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INFORMATION COMPUTER COMMUNICATIONS POLICY

21

TRADE IN INFORMATION, COMPUTER AND COMMUNICATION SERVICES

OCDE
OECD

PARIS 1990

INFORMATION COMPUTER COMMUNICATIONS POLICY

21

TRADE IN INFORMATION, COMPUTER AND COMMUNICATION SERVICES

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Pursuant to article 1 of the Convention signed in Paris on 14th December 1960, and which came into force on 30th September 1961, the Organisation for Economic Co-operation and Development (OECD) shall promote policies designed:

- to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy;
- to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development; and
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These reports were prepared in the context of the Organisation's work on trade in services. They are exploratory in nature and drafted on the responsibility of the Secretariat, and were not aimed at soliciting agreement of Member countries. The first report was written by Mr. Dimitri Ypsilanti, who also directed the project, and the second report by Mr. Tim Kelly, both with the OECD's Directorate for Science, Technology and Industry. The authors wish to thank their colleagues in the Trade Directorate for their assistance in the preparation of these reports. The Committee on Information, Computer and Communications Policy recommended that these reports be made available to the public. This book is published on the responsibility of the Secretary–General.

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Part 1

TRADE IN TELECOMMUNICATION NETWORK-BASED SERVICES

I. INTRODUCTION

The OECD's Information, Computer and Communication Policy (ICCP) Committee's Working Party on Transborder Data Flows has over several years been considering issues related to trade in information, computer, and communication (ICC) services. In the context of cooperation on trade in services within the OECD the Working Party examined the relevance of the OECD's conceptual framework for trade in services[1]. The Working Party on Telecommunication and Information Services Policies has, since it was constituted in 1988, been continuing work in this area. As well, the Working Party has examined relevant contributions to this work: a paper submitted by the United States delegation (see reference cited in Annex), a statement by the Business Industry Advisory Committee to the OECD (BIAC) (see reference cited in Annex), and a paper from the Trade Committee on developing country concerns. In addition to the present paper it was also agreed to examine a separate paper on trade in software, computer services and computerised information services.

This paper, which is exploratory in nature, is aimed at supporting further discussions on concepts and issues. It is not intended to prejudge whether the telecommunications service sector will become part of these negotiations. In the event that the sector is included, it should help in giving preliminary consideration to whether specific sector provisions may be required, in addition to general provisions that may be applicable and to some of the practical considerations which may be necessary.

II. THE TELECOMMUNICATION SERVICE SECTOR

The definition and description of the telecommunication services market is complicated by changing service availabilities and different national definitions. The sector includes a large number of telecommunication services, each combining a set of functional characteristics which may serve to define a particular service. Telecommunication services are often differentiated as to whether they are basic or value–added/enhanced services. In such a breakdown basic services often include voice transmission, telegraphy and telex, but may also include other services or network functions depending on the country definition in question. Services which are not considered basic would then be considered as value–added. The categorisation of telecommunication services can be undertaken in a variety of different ways as illustrated in Table 1.

As well as services, the sector includes the underlying switching and transmission infrastructure used to supply services nationally and internationally, and dedicated equipment necessary for the provision of services.

Table 1. **A Categorisation of Telecommunication Services**

Voice	Data	Text
Voice Telephony — non-mobile — mobile — real time — store and forward	Public Services Private Services — Transmission — Provision • protocol conversion • encryption — Transactional Services • credit card verification • electronic data interchange • electronic funds transfer	Telex Telegraphy Facsimile Messaging — electronic mail

Mixed-mode	Broadcasting
— Videotex — Teletex — Managed Data Network Services — Other combinations of voice, data, image and text	— Satellite Services — Paging — Data Broadcasting — Teletext

An alternative Categorisation

Transportation	Telecommunication Services
Transaction	Telecommunication Services
Messaging	Telecommunication Services
Information	Telecommunication Services

1. Market Structures

Market structures for telecommunication services have been undergoing change in most Member countries, but more rapidly in some than in others. The differences that remain are important. For some countries facility competition is allowed, in some it is allowed on a limited basis, while in most countries it is restricted. The availability and conditions of use of leased circuits differ among countries.

Divergent telecommunication market structures in the OECD have arisen, because of different constitutional, legal and administrative structures, because of different rates of response to the potential for change offered by innovative combinations of existing and new telecommunication and computer technologies, and because of different perceptions as to the role of public services and network integrity at the national level, and as to how telecommunication services should be provided to users. Trade in telecommunication services requires, firstly, that competitive provision of such services is permitted and, second, that the service providers can obtain access to telecommunication networks (the distribution system), nationally and internationally. Such access must be sufficiently widely available to be meaningful. In turn, this demands some minimum degree of international coherence, though not necessarily uniformity, in national telecommunication frameworks. Divergent market entry possibilities in the

various service areas, resulting from disparate market structures would need to be progressively eliminated in the process of trade liberalisation.

The issue of market structures in telecommunications cannot be treated in isolation from the regulatory structure of the telecommunication sector and from how a trade framework would apply to such a structure. Trade in telecommunication services also requires by implication liberalisation in the conditions of use of the telecommunication infrastructure.

It is becoming widely recognized that telecommunications is an important sector in its own right as well as a sector facilitating trade and transactions in a number of other manufacturing and service activities. Because of its vertical and horizontal importance many analysts consider telecommunications as a key sector that must be covered in a trade in services agreement. The idea has been expressed that trade in telecommunication services discussions should be focused and not deal with the impact telecommunication services may have for trade in services in general. But a strong case can be made to show that certain telecommunication practices, procedures and regulations which relate to the terms and conditions under which users have access to and use of telecommunication networks have adverse effects on trade in other service areas and need to be taken into account in a trade framework.

Many of the actual or potential telecommunication services are related only by the fact that they rely on access to the telecommunications infrastructure, locally, nationally, and internationally for their efficient production and sale. Other services may be closely substitutable differing because of custom requirements of different user groups, or simply because of marketing reasons. In many cases competing technologies have emerged with the capability of providing similar services, but they coexist because they meet certain demand requirements, for example Centrex and private branch exchanges. Continuous technological enhancements are affecting a number of traditional services, including voice telephony, and are creating numerous opportunities in new areas, but exploitation is limited in many cases by market entry possibilities. The relative accessibility to networks using terminal equipment has tended to diminish the regulatory potential by making it difficult to distinguish between services and "unbundle" services and to differentiate carriage functions from application functions. Technological and economic factors have also altered the rationale in many cases for maintaining monopoly market structures putting to question the "reasonableness" of many regulations. The technological factor implies that it is preferable for a trade framework for telecommunication services to be based in so far as possible on general principles which are able to remain relevant to changing service characteristics, over a reasonable period of time.

At the international level there has been a movement over the last several years toward the creation of international competitive markets for a number of telecommunication services. A number of recent bilateral agreements have reflected this trend. Competitive market structures are, however, not yet the norm internationally.

The purpose of trade negotiations on the basis of a binding multilateral framework[2], still being elaborated in the Uruguay Round, is to open–up markets through progressive liberalisation and to allow providers to have access to foreign markets. The outcome should also allow users to have access to a choice of providers. As such negotiations, will have implications for future market structures at the national and international levels.

2. Network Developments

Given that many OECD Member countries have begun or will soon be introducing Integrated Services Digital Networks (ISDN) it may be necessary at some point to consider whether an ISDN structure alters the following analysis of issues with respect to access.

With ISDN there will be software in the terminal and network. Services will be characterised by the interworking of software packages. The definition of telecommunication services in the conventional way by CCITT will no longer be possible. ISDN standards allow for a common network/user interface and the integration of a number of diverse services (voice, data, image) into a single network. ISDN can encourage the competitive provision of services over the network, but may because of scale and scope economies encourage monopolistic, or oligopolistic, facility provision. There may be a temptation by public telecommunication operators to argue that in an ISDN environment there is no requirement for leased lines. However, users need to be able to make choices as to the best configuration of network facilities that meet their requirements[3].

ISDN standards have distinguished between *bearer services*, that is "a telecommunication service that provides for the transmission of signals between user–network interfaces" and *teleservices* which is "a telecommunication service that provides the complete capability for communication between users according to protocols established by the network operator or by agreement between network operators", and *supplementary service*. These distinctions are not however useful for determining which services should be supplied competitively or on a monopoly basis. This framework may have potential in simplifying requirements for new rules, but the implementation of a comprehensive ISDN international network is likely to span several decades. The implementation of ISDN makes it increasingly difficult to distinguish between different kinds of services (voice, data, image). It has been suggested that this development makes particularly compelling the argument that at most only the network infrastructure should be reserved. These developments may at some point in the future warrant revision of whatever agreement will be elaborated in the context of prevailing circumstances.

III. TELECOMMUNICATION REGULATIONS

1. National Regulations

The telecommunication service area is subject to a wide range of national regulations some of which may need to be revised to reflect the outcome of trade negotiations. They may be technical in purpose, may aim at replicating conditions of competition, or are aimed at ensuring that certain social goals or "public interest" considerations are being met.

Regulations to meet the broader telecommunication goals include, inter alia, provisions:

- to ensure the provision of universal telecommunication services, prevent network harm, ensure the security of telecommunication networks, and promote network interoperability;
- to maintain the provision of certain telecommunication services within regulated public or private monopoly structures;
- to organise the international provision of telecommunication services;
- to ensure the respect of privacy of citizens;
- to protect users of services;
- to protect national sovereignty and security.

In general the broad policy objectives for telecommunications across OECD countries are similar. The regulations used to achieve these goals may often differ, partly because regulations for a monopoly differ from the regulatory framework required in a competitive telecommunications market, partly because of national characteristics in the development of telecommunications structures. These regulations may, unintentionally or deliberately, limit the competitive provision of services and thus may prevent trade or create obstacles for unrestricted trade. The question that needs to be posed is if such regulations are always necessary and appropriate and, if so, whether they can be designed in such a way as to minimise market distortions. Clearly, where national goals differ, or where the balance between competing goals differ it will be more difficult to attain coherence between national regulatory structures for the purposes of meeting the goals of trade principles. At the same time there must be a willingness to adopt new approaches which, while attaining required goals, impose fewer restraints on private sector telecommunication network–based service providers.

On the whole recent changes in OECD national regulatory frameworks have been aimed at liberalising service provision. It may be necessary periodically to revise national regulatory frameworks to adapt to changing technologies, new services and the needs of customers, and in so doing avoid introducing more restrictive conditions or extend regulations to cover services or operations not previously covered in such a way that the provision of such services becomes more constrained. Such reviews will therefore be aimed at ensuring the continued functioning of the competitive environment. In view of the perspective that telecommunications services may be included as a sector for trade negotiations, the modalities of standstill as a starting point to the liberalisation process for the sector needs to be examined. Since the process of liberalisation in telecommunication services will still require regulation to ensure fair and non–discriminatory access conditions and interconnect arrangements, such an agreement needs to be based on a review procedure for new regulations and cannot be based on a prohibition placed on the introduction of any new regulations.

In many cases the objectives of telecommunication regulations are not clearly spelled–out and are therefore subject to loose interpretation. This is the case, for example, for the objective of universal service which has been used in a number of countries as the raison d'être for maintaining a monopoly structure in the supply of telephony. There are seldom specific statutes or administrative procedures which have been put in place to implement the concept so that its interpretation has been left open to telecommunication administrations. The analysis of perceived economic harm which may arise from more liberal entry conditions has also been left to these administrations. The concept that a monopoly structure is required to advance the goal of universal service is not accepted by all countries.

In considering the question of appropriate and non–appropriate regulations for telecommunication services it needs to be recognized that governments may wish to retain certain goals which may differ from those in other countries. However, in a trade framework, the implementation of these different goals would need to be progressively made consistent with the trade principles adopted.

2. International Telecommunication Regulations

At the international level, the extension of telecommunication services between two or more telecommunication administrations has been undertaken within the framework of the International Telecommunication Convention (ITC), its Regulations, and the Recommendations of the International Telegraph and Telephone Consultative Committee (CCITT) of the International Telecommunication Union (ITU). The requirement for network interconnectivity and the efficient technical and administrative provision of telecommunication services led to a consensus in basic principles for organizing the international provision of telecommunication services. This Convention has facilitated putting into effect the principle of universality for international telecommunication services.

The purposes of the International Telecommunication Union (ITU) are:

- "to maintain and extend international cooperation between all Members of the Union for the improvement and rational use of telecommunications of all kinds, as well as to promote and to offer technical assistance to developing countries in the field of telecommunications";
- "to promote the development of technical facilities and their most efficient operation with a view to improving the efficiency of telecommunication services, increasing their usefulness and making them, so far as possible, generally available to the public";
- "to harmonize the actions of nations in the attainment of these ends[4]".

The ITU has no direct responsibility for trade in telecommunications or issues related to liberalisation of telecommunication services. In that the ITU has a role related to the telecommunication transport function (including the framework for tariffication), the relationship between its mandate and any other agreement on international trade in services[5] needs to be clarified.

It has been stressed that liberalisation of telecommunication services should not be viewed as a threat to the cooperative provision of telecommunication transport services, to technical assistance provided to developing economies, or to measures aimed at promoting the development of telecommunication infrastructure in those countries.

The existing ITU framework is still broadly based on the traditional view, which was widely accepted throughout OECD countries, that telecommunication services were best offered on a monopoly basis because of arguments related to the economic characteristics of telecommunication services and socio–political and equity concerns. As well, the fact that this framework has been largely drawn–up by telecommunication administrations, reflects to a great extent the interests of these administrations[6].

The International Telecommunication Convention and the relevant regulations which have the status of an international treaty binding on governments, sets out the basic principles and framework for the international provision of telecommunication services.

The Regulations have over the last few years been under review by the Preparatory Committee of the World Administrative Telegraph and Telephone Conference (PC–WATTC) which had a mandate "to consider proposals for a new regulatory framework to cater for the new situation in the field of new telecommunication services[7]". The WATTC which met at the end of 1988 agreed on a new set of International Telecommunication Regulations to replace the 1973 Regulations. The Regulations apply to Telecommunication Administrations and Recognized Private Operating Agencies (RPOAs), as in the 1973 Regulations. The new Regulations will come into force on the 1st July 1990. They place emphasis on national sovereignty and the right of ITU members to grant or withhold authorisation for telecommunication services and to service providers within their own territories. The Regulations are concerned with telecommunication services offered to the public and the underlying means of transport. The Regulations also allow for special arrangements to be made between member states[8].

3. CCITT Recommendations

Detailed Recommendations, which are not binding, of the International Telegraph and Telephone Consultative Committee (CCITT) of the ITU play a significant role in providing the modalities for the international provision of telecommunication services[9] . The recently adopted International Telecommunication Regulations state (Article 1.4) that:

> "References to CCITT Recommendations and Instructions in these Regulations are not to be taken as giving to these Recommendations and Instructions the same legal status as the Regulations."

Analysis of national telecommunication regulations shows that for many OECD countries the policy framework is governed by CCITT Series Recommendations, and the Recommendations "tend to form a point of departure for national telecommunication regulations[10]". The D Series of Recommendations relate to the use of public switched networks and leased circuits, that is the conditions of access to and use of network functions, for example as regards leased circuit sharing, capacity resale and traffic resale. Many of these Recommendations have been aimed traditionally at constraining competition. To cite some examples:

- for tariffication purposes it is recommended that "the rates adopted should be such as to avoid harmful competition among different types of services[11]";
- for private leased circuits it is recommended that they "may be used only to exchange communications relating to the business of the customer[12]";
- for leased line interconnection it is recommended that "access to the public network may be allowed at one or the other terminals of the circuit, but not simultaneously at both terminals and is strictly limited to subscribers of the national public network in the country where the circuit terminates[13]";
- leased circuit facilities may be made available to "those organizations formed to meet the specialized international communication needs of their member only if such members have common interests and exercise the same activities in areas other than telecommunications[14]".

Restrictions are also applied to the formation of private networks using leased circuits, in particular to ensure that they carry traffic directly related to the customer's activities, are not used for traffic which would normally be carried over the public network and are not used to connect the public switched networks of two countries. CCITT Recommendations may influence the choice of network facilities and its use constraining the choices available to users in meeting their needs in the most efficient way[15].

The Recommendations provide a national framework for telecommunications policy in many countries although they are not always interpreted in the same way by telecommunication administrations. In the past, countries have preferred to adhere to these Recommendations at least insofar as relates to their international provisions. The bilateral international value–added network service agreements concluded recently by several OECD countries aimed at opening up the international provision of such services, are not compatible with existing Recommendations[16].

It is planned to begin a review of a number of CCITT D Series Recommendations in the near future. This could offer an opportunity to bring these Recommendations into line with thinking taking place at the Group of Negotiations on Services (GNS). However, because of the fact that Recommendations are non–binding, it would not be necessary to delay implementation of trade principles for telecommunication services to await such a revision.

4. Intelsat

Mention needs to be made of Intelsat, which owns and operates a global satellite system providing about two–thirds of world–wide overseas telecommunication traffic (and the majority of international television traffic) on a commercial basis[17]. The 1973 Intelsat Agreement[18] states that:

> "The purpose of Intelsat is to continue the development of the telecommunications satellite system with the view of achieving a single global commercial telecommunications satellite system as part of an improved global telecommunications network."

The Intelsat Agreement is usually with governments while an operating agreement is usually signed with designated telecommunication entities (the Signatories). Intelsat sells capacity to these Signatories who in turn sell to end users, that is, it is the carriers' carrier. The basic operating principles included in the Intelsat Agreements:

> "...are derived from the concept of a single cooperative global system. The capacity of the system is planned in a manner designed to achieve maximum economies of scale, on the basis of world–wide traffic forecasts provided by Members and all users. The single system permits, and the Agreements require, global interconnectivity, universal service to all who wish to use Intelsat capacity, and under the provisions of Article V of the Agreement, rate averaging between heavy, medium and thin routes to permit affordable access by all[19]".

Intelsat has argued that the establishment of private international telecommunication satellite systems, separate from the Intelsat system, would cause Intelsat significant economic harm from traffic diversion, requiring price increases and leading to revenue shortfalls[20]. Article XIV of the Intelsat Agreement establishes co–ordination

procedures whereby Member nations who wish to use separate satellite systems for international service need to provide the Intelsat Board with information to ensure technical compatibility and avoid significant economic harm[21]. Several such systems have been authorized.

IV. TECHNICAL PROBLEMS IN DEFINING BOUNDARIES

The following discussion is aimed at illustrating the difficulty and impracticability of taking an approach in trade negotiations for telecommunications which focuses on resolving definitional boundaries between service areas considered as basic and those considered as value–added.

One of the key issues, with which telecommunication policy–makers have been grappling for well over a decade, has been the question of defining so–called basic telecommunication services as separate from the new emerging service possibilities which add value to, or enhance, the basic service offerings. The issue has been above all a regulatory one. The intent has been to avoid extending regulations applicable to public telecommunication operators to other service providers or areas which have traditionally been unregulated, to define the services areas where services could be provided competitively without resulting in economic harm to basic telecommunication operators, and to set the conditions for carriers with a monopoly to supply services in markets which were open to competition. Traditional market structure in telecommunication services and other related areas (e.g. computer services, computerised information services) are being eroded and new market structures are emerging. Unstable market boundaries and technological change have made it difficult to consider the sector in a static framework. Even traditional services, such as voice telephony, are increasingly capable of being enhanced with new features defined by software or terminal equipment capabilities.

1. Differing National Definitions

The debate on the definitional issue began with the First Computer Inquiry in the United States in 1971 where the issue under examination was whether the provision of certain services by computers linked to communication lines constituted communication services or ordinary data processing services[22]. In most other OECD countries, although the debate on changing telecommunication market (and regulatory) structures began much later, consideration is being given to possible methods of demarcation between "basic" and "value–added network services". But, terms such as "enhanced services", "value–added network services", "value–added and data services", and "information services" are understood differently in a number of OECD countries. As well, the boundary line between 'basic' and 'value–added' services may have also have been determined in order to meet domestic regulatory objectives in a particular country, objectives which may often differ from country to country.

Certain countries, such as Japan and the United Kingdom which have opened up their markets to the competitive provision of telecommunication network–based

services, do not specifically define value–added[23] services. The UK has adopted the principle that anything that is not basic conveyance is value–added. A similar approach, which defines value–added services by exclusion is taken in several other countries[24] . Japan has adopted a facilities–based definition, and a similar approach may be taken by Canada. The Commission of the European Communities has proposed that the principle of exclusive or special rights for telecommunication administrations be maintained for the provision of a limited number of services. These "reserved services", it has been suggested would encompass at least public voice telephone services[25] (offered on a real time basis). All other services, that is non–reserved or competitive services, irrespective of whether they are provided to third–parties, are shared between users, or are intended for internal use only, can be offered without restriction. As recognized in the EEC's proposals the "reserved service" approach, although facilitating the demarcation between basic and value–added services, still results in a boundary question in that in a dynamic context the functional contours of the means of providing the reserved services will change, and these reserved services will therefore require periodic review in order to determine whether there are grounds for maintaining such services as reserved. Clarification of where monopoly services end and competitive services begin is also important from the point of view of limiting encroachment by a monopoly into new service areas which would reduce market entry opportunities.

Generalising the debate on basic/VANS definitions across OECD countries leads to the more general conclusion that there is a wide variety of different ways to find regulatory solutions to distinguish between which services should be open to competition and which should remain under monopoly control. For example, it has been suggested that a differentiation can be made:

- between basic services and services referred to as value–added (on the basis of technical criteria);
- between universal services and specific services (using socio–professional criteria);
- between "reserved" and "non–reserved" services (on the basis of regulatory criteria).

Proposals to differentiate services on the basis of those which have public service criteria attached to them (universal services) and those services not intended to be offered to all users, may not be feasible internationally as demonstrated by the problems ITU members encountered at the WATTC. In some countries services such as videotex are viewed as a public service, in others as a service that will develop on the basis of market forces and therefore will not, at least initially, be offered on a nation–wide basis subject to universal service criteria. As well, some countries consider that once a certain service becomes widely available and used, such a service may come to be considered as an "universal service" resulting in the need to impose certain obligations on the service provider, particularly as regards standardisation. Other countries consider that the imposition of such obligations would be unwarranted and that the operation of the marketplace would ensure the availability of such services. In the event that obligations are imposed on existing (or new) entrants, they would need to be consistent with commitments under a GATT agreement.

Consistent results may be obtained if there can be agreement on those telecommunication facilities and services that are subject to monopoly or strictly limited entry conditions, and those which may be offered competitively. Essentially this is the aim

of the European Community as regards its twelve member countries. As well, the different approaches which have been taken by several countries which have liberalised their telecommunication markets have not prevented these countries from entering into bilateral agreements for international value–added network services, as there was a broad consistency between them.

2. International Definitions

There are no agreed international definitions for "value–added network services", "information services", or "enhanced services". Within the International Telegraph and Telephone Consultative Committee (CCITT) of the International Telecommunication Union (ITU), experts in study Group I given the mandate to define telecommunication services found little common agreement on how to distinguish between categories of existing and emerging telecommunication services[26].

The recently adopted International Telecommunication Regulations do not make a distinction between basic and value–added services, but do refer to "international telecommunication services offered to the public as well as to the underlying international transport means used to provide such services[27]".

It needs to be recognized that even in the context of the International Telecommunication Union the standard definition for telecommunication services is very broad :

> "Any transmission, emission or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems[28]."

Recent work for the ICCP Committee has used the term telecommunication network–based services (TNS) to provide a common analytical framework for international comparison and policy discussion and to "dispel the notion that there is an unchanging set of services that can be characterised as 'value–added' in contrast to another set of non–'value–added' services[29]" and to analyze questions related to market access. TNS can include all services that combine information production, manipulation, storage facilities and software functions:

> "The concept includes all services which are being modified by continuous technical change. The TNS concept is flexible and dynamic. It reflects technological change and the shifting boundaries of traditional industries involved in the supply of TNS. It includes existing, and admits future, services and it ignores boundaries implied by 'value– added' service definitions[30]."

TNS can be based on circuit, packet, message switched or leased circuit networks. TNS can be provided by public telecommunication operators, information service vendors, closed–user groups and private intra–firm information transfer and/or services. **The concept is important to ensure that discussions are taking place within a common nomenclature.** The term is used here without prejudging services which may be made subject to trade liberalisation commitments, as discussed under section V.

V. POSSIBLE APPROACH FOR SCOPE OF THE NEGOTIATIONS

For purposes of discussing trade liberalisation it is necessary to clarify the area of application of the trade concepts (although coverage may well be the end result of

negotiations rather than the starting point). Two approaches could be taken: the first would be to list those services which would be subject to competition trade principles (the positive list approach), and the second to list those services which would be exempt from such principles (the negative list approach). At this stage it may be premature to judge which approach, or combination of approaches may be retained.

However, there are a number of arguments for a negative list approach. For telecommunication services the different service categorisations are insufficiently precise, as suggested above, for negotiations to focus on individual services[31]. As well, a strategy which attempted to negotiate on a service by service basis would be misplaced in a sector where technology is continuously altering the contour of potential service offerings and where the regulatory base is important in defining the emergence of services. Negotiations on the liberalisation of trade in telecommunication services will need to target a wide-ranging sector (rather than individual service activities). It is therefore suggested that coverage of liberalisation will be determined by the process of reserving services, the provision of which are not subject to competition principles. All services which are not on the reserved list would be subject to competition principles.

Exclusion of services implies that the provision of such services are not subject to liberalisation measures, but access to and use of such services will be subject to certain commitments. There also needs to be agreement that reserved services will be re-examined in the future to determine whether technological, economic, social or other factors have changed initial conditions having justified reasons reserving these services from liberalisation.

It is likely that a number of countries would propose for exclusion a number of telecommunication services often referred to as basic services, but there still may need to be agreement as to what the functional characteristics of these services are. One delegation has proposed that all telecommunication network-based services should become subject to trade liberalisation with the exception of real-time voice telephony.

In addition to services the telecommunications sector also includes the network infrastructure consisting of transmission and switching equipment. Consideration needs also to be given in negotiations to liberalise trade in telecommunication network-based services as to whether, and which, network infrastructures, or certain specialized infrastructures, should be included. As discussed below, it would appear that for a number of reasons countries would be reluctant to allow as a general rule liberalisation in the construction and operation of network infrastructure, although exemptions may be made for a number of specialized infrastructures. As in the case of reserved services, access to and use of infrastructures need to be covered by obligations under a trade agreement.

The need for reserved services and the telecommunications infrastructure to be covered by certain obligations is to ensure that there is effective market access. The emergence of international telecommunication network-based services is dependent on the ability of potential service providers to offer a number of functions on telecommunication networks which together may constitute a particular service. The offering of these functions (e.g. protocol conversion, data encryption, data treatment, data management, systems management, etc.) depends on *access* to network facilities and the *use* that can be made of such facilities. Therefore, negotiations on the liberalization of trade in telecommunication network-based services must also encompass *functional* and *regulatory* aspects of telecommunications.

For many providers of services (or goods) access to intra–corporate data is important for provision of end services. Therefore, facilitating such intra–corporate flows is important for the process of liberalisation of trade in goods and services. It needs, however, to be recognized that it is difficult to distinguish between marketed services traded on–line and non–commercial intra–corporate flows. Reference may be made here to wording used in the Canada–US Free Trade Agreement:

> "The inclusion of intra–corporate communications in this Sectoral Annex shall not be construed to indicate whether or not such communications are traded internationally. The inclusion is to indicate that they may serve to facilitate trade in goods and services[32]."

Liberalisation of the international provision of telecommunication network–based services should in any event facilitate intra–corporate flows.

VI. TRADE IN SERVICES CONCEPTS

1. Market Access

The central goal for trade in telecommunication network–based services is market access. Market access means that firms have the opportunity to provide and sell services in a competitive environment. It can be viewed from several perspectives, which are interlinked:

- access to networks;
- other access to markets issues;
- infrastructure.

Market access for telecommunication network–based services includes cross–border delivery of services, which implies the right of non–establishment, and the right to interconnect. Market access also may require commercial presence, right of establishment, and investment. The right to interconnect may be considered specific to this sector and requiring sectoral annotations to the services framework.

1.1 *Access to Networks*[33]

A number of OECD countries have in recent years changed policy frameworks for telecommunications which have permitted more flexible use of networks by service providers and end–users. However, the degree of change has been widely different and important differences still exist as to which services may be provided by private service providers.

The right and ability to interconnect for international providers of the telecommunication network infrastructure is a key element for providers and users of telecommunication network–based services. Many countries have regulations in place to ensure right of access requiring the carriers to satisfy interconnection demands. Such access includes fair and equitable terms for interconnection to public networks, the provision of leased lines by telecommunication administrations, and the right to

connect equipment which meet criteria of no harm to technical facilities and personnel. The right to interconnect internationally may in this instance be construed as equivalent to a principle of non–establishment.

International Rules on Network Access?

Access should not be construed as being limited to the provision of services using public switched networks. Access depends on a range of telecommunication options being made available including:

- interconnection of private to public networks;
- leased circuit availability, their price and quality;
- shared use of leased circuits;
- interconnection of leased circuits to the switched network.
- resale of transmission capacity[34];

Regulatory history in the United States has shown that the issue of fair and equitable access is not simple. The concepts of Comparably Efficient Interconnection and Open Network Architecture (ONA) are the basis of such access. In the context of the European Commission's Green Paper a similar concept of Open Network Provision (ONP) has been proposed and is in the process of discussion and elaboration among Community Members[35].

The concept of ONA is viewed as:

"the overall design of a carriers' basic network facilities and the services to permit all users of the basic network, including the enhanced service operations of the carrier and its competitors to interconnect to specific basic network functions and interfaces on an unbundled and "equal access basis[36]".

The principle behind ONA is to make basic service elements within the public telephone network available on a non–discriminatory basis to information service providers. It is an interconnection concept designed to offer equal access to the telephone network, and as such offers a set of economic, technical and regulatory arrangements.

In the case of the European Community it is proposed that conditions relative to Open Network Provision should apply progressively to networks (including leased lines, ISDN) and basic switched services (voice telephony, circuit switched data services, packet switched data services, mobile services, etc.). Open Network Provision will be based on certain fundamental principles[37]:

- conditions must guarantee equal access and must be non–discriminatory;
- conditions must be transparent and published in an appropriate way;
- conditions must not impose restrictions on the use of public networks, except those which may result from the exercise of special rights;
- conditions will be subject to meeting "essential requirements" such as network security, network integrity, interoperability of services where necessary, and data protection where required.

The three areas to be addressed by ONP include:

- technical interfaces;
- usage and supply conditions;
- tariff principles.

The rationale for ONP is therefore to promote commonality and standardisation within member states for a range of interfaces and access arrangements which would

apply to dominant operators. The concept "open" refers to "well-defined and published conditions of supply and usage for the services offered at the network termination point [38]".

The proposal for technical interfaces is to use international standards where available (see the subsection on technical standards). Supply conditions would include availability and quality of service criteria, usage conditions would determine conditions of shared use, third party traffic use and interconnection criteria. Tariff principles under ONP would include the idea that cost-orientation must be the basis of tariffs, that tariffs must be published on a regular basis and must be applied to all users in a non-discriminatory way. A specific application of ONP concepts concerns leased lines where a code of procedures is being proposed by the EEC which would cover the maximum delivery periods for obtaining lines, quality of service, maintenance and fault repairing, conditions for resale of capacity, conditions for shared use, conditions for 3rd party use and conditions for the interconnection of public and private networks.

The above concepts are aimed at the national level, and regional level in the case of the European Community, at providing certain criteria which could be used to create a level playing field allowing monopoly service suppliers to compete fairly in open and unregulated markets and allowing competitive service providers access to facilities of the infrastructure supplier in order to supply their services and use facilities on a non-discriminatory basis. The issue of technical interfaces and tariffication are discussed below. As technologies change, and as market structures and market shares alter, a review of existing regulatory conditions and constraints need to be undertaken. The review procedure is being used in several countries where important changes have been made in telecommunication structures[39].

The concepts aimed at implementing principles of access to networks and reserved services are fundamentally in accord with principles under consideration for a trade in services framework. It may, however, be appropriate to consider a specific sector framework for international network access to supplement and qualify the general principles which may be agreed on in a trade in services framework.

1.2 *Other Issues Related to Access to Markets*

Access to markets is linked with access to networks including, as explained below, the availability of capacity, equipment attachment, etc. Access to markets is concerned with the types of service that can be made available and to the way in which a firm wants to deliver such services. Even though a number of basic services may be reserved under monopoly operation this should not constrain service providers in their ability to access and choose from the array of different network transport facilities.

Establishment

The nature of telecommunication services implies that establishment may not be needed for market access. A firm, however, may consider that it needs establishment in order to offer a service on a competitive basis, to provide support services or because of differences in national business practices, language and cultural differences. Establishment of foreign service firms should be allowed for effective market access. The choice of the preferred means of providing the service should remain as far as possible with the firm.

Some countries believe that under certain circumstances it can be envisaged that some form of establishment will be necessary to meet the requirement of government regulations. In such cases it may be appropriate to determine if *presence*, for example through an agent, is sufficient. In many cases the provision of services requires licensing from national authorities. It should be possible to provide licenses without requiring establishment or presence, given that the license specifies the terms and conditions under which the service is provided, and assuming that there can be some assurance that national regulatory requirements will be complied with.

With regard to services which can be provided competitively internationally it is important that any national licensing, registration or approval procedures which exist conform to the various trade concepts (national treatment, transparency, non–discrimination). Some countries do not believe that licensing is appropriate for competitive services.

Another issue of access related to establishment, which may need consideration, concerns differences in national regulations for on–site wiring and local area networks. These differences are often based on different national definitions on where the network ends, that is, at the user interface or at the building.

Homologation and Type Approval

The question of access to markets cannot in many cases be separated from the issue of attaching equipment to the network by providers of TNS or by users (this issue is related to technical standards discussed below). It is therefore important that in the context of negotiations on trade in telecommunication services equipment homologation is considered simultaneously and not separately within the context of the GATT negotiations[40].

1.3 *Infrastructure: Construction and Operation*

For most OECD countries facilities competition is explicitly prohibited either through legislation, administrative decrees or under terms of concessions. Such provisions are usually aimed at granting monopoly power to construct and operate telecommunication installations to a sole entity. In some cases exceptions may be made either by the relevant Ministry, but often by the facility owner/operator. Facilities competition is only permitted in a few OECD countries and only in a few cases throughout the whole network (Japan, United Kingdom). The United States permits facilities competition for all interstate services. Foreign ownership of domestic facilities is prohibited or limited in almost all OECD countries[41]. Some countries argue that there are technical, economic and security reasons for maintaining network integrity, which would require the maintenance of state control over the network. Such arguments should not affect access to the provision of network infrastructure. However, because of the above reasons it is likely that countries may reserve investment and operation in infrastructure from the application of competition principles.

Most countries usually grant facility owners/operators a monopoly over the provision of the telecommunication network infrastructure. Such operators usually implement a number of regulations which limit the competitive provision of telecommunication network–based services. Such regulations include restrictions on interconnection

of private facilities to public facilities, restrictions regarding the customer base which can be interconnected, and on the availability and conditions governing leased lines. Criteria for what constitutes a public telecommunication operator may differ[42] between countries. In those countries which have liberalised telecommunication market structures special regulatory provisions are maintained for public operators.

There is a need to differentiate between a number of network facilities, which need not necessarily be provided on the basis of separate networks. These include, inter alia, local public switched telecommunication networks (PSTN), long–distance PSTN, telex network, public switched data network, packet switched data network, mobile telephone network, satellite facilities, and integrated services digital networks.

In examining the question of whether negotiations could encompass liberalisation in constructing and operating infrastructure, it needs to be understood that many service offerings are closely related to the infrastructure (transmission and switching), a factor which is increasing in view of the increased intelligence being incorporated in network switches. Central switches can perform a large number of services (protocol conversion, data processing, information storage and retrieval) which could be offered efficiently and technically integrated with basic service offerings, but which may not be construed in certain countries as rendering them as basic services. If facilities are considered as being limited to transmission then certain services can be considered separately from the infrastructure. Thus the suggestion that only the underlying transport (transmission) structure should be regulated could be further explored[43]. An extension of this argument would imply that the ITU maintain its essential role over technical, administrative and transactional formalities between common carriers or public telecommunication operators regarding the underlying means of telecommunication transport functions, while rules covering service providers come under any ultimate agreements which may be attained in the context of service negotiations. However, some countries view the foregoing ideas as premature.

At present national differences exist with regard to liberalisation in providing competing telecommunication facilities in different OECD countries. In a multilateral approach this would result in a problem in that countries whose nationals can invest in those countries which permit facilities competition do not necessarily offer reciprocal opportunities to the latter[44].

It is important that new facility–owners and operators, from countries which have allowed facilities competition for "basic" telecommunication services, are provided with gateway access to the networks of other countries on the same terms and conditions as their national competitors. This implies that operating agreements between two countries must be drafted so as to prevent a monopoly telecommunication administration from exploiting its monopoly position[45]. This could result from a monopoly telecommunication administration dealing with competitive carriers from another country trying to obtain favourable terms for itself, by for example, an implicit or explicit threat to re–allocate traffic or by the fact that it can decide whether or not to enter into an operating agreement.

It has been suggested, although there is disagreement on this point, that there may be a need to impose operational performance requirements on private network facilities operating internationally. A priori there would appear to be no need to regulate such undertakings unless there was sufficient evidence that they do not comply with trade commitments.

1.4 *Responsibilities of Monopoly Facility Operators*

Monopoly facility providers are in an unique position in that they are able to offer telecommunication transport services to themselves for a range of telecommunication network–based services, and to other users of transport services. There need to be requirements to ensure that if they are in a monopoly position they are not able to abuse this position by discriminating against other users.

Monopoly facility operators are also in a position to provide or deny access to leased circuits. This is in particular the case at present in many countries where operating and regulatory functions have not been separated[46]. Access in terms of facility infrastructure is linked with access to markets, and must be viewed in the context of the requirements of telecommunication network–based service firms to provide services to third parties[47], for firms to meet their infrastructural needs for internal purposes, or for specialised groupings which require their own networks to function effectively.

Access to networks also requires that a dominant or monopoly carrier makes adequate facilities available to other carriers and service providers (international, toll, and local). This imposes certain obligations on the dominant carrier regarding investment in infrastructure. For example, in Japan the Ministry of Posts and Telecommunications has requested NTT to replace analogue switches with digital in order to allow competing new common carriers to expand their operations. Similarly, in the United Kingdom an Arbitration panel has ruled that BT was not using its best endeavours to deliver interconnection capacity to Mercury. Internationally such constraints can forestall competition and trade.

The foregoing implies that facility operators need to submit to certain obligations within a framework for trade in services (see subsection on Service Monopolies).

1.5 *Satellite Facilities*

Increased international competition in telecommunications must consider satellite facilities. Such competition has been limited because of Intelsat. However, Intelsat is being challenged by the build–up of fibre–optic capacity across the North Atlantic and the Pacific. As well, changes in national policies such as the withdrawal in the United States of "balanced loading" requirements in March 1988 have increased facility competition internationally[48]. Competitive pressures from private satellite communications service suppliers who want to enter international markets have been quite strong in the United States[49]. Many Intelsat signatories, particularly from Europe are investing heavily in transatlantic fibre optic cables which will also increase economic pressure on Intelsat as traffic is diverted on these cables.

The issue of reforming Intelsat and addressing its pricing and marketing policies is closely tied with the issue of meeting developing country concerns given that the Intelsat price structure is based on international geographic route averaging which benefits thin traffic regions, that is mainly developing country regions[50]. However, some countries which have altered domestic telecommunication market structures are finding themselves in a position of supporting an international satellite communications market structure which is incompatible with domestic philosophies and market structures. Intelsat has in the past proposed signing multiple agreements with a number of national carriers, which may assist in reducing the bottleneck monopoly held by signatories[51] .

It is technically possible using, for example, Very Small Aperture Terminal earth stations to bypass terrestial facilities (including the local loop) and provide end–to–end service. Satellites can therefore offer alternative modal competition for a number of telecommunication services. In some countries satellites are considered as forming an integral part of network infrastructure and the provision of satellite links is subject to the same rules as terrestial links.

The examination of issues related to the liberalisation of satellite communication facilities needs to be examined further, in particular, whether and how trade principles would apply to satellite communications in the same way as to the other distribution channels for telecommunication network–based services.

2. Technical Barriers to Trade

The reduction of technical barriers to trade are crucial in implementing liberalisation of telecommunications. Interconnectivity, the smooth flow of information, the ability to offer services using specialized equipment, all depend on minimizing the use of technical specifications as a barrier.

Standards, and the procedures used in formulating, setting and accepting standards, should be viewed as one of the more powerful instruments in information, computer and communication services to promote international trade — if they are transparent, non–discriminatory and universal. But if these characteristics are not met standards may become one of the more effective barriers to trade.

The appropriateness of the GATT Agreement on Technical Barriers to Trade (Standards Code) in the context of telecommunications should be noted. This Code is based on the following principles:

i) Avoid using standards *to protect or give an advantage* to national products over foreign products — this principle creates a commitment not to use technical regulations and standards with a view to creating trade obstacles;

ii) International standards, when they exist, should form the basis of pertinent technical regulations;

iii) National treatment — that is, the treatment of imported products on an equal basis with domestic products;

iv) *Transparency* — that is, procedures for determining conformity of products with technical regulations must be open and countries must provide information on the regulations themselves.

A significant amount of work has already taken place at the international level on standards both at the International Standards Organization and the CCITT of the ITU. This work has led to the acceptance world–wide of the Open Systems Interconnection model, harmonization of telecommunication standards and protocols, and is leading to the emergence of internationally acceptable ISDN standards. The success of a trade framework for telecommunications depends on the continuation of such efforts.

The issue concerning the use of proprietary versus internationally agreed standards may need to be resolved. It has been proposed that :

> "..Private Service Operators (PSOs) using ONP Leased Lines for the provision of non–reserved services might be requested to respect certain internationally agreed standards (regarding technical interconnection specifications and interoperability requirements where justified) in order to enhance the openess of the environment and the user's choice[52]."

It has also been argued that:

"...a key aspect of network access (from the stand–point of technical efficiency and flexibility, as well as the economy) is the ability to use proprietary computer and telecommunications protocols as an intrinsic part of data–handling offerings. The ability to choose whether to use proprietary or specified standards should be a commercial decision between the NTNS (nonbasic telecommunication network–based) provider and its customers. Also, a NTNS provider should not have to conform to mandatory interconnection policies with specified interface standards[53]".

There appears no reason to exclude the use of proprietary standards at the international level although certain countries believe that there may be a danger that the proprietor could use the standard for unfair competition. It is for this reason that in some countries large service providers using proprietary standards are also required to provide services on the basis of internationally agreed standards (Open Systems Interconnection standards). Other countries argue that compliance with industry standards should be voluntary. They believe that the issue of unfair competition is not relevant to the application of trade principles and that the size of the firm should not be an argument against voluntary compliance with standards.

For services where open communications and interworking are required, international standards are viewed by a number of countries as a prerequisite (e.g. electronic mail, facsimile, electronic funds transfer, credit card verification, etc.), while for other countries the view is held that there is no a priori reason why a service provider should not provide such services using proprietary protocols.

Transparency in the process of standard making is also important. For example, within the context of the European Community's effort towards a common market, Directive 83/189/EEC obliges Member states to notify the Commission in advance of all draft regulations and standards concerning technical specifications that a country intends to introduce.

There is a need for greater mutual recognition of terminal equipment connected to public switched networks and this requires more common procedures for testing apparatus and the recognition of these test results. Again, in the context of European Community Directive 86/361 on the initial stage of mutual recognition of approval of telecommunications terminal equipment, there is an obligation by Member states to accept for approval purposes certificates given by other competent authorities. Harmonization and mutual recognition are important as is the process of standards making. Issues such as user participation in standard making and the opportunity by interested parties to comment on draft standards need to be addressed.

As well, there may be need to examine the issue of whether disclosure by dominant carriers of technical and network information, including investment schedules, necessary for network interconnection is relevant in the context of a trade framework[54] .

The ability to connect and use terminal equipment is relevant for a number of sectors which rely on networks given in many cases that terminal requirements can be sector specific. This issue could therefore be either examined in general terms under "technical barriers to trade in services" or require specific sectoral annotations.

3. Tariffication

Tariffication issues are extremely complex in telecommunications, but are important for trade in telecommunication network–based services since the terms and conditions of tariffication will impact on access to networks. An element of cross–subsidy is likely to remain within the tariffication structure as a whole. Despite this there should in general be a recognition that cost–oriented tariffs are desirable and a commitment made in this direction. It is in this context that it has been proposed that usage–sensitive tariffication procedures should not be used. Tariff schedules should be published and their application should be non–discriminatory.

Tariffication issues are not limited to questions of cross–subsidy. Lack of competition resulting from monopoly market structures has been one factor tending to distort international and national tariff structures. For example, prices for sending data between two countries in Europe is from 1.5 to 4 times as much as transmitting within a country. There are also significant differences in the price of sending data between two countries depending on the direction of the flow[55]. Such differences can only be justified partly by differences in cost structures.

There may be a need to examine and adjust current international tariffication practices. Current accounting rates, which form the basis for the division of revenues between the telecommunication administrations, often do not reflect the actual price of telephone service (collection charge), nor the reductions which have taken place in international facilities costs. High international rates in a particular country may, if rates do not reflect costs, be construed as distorting the market in that they affect the number, duration and direction of calls. In certain countries traffic and revenue imbalances are becoming of concern.

Tariffs should not be used as a barrier to restrict the provision of services and should not discriminate so as to favour national over international services. In recent years, it should be noted there have been important downward adjustments in tariffs for certain services provided internationally and a trend in many countries toward the re–balancing of national and international tariffs. The foregoing does not imply that differences in the level of tariffs and their structure exist necessarily because of differences in the relative level of liberalisation of national telecommunication structures.

4. National Treatment

Application of this concept to providers would require that laws, regulations, requirements and advantages affecting the sale, provision or distribution of telecommunication network–based services shall apply identically to national and foreign services or providers alike, and therefore allow foreign service providers (established and non–established) to compete on an equivalent basis with national providers. In view of requirements for market access based on establishment, as discussed above, national treatment for this sector should encompass the GATT and OECD concept. National treatment is relevant to the competitive situation which exists in the provision of telecommunication network–based services (otherwise, see sub–section Service Monopolies). On its own, the concept is insufficient in present circumstances to promote liberalization of markets on a broad basis. That is, the concept does not on its own give the opportunity in most countries for effective market access by service providers

and therefore requires to be linked with the concept of effective market access and progressive liberalisation of markets.

In the Canada–United States Free Trade Agreement the concept of national treatment is extended to all telecommunication network–based enhanced services and an exception is made only of basic telecommunications[56]. It needs to be noted that the terms used and definitional framework between the two countries are fairly similar allowing an approach that imposes no obligation to harmonize, thus:

> "If Canada chooses to treat providers of one service differently than does the United States, it is free to do so, as long as it does not discriminate between Americans and Canadians. Each government also remains free to choose whether or not to regulate and how to regulate[57]."

However, the diversity in existing market entry conditions between other OECD countries may imply that national treatment may result in an insufficient balance of concessions even taking into account a phasing–in period for adjustment in regulatory structures. In such a case, it has been suggested that national treatment may be granted to trading partners only if equivalent access is available.

The fact that a number of countries have given exclusive rights to a national operator with regard to ownership and operation of the telecommunications infrastructure and/or the provision of certain telecommunication services, implies that national treatment relative to those areas where those rights have been given, and as long as exclusive rights remain, may need to be considered an exception, but access to the use of reserved infrastructure should be covered by national treatment.

Certain regulatory obligations may be imposed on national providers of certain services (requirements to register, obligations with regard to privacy protection, etc.). These should be applied in a non–discriminatory way to established foreign enterprises. The issue arises when such obligations exist as to whether national treatment can then be given to non–established firms and under what conditions, to ensure that they comply with similar regulatory requirements.

The concept of national treatment needs to cover homologation of communications equipment and procurement.

5. Non–discrimination (Most Favoured Nation — MFN)

Although this question remains open in the Montreal text and is a very complex one, it seems for this sector a mixture of MFN regimes can be envisaged which in certain cases would apply MFN unconditionally, and in others on a conditional basis. Thus, in cases where disparities on market access between countries are large an element of conditionality may be attached to concessions. In other areas it may be possible to apply MFN unconditionally.

However, the number of bilateral agreements relating to "international value–added network services", regional and bilateral free trade or integration agreements covering telecommunication services, may make it difficult to apply in a generalized way the principle of non–discrimination. The longer term goal should be, however, non–discrimination on a general basis. In certain cases non–discrimination will apply de–facto in that access by providers using telecommunication networks may be difficult to prevent.

6. Transparency

Many telecommunication administrations have in the past been responsible for drawing–up and implementing regulations. In many cases rules and conditions for interconnection were not formally published and definitions were not clear. In some cases request for interconnection have been undertaken on a case–by–case basis rather than on the basis of well defined criteria[58]. As well:

> "Many countries make exceptions to rules which apply generally to public network use and access. The nature of these exceptions is important and there is a need for greater transparency to enable TNS providers to assess potential market opportunities[59]."

One of the prerequisites to ensure fair and equal treatment in the telecommunication, as well as other sectors, is neutrality in the formulation, application, and interpretation of national regulations. This implies separation between operational activities of telecommunication administrations and regulatory activities. Most countries which have separated regulatory from operational functions have opted for regulation by government departments rather than setting–up regulatory bodies outside the departmental structure. However, some countries believe that an regulatory body set–up as an independent authority may be preferable to a regulatory body in a government department.

Transparency in the context of international obligations requires that procedures are based on clear and predictable regulations, notification and adequate consultation mechanisms. Transparency needs to apply to standards and standards formulation procedures, as well as to bilateral agreements between countries.

7. National Regulatory Objectives

The question of dealing with the telecommunications regulatory base is treated under 'market access' and 'service monopolies'. Minimising the constraints on competitive service providers, which at present arise from many national telecommunication regulations, will be a key factor in negotiations towards the liberalisation of trade for telecommunication network–based services. In this context the issue of what constitutes reasonable or unreasonable regulation is likely to be important.

The examination of regulations must be concerned with those relevant to the competitive provision of services and those relating to the underlying means of transport. An important principle is that regulations should be formulated in such a way so as not to be excessive or overly stringent. There will be a need to ensure that periodic reviews of regulations are undertaken in order to determine if the basis for such regulations are still valid. As noted under "Transparency" there needs to be impartiality in drawing–up and implementing regulations and clearly new regulations need to be consistent with commitments under the agreed framework.

8. Service Monopolies

8.1 *State–sanctioned Monopolies*

The issue of monopoly is of key importance for telecommunication network–based services given the structure of telecommunication markets in most countries. A

monopoly telecommunication service structure exists in many countries on the basis of special rights or concessions granted by governments. A root problem is often that the monopoly controls the local exchange, as well as being present (or controlling) long–distance exchanges, thus controlling access to the national customer base and to international telecommunication operators. Service providers are dependent on these monopolies for access to the infrastructure (public switched networks and leased lines). In that respect it is essential that as provided in the conceptual framework monopolies be submitted to obligations under a trade agreement ensuring that they provide reserved services to user firms, whether national or foreign, on a non–discriminatory basis (as already discussed in previous sections). The monopoly service providers also often provide value–added services in competitive markets and equipment. Because of the foregoing there may be a need to link the concept of monopoly and that of appropriate regulation.

In the context of trade in telecommunications network–based services the question of whether there is a requirement for a clear structural separation between services that are provided on a competitive basis and those which are offered on a monopoly basis is important. That is, there is a need to ensure that a monopoly service provider does not use revenue from monopoly services to subsidise telecommunication services offered in a competitive framework. Although the conceptual framework of the Trade Committee has recognized this requirement, the implementation of structural separation can be complex. In the United States policy has changed from requiring fully separated corporate affiliates aimed at preventing cost–shifting between regulated and unregulated activities, toward the use of accounting and cost–allocation rules, ONA, etc.

The non–structural safeguards concept of Computer III in the United States have wider relevance in that they aim at permitting carriers to offer "enhanced" and "basic" services through the same entities[60], as is in effect occurring in the case of many PTT Administrations. The non–structural safeguards include interconnection, cost accounting, technical information of the network, and the use of information that carriers would possess in their capacity as common carriers or because of their position in carrying other customer's traffic. Comparably efficient interconnection is aimed to ensure that competitive service providers can have access to basic facilities on the same terms and conditions as the basic service provider make available to themselves when supplying competitive services.

As already explained, services provided on a monopoly basis would be covered by the provisions on state–sanctioned monopolies of the framework for trade in services. The process of reserving services would apply to existing situations and would therefore prevent the extension of the monopoly (standstill is relevant here). A monopoly infrastructure owner–operator providing services in competitive markets needs to provide the same conditions of access to the infrastructure for such services to foreign and national service providers.

Given that access and liberalisation in telecommunications services are closely linked to liberalisation with regard to equipment purchase and connection, provisions will be required with regard to eliminating exclusive rights to firms for the importation, distribution, connection, and maintenance of equipment and the right of operators to refuse connection. An exception to the latter would be with regard to harm to the network.

8.2 *Non-competitive Markets and Positions of Economic Dominance at the International Level*

There are conflicting views as to whether the concept of dominant position should be retained in a trade framework, or excluded on the grounds that it is only pertinent in terms of national competition policy. It may be recognized that national competition policies have a role to play in guaranteeing the effective benefits of liberalisation. The understanding of monopoly, monopoly power, and dominant position may have different interpretations and nuances in different countries according to their commercial and antitrust law. Several countries which have liberalised their telecommunication structures maintain within regulatory bodies the concept of dominant position for purposes of regulation, in particular for public telecommunication operators and providers of infrastructure which have been privatised and compete with new entrants[61]. The issue of dominant positions in unregulated services is discussed in Part 2.

9. Trade Distorting Measures and Unfair Trade Practices

Measures and practices which may be considered unfair or trade distorting for telecommunication network-based services will usually be closely linked with regulatory practices and with questions of monopoly. The issues have already been dealt with under those headings. As already noted the issue of tariffication may be relevant in this context.

The issue of software and hardware subsidies could be important for telecommunication network-based services as may be the question of "transportation" subsidies of services over public networks. Subsidies may arise in many forms, for example, through assisting the creation of a market (such as videotex). Research and development subsidies may also raise important issues.

10. Exceptions and Safeguards

Exceptions based on national security arguments are relevant for telecommunication network-based services. But the argument should not be used in an extensive way and without being subject to consultation and review.

The issue of balance of payments safeguards does not appear specifically relevant for telecommunication network-based services. It should be noted that Article 20 of the International Telecommunication Convention gives Members the right to suspend telecommunications services for an indefinite time, either generally or for certain correspondence, including ingoing, outgoing and transit connections. The issue of liability of carriers for (their portion of) international transfer of information may require consideration.

11. Developing Country Concerns

Many developing countries have immature telecommunication infrastructures and significant waiting lists remain for services such as voice telephony. At the same time

leading business enterprises in many of these countries require access to modern services with international connections. In many developing countries there is no explicit telecommunications policy and it is the operating enterprise (usually government–owned) that retains responsibility for policy and regulation, and few countries have the human resources to adequately tackle policy issues related to regulatory reform.

For developing countries the telecommunications infrastructure is often regarded as a tool for economic development. For this reason it is important that developing countries, while subscribing to the basic principles of a services liberalisation framework, be allowed to liberalise gradually. The text of the Trade Negotiations Committee Meeting at Ministerial Level[62] notes in this context that "the rules, modalities and procedures for progressive liberalization should provide appropriate flexibility for individual countries for opening fewer sectors or liberalizing fewer transactions or in progressively extending market access in line with their development situation".

In many countries investment funds for telecommunication infrastructure are inadequate. Telecommunication services also provide an important share of public sector funds in some developing economies. For many countries liberalisation in trade for telecommunication network–based services is viewed as a threat to their telecommunication structure and its revenue base in particular because liberalisation is perceived as leading to a potential threat of by–pass by multinational corporations. But, lowering the cost of telecommunication network–based services to their industry by allowing the competitive provision of services may have more beneficial economic effects than protection of the revenue base of the monopoly service provider. Developing countries are also concerned that liberalisation in telecommunication network–based services trade would accelerate the shift be developed countries away from traditional services (e.g. telex). Balance of payments constraints may also be raised by developing economies as an issue.

Many OECD countries have stressed the importance of telecommunications in the economic growth and competitiveness of their economies. They have taken the position that liberalised trade in telecommunication services will have beneficial effects world–wide leading to new international markets and growth opportunities from which all countries can benefit. For the developing economies such visions are often illusory if investment funds are inadequate and technical assistance is not available. A more positive response to trade liberalisation would likely emerge from these countries if they were in a better position to benefit from potential opportunities[63].

It may be appropriate to consider whether and to what extent developing countries with an immature infrastructure base would be able to obtain additional assistance (through technology transfer or financial aid) as part of a process parallel to, but distinct from, the formulation of a framework for trade in telecommunication network–based services[64].

12. Compatibility With Existing Agreements

The question of compatability of a trade in services framework with the International Telecommunication Convention and its Regulations and with the Recommendations of the International Telegraph and Telephone Consultative Committee is important. The newly adopted International Telecommunication Regulations do not appear to be incompatible with a trade framework for telecommunication network–based

services. The Recommendations, since they are non–binding, would not be incompatible in terms of their legal status with a trade framework. It would nevertheless be appropriate to re–draft these Recommendations to reflect principles adopted in a trade framework — such re–drafting should not delay implementation of a framework.

13. Decentralisation of Competence in the Field of Regulation of Activities

In several countries state bodies play a role in the regulation of telecommunication services. It will be necessary for Federal governments to provide information as to the competence of state bodies or territorial entities for TNS, as well as ensure when competence lies outside federal jurisdiction that they will be able to implement international obligations.

VII. A FRAMEWORK FOR TRADE

The emergence of competitive trade in telecommunication network–based services will depend on the development of a new international consensus concerning which services should be provided on a competitive basis and which services will remain reserved for provision by monopolies. Each country would be free, subject to commitments accepted in the negotiations, to develop its own scheme for complying with the trade principles adopted.

1. Form of Agreement

The Trade Committee of the OECD has requested sectoral bodies in the OECD to examine the relevance of concepts under discussion in that body to specific sectors. For telecommunication network–based services an agreement could be envisaged as being based on the application of the general principles, with sectoral annotations, possibly co–existing with supplementary regional and/or bilateral agreements.

As the discussion in previous sections has shown the application of **general principles** which have been under discussion at the Trade Committee can to a large extent be applied to telecommunication network–based services. Principles such as choice of mode of delivery, establishment, national treatment, non–discrimination, transparency, avoiding trade distorting measures and unfair trade practices, exceptions and safeguards, and decentralisation of competence, are relevant and could be applied (depending of course on their final agreed form) in a general way.

The specificities of the sector arise with regard to service monopolies and access and use of public network infrastructures, including leased lines, and the relative balance of market access linked to the degree of liberalisation. Principles of tariffication may also need to be considered.

2. Coverage of Agreement

As indicated in Section V the approach in terms of coverage for telecommunication network–based services seems best undertaken through a negative list approach.

That is, services not notified as reserved would be covered by the agreement, probably including new emerging services. The list of "reserved" services would be subject to negotiation in order to obtain as broad consensus as possible on those services which are provided on an exclusive or special rights basis. The same process of reserving infrastructure from negotiations needs to be undertaken. In the case of infrastructure and reserved services exclusion from coverage of the liberalisation only implies that provision is reserved to a state–sanctioned monopoly or state–sanctioned operators. Access to and use of reserved infrastructure and services need to remain within the coverage of the agreement. A periodic review procedure, or periodic negotiations should be made available for reserved services and infrastructure.

Within the GATT, negotiations are foreseen as resulting in a "general level of reciprocal and mutually advantageous concessions" across all service sectors subject to negotiation. At the sectoral level such a result may be difficult to attain initially because of differences in telecommunication market structures, and the need for some phasing–in period. Given that access to and use of telecommunication infrastructures and reserved services are important not only to telecommunication network–based services, but to a range of other service sectors, it is desirable that already in this Round as much liberalisation as possible is achieved amongst signatories.

NOTES AND REFERENCES

1. *Elements of a Conceptual Framework for Trade in Services*, OECD, Paris 1987. The work, although undertaken in the Trade Committee, remains under the responsibility of the Secretariat.
2. As agreed by Ministers in the Montreal, December 1988, review of the Uruguay Round there is the clear prospect of a binding multilateral framework for trade in services with possible sectoral provisions as well.
3. Another factor in ISDN is the question of allocation of intelligence; where most of the controlling intelligence features remain with terminal equipment there is little scope for operators and owners of the infrastructure to impose restrictions. But where intelligence is maintained in the network the opposite may be true.
4. The International Telecommunication Convention.
5. See Multilateral Trade Negotiations, The Uruguay Round, Group of Negotiations on Services, Information On Existing International Disciplines and Arrangements, Addendum (MTN.GNS/W/36/Add.1), 16 May 1988.
6. For example, tariffication principles of the International Telecommunication Convention are such as to minimise inducements for price competition over international routes and curtail incentives to reroute traffic through possible transiting countries.
7. Convention Resolution No. 10 of the International Convention adopted by the Plenipotentiary Conference, Nairobi, 1982. The need for new Regulations was premised on technological changes, and changes in the range of services since 1973 when the existing Telegraph Regulations and Telephone Regulations were drawn up.
8. Article 31 of the International Telecommunication Convention also allows for special arrangements.
9. CCITT's aim according to ITC Article II.I(2) is "to study technical, operating and tariff questions relating to telegraphy and telephony and to issue recommendations on them."
10. *Telecommunication Network-Based Services: Policy Implications,* OECD, 1989, pg. 9.

11. CCITT Red Book: Volume II, Fascicle II.1 *General Tariff Principles: Charging and Accounting in International Telecommunications Services, Recommendations of the D Series*, Geneva, 1985; Recommendation D.5, pp. 21-22.

12. CCITT Recommendation D.1, *op. cit.*, pg. 6.

13. CCITT Red Book, *op. cit.*

14. Recommendation D.6.

15. Some Recommendations are also aimed at protecting Administrations from competition. For example "Administrations shall refuse to make facsimile services available to a client whose activities may be regarded as an infringement of the functions of an Administration in providing a public telecommunication service. (*Telematic Services: Operations and Quality of Service*, Fascicle II.5, Recommendation F.160, paragraph 1.4.2, Volume II).

16. CCITT Recommendations allowing the use of international leased circuits for third party traffic would not be complied with in, for example, the Japan-US bilateral arrangement to liberalize value-added network services. A Japan-UK, and UK-US arrangement have been concluded. Discussions have taken place between Japan-Netherlands, Japan-France, and France-Germany to examine possibilities aimed at liberalising international VAN services. The UK-US arrangement allows value-added and data services which can be provided domestically in the UK to be provided internationally. The Canada-US Free Trade Agreement also does not strictly comply with CCITT Recommendations. However, the ability to designate companies involved in the provision of international VAN services as Recognized Private Operating Agency would allow for compliance with the Recommendations. Article 31 of the International Telecommunication Convention allows for special arrangements between Members, as does Article 9 of the International Telecommunication Regulations.

17. Another international organization is Inmarsat, which is responsible for operating the world-wide system of marine communications. Inmarsat was founded in 1979 and became operational in 1982. In 1985 Inmarsat was given the authority to provide international aeronautical satellite communications. Intelsat has contracted to provide Inmarsat capacity for its different services.

18. Intelsat began in 1964 as a consortium of 11 countries and, following two international agreements in 1973 (the Intelsat Agreement and the Intelsat Operating Agreement) Intelsat became a public intergovernmental organization with at present 112 Members, and serves 170 countries.

19. Testimony of R. Colino, Director-General designate of Intelsat, before the United States Subcommittee on Arms Control, Oceans, International Operations and Environment of the Senate Foreign Relations Committee, 13 October 1983, pg. 39.

20. *Ibid.*, pg. 13.

21. One commentator has made the following statement concerning the significant economic harm clause of Article XIV (d): "What we see is a monopolist with the right to determine whether a new entrant to its markets will cause it significant economic harm. The monopolist gets to define what this harm is", Goldschmidt, D., "Levelling the Playing Field in International Satellite Communications", *Telematics and Informatics*, Vol. 4, No. 2, 1987.

22. The Computer I definitional approach was viewed by the mid-1970s as being no longer valid thus leading to Computer II which in 1980 established a boundary line between basic and enhanced services. Enhanced services were those services, offered over common carrier facilities, which used computer processing applications.

23. Basic conveyance is defined as "the conveyance of a Message by means of the Applicable System so that it is delivered by the Group Network without: a) any additional services having been provided in respect of the Message; or b) any deliberate removal or addition to the information content of the Message in the course of conveyance, except such as to permit or facilitate its conveyance to, or presentation at, its destination in an accurate, reliable and economical manner."

24. In Germany telecommunication services will be divided into three categories: monopoly, mandatory and unregulated services. The monopoly will cover the telephone service (real time voice service) and the provision of transmission capacity based on a physical network. The definition of mandatory services will be on a case by case basis on the basis of two criteria; namely that the service is important for infrastructure development, and the service as an integral part of regional or international services requires binding international standards or an international agreement.

25. Commission of the European Communities, "Towards A Dynamic European Economy", Green Paper On The Development Of The Common Market For Telecommunications Services And Equipment, June 1987.
26. Study Group III, Working Party III/5 did agree that for so-called value-added services the characteristics which seemed present in such services were that the services did not modify the content of the information, and that while the service used a basic telecommunications service, it implied additional functions to that service.
27. Article 1.1.1 of the Final Acts of The World Administrative Telegraph and Telephone Conference.
28. *Ibid.*, Article 2, International Telecommunications Regulations.
29. Telecommunication Network-based Services: Policy Implications, *OECD, 1989, pg. 35.*
30. *Ibid.*, pg.5.
31. On the basis of work by the Voorburg Group, the U. N. Statistical Office's Central Product Classification (July 1988) includes the following five-digit classes of telecommunication services:

    75210 telephone service
    75220 telegraph service
    75230 data transmission service
    75240 radio and television cable service
    75251 sound and images transmission services by satellite
    75252 other sound and images transmission services via air
    75253 other sound and images transmission services via cable
    75290 other telecommunication services

    These classifications would seem to be too general to serve as a basis for negotiations.
32. The Canada-US Free Trade Agreement, Chapter Fourteen, Annex 1404 C, Article 6(2).
33. In the usage of international telecommunications Recommendations the term "access" refers to the direct physical interconnection and of transfer of information by means of data processing or transmitting devices.
34. Some countries believe that the resale of transmission capacity without any value-added should be treated separately on the basis that it is not an issue directly related to "value-added" service providers. Other countries believe that the inclusion of the issue of resale of transmission is appropriate within the discussion of trade in telecommunication network-based services.
35. There are differences between the ONA and ONP concepts primarily because in the US local exchange and trunk exchange networks have been separated and the fact that ONP attempts to integrate twelve separate administrations with integrated facility structures. ONP is gateway oriented whereas ONA is concerned more with unbundling.
36. FCC 86-252, 16.06.1986.
37. Commission of the European Communities, Com(88) 825 final - SYN 187, Brussels, January 9, 1989.
38. Report by the "Analysis and Forecasting Group" (GAP) on Open Network Provision in the Community, Brussels, January 20, 1988, pg. 15.
39. This is the case in the United States where a review of the decisions of the Modification of Final Judgement were undertaken after a three year period. Similarly, in Japan and the United Kingdom a review procedure is under process.
40. There are other equipment issues which need to be taken up in the context of GATT discussion, e.g. custom tariffs and government procurement.
41. For example, in the United States the Communications Act prohibits foreign-owned or controlled companies from holding common carrier radio licenses; foreign ownership refers to enterprises with 20 percent or more of their capital stock owned by foreigners. Foreign-controlled domestic corporations (those which have over 25 percent of holding company shares owned by foreigners) may obtain common carrier licenses. In Japan foreign ownership of carriers (Type I) is limited to 30 percent; recent changes in Canada have established at 20 percent the maximum foreign ownership in enterprises which can own and operate facilities (Type I carriers). Canada is perhaps the only OECD country where enterprises which are wholly foreign owned provide basic telephony on a monopoly basis (the recent changes are therefore more restrictive than in the past).

42. Telecom Australia, for example, considers an organization to be a common carrier if it:

a) Manages and operates telecommunication facilities;
b) Provides telecommunication facilities to third parties;
c) Connects otherwise unrelated parties;
d) Has no interest in the information content of the traffic passing through its network.

"Australian Regulation of Private Communications Networks", Bureau of Industry Economics, *Information Bulletin 11*, Canberra, 1988.

43. This suggestion has been made by G. Warren, "Transactional Services: International Imperatives and National Prerogatives"; paper presented to the Legal Symposium, Telecom 87, Geneva, 1987.

44. The question of reciprocity with regard to acquisitions may need further examination. For example, telecommunication service providers which have a monopoly in their own country are able to acquire companies in other countries, but firms from those countries have often limited entry opportunities in the market of the acquiring country.

45. In the United States, for example, the Uniform Settlements Policy requires such standardised operating agreements, which specify the types of services to be offered and the revenue sharing agreement, in order to prevent "whipsawing" by monopoly telecommunication administrations.

46. This does not necessarily imply that these regulations are more restrictive in those countries where regulatory and operating functions have not been separated.

47. Recent telecommunication policy reviews, such as the Witte Commission in Germany, have recommended that leased lines be made available by telecommunication administrations on fair and competitive conditions. The Witte Commission recommended that "everybody shall have the right to leased fixed connections."

48. Although the FCC no longer requires AT&T to load a portion of its international traffic on satellites, an AT&T–Comsat loading agreement commits AT&T to maintain its end of 1987 base of voice–grade satellite circuits and place a certain percentage of its traffic growth for international message telecommunication services for 1988–94 on Intelsat.

49. In 1985 The FCC in the United States issued its Separate Satellite Systems order giving provisional authorization to five companies to enter international satellite markets for specialized services. These companies are restricted from offering services which connect to the public switched networks. These companies are required to find a foreign partner which in most cases will by definition be the national signatory to the Intelsat Agreement.

50. Intelsat has in recent years been changing its price structure in response to competitive pressures.

51. Director–General designate's statement, *op. cit.*

52. Proposal By The Analysis And Forecasting Group (GAP) On Open Network Provision (ONP) For Leased Lines In The Community, 11 January, 1989, Commission of the European Communities.

53. "New Policy Directions: Analysis of the Relevance of the Trade Committee's, Conceptual Framework for Trade in Services, to Trade in Nonbasic Telecommunications Network–based Services", paper submitted by the United States Delegation to the Working Party on Telecommunications and Information Services Policy, document on general distribution, OECD, 1988.

54. In Japan conditions placed on interconnection require NTT to disclose necessary technical information.

55. *Report on Barriers to the Growth of the European Information Industry*, EUSIDIC, October 1986. The International Telecommunication Regulations state that "administrations should try to avoid too great a dissymetry between the charges applicable in each direction of the same relation". (Article 6, 6.1.1).

56. The term basic telecommunications transport service is defined in the Agreement as "any service, as defined and classified by measures of the regulator having jurisdiction, that is limited to the offering of transmission capacity for the movement of information", (annex 1404 C, Article 7.)

57. Chapter 14, pg. 195.

58. Examples are cited in *Telecommunication Network-Based Services: Policy Implications*, OECD, 1989, pg. 9.

59. *Ibid.*, pg. 9.

60. The Federal Communication Commission concluded in Computer III that "AT&T's role in the present enhanced service market cannot be described as dominant or even major", FCC 86-252, para. 87.

61. In the United States for example the regulatory framework of the FCC governing basic communication services depends upon whether the carrier involved is dominant or non-dominant. If the vendor was considered dominant the FCC sought "to improve the application of traditional regulatory requirements to reflect the degree of competitive pressure that a given vendor and service is subject to", FCC 85-397.

62. MTN.TNC/7(MIN, Part II, Negotiations on Trade in Services 7b).

63. It should be noted that a number of provisions in the legal instruments of the ITU relate to the promotion of economic and social development of countries and the provision of technical assistance.

64. The concerns of developing countries are examined in *Trade in Services and Developing Countries*, OECD, Paris, 1989.

Part 2

TRADE IN SOFTWARE, COMPUTER SERVICES AND COMPUTERISED INFORMATION SERVICES

I. SUMMARY

This study examines trade issues relevant to software, computer services and computerised information services. It reviews the characteristics of the sector and examines the perceived barriers and constraints to the liberalisation of international trade in these services. The objective of the paper is to "test", at a sectoral level, the trade concepts developed by the Trade Committee of the OECD in its document *Elements of a Conceptual Framework for Trade in Services* and the subsequent elaboration of these ideas following the Montreal mid–term review of the GATT Uruguay Round of trade negotiations.

Section II of the report proposes a working definition of the sector and attempts to delineate its boundaries relative to other information, computer and communications (ICC) services. The term "computer–based services" is introduced as a convenient short–hand to distinguish this sector from the "network–based services" covered in the *Trade in Telecommunications Network–based Services* report presented earlier. These two documents have been put together because of the close technical interlinkage between the sectors concerned.

Section III of the document introduces the trade concepts developed by the Trade Committee of the OECD and highlights the specificities of the computer–based services sector in relation to these concepts. It is argued that some of the distinctive features of the sector are inadequately covered in the general concepts. In particular, it may be necessary to introduce sectoral annotations to cover the issues of:

- access to information as an addition to access to markets and access to networks;
- transparency of regulations, in particular for public procurement and certification procedures;
- intellectual property rights, protection of personal data and the promotion of technical standards as appropriate forms of national regulatory objective.

Section IV examines the particular concerns of the developing countries and argues that they may require special consideration with regard to progressive liberalisation.

Finally, Section V concludes that while the sector has a number of distinctive features which need to be recognised in any agreement, it should nevertheless be possible to incorporate trade in software, computer services and computerised information services into the "Conceptual Framework" without recourse to excessive sectoral annotation of the general trade concepts.

II. DEFINITIONS AND BOUNDARIES

The work on trade in information, computer and communications (ICC) services, carried out by the Telecommunications and Information Services (TISP) Working

Party, has proceeded using the working hypothesis of a distinction between services which are network–based and those which are computer–based. In other words, a theoretical boundary is drawn between those services in which the value–added content is dependent on the transmission of information via a physical or a logical network (network–based) and other services in which value is added principally through the electronic collection, storage, processing and retrieval of information (computer–based). Computer–based services do not *rely* on access to the telecommunications network though they may occasionally be provided over it. Thus interactive on–line services fall in the former category, but services which are usually delivered off–line fall in the latter category.

The reasoning behind this distinction is not operational or technical; indeed, a technical distinction is difficult to sustain. Rather, the distinction is related to the historical development of the two sectors which has been characterised by markedly different regulatory environments. Furthermore, in most organisations, management responsibility for network–based and computer–based services is held separately and this division is still reflected in many policy–making bodies in OECD Member countries.

The sub–sectors covered in this paper are:

- *computer software:* provision of stored programmes for computer operating systems or for applications, either customised for individual clients or packaged to suit multiple uses. Software may also be embedded in computer hardware, providing users with a turnkey system;
- *computer services and consultancy:* provision of services from supplier to customer which may involve carrying out data processing activities using the supplier's own facilities (bureaux services), or using the customer's facilities (facilities management). Alternatively the supplier may assist the customer to carry out his own data processing by helping with systems design (systems analysis and consultancy), by providing staff to work on the customer's site (body–shopping) or by providing training and education services;
- *computerised information services:* database services in which information is collected, stored, processed and made available for retrieval from a computer memory store. Access to data may be interactive and available on–line. These services are covered in the earlier paper. However, data may also be provided in other formats in which the customer is not entitled to alter any information directly held by the host computer. Customers may download selected information onto their own computers and it may then be subjected to further processing. This implies that the communication is almost entirely one–way, from supplier to client, as opposed to the two–way communication which characterises network–based services.

The transaction between the client and the service provider may take place in a variety of different media and formats, including:

- the sale of a transportable medium such as discs, tapes, CD–ROMS, programme listings or microprocessor memories;
- the provision of trained staff for contract programming, custom software, facilities management or consultancy;
- on–line information services provided via a communications network.

These different service formats may require a number of different modes of access:

- discrete transaction or sale, usually at a fixed price;
- continuous transaction over a period of time, during which the supplier will provide regular billings for professional time, materials and expenses incurred;
- discrete transactions at intervals over a period of time, according to the requirements of the customer.

These modalities of access may or may not require investment or establishment by the supplier in the country of the customer but will usually require freedom of currency movements between the countries.

The actual nature and value of international trade in computer–based services is difficult to define precisely. For instance, if one considers the example of a firm in country A accessing a database controlled by a firm in country B, there are a number of different possible scenarios:

- the database is created, stored and accessed in country B via an on–line network or other means of delivery (e.g. CD–Roms);
- the database is stored and accessed in country B but is created from secondary source material held in a number of different countries, possibly including country A;
- the database is created and controlled in country B, but is stored and accessed from local computer memory stores in country A which are regularly updated from country B.

Clearly, there is a potentially large number of variations on this theme in which the timing, location and nature of the value–added by the supplier and the transaction with the customer can vary. There may also be a number of intermediaries involved in the contract, for instance, a licensee of the supplier or a consultancy firm acting on behalf of the customer. For data bases, the customer access point may typically be a library, in which case the identity and nationality of the ultimate end–user may not be transparent to the supplier. Such variability makes the assessment of the transaction, for customs or tax purposes, difficult and the collection of accurate statistics almost impossible.

The computer–based services defined above may or may not require access to a communications network. In reality there is no strict division between computer–based and network–based services, but rather a spectrum of different services which use telecommunications networks to a lesser or greater degree. The argument for handling them separately in trade negotiations is based not on functional, technical or operational grounds but rather on the different regulatory environment prevailing in the two sectors.

The provision of network–based services presupposes the existence of a physical network infrastructure and a proportion of the cost of the service is due for the creation, maintenance and operation of that network. In most OECD countries, the state has played an important role, either directly or indirectly, in the creation and operation of the network. Consequently, there is generally a higher level of state involvement in the regulatory environment for network–based services. The customer's choice of service provider may be restricted, often to monopoly provision by a public telecommunications operator (PTO). International conventions governing transborder trade in network–based services, such as CCITT recommendations, necessarily respect the different regulatory environments in the origin and destination countries.

For software, computer services and computerised information services, the prevailing regulatory environment is quite different. The role of the state is generally

much weaker, though there may be a need to establish legal protection for the supplier (e.g. copyright, intellectual and industrial property rights, market access), for the customer (e.g. access to information, complaints processing procedures) or third parties (e.g. data privacy, state security). These specificities of the sector are considered below in the context of the Trade Committee's Conceptual Framework.

III. TRADE CONCEPTS

1. Opening up Market Access

1.1 *Access to Users*

Market access is central to the objective of liberalisation of trade in services. It confers upon the supplier the right to sell according to the supplier's preferred mode. In the context of software, computer services and computerised information services, access to markets means access to users and access to the means by which those users can be reached (e.g. networks, distribution systems). Access to markets implies the right of establishment, for instance, to carry out facilities management contracts, but it also implies the right of non–establishment; in other words, being able to trade in a country without establishing a local subsidiary. This may be especially relevant for suppliers wishing to provide remote data base services.

Access to market principles may also require the right for employees of the supplier to work in the home country of the client, even though they are not nationals of that country. A particular problem arises for contract or freelance programmers, who may experience difficulty in obtaining temporary work permits to seek or carry out work in their chosen national market. Negotiations will have to take place to reconcile the principle of access to markets through the physical presence of non–nationals with legitimate national policies on immigration and labour market control.

1.2 *Access to Networks*

The issue of network access is especially relevant to suppliers of computerised information services such as data bases. Suppliers may require not only access to a particular national or local network but also a choice of networks. These may include:

- dial–up access over the Public Switched Telephone Network (PSTN);
- X.25 access over a Packet Switched Data Network (PSDN);
- dedicated access through private leased circuits.

Some of these access methods may require format or protocol conversion. The provision and payment for such conversion services would need to be negotiated between the supplier, the customer and the network operator. The question of access to networks is discussed at some length in Part 1.

1.3 *Access and Supply Rights*

There are a number of national regulations which are sometimes adopted by governments which may impede legitimate access to markets. These may include:

- denial of fair access to distribution networks;
- government procurement policies which favour home–based products;
- obligations to store or process data locally;
- obligations to add local content or to add value to a product locally;
- restrictions on the use of foreign computer facilities;
- the imposition of customs duties or taxes on the use of foreign services;
- restrictions on the free movement of currency;
- restrictions on investment and establishment;
- restrictions over issuing work or residence permits for the employment of foreign personnel.

The aim of negotiations should be to reduce these national regulations to a minimum and to eliminate the scope for discretionary application of restrictions and obligations.

In general terms, the right to access or to supply information across national borders should be dictated by the freely negotiated contractual consent of the supplier and the customer. Two other players, who are not directly involved in the contract, may also have an interest.

- third party individuals may require the right to block transfer or broadcast of information between a supplier and potential customer(s) if the information relates to the privacy of the individual, for instance financial status, health record, employment record or criminal record;
- governments may have a right to block the transfer or broadcast of information between a supplier and potential customer(s) if the information may be considered to endanger national security or to conflict with societal norms on censorship or data protection.

The supplier and the customer also have rights which need to be recognised in the contract, protected by local company law and consumer law, and backed up by international trade law. In particular, the supplier has a right not to sell, for instance, where the potential customer is a competitor. The supplier may also choose to sell preferentially, to subsidiaries, favoured customers, distributors and trading partners, but not to the general public. The rights of the customer may be recognised in national consumer law but are not well developed in international trade law, though the concept of 'security of supply' exists for products under the GATT. There may well be a need to introduce an additional concept of 'access to information' into the framework for trade in computer–based services. This is discussed below.

2. Access to Information

Market access is often linked in this area with the concept of access, and continuity of access, to information. It is argued by some that the increasing reliance of organisations on fast and reliable access to information implies a commercial dependency on supplier organisations. If the supplier then denies access to a customer, or

treats its customers in a discriminatory fashion (for instance, with regard to the timeliness of information), then this may constitute an unfair trading practice. There is also a legitimate fear that, at some later date, a foreign supplier or government may deny access to data stored in that country, for instance, as a means of imposing sanctions to achieve some political objective (extra–territoriality).

A second instance in which access to information may be required relates to the use of proprietary access protocols and interface specifications. It is regarded by some that the right of market entry should be accompanied by an obligation for the timely disclosure of such information. Such access to information by competitors becomes critical if the supplier is in a dominant position and able to impose proprietary standards to 'lock in' users.

In the private domain, individuals may also require, as a basic human right, access to information with regard to their personal health, criminal record or financial status. Societal norms on the degree of openness differ between countries and, for the most part, sensitive information which is made available to individuals is not traded. These issues are dealt with more fully under other national regulations regarding privacy rather than under trade concepts.

Some countries believe that, in the cases above, it might be necessary to consider applying access to information obligations as a necessary complementary condition of open market access. Other countries regard these concerns with access to information as a private contractual matter between supplier and customer, or a competition policy issue not belonging to a trade agreement. There is no clear understanding of the term "access to information" among the OECD Member countries and further research will be necessary to clarify the concept.

3. Transparency

The goal of transparency relates to establishing clear procedures for the publication and dissemination of public information regarding regulations and policies. If transparency is to be achieved, then it is also necessary to reduce administrative discretion in the execution of such regulations. One of the main issues at stake, with regard to software, computer services and computerised information services, is that specifications for competitive tenders, especially for public procurement, should be clear and applied without bias. A secondary issue relates to the type approval procedures or quality standards which may be applied to any products the supplier wishes to import, such as terminals. These procedures should be timely, cost–efficient and open. Delays in the issuing of import licences should not be used as a hidden form of protectionism.

4. National Treatment

The object of national treatment is, in general, to ensure that national measures affecting the supply of services treat foreign suppliers no less favourably than nationals. This usually means 'identical' treatment, though when the supplier is not fully established, the concept of 'equivalent' treatment applies. The converse of the national

treatment principle is that a foreign company wishing to trade should not receive preferential treatment over national suppliers (e.g. incentives or subsidies to attract inward investment) and must be bound by the same obligations imposed upon national firms (e.g. intellectual property rights, data privacy protection). Theoretically, these obligations should also apply even if the foreign supplier is not established in the host country, but the legal implications of this will require further research.

In practice, it is often difficult for the end–user to identify the origin of a computer–based service. For instance, a database service provider may provide a gateway to host computers in several different countries so that the end–user will not necessarily know where the data is stored or where the processing is taking place. In such circumstances, the national treatment principle means that the foreign database provider should be granted fair access to contractual or other ties with local enterprises, in this case the gateway supplier, and non–discriminatory access to the local telecommunications network.

5. Non–discrimination

The principle of non–discrimination implies that all country signatories of an agreement have the same rights with reference to market access and national treatment. Existing bilateral, regional and other limited community agreements and reciprocity clauses may have to be evaluated in the light of a possible non–discrimination or most–favoured nation clause. In practice therefore this principle may need to be implemented progressively as trade liberalisation is at present much further advanced in certain regions, such as North America or the European Economic Community.

6. National Regulatory Objectives

For the most part, national regulations are neutral towards trade except insofar as they discriminate against non–national companies and individuals or sustain anti–competitive market structures. By comparison with network–based services, the level of regulation in computer–based services is relatively limited but there are certain regulatory policies which have a direct effect on trade. These are discussed below.

6.1 *Protection of Intellectual Property*

As services assume increasing importance in the modern economy, there is a growing recognition of the value of intellectual property and the need to protect legitimate property rights in order to encourage further product development and trade. The area of software, computer services and computerised information services is one of the main sectors in which infringement of intellectual property is reported, mainly due to the ease with which products can be copied.

Most nations agree that copyright law offers an appropriate form of protection for software, complementing other forms of protection such as patent or trademark law.

Certain problems arise because:

- copyright law varies between nations in the degree of protection afforded and the exact nature of what is protected. Several economically important countries belong neither to the Universal Copyright Convention nor the Berne Convention for the Protection of Literary Works;
- the legal protection given to information databases which provide a compilation of secondary source material derived from the public domain, is unclear in a number of countries;
- remedies for copyright violation are sometimes difficult to enforce where transgression takes place across international borders, even when infringement can be proven.

It is to be hoped that harmonisation of the legal protection afforded by copyright law will encourage the growth of trade, providing regulations are transparent, non–discriminatory and subject to periodic review. The GATT Uruguay round is currently discussing intellectual property rights for trade in goods but international opinions differ as to whether a trade agreement would provide an appropriate format for the settlement of international disputes. Some nations believe that this matter should be left to other, more specialised fora such as the World Intellectual Property Organisation (WIPO).

6.2 *Technical Barriers to Trade*

A second category of national regulatory objectives concerns the use of standards. If they are transparent, non–discriminatory, universal and non–mandatory, then standards provide a powerful instrument to promote trade and to overcome technical barriers of incompatibility between operating systems, programming languages or human languages. On the other hand they can be used to protect or give advantage to local suppliers over foreign products. Technical standards may sometimes be stated as a procurement requirement, especially by public sector organisations. Usually such specifications require the use of open systems interconnection (OSI) protocols or an 'open' operating system such as UNIX or PICK, but they can also be used to require that suppliers offer compatibility with existing hardware. This latter case may favour indigenous suppliers in a newly–liberalised market.

6.3 *Other National Regulations*

In addition to measures to protect intellectual property and to specify technical standards, there may be other national regulations imposing obligations which have a bearing on trade in computer–based services. Some of these are appropriate and beneficial to trade, but others, while still pursuing legitimate objectives, may hinder trade liberalisation. These measures include:

- regulations concerning the disclosure of information. Governments may require that companies wishing to trade in that country must meet the same obligations as local companies, for instance, the disclosure of trading status and financial information by banks and public companies;
- regulations concerning non–disclosure of information, for instance to protect the privacy of individuals, commercially sensitive information or state secrets;

- consumer law regulations concerning what products can legitimately be banned from sale, for safety or other public interest reasons, and the conditions of sale for those products which can be sold, including customer guarantees, trade descriptions and other consumer protection legislation;
- the preservation of cultural integrity, for instance through enforcement of linguistic standards or the banning of obscene materials. Increasingly data is being broadcast to whoever wishes to receive or subscribe (e.g. horse racing results, share prices);
- regulations concerning the transfer of technology to either encourage it (e.g. to lesser developed countries) or to discourage it (e.g. military technology);
- regulations concerning the processing and transport of data which crosses international borders, for instance with regard to local content rules or authorisation. Considerable work has been carried out in this area by the OECD's Transborder Data Flow Working Party.

Firms wishing to trade internationally must respect national regulations, but it will be necessary to evaluate the appropriateness of such regulations in the light of an international trade agreement and to work towards elaborating future regulations which are the least trade–restrictive possible. There may be a need to make a functional separation between regulation and trade policy and to leave only a limited margin of discretionary implementation of regulations.

7. Service Monopolies

The concept of state sanctioned monopolies does not seem relevant for computer–based services except where there are interlinkages with network–based services. In some OECD Member countries, telecommunications services are supplied on a monopoly basis. This matter is discussed in the report on *Trade in Telecommunications Network–based Services* presented earlier.

8. International Dominant Positions and Non–competitive Markets

8.1 *Market structure*

By contrast with network–based services, where many countries have introduced competition only recently, the software, computer services and computerised information services industry has always been competitive. It has historically exhibited a relatively low level of international trade relative to the size of domestic markets, due to language barriers and the small size of competing firms. This situation is now changing. In software, the balance of activity is shifting away from custom towards package programs and international standards for software engineering are emerging. Information service providers are also extending their marketing activities, and providing access commands and summary abstracts in several languages. Internationalisation is also increasing as multinational companies adopt corporate strategies which use the same software programs and the same service providers in all countries. There is evidence of an emerging dichotomy in the market structure of the industry between a

few global, generalist players, able to span the international market, and national, niche–market players.

8.2 *Economic Dominance*

The OECD document *Elements of a Conceptual Framework for Trade in Services* (1987) states that:

> "Fulfilment of the benefits expected from trade liberalisation requires that the latter take place in a context of proper functioning of markets and be supported by increased competition." (p.12, paragraph 34).

If firms operating in one national market are markedly superior in their size, technological capability or financial resources to firms operating in all other national markets, then there is a risk that the benefits of liberalisation will be accumulated preferentially by the former. The fear is sometimes expressed that the process of liberalisation may lead to a diminution of competition if dominant firms gain wider market access through the acquisition of local firms or by the use of anti–competitive strategies. Market opening measures may also lead to a loss of cultural sovereignty if the firms from the superior national market impose their national language, standards and business practices on the smaller markets.

To advance the "economic dominance" argument as a barrier to trade liberalisation, it is necessary to show that there is a risk that the market structure will:

- become anti–competitive;
- lead to higher prices, cartelisation or inefficient market mechanisms;
- prevent market entry by other firms.

There is insufficient evidence to support these arguments at present. There are no individual firms which hold a dominant position and there is little opportunity for concerted or anti–competitive action. The software and services market is highly segmented by machine system, operating system, programming language or natural language. Similarly, the database market is segmented by the industrial sector of clients, though the market for real–time financial information services is by far the best developed. However, because of the fragmented nature of the market, it is theoretically possible for a single firm, or group of firms, to take a dominant position in a particular market niche defined by sector, information content and mode of access. This issue is the subject of a further research by the OECD.

For the computer–based services industry as a whole, there is little evidence of price–fixing. Indeed the prevalent trend in software prices has been downwards, especially in the microcomputer software business where users' expectations of what they are willing to pay have been squeezed by falling hardware prices (and a buoyant shadow market in pirated and/or "second–hand" software). Finally, there is little evidence of barriers to entry. While many of the largest firms have built their software and services business on the back of hardware revenues through systems integration and/or facilities management, this is not a prerequisite for market entry or for commercial success. Rates of new firm formation remain high and, while it is true that rates of acquisition are also increasing, there is no clear pattern of acquiring firms coming dominantly from one country.

Some countries believe that concerns over market structure are a matter for national competition law. Other countries feel that their partner's competition policies

are inadequate and should be examined to deal effectively with possible abuses of dominant position. National measures to promote a competitive market structure, for instance by restraining dominant firms, encouraging mergers or assisting small and medium-sized enterprises, should not conflict with National Treatment or Transparency obligations.

9. Trade Distorting Measures and Unfair Trading Practices

The two major categories of measures which might be regarded as harmful to free trade in software, computer services and computerised information services are subsidies and dumping. Many OECD Member countries have schemes to encourage the production of software, through assistance with development costs, through tax incentives or through funding of specific programmes, for instance to create technical databases. In general foreign firms are not permitted to participate in such schemes.

Dumping of software or data memory stores at below market price is not currently considered to be a problem, though it may potentially become so given the ease with which information can be reproduced. Computer-based services are fairly labour intensive in nature and the scope for price competition, on the basis that labour costs are lower in certain countries, is fairly limited. There are, however, some segments of the industry such as microcomputer software, where cost reductions may be possible through economies of scale, for instance in facilities management or package software. Consequently, it may be possible for a company to offer a service at a lower price in some countries but not others, without being guilty of dumping.

10. Exceptions and Safeguards

There are a number of exceptions and safeguards which may be relevant to computer-based services. The main categories are based on arguments of national security, national sovereignty, vulnerability or dependency, cultural integrity or balance of payments constraint. These should be kept to a minimum, should be transparent and should be subject to periodic review.

11. Compatibility with Existing Agreements

Existing agreements in the field of software, computer services and computerised information services are not especially restrictive and international regulation of the field is limited. The following relatively specialised agreements and policy statement should, however, be noted:

- the UNCITRAL (United Nations Commission on International Trade Law) guide to liabilities for electronic transfer of funds and the legal value of computerised records;
- the Council of Europe's "Convention for Protection of Individuals with Regard to Automatic Processing of Personal Data";

— the OECD Privacy Protection Guidelines;
— the OECD Declaration on Transborder Data Flows;
— the Universal Copyright Convention and the Berne Convention for Protection of Literacy Works.

More general agreements include:

— the OECD Codes of Liberalisation of Current Invisible Operations and Capital Movements;
— the OECD National Treatment Instrument.

12. Decentralisation of Competence in the Field of Regulation of Activities

A number of OECD Member countries have federal and local government bodies which play an active role in the promotion of high-technology industry. For the most part this activity is restricted to subsidies and incentives rather than the regulation of activities, but it will be necessary to ensure that undertakings to liberalise trade in services are respected at local as well as national levels.

IV. DEVELOPING COUNTRY CONCERNS

The trade liberalisation process is sometimes viewed in the context of the North–South divide: the advanced industrial nations agreeing to open their domestic market to low-cost manufactured goods from the lesser developed countries in return for market access for their service exports. Certainly the desire to increase the level of economic development in the South is one of the main objectives underlying the current Uruguay Round of GATT trade negotiations. It is therefore helpful to consider the trade concerns of the developing countries as a distinctive feature in the trade liberalisation process.

The main concern relates to the economic dominance of the computer-based services industry by firms from the advanced industrial nations. This is expressed, inter alia, in fears that:

— foreign firms will establish dominant positions in the developing country economies;
— this will suppress the growth of a viable indigenous industry and put pressure on local firms;
— this may lead to trade imbalances, the growth of debt and an outward flow of capital and profits;
— there will be a threat to the cultural integrity of the developing economy;
— overall there will be a climate of economic dependency on the advanced nations, vulnerability and a loss of sovereignty.

Several countries in the developing world, such as Brazil or India, maintain protectionist policies towards their indigenous ICC industries and many practice some form of infant industry support. Because information technology as a whole, and computer-based services in particular, is an enabling technology, the cost to those

countries which adopt protectionist policies is a general lowering of economic efficiency. The lack of supply of computer–based services would be more detrimental to the developing country economy than the oversupply. It may be necessary therefore to envisage the progressive liberalisation of trade in computer–based services to guarantee access to the services the developing countries require but to allow time for local firms to adopt.

The broad view overview in this section is not intended to provide a complete coverage of the diverse interests of developing countries in this sector. A comprehensive treatment is provided in the report *Trade in Services and Developing Countries* (OECD, 1989).

V. CONCLUSIONS

The discussion above has highlighted a number of features of the software, computer services and computerised information services sector which set it apart from the network–based services sector, discussed earlier, and which are relevant to a discussion of trade concepts. These may be summarised as:

- the ability to provide (sell) or access (buy) services remotely, unhindered by political borders and without local establishment;
- the ability to provide a service in different formats, for instance, as an invisible bitstream of transmitted information, as information stored on a magnetic medium, as part of a computer system, or residing in an individual;
- the ability to trade information of which the supplier is not the original source but has gained it from a third party.

These three issues relate to the location, nature and value added in the transaction and they need to be acknowledged as being distinctive of this sector. Some sectoral annotation of trade concepts may be necessary to highlight these features. This might include:

- access to information in addition to access to markets and access to networks;
- transparency of regulation, in particular for public procurement and certification procedures;
- intellectual property rights, protection of personal data and promotion of technical standards as appropriate national regulatory objectives;
- the potential emergence of international dominant positions in certain niches in the market such as sector–specific information services;
- developing country concerns regarding their participation in the liberalisation process given the special relevance of this sector to their economic development.

Of these points the protection of intellectual property is probably the most important, but they do not invalidate the general trade concepts utilised in other sectors. The process of incorporating trade in software, computer services and computerised information services into the Trade Committee's Conceptual Framework can therefore proceed with the aim of upholding the general principles used for all services and adding sectoral annotations only where it is necessary to amplify certain points.

Annex

PREVIOUS OECD WORK RELEVANT TO TRADE IN ICC SERVICES

Trade Committee

Elements of a Conceptual Framework for Trade in Services, (1987).

Trade in Services and Developing Countries, (1989).

ICCP Committee

Guidelines on the Protection of Privacy and Transborder Flows of Personal Data, (1981).

Declaration on Transborder Data Flows, (1985).

"New Policy Directions: Analysis of the Trade Committee's, Conceptual Framework for Trade in Services, to Trade in Non–basic Telecommunications Network–based Services", Paper submitted by US delegation, Document on General Distribution, OECD, 1988.

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Telecommunications Network–based Services: Policy Implications, ICCP series No. 18, (1989).

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