regulation is permitted only if it is truly indispensable to the performance of specific public utility tasks.

The political dimension embraces positive shaping by the Commission.⁴¹ It is particularly oriented toward two goals. First within the European Community a larger and more homogeneous market should be created. In the telecommunications sector no Member State represents more than 6% of the world market while the United States affords 35% and Japan 11%. Secondly, in the course of rapid developments in telecommunications, trade barriers, whether technological or regulatory, should not be created. In particular, the Commission supports international standardization efforts. Through recommendations to the Member States, it is trying to achieve coordination when ISDN will be implemented and a Europe-wide fibre optic cable will be installed. The efforts are also aimed at a Community-wide market in public procurements in this sector. Traditionally domestic firms have been favoured. In the long run the Commission seeks to achieve mutual recognition of terminal equipment approval.

6. *The Situation in Germany*

The Deutsche Bundespost (DBP) is a classic example of traditional European regulation of the telecommunications sector. As a publicly owned enterprise, it has a monopoly position in installing and operating the public networks for individual communication (analogue telecommunication network and Integrated Digital Network (IDN)) as well as for broadcast communication. It defines the standards and prerequisites for the interconnection of terminal equipment and carries out the certification. Regarding the markets for customer premises equipment, it has a monopoly in simple telephones and in modems for data transmission, which the DBP considers to perform primarily network termination functions. Finally, the DBP has a monopoly in maintaining telex equipment. In the remaining

⁴¹ See e.g. document COM (84) 217 as of 18 May 1984; thereto the statement IBM, *Die Entwicklung der Telekommunikation in Deutschland* (1985) 41.

equipment markets, the DBP competes with private suppliers, although it is not present in telex or teletex equipment or in most add-on features to the first telephone. In any case, however, the DBP is not a manufacturer.

The telephone service is still DBP's real source of income. The quality of the services offered is commonly said to be high, even if the DBP is more responsive to technical interests than it is to customer needs. Private VAN services are utterly underdeveloped; a few services exist for specific customers — the START network of the tourist business, the DATEV network of the tax consultants, the medical DIMDI network, and now private videotex services offered over the DBP Bildschirmtext network. The DBP rates are quite high by international comparison even if the difficulties of calculation are taken into account.⁴² The pricing is anything but cost-oriented, particularly for long-distance service.

The broad public, however, seems to be quite satisfied with the situation. A radical change in the existing structure is not a subject of discussion in Germany. The suppliers do not urge such changes either.⁴³ This is also true for American firms, at least for the ones that are well established in Germany, for example, SEL, a subsidiary of the American conglomerate ITT. To some degree, IBM is an exception. By and large the business users' criticism is rather restrained as well. It concentrates on more immediate problems, such as the fact that a private PBX is not allowed to install its own line but has to lease a line from the DBP when it crosses someone else's real estate. Stronger criticism can be heard in the academic sphere⁴⁴ as well as from the Monopoly Commission⁴⁵ and the experts committee in charge of assessing economic development.⁴⁶ Furthermore, the Federal Ministry of Trade and Commerce is urging reforms. This Ministry traditionally sees itself as the custodian of a free economic order.

The German Federal Government appointed a governmental commission for telecommunications in the summer of 1985. It is a pleasure and burden at the same time to be a member of this body. The commission is charged with formulating reform proposals. Its twelve members seem to have been selected according to a carefully balanced scheme of four politicians, three academics, one representative of the labour unions, with the remaining members representing producers and users. The report should be delivered in 1987. Whatever its content may be, it is questionable whether the legislators will find the strength to make incisive changes. One has to play the

42 See Siemens AG, *Study on National Telephone Tariffs Worldwide: A Detailed Comparison* (1985).

43 One of the reasons is the suspicion that IBM will gain a position of market domination in the telecommunications sector, and especially that it will enforce its proprietary standards worldwide.

44 Cf. especially E.J. Mestmaecker, "Fernmeldemonopol und Nachfragemacht — Wirtschaftsrechtliche und ordnungspolitische Probleme der hoheitlichen und unternehmerischen Funktionen der DBP", in E.J. Mestmaecker note 18 *supra*, 161-200; V. Emmerich, "Anmerkungen zu den Postfinanzen" (1984) 35 *Ordo* 43-69; V. Emmerich, "Postmonopole, Medienpolitik und Wettbewerbsfreiheit" (1984) 15 *Archiv fuer Presserecht* 11-17; H. Greiffenberg, "Das Postmonopol — Hindernis oder Chance fuer den technischen Fortschritt?" (1985) 36 *Ordo* 209-225.

45 See Monopolies Commission, *Die Rolle der Deutschen Bundespost im Fernmeldewesen* (1981) 189-190.

46 Jahresgutachten (Annual Report) 1985/86, Bundestag-Drucksache 10/4295 337-349.

part of a "libertarian" in this context. This occasionally results in frustrations. At some times consolation can be found in the American justices, one such example is Judge Learned Hand. In the 1943 antitrust proceedings against Associated Press he expresses a thought directed to the concept of a "marketplace of ideas". It might be considered in the telecommunications context as well — in the words of Judge Hand:

[i]t presupposes that right conclusions are more likely to be gathered out of a multitude of tongues, than through any kind of authoritative selection. To many this is, and always will be, folly; but we have staked upon it our all.⁴⁷

IV. CONCLUSION

In most countries telecommunication markets are governed by special statute. They are predominantly controlled by a state monopoly (the governmental approach), partly operated by private entities under industry-specific regulation (the regulatory approach). The question is increasingly being posed as to whether free competition would not be a suitable regulatory framework. This discussion was triggered off by revolutionary technical developments such as the new transmission means via satellites, microwaves, fibre optic cables, more efficient digital rather than analogue transmission, and a convergence of telecommunications, data processing and office automation. Moreover, the telecommunications industry is generally considered a key industry of the future. Permanent restrictions on competition could here in particular lead to obstacles to innovation, and in the long run put a question mark over the competitiveness of whole economies.

From an economic point of view, organization of the telecommunications is aimed at facilitating the provision of telecommunication services as inexpensively, reliably and varied as possible. The most appropriate means for this is usually competition. Exceptions are conceivable in the event of so-called market failure. Formerly this was widely held to be the case in the telecommunications sector as a natural monopoly. There is no basis for such a view today, as far as terminal equipment, services and, at the network level, long distance traffic are concerned. At most it can still claim a certain degree of plausibility in terms of local traffic, although there are also technical developments which increasingly facilitate competition such as bypassing, shared tenant services and cellular telephony. It is conceivable that a regulatory approach predefines needs in such a way that the most cost-effective supplier would be one enterprise. An example could be a universal broadband network based on fibre optics reaching every residential and business user. In such cases a natural monopoly is only achieved by "artificial" means. Regulation can be meaningful from an economic point of view in so far as it relates to the guaranteeing of compatibility

⁴⁷ *United States v. Associated Press* 52 F Supp 362, 372 (S.D.N.Y. 1943).

(standardization and observance of minimum quality). Regulation should achieve compatibility at lower transaction costs than the free market process. Regulation is only justified up to this point.

The circumstances change if non-economic grounds are brought into regulation. The most common aim is social, that is the universal availability of telecommunication services at affordable prices. A competitive system cannot guarantee this in every individual case, because the cost differences would have to affect the price. For example, in rural areas in the United States, there are telephone connections whose retention would necessitate a monthly charge of US\$1000. If one accepts such social aims, it is nevertheless advisable that the problem of income distribution be solved without interfering with market efficiency in terms of allocative and productive efficiency. One can think of solutions along the lines of universal service funds, or a life-line service such as have been realised in the United States. The most conclusive solution conceptually would be a direct transfer payment from the Treasury to the socially needy beneficiaries. This would guarantee that only the needy and at the same time all the needy, receive such transfers. Moreover, such payments would be openly transferred, and financed in accordance with the general requirements of just taxation.

The regulation policy content does not have to be the same everywhere. There are factual differences to be considered — differences of size for example, between the United States and individual European countries. In addition there are differences in political and social traditions, and in individual instances even legal constraints arising from constitutional provisions (for example in the Federal Republic of Germany). On the other hand, the legal situation can compel a deregulation policy (for example, at the level of the EEC treaty). Furthermore, the dimension of transition from a regulated order to a stronger competitive structure must be considered. Not all the problems arising as a result of this have to be solved at the very outset. In that case however, it is important that the system remains adaptable and open to correction.

The most practical application it would seem, of the deregulation concepts here, is outlined in the United States where long distance traffic, the services offered, as well as the terminal equipment markets were opened to competition. Only AT&T is subject to regulation from the FCC in long-distance traffic. With increasing competition, this will be further dismantled (Computer Inquiry III), however, important regulations remain in state law. The Bell Operating Companies are more strongly affected by these regulations which are justified by the continuing monopoly situation with telephone traffic within the individual LATAs. The limitations arising from the Modified Final Judgment of the divestiture of AT&T, affect AT&T only slightly, while on the other hand the BOCs are considerably affected. There is a material connection here with the above mentioned monopoly situations, local or regional, as the case may be. Tariff distortions enforced by regulation, such as they still exist in relation to local and long distance traffic, will be further dismantled.

The United Kingdom and Japan are examples of a far-reaching liberalization of the telecommunications sector within a short time span, and in accordance with a clear total concept. State monopoly enterprises (British Telecom and Nippon Telegraph and Telephone Public Corporation) were transformed into private legal organizations. Regulations in the area of terminal equipment and the services offered have been extensively abolished. Mercury, in Great Britain, have been admitted, for the time being as a competitor at the network level. In Japan, six groups are currently building competing public networks. In the Netherlands, the reforms suggested by the Steenbergen Commission are awaiting implementation: the Dutch PTT will be transformed into a joint stock company. Its activities will be carried out by three independent subsidiary companies: one public telecommunication sector, retaining the monopoly for the provision of basic services, such as telephone, telex, data transmission, and leased lines; one sector dealing with commercial telecommunications, will be wholly liberalized — it embraces supply, installation, and maintenance of all terminal equipment, as well as the supply of any services on a leased line basis. The standardization and licensing of terminal equipment will as has happened in the United Kingdom and Japan — be separated from the responsibility of the former state monopoly. In the Federal Republic of Germany a Government Commission has been given the task of developing proposals for the reform of the telecommunications sector. The report should be presented in 1987. It is expected that in the area of terminal equipment and services provided on a leased line basis, a total liberalization will follow. It is rather more doubtful as to whether competing market access on the network level will be permitted. If one were in earnest about the idea of competition in the area of telecommunications, this would be in itself a pre-requisite.

At the level of the EEC, individual provisions of the Treaty of Rome provide a stimulus towards deregulation as article 37 forbids the erection of new state trading monopolies making monopolization in the area of terminal equipment, for example, impossible. The anti-trust provisions of articles 85 and 86 of the EEC Treaty, are even more extensive. The implications of the provisions relating to freedom to provide services in accordance with article 59 *et seq.* are still unclear. The EEC's policy in the telecommunications area positively fashioned has two goals — first, within the EEC a bigger and more homogeneous market should be created; secondly, in the course of rapid developments in telecommunications, there should be no new trade barriers erected whether technical or regulatory.

The technical revolution in the telecommunications sector, referred to at the outset, encompasses all industrialized countries. It is remarkable the degree of conceptual agreement with which important industrial countries seek to transform their existing formerly monopolistic structures into a competitive system. On the basis of this investigation the problems associated with transition and organization appear soluble.