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Telecommunications in the European Internal Market

The completion of the European internal market by 1992 is one of the EC Commission's key objectives. European integration is to be given fresh impetus by removing remaining frontier controls and trade barriers, liberalising public procurement and limiting the number of sectors protected from competition, such as finance, transport and communications. The following article analyses the possible effects of the proposals concerning telecommunications equipment and services outlined in a Green Paper from the Commission.

As a rule, telecommunications markets are protected from competition;¹ the most important services are provided by monopolies in the shape of national telecommunications administrations or companies.² Traffic with neighbouring states and third countries is governed by bilateral or multilateral agreements that do not allow for international specialisation on the basis of individual companies' comparative advantages. Significant barriers to access to markets in telecommunications equipment (subscriber, transmission and public switching equipment) also stand in the way of an effective single European market in this domain.

Market imperfections in telecommunications services and the strategic and infrastructural importance of the telecommunications sector are often given as reasons for restrictive state regulation of the sector.³ The low level of international integration of the telecommunications equipment markets is due to restrictive policies on approvals, incompatible standards and product requirements specific to particular purchasers. Most exports of telecommunications equipment from EC countries go to countries outside the Community; the few imports to EC countries come mainly from the USA and Japan, because even the European multinational producers concentrate on producing largely for their respective domestic markets. The European internal market is still underdeveloped in this field.

Technical progress in the telecommunications and computer fields and the growth potential being generated by the coming-together of the regulated telecommunications and unregulated data processing sectors and by the increasing importance of "in-house" networks and value added networks (VAN) nevertheless call for a change in the existing market arrangements,⁴ which would permit greater European integration, at least in some parts of the sector.

The Commission's Proposals

The EC Commission's Green Paper⁵ calls for national reforms to be co-ordinated in order to eliminate the present fragmentation of the sector and realise the potential of a single European market. At present no EC country has as much as 5% of the world market in telecommunications equipment, while the USA has a significantly higher proportion owing to the size of its

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¹ Among the OECD countries the exceptions are the United Kingdom, the USA, Canada and Japan.

² See also James Foreman-Peck and Jürgen Müller (eds.): *European Telecommunications Organisations*, Nomos 1988; and *The Spectrum of Alternative Market Configurations in European Telecommunications*, Research Report by the DIW in co-operation with the Centre for Research in Public and Industrial Economics of the University of Newcastle upon Tyne, United Kingdom, for the Commission of the European Communities, the Deutsch-Englische Stiftung, Alcatel N.V. and the German Ministry for Research and Technology. Part 1 appeared as Jürgen Müller and James Foreman-Peck (eds.): *European Telecommunications Organisations*, Nomos, Baden-Baden 1988, and Part 2 as Jürgen Müller and James Foreman-Peck: *Liberalizing European Telecommunications*, Blackwells, 1988.

domestic market (see Table 1). It is unclear to what extent the potential of an integrated European internal market could reduce the present competitive advantages enjoyed by the USA and Japan, at least as regards economies of scale in the production of telecommunications equipment in those countries. The benefits of a single European market can also be substantial in the field of telecommunications services.

The Commission's proposals are based on the assumption that the existing institutional structures will remain, with national network operators retaining their dominant role. However, by moving step by step towards a competitive, open equipment market European equipment manufacturers would be given a market potential that would improve their performance in relation to that of their international competitors. At the same time, the users of telecommunications services would benefit from the larger market in that lower barriers to market access would allow the growth potential generated by the coming-together of telecommunications and data processing to develop.

The Commission therefore proposes the following changes in the organisation of the market:

- The market in telecommunications equipment should be gradually liberalised. By removing the remaining monopoly on the supply of terminal telecommunications equipment, the market in such equipment (including main connections (i.e. the first telephone set) and satellite receivers) is to be opened up completely to competition.
- At the same time, the markets in transmission and switching installations are to be liberalised by further opening up public procurement.
- The existing responsibility for the telecommunications network will not be affected, nor the legal monopoly for provision of what is currently the most important telecommunications services, voice telephone. However, other companies, including those

in other countries, are to be permitted to offer "non-reserved" additional services that go beyond this basic voice service.

□ In order to create a fair basis for competition between the network operators and other competitors in the markets for terminal equipment and "non-reserved" additional services, a clear distinction is to be made between territorial and operational functions in the forthcoming reorganisation of network operators. In order to prevent cross-subsidisation and attempts to squeeze out competitors via predatory pricing, Articles 85, 86 and 90 of the EEC Treaty are to be applied in full to additional services and the market in terminal equipment.

□ Tariff policies differ widely at present from one country to another (see Table 2). By moving tariffs closer to costs over the medium term, these differences in tariff structure could be reduced and restrictions on the usage of companies' internal networks connected to public networks would be made redundant. In this way, the existing technological potential of large-scale private "internal networks" could also be made accessible to small and medium-sized enterprises that still do not have their own private networks or are members of shared networks.

□ The Commission supports the creation of a European Institute for Telecommunications Standards in order to develop Community-wide standards.

Table 1
Telecommunications Equipment Market
in the EC, USA and Japan

	1984		1986 ^a	
	\$ billion	in %	\$ billion	in %
Belgium	0.7	1.0	0.8	0.9
Denmark	0.3	0.4	0.4	0.4
France	3.1	4.4	4.2	4.6
Ireland	0.1	0.1	0.1	0.1
Italy	1.4	2.0	1.7	1.9
Germany	2.9	4.1	3.6	3.9
Greece	0.2	0.3	0.2	0.2
Netherlands	0.6	0.8	0.6	0.7
Portugal	0.2	0.3	0.2 ^b	0.2
Spain	1.3	1.9	1.6	1.7
United Kingdom	3.3	4.7	4.1	4.5
(sub-total)	(14.0)	(20.0)	(17.5)	(19.1)
USA	26.4	37.7	34.5	37.8
Japan	6.8 ^c	9.7	7.9	8.6
(sub-total for EC, USA, Japan)	47.3	67.4	59.9	65.5
Worldwide	70.0	100.0	91.3	100.0

^a 1986 values at 1985 exchange rates. ^b 1984. ^c 1985.

Source: Arthur D. Little: WTIP, Datenbank.

³ See Manfred Horn, Günther Knieps and Jürgen Müller: Deregulierungsmaßnahmen in den USA und Schlußfolgerungen für die Bundesrepublik Deutschland, Nomos 1988, chapter 3.1.

⁴ See C. C. von Weizsäcker: The Economics of Valued Added Networks, manuscript 1987; A. Heuermann: Der Markt für Mehrwertdienste in der Bundesrepublik Deutschland, ordnungspolitische Diskussion, ökonomische Volumen, Perspektiven zur Förderung, WIK Diskussionsbeiträge zur Telekommunikationsforschung, No. 25, Bonn 1987; Jürgen Müller: Zur Neuordnung der Fernmeldemärkte, in: Wochenbericht des DIW, No. 37/87.

⁵ Towards a Dynamic European Economy, Green Paper on the Development of the Common Market for Telecom Services and Equipment, COM(87)29 final, Brussels 1987.

⁶ See Arthur D. Little: WTIP, Datenbank.

□ A uniform European negotiating position would be adopted in international negotiations, such as those under the auspices of the GATT or the International Telecommunications Union.

Possible Effects in the End-User Equipment Market

In 1986 the EC market in terminal telecommunications equipment accounted for between 20 and 25% of the world telecommunications equipment market of \$17.5 billion.⁶ In some Community countries, such as France, the United Kingdom, Belgium, Italy and Germany, the equipment market has already been liberalised to quite a high degree, so that only certain aspects, especially the market for the first telephone, would be affected by Community-wide terminal equipment liberalisation (see the Diagram). Tighter restrictions were in force in other countries, such as the Netherlands and Denmark, although increasing liberalisation has meanwhile taken place in both countries. Nevertheless, the implementation of the Commission's proposals can be expected to have a considerable impact because price-levels and pricing structure are likely to change significantly as a result of greater market access, simpler Community-wide approval procedures and the associated pressure of imports, especially from the USA, Japan and South-East Asia. A report on this aspect drawn up for the EC Commission estimates the maximum possible price

reduction on the basis of 1985 prices at between 15 and 25%, which would mean annual savings of around ECU 0.7 billion.⁷

Price reductions of this order would lead to a significant restructuring of the equipment manufacturing industry, mainly at the expense of small and medium-sized companies, which at present are still somewhat shielded from international competition by national procurement and authorisation policies. At the same time the fall in prices (and the more favourable attitudes towards innovation as well as a wider product spectrum) complete with the shorter amortisation periods (due to the faster pace of innovation) are likely to lead to an expansion in market volume.

Switching and Transmission Technology

Switching technology forms the most important market for the telecommunications equipment industry, accounting for up to 40% of the turnover of the total equipment market in the various countries. Modern, fully electronic switching systems are the core of a national switching network and the result of close co-operation between manufacturers and network operators. Considerable economies of scale can be achieved in the production of this type of equipment, primarily because of the high R and D costs of system development.

The opening-up of government procurement markets as proposed by the Commission and the intensification of efforts to standardise systems could strengthen the restructuring and rationalisation of national manufacturing capacity that is already taking place in this area. The number of European producers would

⁷ See Commission of the European Communities: Research on the "Cost of Non-Europe", Basic Findings, Volume 1, Basic Studies: Executive Summaries, chapter 10, Brussels 1988 ("Cecchini Report"), and Volume 4, chapter 10, The Benefits of Completing the Internal Market for Telecommunications Equipment and Services in the Community, Luxembourg 1988.

Table 2
Telephone Charges in the EC (1986): Comparison of Tariff Structures and Levels¹

Country	Connection charge	Standing charge private	business	Local call charge (LC) (3 mins.)	Trunk call charges up to 100 km (TC1)	maximum distance (TC2)	Inter-Community calls ² from	to	TC1 LC	TC2 LC
United Kingdom	150	9.00	14.02	0.21	0.56	0.56	1.94	2.12	2.7	2.7
Italy	161	4.48	11.54	0.20	1.62	1.72	2.92	2.16	8.1	8.6
Belgium	116	10.50	10.50	0.14	0.69	0.69	2.22	2.10	4.9	4.9
Ireland	235	11.20	15.10	0.14	1.26	1.26	2.88	2.30	9.0	9.0
Luxembourg	58	5.78	5.78	0.12	—	—	1.41	2.10	—	—
France	36	5.67	13.82	0.11	0.85	1.59	1.85	2.10	7.7	14.5
Germany	31	10.80	10.80	0.11	1.00	1.66	1.67	2.13	9.1	15.1
Denmark	189	9.88	9.88	0.10	0.36	0.36	1.31	2.31	3.6	3.6
Netherlands	97	9.81	9.81	0.06	0.26	0.36	1.75	2.09	4.3	4.3
Portugal	66	7.98	7.98	0.05	1.19	1.19	2.88	2.40	23.8	23.8
Greece	199	2.23	2.23	0.03	1.15	1.15	2.73	2.33	32.3	32.3
Spain	83	6.66	7.03	0.03	0.60	1.07	3.15	3.15	20.0	35.6

¹ In ECUs including VAT; in Germany, Ireland, the Netherlands and Luxembourg no VAT is charged on telephone bills. ² Average charges from one member country to the other EC countries and vice versa.

Source: Telefónica, Revista T., No. 16, October 1987.

decline further, while large American and Japanese manufacturers such as AT & T, Northern Telecom, NEC and Fujitsu could penetrate these markets. This stronger competition would lead to substantial price reductions in some areas. There is already greater international standardisation of transmission equipment, such as cable, amplifiers and radio installations, and some markets are subject to less restrictive procurement policies, so that the price reductions that can be expected are likely to be smaller than those for switching equipment. The same applies to the market in other telecommunications products.

Implications for Industrial Policy

The price effects that, according to estimates of the EC Commission, will result from having an effective internal market in telecommunications equipment are substantial,⁸ but these findings must be interpreted with care. They reflect not only the present difference between national prices and export prices but also the dynamic developments in this area that have already led to substantial price reductions in recent years. However, the present price differences are also an expression of an industrial policy in which domestic manufacturers were encouraged to increase their national R and D expenditure and to produce mainly with a view to the domestic market. Such a policy is not necessarily compatible with achieving an effective European internal market, especially if network operators also face increasing competition on the services side and must invest more sparingly.

For example, British Telecom has increasingly based its procurement policy on more competitive criteria after the authorities approved a competitor in telecommunications services (Mercury Communications).

Increased pressure was brought to bear on its traditional "court suppliers" by applying open tendering procedures and introducing a second (foreign) switching system into the BT-network. The Norwegian telecommunications authority was also able to reduce equipment prices substantially a few years ago by issuing an open international invitation to tender. Other network operators have now adopted similar policies anticipating the more open procurement policy of the EC. The restructuring of the telecommunications industry that such a policy entails must be handled carefully, however, to ensure that the regional distribution of the remaining suppliers is such that network operators and telecommunications users can continue to receive most of the necessary support nationally in terms of product and production knowhow.

Effects on Telecommunications Services

If one adds together the various effects on the equipment side resulting from European standardisation and keener price competition through the opening up of procurement markets, the network operators' production costs could fall by between 2 and 8%. If the reductions in costs are passed on in prices, telephone traffic will increase given the favourable price elasticity

⁸ In a study prepared for the Commission the possible reductions in prices for switching equipment for three Community countries are estimated at between 20 and 38%; see Commission of the European Communities, op. cit., Volume 1, chapter 3. These findings must be interpreted with caution, however. There are considerable quality differences between some switching systems, in some cases the findings relate to different technologies and configurations and in some countries the considerable R and D expenditure is explicitly reimbursed and is therefore not included in the final price. Comparisons with export prices are also problematic, since they are often based on price discrimination and marginal cost pricing which is seldom the case with procurement policies in the home market. See also T. Schnöring: Research and Development in Telecommunications – An International Comparison, WIK, Bad Honnef 1989.

Diagram

Competitive Conditions in the European Market in Terminal Telecommunications Equipment (1987)

	D	F	I	NL	B	L	Countries ⁴		UK	IRL	DK	GR	E	P
Main connection	e	m	e ¹	e	e	m	e	e	e	e	e	e	e	e
Extension connection	m	m	m ²	e	m	p	m	m	e	m	m	m	m	m
Carphone	p	m	m	e ³	e	p	m	m	m	o	m	o	m	o
Europaging	p	m	m	e	e	e	m	o	m	e	m	o	m	o
Modem	m	e	m	m	m	m	m	p	e	m	e	m	m	m
Telex terminal	p ²	m	e ¹	e	m	p	m	m	e	m	m	m	e	e
Teletext terminal	p	m	m	m	m	p	p	o	m	o	m	m	o	o
Videotext	m	m	m	m	p	p	m	m	m	o	m	o	m	o
Telefax machine	m	m	m	m	m	p	m	m	m	p	m	p	m	p

e Network operator monopoly; m Variety of suppliers; p private suppliers only; o Not available.

¹ Will be liberalised in 1989. ² Maintenance monopoly. ³ Including maritime radiotelephone. ⁴ Country symbols according to international car registration letters (e.g. D = Federal Republic of Germany).

Sources: Commission of the European Communities: Towards a Dynamic European Economy, Green Paper on the Development of the Common Market for Telecom Services and Equipment, Brussels 1987; DIW.

of demand.⁹ Since telecommunications networks have very high fixed costs and in some respects also enjoy scale advantages, such additional traffic can usually be handled at falling average costs. This trend can be accentuated by liberalising the terminal equipment market, since the availability of a wider product range and the decline in the cost of terminal equipment will also generate additional telecommunications traffic.

Bringing telecommunications charges closer to costs, as advocated by the Commission, can be expected to have a similar effect, though on a far larger scale. The resulting increase in charges for local calls and simultaneous reduction in those for trunk calls should stimulate the more price-elastic demand for trunk calls.⁹ The precise effects of such a reform of call charges are difficult to predict, however, since demand elasticities and network coverage differ between countries. British Telecom reformed its scale of charges relatively early in order to make it more difficult for Mercury Communications to gain a foothold in trunk traffic. Spain and Germany also plan similar reforms, although not to the same extent as in the United Kingdom. Increasing the charges for local calls, which generally do not cover costs, is politically unpopular, so that in the past network operators have preferred to use part of the profits from trunk calls to cross-subsidise local traffic. The macro-economic effects of such tariff reform would be considerable, however, since the more distant markets can now be reached at lower cost, thereby stimulating a further integration of markets.

Whereas the Commission has either reinterpreted existing directives or issued new regulations to facilitate open procurement and greater standardisation of telecommunications equipment,¹⁰ no such instruments are yet available in the services sector. Since such a policy can be implemented only with the agreement of the network operators, tariff reform is likely to run into major difficulties despite the substantial economic advantages.

"Non-reserved" Additional Services

The monopoly on the provision of services will continue to apply only to the "reserved" basic telephone services, as in the current reform of the Deutsche Bundespost. Over the long term the Commission would like to define such reserved basic services in a

restrictive way, so that as many services as possible will fall under the heading of "non-reserved" additional services that can also be provided by other suppliers, partly in competition with network operators. The Commission's proposal for a service directive and for easier network access through "open network provision" should encourage this development. The implementation of these two measures is highly controversial and is therefore likely to be delayed or less rigorous than envisaged in the proposal.¹¹

Given the problems of implementation, it is difficult to predict how the market in these additional services will develop. Since the existing tariff structure makes it necessary to protect revenue on lucrative routes from being creamed off by possible resellers (agencies), approvals for value added services at present generally contain provisions prohibiting resale or shared use by third parties. However, the increasing digitalisation of networks and the integration of services within the Integrated Services Digital Network (ISDN) means that pure voice communication is hardly distinguishable from other services, so that approval conditions are likely to become even more restrictive. Only a closer correlation between call charges and costs would make it possible to remove most of the restrictions that currently apply to the use of leased lines and the interconnection of private and public networks.

Outlook

The Commission's plan to achieve a European internal market in telecommunications and to implement the proposals contained in the Green Paper should produce considerable advantages for the Community, as shown by the studies carried out by the Commission. However, the advantages of greater rationalisation and a more rapid opening-up of markets have to be set against the costs of restructuring which differ at the national level. The losses in terms of jobs and technology basis that would result from changes in the present structure of national telecommunications industries after a significant liberalisation of markets, arouse considerable opposition while those who would benefit from this process, consumers and producers for whom telecommunications services are an important input, are much less outspoken. To promote these more long-term gains, the policies of the Commission should be supported despite the pain adjustment will cause.

⁹ The price elasticity for trunk calls has been estimated at between -0.4 and -0.6, for international calls at around -1, for transatlantic calls still higher; for local calls, however, it is between -0.1 and -0.3. Cf. J. Wenders: *The Economics of Telecommunications*, Ballinger, 1987, chapter 3.

¹⁰ Cf. "Commission frees Telephones Market", in: *Financial Times*, 21st May 1988.

¹¹ See COM(88)48 final, 9th February 1988: *Towards a Competitive Community-wide Telecommunications Market in 1992: Implementing the Green Paper on the Development of the Common Market for Telecommunication Services and Equipment*; COM(89)325 final, 10th August 1989: *Revised Proposal for a Council Directive on the Establishment of the Internal Market for Telecommunication Services through the Implementation of Open Network Provision*.