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Liberalization in Telecommunications

Andreas Knorr

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WORLD ECONOMY
Head: PD Dr. Carsten Hefeker

Hamburgisches Welt-Wirtschafts-Archiv (HWWA)
Hamburg Institute of International Economics
Öffentlichkeitsarbeit
Neuer Jungfernstieg 21 - 20347 Hamburg
Telefon: +49-40-428 34 355
Telefax: +49-40-428 34 451
e-mail: hwwa@hwwa.de
Internet: http://www.hwwa.de/

Prof. Dr.Andreas Knorr
University of Bremen
Faculty of Economics
P.O.Box 33 04 40
D – 28334 Bremen
Tel.:+49-40-421 218 2259
Fax:+49-40-421 218 4550
e-mail: aknorr@uni-bremen.de

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Abstract

During the past two decades, international trade in telecommunication services has significantly intensified. What is more, an increasing number of telecommunications operators have begun to expand their activities beyond national borders through FDIs, joint ventures, and cooperation agreements. In this paper it is argued, however, that in spite of the rather successful efforts of late to liberalize the telecommunications sector (networks and services) at the regional (EU) and the global (WTO) level, much remains to be done to create and preserve a truly open and competitive worldwide telecommunications market.

Zusammenfassung

In den vergangenen beiden Jahrzehnten hat sich der internationale Handel mit Telekommunikationsdienstleistungen wesentlich intensiviert. Parallel dazu begannen immer mehr Telefongesellschaften, sich durch Direktinvestitionen, Joint ventures und Kooperationen auch auf ausländischen Märkten zu engagieren. Wie in dem vorliegenden Papier gezeigt wird, kann allen bisherigen Liberalisierungserfolgen der jüngeren Vergangenheit auf regionaler (EU) und globaler Ebene (WTO) zum Trotz von einem offenen globalen Markt für Telekommunikationsdienste und damit auch von einem freien, unverfälschten Wettbewerb zwischen alternativen Netz- und Diensteanbietern noch immer nicht die Rede sein.

JEL Classification: FO2, F13, L96

Keywords: International Economic Order, Trade Negotiations, Services Liberalisation, Telecommunications Services

I. Introduction

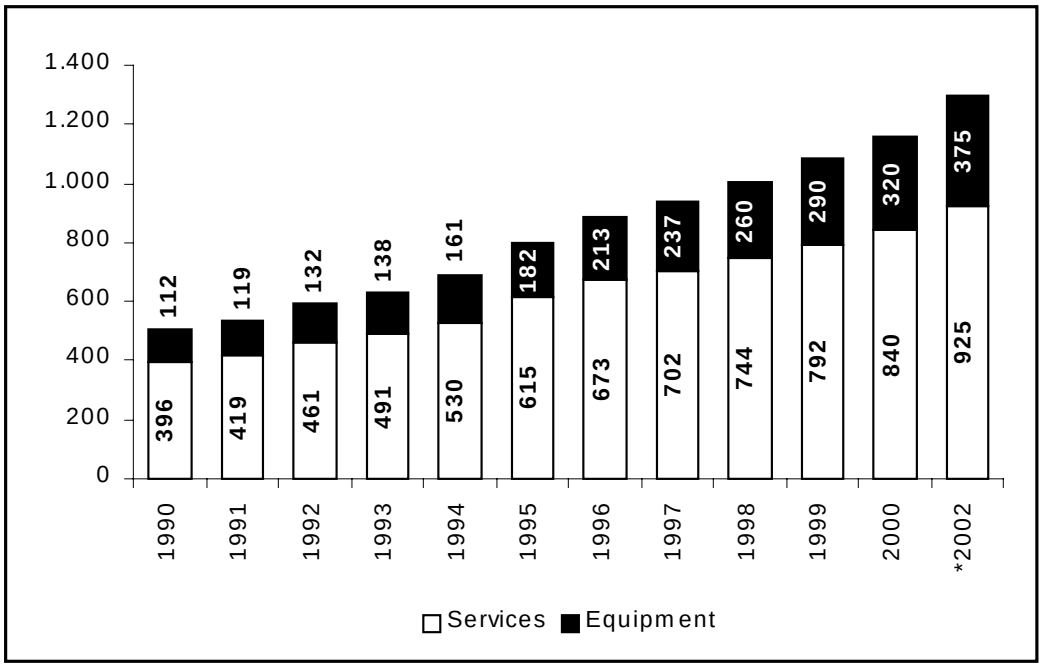
The TLCs sector has arguably become the most important industry in the world. TLCs outputs are valued at around two per cent of global GNP. Far more important than this is that the TLCs sector is the 'nervous system' of an increasingly knowledge-based world economy, providing indispensable inputs to almost all other commercial and government activities. However, despite the empirically proven positive impact of open, competitive markets on overall employment, growth and economic development, TLCs liberalization has been on the political agenda for hardly more than a decade only. In this time, a spectacular paradigm shift has fundamentally changed TLCs policies worldwide. So far, this trend reached its present height in 1998, when, on 1 January of the same year, the European Union finally allowed full infrastructure and service competition, thereby finally extending the single market concept to the TLCs sector. This was nothing less revolutionary. A few days later, on 5 January, the WTO Basic Telecommunications Agreement (BTA) entered into force.

Yet, the transition from the *ancien régime* — a, as will be shown, global cartel comprising national TLCs monopolists (most of which were state-owned operations) and coordinated through the International Telecommunication Union (ITU) — to a truly competitive global TLCs market is still far from complete. Around 96 per cent of all TLCs revenues in OECD member states are by now formally liberalized, i.e. open to competition.[1] Yet the distance most TLCs markets still need to go in order to realize full economic integration is, for instance, clearly demonstrated by the fact that international telephone calls are still much more expensive for consumers — and a great deal more profitable for their carriers — than national ones. On average, they are the source of only twelve to fifteen per cent of the revenues while contributing between thirty and forty per cent to the profits of telephone companies. In general, all things being equal, most cross-border TLCs services are still vastly overpriced as compared to identical domestic ones, albeit their costs of provision, respectively, only differ marginally.[2]

1 OECD, *A Review of Market Openness and Trade in Telecommunications* (DSTI/ICCP?TISP(99)/FINAL) (Paris, 1999), 5.

2 See *F Cairncross*, 'The Death of Distance: A Survey of Telecommunications,' *The Economist* (30 September 1995), 5.

Table 1: The Growing TLCs Market by Total Revenue (in billions of US dollars)



Source: International Telecommunications Union, *Key Indicators for the World Telecommunication Service Sector* (Geneva, 7 April 2000), available at: http://www.itu.int/ti/industryoverview/at_glance/KeyTelecom99.htm. *Estimate.

The following contribution is organized as follows. First, the fundamental features of a hypothetical ideal global TLCs market are explored to serve as a reference for the rest of the analysis. Second, the main characteristics of TLCs markets as they were organized a decade ago are discussed and, third, compared with the situation today. In particular, the issues addressed include the respective states of technology and the domestic and international regulatory environments. Finally, a brief conclusion will show that full liberalization per se is no fail-safe guarantee for effective competition even in some key TLCs markets.

II. What Would A Fully Liberalized Global TLCs Market Look Like?

A. Basic technical aspects

The output demanded by the final users of TLCs services is the (non-physical) transmission of information (voice or data) from any sender A to any other recipient B. This transmission may be performed either as a basic or as an enhanced (value-added)

service. The term basic service relates to the pure transmission of information, i.e. first and foremost to voice telephony or simple fax transmission. If, however, the service provider improves upon a basic service at whatever stage of the transmission process by offering additional features such as call diversion, voice conferencing, voicemail, fax-on-demand or fax-store-and-forward, it gets transformed into an enhanced service. It is worth noting that the distinction between basic and enhanced TLCs services — although it is theoretically ambivalent and, what is more, far from clear-cut in practice, especially given the rapid pace of technological change — has been of crucial importance to TLCs policy since liberalization began, not least during the WTO negotiations. As a rule of thumb, in many countries basic TLCs services are still provided under monopoly conditions or are subject to comprehensive government regulation, whereas the markets for enhanced services by now have been largely deregulated.

In order to be able to produce their outputs, service providers need to cooperate with network providers, i.e. with the suppliers of fixed-wire and/or wireless TLCs infrastructures. With many network providers also engaged in the business of TLCs service provision, this may give rise to serious competition problems if these vertically integrated firms control dominant positions or essential facilities. This scenario is all the more likely as the alternative infrastructures currently available — principally copper and coaxial, and fibre-optic wires, cable-TV systems, power lines, as well as cellular radio, microwave, and satellite networks — cannot be considered perfect substitutes yet. The reasons are the partly still significant differences in transmission speeds and quality, access costs and, last not least, network sizes (as measured by the numbers of potential users connected).[3] The ideal of full facilities-based (i.e. infrastructure) competition, however, would require every single sender as well as every single recipient of any TLCs service to be linked to every one of these alternative infrastructures, with undistorted intermodal and/or intramodal competition amongst the network providers guaranteed, rendering this concept a highly unrealistic proposition in the immediate future. As a result, many domestic TLCs services, and almost all cross-border TLCs services, can currently only be provided through the interconnection of several separate infrastructures. Technically speaking, this requires their full interoperability and, economically speaking, non-prohibitive interconnection prices.

3 Due to network externalities, it is vital for service providers to get access to the most universal TLCs infrastructures, i.e. to as many potential users as possible. What is more, some infrastructures, such as cable-TV networks, were originally designed for unidirectional signal transmissions only. Without (costly) technical modifications, they are of no use to TLCs network and service providers.

B. Basic economic aspects

The essential economic features of an ideal global TLCs market, i.e. a market characterized by undistorted competition amongst a variety of alternative service and network providers are quite obvious:[4]

- There is freedom of entry and exit for every supplier regardless of their nationality, with this right extending not only to the service level but also to the infrastructure level.
- The users' revealed preferences alone determine the commercial viability of specific services and infrastructures and, as a result of these purchasing decisions, also the degree of transnationality of their providers. This necessitates low switching costs which, amongst other things, may be secured by granting the consumers the right to full number portability
- An independent regulatory body — either a sector-specific agency or the competition authority, or both — is responsible for creating and maintaining a 'level playing field', characterized by the strict separation of commercial and regulatory activities, by non-discrimination between competing public and private operators in key areas such as taxation, market access (including interconnection rules) and state aids, and by (the threat of) antitrust action to prevent and/or sanction restrictive business practices.
- Universal service obligations, if deemed necessary by a government, are imposed in a competitively neutral manner only.[5] First of all, this means that the government — and not the designated supplier — has to define precisely both the scope and the scale of the universal service obligation and has to develop objective output measures covering all three relevant output dimensions (quality, quantity and price). Otherwise, it would be impossible to determine in the first place whether there is indeed a (political) need for any universal service obligation at all and, if this is the case, to calculate the

4 See OECD, *International Infrastructure Competition* (OCDE/GD(95)133) (Paris, 1995).

5 Universal service obligations may alternatively be considered a vehicle to overcome market failure due to network externalities or be based on the assumption that certain TLCs services (and/or the infrastructure their provision requires) are merit goods. Given that, according to all indicators (residential mainlines per 1000 inhabitants, prices for basic and enhanced TLCs, etc.), liberalization has improved universal service in all countries; the market failure argument, however, seems inconclusive. See OECD, *Universal Service Obligations in a Competitive Telecommunications Environment* (Paris, 1995), 135 onwards.

exact incremental costs of its provision. Second, to minimize both these incremental costs and, as a result, the potential for uncompetitive cross-subsidization through overcompensation of their provider, the right to deliver universal service should be auctioned off to the agent willing and able to supply this service in return for the lowest amount of state subsidies.

However, as will be shown in much more detail in below, the status quo of most national and cross-border TLCs markets still falls rather short of the theoretical ideal described above — for political reasons as well as on the technical grounds discussed above.

III. The Status Quo Ante: TLCs Markets Ten Years Ago

A. The state of technology: analogue circuit-switched transmission

A decade ago, as had been the case since the inception of TLCs, almost all information was transmitted using analogue, circuit-switched fixed-wire (usually copper and coax wire) links — the main exception being satellite transmissions for some international calls and for domestic telephony in vast, scarcely populated countries such as the USA, the (then) USSR, Canada, Australia and China. In spite of complementary politico-economic explanations — focusing on rent-seeking behaviour of national governments and the TLCs incumbents — the regulatory status quo until about ten years ago was, in essence, also the result of the technology-imposed constraints inherent in traditional TLCs networks:[6]

- pervasive capacity shortages (circuit-switched networks require a dedicated telephone line for every single call to be processed, and the technologies enabling 'intelligent networks' were still in their very infancy)[7]

6 See, for example, *J-J Laffont* and *J Tirole*, *Competition in Telecommunications* (London, 2000) 9 onwards; *M Langenfurth*, *Der globale Telekommunikationsmarkt: Telekommunikationsdienste als international handelbare Dienstleistungen* (Frankfurt, 2000), 7 onwards.

7 A slightly better capacity utilization can be achieved through frequency-division multiplexing techniques. For details, see *J Weinberg*, 'The Internet and "Telecommunications Services", Universal Service Mechanisms, Access Charges, and Other Flotsam of the Regulatory System,' *Yale Journal on Regulation* 16/2 (1999).

- high fixed costs (capital costs) in addition to substantial maintenance costs, giving rise to high barriers to entry and natural monopoly properties in parts of the network, particularly at the local level (the 'local loop')
- the (costly) need to use distinct infrastructures, i.e. separate networks, for every single TLCs service, e.g. for voice and data transmissions
- the lack of any effective intermodal competition through alternative networks

B. The regulatory framework at the national level

With the exception of a handful of countries, notably the US,[8] the UK and New Zealand, newcomers were denied access to almost all national TLCs markets, be they the provision of domestic and international TLCs services, infrastructure, or the sale — but not the production — of most types of terminal equipment.[9] What is more, almost everywhere in the world the monopolistic incumbents were state-owned enterprises.[10] Therefore, at best, some competition was allowed at the very margins of the monopoly, e.g. for closed-user groups. In most OECD member states, moreover, some operators of internal (i.e. corporate) fixed-wired networks, such as the (state-owned) railroads, public utilities, and/or the armed forces were granted legal exemptions.[11] Finally, some

8 In the US, however, the TLCs sector was, until 1984, reserved for private monopolists (with AT&T being the telephony and Western Union the telegraphy monopolist), which were controlled by an independent regulatory body, the Federal Communications Commission (FCC).

9 The restrictions concerning terminal equipment, widespread in continental Europe, were deemed necessary to ensure that interoperability with and the integrity of the monopolists' TLCs networks would not be smooth. However, they were frequently designed so as to shield local telephone manufacturers from more efficient foreign competitors.

10 In most countries, except for the US and Japan, the TLCs monopolist was also the monopoly suppliers of postal services (hence the term PTT for these communications conglomerates). In competition with private banks, most PTTs also provided banking services.

11 See *H Gröner* et al., *Liberalisierung der Telekommunikationsmärkte: Wettbewerbspolitische Probleme des Markteintritts von Elektrizitätsversorgungsunternehmen in die deutschen Telekommunikationsmärkte* (Berne, 1995). It is for this very reason, by the way, that railroads and public utilities enjoyed distinct first-mover advantages after liberalization had begun, becoming the first serious competitors of the incumbents. It is ironic to note, however, that after the liberalization of TLCs through market deregulation and — full or partial — privatization of the incumbents, their major competitors were other state-owned enterprises, more often than not enjoying legal protection from competition and other privileges in their non-TLCs markets even today. Not only does this raise the spectre of anticompetitive cross-subsidization, even worse, it may be interpreted as tantamount to the attempt of governments to renationalize at least parts of the TLCs markets by stealth. This trend is even more obvious and marked in the postal sector with UPS remaining the only major fully privately-owned operator, whereas all the big state-owned post offices — almost all of which still enjoy wide-ranging monopoly rights in their core market, the letter business — now hold (minority or majority) stakes in the remaining big private parcel and express operators.

countries (such as the UK, Japan, Portugal and Spain) split up the monopoly rights for domestic and international TLCs services respectively, assigning them to different operators.[12]

In addition to their commercial activities, the state-owned incumbents were, as a rule, also entrusted with fundamental regulatory functions, such as numbering, frequency spectrum allocation, technical standards setting and — due to the lack of a clear legal definition — the delineation of the exact scope and scale of their own universal service obligations. In other words, by entrusting them with a dual role both as monopolistic suppliers on most TLCs markets (effectively exempting from antitrust laws) and as referee, the governments of most countries bestowed upon them the privilege of almost unchecked self-regulation.[13]

C. The regulatory framework at the international level

The main consequence of the coexistence of national TLCs monopolies was that foreign operators were prevented from offering their customers seamless end-to-end TLCs services using their own network infrastructures on all cross-border TLCs services (so-called 'one-stop shopping'). Instead, their provision required the close cooperation of the national TLCs monopolists of the country of origin, the country of destination and, occasionally, those in transit countries. The necessity to have to supply cross-border services jointly meant that their collaboration extended not only to the fundamental technical but also to all economic aspects of the interconnection of the national networks involved.

In order to eliminate the huge transactions costs caused by the plethora of bilateral arrangements in force at that time to regulate the provision of cross-border TLCs services (i.e. telegraphy at that time), twenty European governments agreed in 1865 on a multilateral treaty — the International Telegraph Convention — which was to be administered by a new body, the International Telegraph Union (ITU). Now known as the International Telecommunication Union and based in Geneva since 1948, it became

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Even Federal Express recently signed a comprehensive cooperation agreement with the United States Postal Service (USPS).

12 For details see *E Noam*, *Telecommunications in Europe* (New York, 1992), 109 onwards.

13 See, for example, *A Knorr*, 'Von nationalen zum globalen Markt: der internationale Handel mit Telekommunikationsleistungen,' *Handbuch Telekommunikation und Wirtschaft*, eds *D Fink* and *A Wilfert* (Munich, 1999), 278 onwards.

a specialized United Nations agency in 1947.[14] As binding international law, all ITU decisions based upon the main agreement, the International Telecommunication Convention (ITC), are applicable in any of its 189 (in 1999) member states. Primarily, these decisions concern technical issues such as the procedures for the allocation of radio spectrum frequencies and of orbital slots for TLCs satellites. By contrast, the sovereignty of all member states in all areas of domestic TLCs market regulation is fully acknowledged. Apart from that, one main function of the ITU is the elaboration of standardized accounting (i.e. pricing) arrangements for cross-border telephony services. These arrangements form the basis of the bilateral agreements concluded by the ITU member states.

As traditionally top-level staff of the national TLCs monopolists, rather than government diplomats, were chosen by the member states to represent their national interests at the ITU's principal bodies, the ITU gradually became the national incumbents' vehicle to comprehensively cartelize the provision of international telephone services.[15] The diverse ITU-subcommittees with advisory and research functions, however, were also open to representatives of private service and network providers and of terminal equipment producers.[16] This included access to the Comité Consultatif International Télégraphique and Téléphonique (CCITT), the ITU organ responsible for elaborating on the guidelines for the pricing of all international TLCs services and the payment procedures to be applied. Although formally not binding on the ITU's member states, its recommendations are still rather strictly observed by most

14 For a brief history of this organization, see International Telecommunications Union, *ITU's History* (Geneva, 14 May 1999), available at http://www.itu/int/aboutitu/history/history.html.

15 See *Noam*, 293 onwards.

16 As of February 2000, the ITU counted 689 of these so-called sector members, i.e. recognized operating agencies, scientific or industrial organizations, financial or developmental organizations, other entities dealing with TLCs matters, regional and other international organizations, regional TLCs organizations, intergovernmental satellite-operating organizations and the United Nations and its specialized agencies. See International Telecommunications Union, *Trends in Telecommunication Reform 1999: Convergence and Regulation — Executive Summary* (Geneva, October 1999).

of them.[17] Basically, the ITU's 'accounting rate' system,[18] i.e. its recommended pricing scheme, rests on the following pillars:[19]

- The TLCs operator in the originating country (or the national regulatory body, if it is subject to regulation) unilaterally sets the price charged for the cross-border service, the so-called 'collection rate', and is allowed to keep the full proceeds thereof; this is the reason why charges for outbound calls in most international telephone markets differ depending on which of the two countries involved is the country-of-origin of that very call.
- The TLCs operator in the originating country pays the network provider in the destination country a bilaterally agreed price, the so-called 'settlement rate', for the completion of the TLCs service in question through the 'local loop' abroad (with the 'settlement rate' thus becoming some kind of minimum — i.e. break-even — rate for cross-border TLCs services).
- The 'settlement rate' usually amounts to fifty percent of the going 'accounting rate', which in turn ideally reflects the full aggregated transmission costs of said international TLCs service. 'Accounting rates', negotiated bilaterally by the national incumbents, do not only vary by type of traffic, but also by the countries involved, and sometimes even by routing.

With the 'accounting rates' usually exceeding the underlying transmission costs significantly, the profit margin for international telephone calls were and still are substantially higher than for comparable domestic services (although ITU regulations do strongly recommend that 'accounting rates' be roughly cost-based). It should be noted in this context, however, that the 'accounting rate' system only applies to circuit-switched transmissions. As a result, it may be by-passed by using alternative infrastructures such as the internet (packet-switching) or radio and satellite transmission, or by installing international internal corporate networks, based on leased

17 From 1992, in the wake of comprehensive organizational reforms, all functions previously performed by the ITU's organs and committees, including the CCITT, were gradually transferred to one or more of the three newly created ITU sectors, i.e. the Radiocommunication Sector, the Telecommunication Standardization Sector, and the Telecommunication Development Bureau. International Telecommunications Union, *Trends in Telecommunication Reform 1999*.

18 The following is a description of the prevailing 'accounting rate revenue division' procedure. Alternatively, the ITU allows its members to apply two other, yet hardly ever applied, procedures: the so-called 'flat rate' procedure or the usage-based 'traffic unit' procedure.

19 See OECD, *New Technologies and Their Impact on the Accounting Rate System* (Paris, 1997), 12 onwards; *F Schwandt, Internationale Telekommunikation* (Berlin, 1996), 48 onwards.

lines for which usually a monthly flat fee is charged.[20] Finally, the 'accounting rate' system was originally also conceived as a form of sector-specific development aid for poor third world countries, granting them the means required to improve their TLCs infrastructures by intentionally overcharging TLCs users in the industrialized countries for calls to developing countries.[21]

Most cross-border TLCs services, in particular intercontinental ones, are either transmitted via sea cable or satellite links, the former being laid by international consortia under the aegis of the incumbents of the two countries concerned. Network providers from third countries for this reason only rarely stand a chance of obtaining the permission to install a competing, parallel point-to-point sea cable connection. Even more restrictive is the international institutional framework for the supply of satellite capacities, which remains essentially built around the International Telecommunications Satellite Organisation (INTELSAT).[22] This body, which currently has 144 members, was established in 1964 with the explicit objective of creating a collective monopoly in the provision of satellite TLCs and radio infrastructures — again allegedly primarily for development policy reasons with the excessive prices charged for satellite transmissions between industrialized countries being considered a necessary source of cross-subsidy to cover the deficits incurred on transmissions to/from developing countries. Besides INTELSAT, and closely cooperating with it, a variety of regional satellite organizations such as ARABSAT and EUTELSAT, as well as the International Maritime Organization's own satellite system operated by INMARSAT, exist. As is the case with the ITU, the overwhelming majority of INTELSAT's member states are represented by their national TLCs incumbents or, such as the United States or Chile, by national satellite consortia (COMSAT and CHILESAT, respectively), which also formally are the signatories of the INTELSAT agreement. The anticompetitive nature of many key INTELSAT rules is striking. For instance, the signatories are not permitted to establish rival satellite organizations if these may cause significant economic harm to INTELSAT; however, it has no means to enforce this provision as the US example of licensing several competitors has proven. What is more, only the INTELSAT treaty signatories are allowed to lease (and resale on their domestic markets) satellite transmission capacities from INTELSAT.

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20 Arguably the largest such internal network is being operated by SITA (Societé Internationale de Télécommunications Aéronautique), the airline industry's global internal TLCs network.

21 See *W Neu*, 'Der Preis für Telefongespräche mit Entwicklungsländern,' *WIK Newsletter* 32 (September 1998).

22 See OECD, *The Reform of International Satellite Organisations* (OCDE/GD(96)123) (Paris, 1996).

IV. The Status Quo: TLCs Markets Today

A. The state of technology: digitization, wireless, convergence

The 1990s witnessed the commercial breakthrough of digitzed 'intelligent' networks based on fibre-optic cables, the increasing importance of packet-switched transmission in the wake of the explosive growth of the internet and the similarly impressive market penetration of cellular phones.[23] Not only did this significantly boost transmission capacity, it also slashed network operating costs, including, by means of the increased use of wireless technology, the costs of the 'local loop', i.e. the cost of connecting consumers to the nearest network exchange.[24] With maintenance costs accounting for around a quarter of the operating costs of a TLCs network, the maintenance costs of fibre-optic networks are less than one quarter of those of traditional networks.[25] As will be shown below, however, consumers, have not yet benefited from these efficiency gains in the form of lower prices due to the persistent lack of competition, especially in the provision of many cross-border TLCs services, and in the 'local loop'.[26]

More importantly, many former bottlenecks and natural monopoly characteristics of parts of the networks have been gradually — albeit far from completely — eroding in the process. As a result, barriers to entry have been substantially lowered by the advances of technology, with digitization giving rise to the so-called convergence of TLCs, computing and media, allowing the distribution of the same content over diverse technological platforms.[27] Taken together, these developments significantly increased, in conjunction with the rapid diffusion of mobile telephony, the technological potential for intermodal competition. Even more important in this context is the fact that, while telephony has traditionally been heavily regulated, the prices for data and mobile services were by and large left to market forces in most (industrialized) countries.

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23 Digitization, i.e. the replacement of 'the analogue waveform with a series of pulses representing binary numbers' abolished, by creating a single, uniform format for voice, data, images, sound etc., the need to operate separate networks for the transmission of distinct TLCs services. Moreover, vastly higher utilization rates of existing capacities are made possible by diverse data compression techniques.. See *J Wheatley*, *World Telecommunications Economics* (London, 1999), 33. For the increasing importance of packet-switched transmission, see also *C Eugster* et al., 'Builders For a New Age,' *The McKinsey Quarterly* 7/3 (1998).

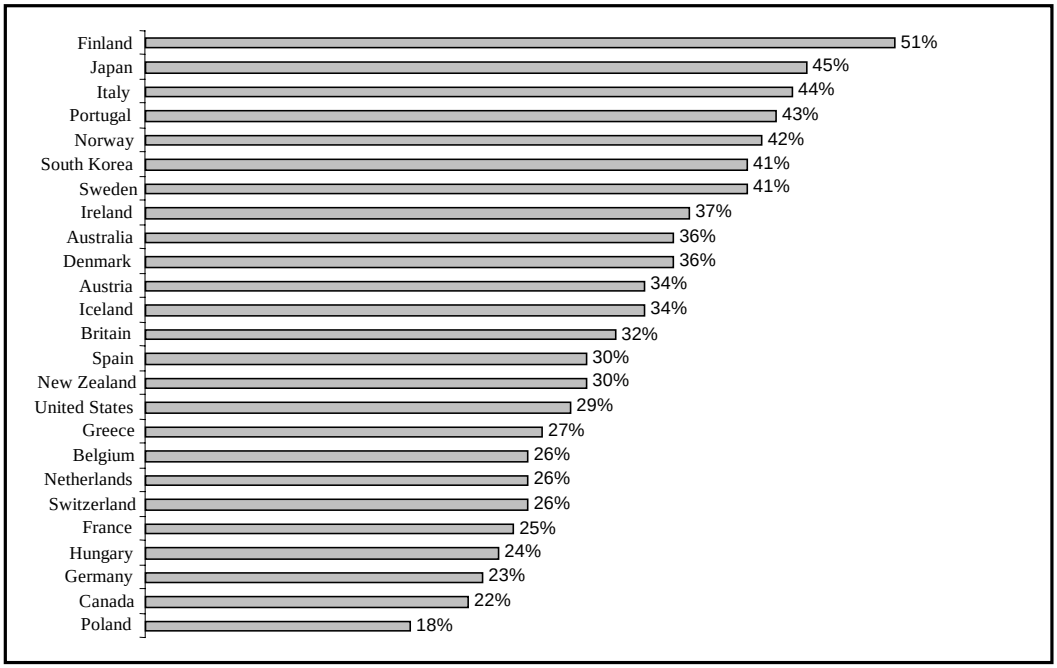
24 The 'local loop' accounts for roughly eighty per cent of any fixed-line network's total costs.

25 See *Cairncross*, 6 onwards.

26 See OECD, *Interconnection and Local Competition* (DSTI/ICCP/TISP(2003)3/FINAL) (Paris, 2001).

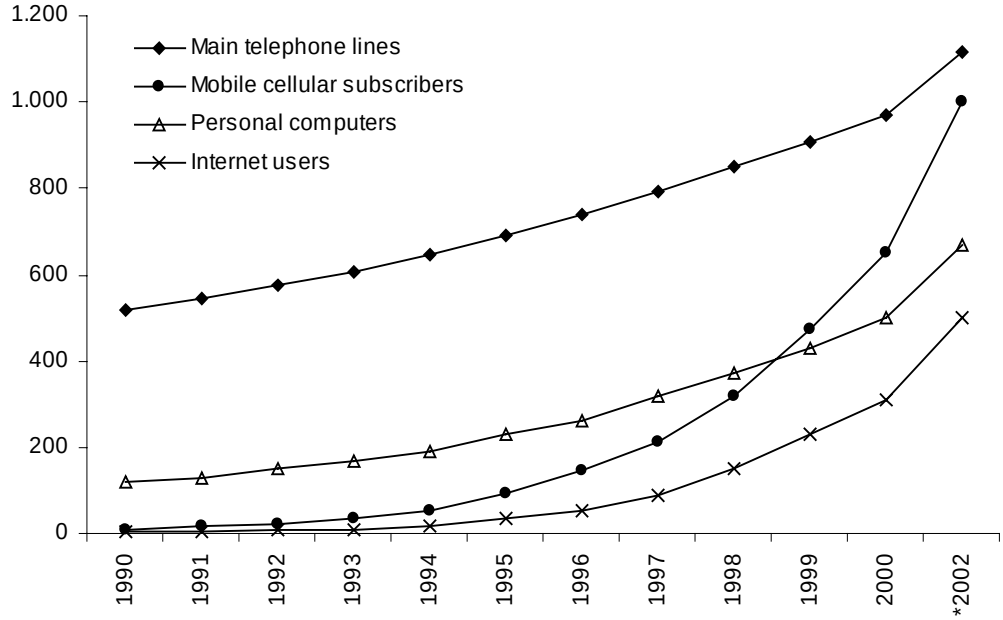
27 Many important policy documents on convergence regulation in the British and EU context can be found at OFTEL, *Broadcasting & Convergence* (London, 2000), available at http://www.oftel.org.uk/ind_info/broadcasting/index.htm).

Table 2: Mobile Subscriptions as a Percentage of All Telephone Subscriptions (1999)



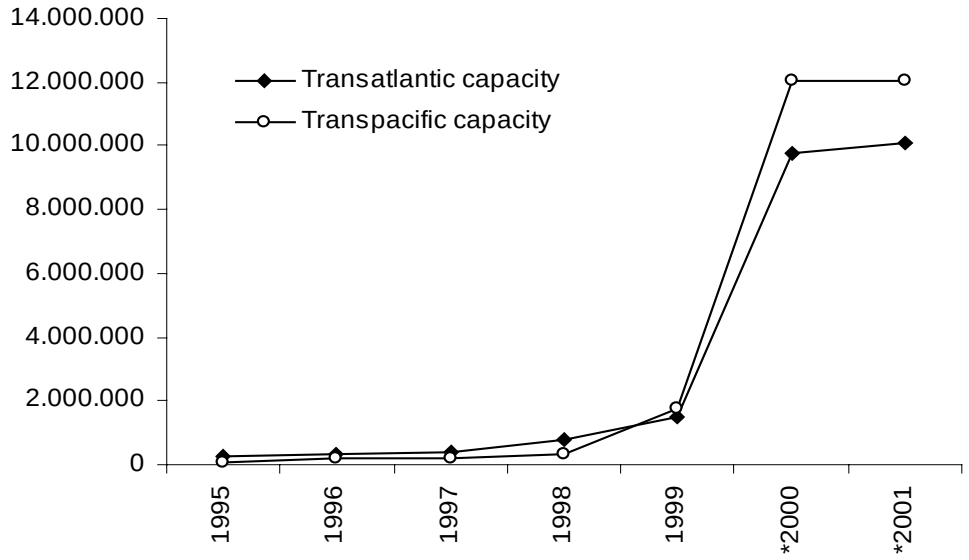
Source: 'Telecommunications: Mobile Phones — Subscribers per 100 Inhabitants,' *The Economist* (European edition) (18 September 1999), 130.

Table 3: TLC Infrastructure Trends (in millions)



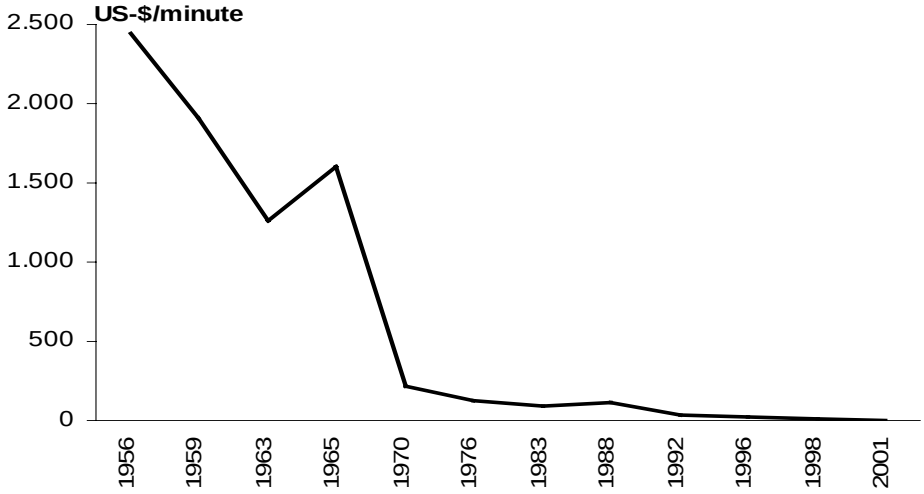
Source: International Telecommunications Union, *Key Indicators for the World Telecommunication Service Sector* (Geneva, 7 April 2000), available at: http://www.itu.int/ti/industryoverview/at_glance/KeyTelecom99.htm. *Estimates.

Table 4: International Network Capacity Trends (64 kbit/s circuit equivalents)



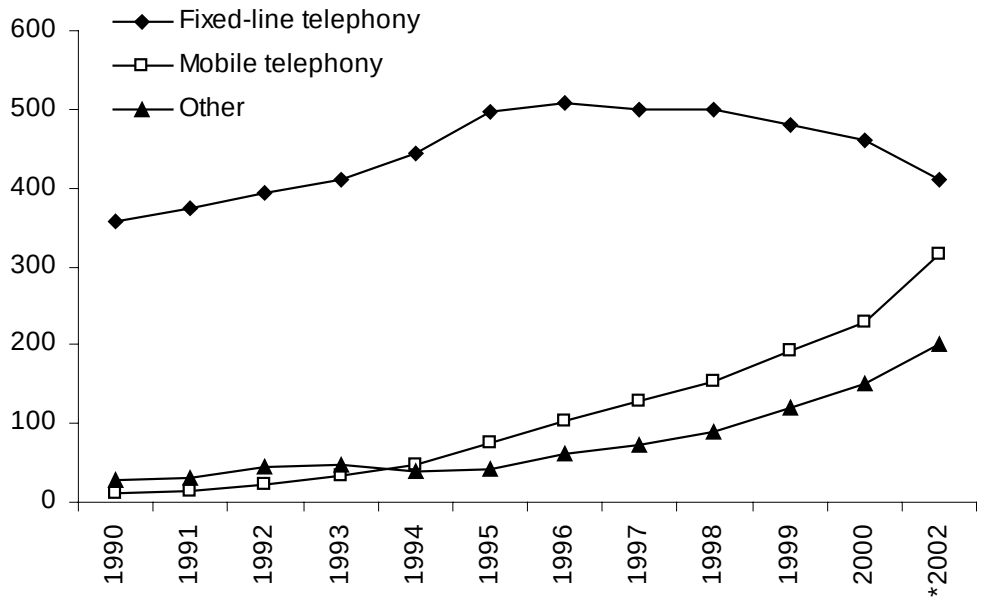
Source: International Telecommunications Union, *Trends in Telecommunication Reform 1999: Convergence and Regulation — Executive Summary* (Geneva, October 1999), 17. *Estimates.

Table 5: Costs of Transatlantic Submarine Cables (investment costs per minute in US dollars)



Source: Federal Communications Commission, *Trends in the International Telecommunications Industry*, (Washington DC, April 2001), Table 5.

Table 6: Trends in TLCs Revenues Breakdown (in billions of US dollars)



Fixed-line telephony: Revenue from installation, subscription and local, trunk and international call charges for fixed telephone service.
Other: Including leased circuits, data communications, telex, telegraph and other telecom-related revenue.

Source: International Telecommunications Union, *Key Indicators for the World Telecommunication Service Sector* (Geneva, 7 April 2000), available at:
http://www.itu.int/ti/industryoverview/ at_glance/KeyTelecom99.htm. *Estimates.

It is vital to remember, however, that it is as yet unclear what repercussions convergence will actually have on specific TLCs markets, and in particular on the market structure, with the regulatory frameworks for TLCs, broadcasting, and computing still differing vastly in most countries.[28] Reflecting the traditional analogue mono-medial view of information market, a vertical approach to regulation still prevails.[29] As a result, enterprises disseminating information using print media traditionally face little or no government restrictions, whereas companies distributing the very same information electronically or by means of wireless transmission are subject to a great deal more regulatory intervention, creating not only ample

28 In 1998, Malaysia responded to convergence by passing the Communications and Multimedia Act, grouping TLCs, broadcasting and computing into one single sector subject to one single regulatory body.

29 *U Stumpf*, 'Ordnungspolitische Folgen der Konvergenz,' *WIK Newsletter* 30 (March 1998), available at http://www.wik.org/newletter/nl30-1.htm. Financial services regulators, of course, are facing nearly identical problems in the wake of the increasing overlap of banking and insurance markets.

opportunities for regulatory arbitrage but also a high degree of legal uncertainty as to the classification of hybrid services and the delineation of competences of the diverse media-specific regulatory authorities.[30]

B. Trends in liberalization in the 1990s and their effects: some stylized facts

As the following figures show, entry conditions as well as previously existing restrictions on foreign ownership of domestic TLCs operators had been substantially relaxed globally for traditional TLCs services by the end of the 1990s.[31] However, it should not be overlooked that, despite pervasive progress, liberalization efforts and commercial opportunities for non-incumbents still differ significantly by region and type of TLCs activity. Generally speaking, cellular telephony is much less regulated than fixed-line telephony, voice is more regulated than data, domestic TLCs are more liberalized than cross-border services and industrialized countries are more far more competition-oriented than developing countries and newly industrializing countries (NICs). Nevertheless, the picture today is remarkable compared to a decade ago:

- Some 74 per cent of all outgoing international TLCs traffic is liberalized (up from 35 per cent in 1990), with 29 countries (up from four in 1990) having licensed more than one supplier for international telephony (with the phasing-in of WTO commitments, the projected figures for 2005 are 85 and 48 per cent, respectively).[32]
- More than thirty countries, including some developing countries such as El Salvador, Guatemala and Uganda, have opened up basic TLCs services to (at

30 See *P H Longstaff*, *Information Theory as a Basis for Rationalizing Regulation of the Communications Industry*, Harvard University Program on Information Resources Policy Discussion Paper P-94-4 (Cambridge, MA, 1994); *C Cowie* and *C Marsden*, 'Convergence, Competition and Regulation,' *International Journal of Communications Law and Policy* 1 (1998), available at http://www.digital-law.net/IJCLP/1_1998/ijclp_webdoc_6_1_1998.html; and *Fischer & Lorenz*, *Internet and the Future Policy Framework for Telecommunications: A Report for the European Commission* (Hellerup, 31 January 2000).

31 More indicators can be found at OECD, *A Review of Market Openness and Trade in Telecommunications*, 28 onwards.

32 See *T Kelly*, 'Global Trends in Telecom Development,' presentation at the CTO Annual Council, Gabarone, 20 September 1999, 6.

least some) competition, up from only four (New Zealand, the US, the UK and Japan) in 1990.[33]

- Only slightly more than ten per cent of the international TLCs traffic is still subject to the ITU's 'accounting rate' system, which is giving way to much more cost-based domestic interconnection prices.[34] As a result, the premium charged for outgoing international calls as compared to otherwise identical long-distance domestic ones, currently still at more than 300 per cent in most countries, has been brought down sharply — in some cases to no more than fifty percent in the most competitive markets.[35] One reason for this decline is that, for outgoing traffic from the United States, for example, from mid-1997 more international private lines (i.e. packet-switched internet connections) were in use as international circuits than old-fashioned circuit-switched public telephone networks.[36]
- The number of internet hosts has soared from 0.04 million in 1990 to 56.2 million in 1999, two thirds of which are located in North America and an additional 24 per cent in Europe.[37]
- 88, i.e. almost fifty percent of all TLCs incumbents worldwide and including nineteen of the top twenty public TLCs operators, are fully or partly privatized, with Europe leading the way, followed by the Americas and the Asia-Pacific region.[38] Moreover, only seven of all 29 OECD members had retained restrictions on foreign ownership by 1998.[39]
- In 1997, 205 million cellular phone users were counted, up from eleven million in 1990 — compared to slightly under 800 million fixed-line subscribers in 1997 (and around 500 million in 1990).[40] Based on these

33 See *T Kelly*, 'The New Network Economy,' presentation at Webster's University, Geneva, 29 February 2000, 44.

34 See *Kelly*, 'The New Network Economy,' 11.

35 For example, a one-minute call from Switzerland to the US is now just one-tenth of what it cost only five years ago (i.e. seven vs. 74 US-cents, with domestic long-distance calls in Switzerland currently being priced at around four US-cents). See International Telecommunication Union, 'Trouble in Paradise,' *ITU Telecommunications Indicators Update* (Geneva, July-September 2000)2.

36 See International Telecommunication Union, 'Trouble in Paradise,' 3.

37 See *Kelly*, 'Global Trends in Telecom Development,' 3 onwards; *Kelly*, 'The New Network Economy,' 5.

38 See International Telecommunication Union, Trends in Telecommunication Reform 1999,' 10; *Kelly*, 'Global Trends in Telecom Development,' 4.

39 See OECD, *A Review of Market Openness and Trade in Telecommunications*, 28.

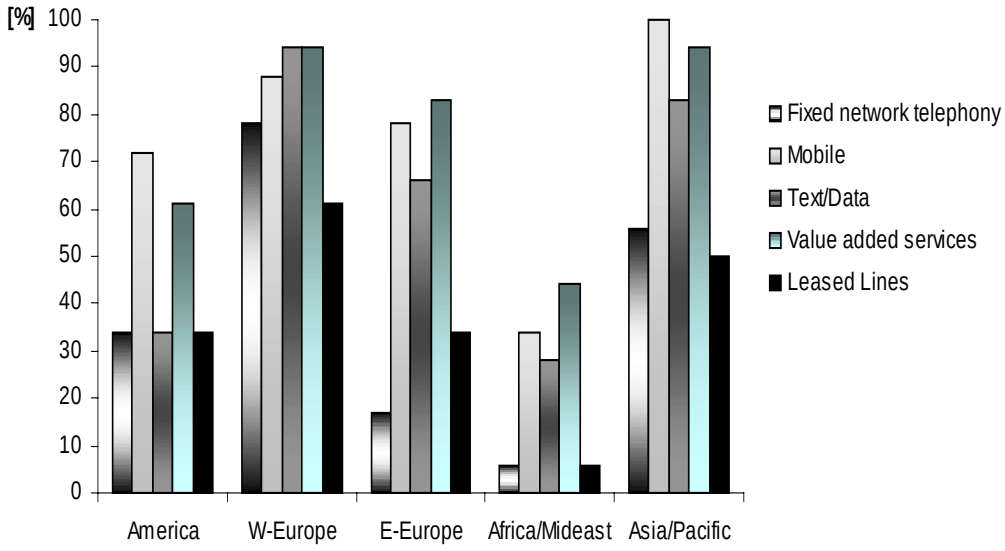
40 See Siemens AG, *International Telecom Statistics* (Munich, 1998), 32 onwards; International Telecommunications Union, *World Telecommunication Development Report 1996/97: Trade in Telecommunications* (Geneva, 1997), 7.

trends, it is likely that the number of cellular subscribers will have exceeded the number of fixed-line users by 2005.

- There are currently 84 independent regulatory agencies (up from only twelve in 1990).[41]

What is more, new services which were not yet widely available or commercially viable at the beginning of the 1990s — mobile telephony and internet/online services — form the most fully liberalized segments of the TLCs sector, with some 67 per cent of the mobile cellular markets and even 72 per cent of the internet market worldwide being open to competition.[42] Finally, giving way to US pressure, INTELSAT has opened to new private-sector members and is planning to go public in 2001. The following four tables break some of these trends down by region, by type of infrastructure and by type of service.

Table 7: State of Liberalization by Regions

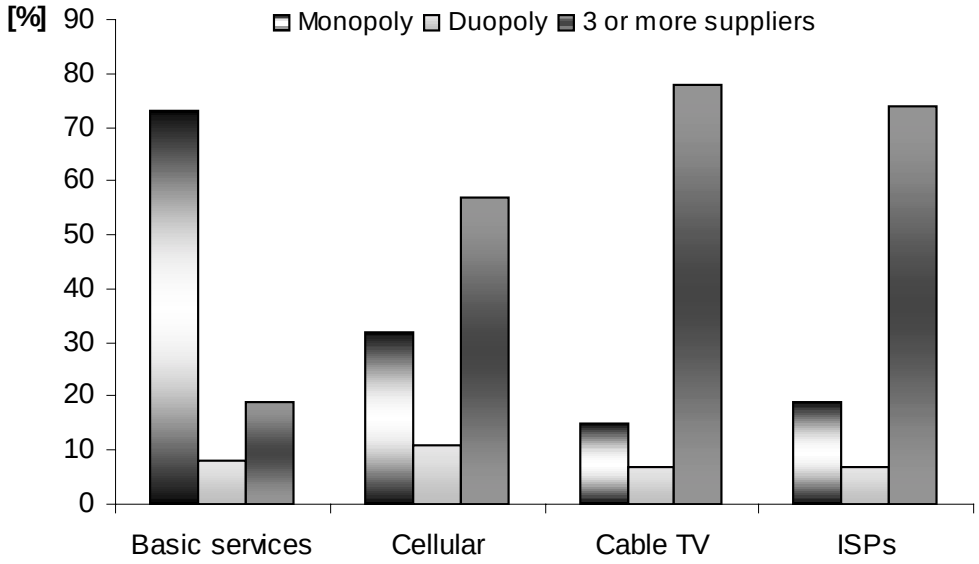


Source: Siemens AG, *International Telecom Statistics* (Munich, 1999), 9.

41 See International Telecommunications Union, *Trends in Telecommunication Reform 1999*, 6. A comprehensive survey and comparison of the respective tasks of these agencies can be found in OECD, *Telecommunications Regulations: Institutional Structures and Responsibilities* (DSTI/ICCP/TISP(99)15/FINAL) (Paris, 2000).

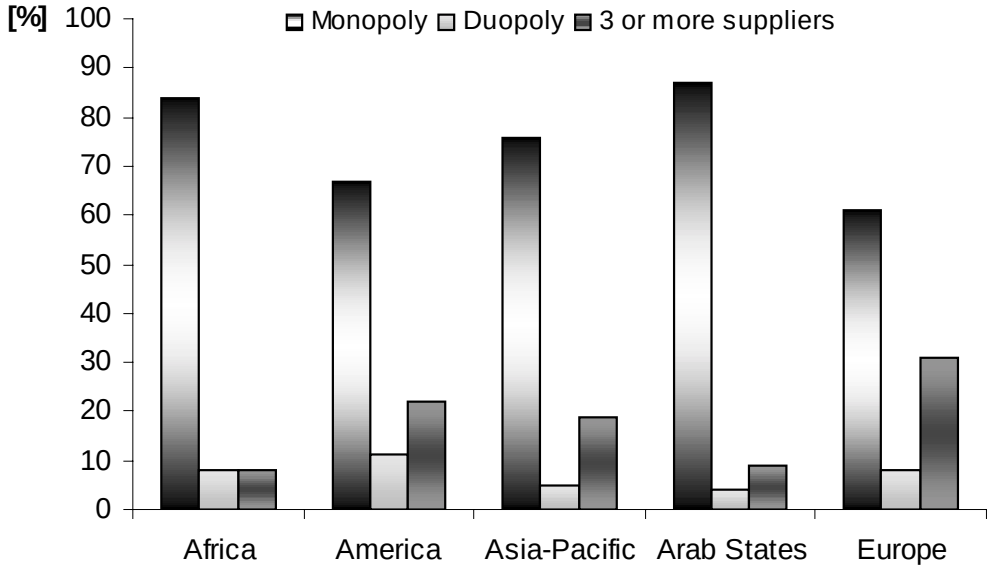
42 See OECD, *Telecommunications Regulations*, 7.

Table 8: Market Structure by Service Type in ITU Member States (1999)



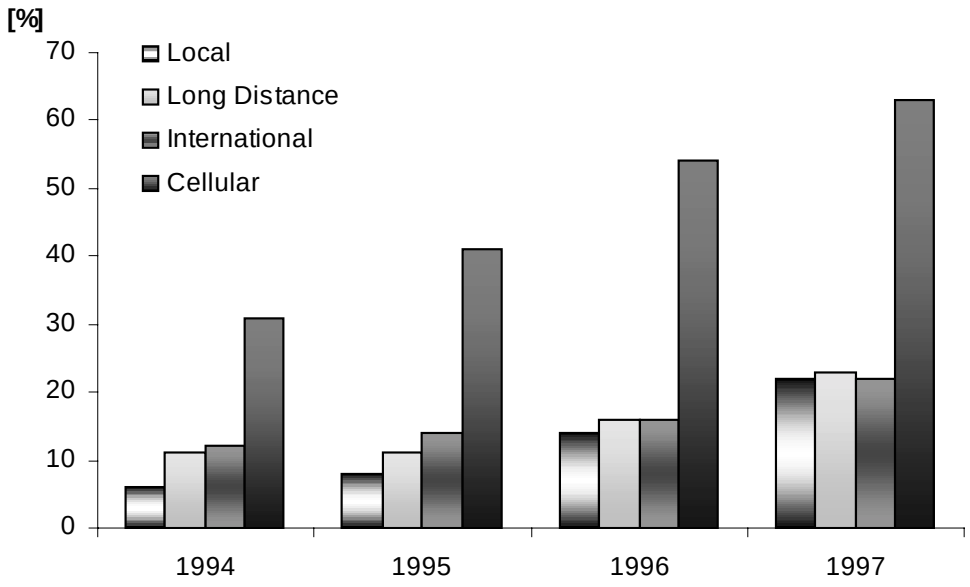
Source: T Kelly, 'Global Trends in Telecom Development,' presentation at the CTO Annual Council, Gabarone, 20 September 1999.

Table 9: Market Structure in Basic Services by Region (1999)



Source: T Kelly, 'Global Trends in Telecom Development,' presentation at the CTO Annual Council, Gabarone, 20 September 1999.

Table 10: Number of Countries with More Than Three TLC Operators (selected services)



Source: OECD, *Communications Outlook* (Paris, 1999).

V. The Road to Liberalization

Although it is hard to underestimate the importance of technical progress in general and of digitization in particular as the crucial push factors in the ongoing liberalization process of the TLCs sector worldwide — spawning in their wake a host of very powerful special interest groups lobbying hard for access to formerly monopolized markets —[43] it should not be overlooked that these developments only created the potential for market liberalization through deregulation and privatization. Therefore, it is necessary to highlight the key political players and events behind the recent liberalization trend.

43 See, for many, *C Engel*, 'Die ansteckende Wirkung der ausländischen Liberalisierung von Märkten,' *Jahrbuch für Neue Politische Ökonomie* 16 (1997), 249 onwards.

A. The pioneer: TLCs deregulation in the United States

In 1984, with the break-up of the private monopolist AT&T (the 'Bell system'),[44] the US government began to embark upon a liberalization course, culminating in the (formal) opening to competition in the 'local loop' segment with the Telecommunications Act 1996.[45] More important as a catalyst for liberalization on the international level, however, was the Federal Communications Commission's August 1997 Benchmark Order, unilaterally setting a ceiling for bilateral settlement rates to be progressively lowered until its full implementation in 2003. With this regulation, the FCC reacted to the US TLCs operators' annual deficit of around $5.4 billion in international telephony in 1996, up from only $1.1 billion in 1985.[46] That surge had been the immediate result of domestic deregulation, which had driven down collection rates for outbound international calls while the settlement rates had remained rather sticky. With the Benchmark Order in force, many countries have agreed, under pressure, to renegotiate their bilateral accounting and settlement rates with the US, leading in the process to considerable reductions of both. Moreover, they were aligned more closely to the underlying costs of transmission. Last but not least, the prices for outgoing cross-border calls originating in the territory of the US were accordingly adjusted downward by the operators.[47]

B. The imitator: TLCs liberalization in the European Union

Until the late 1980s, the standard model of TLCs service provision through state-owned monopolists was not seriously questioned in the vast majority of European countries, the most important exceptions to this rule being the UK — where privatization and deregulation of the TLCs sector had begun as early as 1984 —[48] and Finland with its

44 See *B Wieland, Die Entflechtung des amerikanischen Fernmeldemonopols* (Berlin, 1985).

45 For an in-depth analysis of this act see *R G Harris* and *C J Kraft*, 'Meddling Trhough: Regulating Local Telephone Competition in the United States,' *Journal of Economic Perspectives* 11/4 (1997).

46 See Federal Communications Commission, *Statistics of the Communications Common-Carriers* (Washington DC, 1997).

47 See Federal Communications Commission, *Report on International Telecommunications Markets 1999 Update* (Washington DC, 14 January 2000), 4 onwards. Unilateral action by the US finally also help pry open the INTELSAT cartel. For details, see OECD, *The Reform of International Satellite Organisations*.

48 See *M Cave* and *P Williamson*, 'Competition and Regulation in UK Telecommunications,' *Oxford Review of Economic Policy* 12/4 (1996).

traditional plethora of network operators.[49] This, however, began to change dramatically when, driven by the US and the UK experiences, the notion finally took root that the institutional status quo had been the cause of substantial inefficiencies, with the resulting excessive prices for TLCs services being a significant drag on industrial development and, as a result, on the international competitiveness of EU-based corporations and of the EU as a location for inbound FDI.[50]

Apart from some isolated decisions by the European Court of Justice on the application of EU competition rules to some specific practices of national TLCs operators, liberalization did not kick off in earnest before 16 May 1988, the date of the entry into force of the first EU TLCs directive, which opened up the market for all terminal equipment to full competition.[51] In 1993, the European Council finally decided to create a single market for voice telephony by 1 January 1998, with the three building blocks of open network provision (ONP), interconnection (thereby substituting interconnection prices for the ITU's 'accounting rate' system) and interoperability, all of these, in turn, being based on the guiding principles transparency and non-discrimination. Detailed regulations were later passed, amongst other things, in the areas of spectrum allocation and licensing procedures, leased lines, packet-switched data services (PSDS), the institutional framework for national regulatory authorities (which must be separate bodies, independent of both operators and national ministries), etc. Finally, EU law requires universal service obligations to be funded in a competitively neutral manner, lest they restrict entry or be a potential source of anticompetitive cross-subsidization.[52]

C. The role of the ITU

The ITU, understandably, has never been a liberalization prime mover, although some institutional reforms as well as attempts to reform the obsolete 'accounting rate' system

49 For a detailed overview of the most recent developments in the EU's TLCs policy, see *K Eliassen* and *M Sjøvaag, European Telecommunications Liberalisation* (London, 1999).

50 See, amongst others, *L Waverman* and *E Sirel*, 'European Telecommunications Markets on the Verge of Full Liberalization,' *Journal of Economic Perspectives* 11/4 (1997), 113 onwards; see also *P J J Welfens* and *C Graack*, 'Telekommunikationsmärkte in Europa: Marktzutrittshemmnisse und Privatisierungsprobleme aus Sich der neuen politischen Ökonomie,' *Jahrbuch für Neue Politische Ökonomie* 16 (1996).

51 See European Union, *Union Policy: New Technologies — Information Society* (Brussels, 2000), available at http://europa.eu.int/scadplus/leg/en/s21012.htm. By contrast, that market had been liberalized in the US as early as 1968. See *Waverman* and *Sirel*, 122.

52 For a comprehensive overview of the key TLCs laws and regulations currently in force in Europe, see *J Scherer*, *Telecommunication Law in Europa*, 4th ed. (London, 1998).

are underway. However, due to the manifold built-in weaknesses inherent in its rules and regulations, it has unintentionally played a vital role in unleashing the competitive forces that finally led to the gradual erosion of the international TLCs cartel (at least as far as the industrialized countries and the remaining signatories of the WTO's BTA are concerned). In particular, it created huge incentives for TLCs users to try and by-pass the not cost-based 'accounting rate' system, with the most important techniques in use being (i) callback services, (ii) least-cost routing and (iii) resale.

The idea behind callback services is to transform an outgoing international phone call into an incoming one in order to exploit arbitrage opportunities created by different national collection rates.[53] Ironically, this kind of competition may even increase the total revenues, and profits, of the national TLCs operator whose higher collection rates have rendered the callback option economically attractive in the first place. This will always be the case if the collection rate per minute (= its loss) is lower than the bilateral settlement rate per minute (= its gain). In other words, the existence of callback services will only put the domestic incumbent under pressure to lower its prices for outgoing international calls if the settlement rate it receives from the foreign TLCs operator(s) — for the completion of the inbound portion of the callback call — is significantly lower than the collection rate it charges its customers. The average market share of callback service providers is estimated at around ten per cent; it may be significantly higher, however, in specific international markets, having peaked at some forty per cent of all calls from Germany to the USA in the mid-1990s.

The existence of arbitrage opportunities created by the 'accounting rate' system has also given rise to least-cost routing techniques (i.e. least-accounting-rate routing). This means that an international phone call from country A to country B is not transmitted directly to its country of destination. Instead, it gets routed via a transit country C. The cost savings incurred by re-rerouting a call to its final destination, rather than directly delivering it, derive from differences in the bilateral accounting and settlement rates and/or in the collection charges for outgoing calls in the countries involved.

Finally, resale competition refers to the resale of excess capacities by the lessees of cross-border leased lines, such as multinational corporations and other closed user groups (e.g. the above-mentioned SITA). There are two principal variants of resale competition: 'simple international resale' and 'international direct resale'.[54] If 'simple international resale' is practised, only the cross-border segment of the transmission is

53 For a discussion of the technical aspects of callback services, see OECD, *International Telecommunications: A Review of Issues and Developments* (OCDE/GD(95)107) (Paris, 1995).

54 See OECD, *New Technologies and Their Impact on the Accounting Rate System*.

routed through the leased line, which at both ends is connected to the public networks of the national incumbents involved[55] — which, in turn, perform all the other stages of the delivery process, charging their regular prices for domestic calls, respectively. 'International direct resale', by contrast, occurs if the final user himself, e.g. the overseas branch of a multinational, gets connected to the leased line. In the first case, the savings, obviously, result from the by-passing of the 'accounting rate' system's toll gates on the cross-border portion of the transmission, while in the second case additional savings derive from the circumvention of the applicable collection charge for outgoing international calls. Even most of the rather liberal OECD member states, however, have severely restricted or completely banned 'simple international resale' activities so far.

D. The role of the GATT/WTO

One of the major breakthroughs achieved during the GATT's Uruguay Round negotiations which drew to a close in December 1993 was the extension of the scope of the multilateral trade rules — with their key principles of progressive liberalization, non-discrimination (national treatment and unconditional most-favoured nation's treatment) and transparency — to the service sector through the adoption of the General Agreement on Trade in Services (GATS). However, in contrast to the GATT — the General Agreement on Tariffs and Trade (in goods) — the GATS, acknowledging the special requirements for international trade in services,[56] has introduced a more comprehensive concept of market access which goes beyond the elimination of classical tariff and non-tariff border restrictions generally associated with trade in goods.[57]

The proposal to extend the scope of the talks to include the TLCs sector, too, was not tabled until 1990 by the US — four years into the Uruguay Round — and quickly supported by the EU, Japan, South Korea and two groups of developing countries led by Egypt, India and Nigeria.[58] Due to the lack of consensus on what parts of the TLCs markets should be the object of the negotiations, the only tangible result of the Uruguay

55 These entry points are usually called international gateways.

56 The four types of international service provision acknowledged by the GATS are through cross-border supply, commercial presence, temporary presence of natural persons and consumption abroad.

57 See *C Braga*, 'Liberalizing Telecommunications and the Role of the World Trade Organization,' *Public Policy for the Private Sector* Note No. 120 (Washington DC, 1997), 2.

58 See *M C E Bronkers* and *P Larouche*, 'Telecommunications Services and the World Trade Organization,' *Journal of World Trade* 31 (June 1997).

Round itself was the GATS Annex to Telecommunications. It only applies to those TLCs services explicitly listed in the members' schedules, requiring them 'to ensure that any service supplier of any other Member is accorded access to and use of public telecommunications transport networks and services on reasonable and non-discriminatory terms and conditions [...].'[59] In this context, it is important to note that the term 'service supplier' excludes all TLCs services, referring only to those non-TLCs services, the provision of which requires certain TLCs services as an input. Even worse, just 56 of the 125 participating members had been willing to add liberalization commitments for some TLCs services to their schedules[60], primarily for enhanced services according to the classification used in the negotiations.[61] For this reason, effectively only a marginal part of the TLCs sector was opened to competition following the completion of the Uruguay Round.

In the face of widespread disappointment with this outcome, in May 1994 a Negotiating Group on Basic Telecommunications was established with the mandate to strike a better deal by 30 April 1996. Three distinct areas were covered by the talks: market access to domestic TLCs market and national treatment, the relaxation of foreign ownership restrictions and the basic principles of national TLCs regulation. Initially 33 members participated with their number rising to 53 (plus 24 with observer status). Due to US dissatisfaction with the frugal liberalization commitments of most of its negotiating partners — in particular on the part of the Asian NICs — no agreement, however, could be reached by the deadline (only 34 WTO member states had tabled market access commitments of their own by then). After last-minutes efforts by the WTO's then director-general, Renato Ruggiero, a new deadline (15 February 1997) was set, and a new body, the Group on Basic Telecommunications, was created to continue with the negotiations. These were resumed in June 1996 and, after the number of members committing themselves to TLCs liberalization had risen to 55 — i.e. to 69 countries if all EU member states are counted separately, with that number rising to 72 during the

59 See GATS Annex on Telecommunications, Paragraph 5(a).

60 See *Langenfurth*, 209. Counting the then twelve EU members separately, a total of 67 countries were involved.

61 Defined as basic TLCs services were voice telephony, packet-switched and circuit-switched data transmission services, telex, telegraph and facsimile services, private leased circuit services, analogue/digital cellular/mobile telephony services, mobile data services, paging services, personal communications services, satellite-based mobile services, fixed satellite services, gateway earth station services, teleconferencing services and trunk radio system services. Enhanced services comprised e-mail, voicemail, on-line information and database retrieval, electronic data interchange (EDI), enhanced/value-added facsimile services, code and protocol conversion, and on-line information and/or data processing. See *Bronkers* and *Larouche*, 48.

ratification process— they were completed successfully and on time.[62] Moreover, 32 of the 34 members that had previously offered commitments had in the meantime decided to extend them.[63]

Also, almost all participants opted to sign all or substantial parts of the so-called Reference Paper to the BTA, which, amongst other things, obliges members to prevent 'major suppliers', i.e. dominant domestic TLCs operators, from restrictive business practices such as anticompetitive cross-subsidization, the anticompetitive use of information obtained from competitors, and the withholding of technical and commercially relevant information.[64] What is more, it states that interconnection must be provided non-discriminatorily, in a timely fashion, and upon request, also at other points than network termination points. Apart from this, the Reference Paper confirms every member's right to define universal service obligations and that these will not be judged as anticompetitive per se, provided they are administered in a 'transparent, non-discriminatory and neutral manner' and are not 'more burdensome than necessary'.[65] The very same principles of regulation must also be applied for the allocation of scarce resources such as frequencies, numbers, rights of way, etc. Finally, if there is a regulatory authority, it must be separate from, and independent of, any basic TLCs services supplier, and decide impartially.

In terms of revenues, the BTA covers slightly more than 92 per cent of the world TLCs market —[66] up from the meagre thirty per cent that would have been affected, had the negotiations ended as planned on 30 April 1996.[67] Even more importantly, it should be noted that, with these new regulations, competition rules have been integrated into the GATT/WTO-system for the first time ever, after the original attempt to do so in the Havana Charta was thwarted by the US Congress in 1945.

62 The commitments are discussed in full detail by *Langenfurth*, 219 onwards.

63 See *Langenfurth*, 216 onwards; *Braga*, 3 onwards.

64 For details see OECD, *Implications of the WTO Agreement on Basic Telecommunications* (COM/TD/DAFFE/CDP(99)12/FINAL (Paris, 1999), 6 onwards.

65 OECD, *Implications of the WTO Agreement on Basic Telecommunications*, 7.

66 See World Trade Organization, *The WTO Negotiations on Basic Telecommunications* (Geneva, 1997), available at http://www.wto.org/wto/press/summary.htm.

67 See Office of the United States Trade Representative, *Statement of Ambassador Charlene Barshefsky: Basic Telecom Negotiations, Press Release 96-40* (Washington DC, 30 April 1996).

Table 11: Combined World Market Share of all BTA-Signatories (1996)

Telephone mainlines:	**81 %**
Mobile phone subscribers:	**93 %**
TLCs revenues:	**92 %**

Sources: International Telecommunications Union, World Telecommunication Development Report 1998: Universal Access (Geneva, 1998) and M Langenfurth, Der globale Telekommunikationsmarkt: Telekommunikationsdienste als international handelbare Dienstleistung, Frankfurt, 2000), 247.

Apart from the WTO's more recent direct role in liberalizing TLCs services themselves, the crucial indirect role of the GATT as a vital catalyst for economic globalization since 1947 — significantly enhanced later on by the GATS and TRIPs — is also very much worth mentioning in this context. By facilitating and promoting international trade and foreign direct investment, it helped create and intensify the demand for innovative, cheaper, more reliable cross-border TLCs services which the old-fashioned national monopolists, due to the restrictions under the *ancien regime*, were unable to provide to their increasingly multinational customers — the second important push factor aside from, but highly interdependent with, technological progress.[68]

VI. Conclusions: Formal Liberalization vs. Effective Competition

What the above has shown is that the formal liberalization of telecommunications markets has indeed come a long way in a relatively brief period of time. Yet, even in the most progressive countries, entrenched former monopolists have been remarkably successful in protecting many of their core (i.e. fixed-line) businesses from the competitive onslaught of even a large number of licensed newcomers.[69] It might therefore well be argued that the (now obvious) anticompetitive effects of the manifold and massive first-mover advantages enjoyed by the incumbents — generally speaking, one hundred per cent of the local market, especially a firm grip on the 'local loop', a very familiar brand and sunk investments of an enormous size (i.e. into a network that

68 See *A Picot* (ed.), 'Zusammenhänge zwischen Innovation und Marktentwicklung durch Telekommunikation,' *Telekommunikation im Spannungsfeld von Innovation, Wettbewerb und Regulierung* (Heidelberg, 1998), 80 onwards.; *Langenfurth*, 129 onwards.

69 See for example *S Beardsley*, 'Full Telecom Competition in Europe is Years Away,' *The McKinsey Quarterly* 7/2 (1998), 33 onwards.

had largely been paid for) — have been grossly underestimated by economists and policymakers alike. This is clearly proven by the following tables, which reflect the rather meagre market shares achieved by newcomers in the most important national TLCs market in the world — all of which rank very high in the league of the (formally) most fully liberalized ones, too.

Table 12: Newcomers' Market Shares as a Percentage of Total Call Minutes (2000)

	Germany	**Japan**	**France**[3]	**UK**	**US**
Local calls	4	3.5	5-7	28.3	3.5[4]
Long distance (domestic)	53	45.4	15-20	35	37.2[5]
International calls	8	32,5	20-30	59	62.9[5]
Mobile calls	60.3[1]	41.3[2]	51.8[1]	69.7	n.a.

[1] As a percentage of all subscribers.
[2] As a percentage of total revenues (domestic calls only).
[3] Estimates for FY 20001, business customers only (figures for residential customers are substantially lower).
[4] Figures for 1998.
[5] Figures for 1999.

Sources: REGTP, *Jahresbericht 2000: Marktbeobachtungsdaten der Regulierungsbehörde für Telekommunikation und Post* (Bonn, 2000), 13; REGTP, *Mobiltelefondienste* (Bonn, 2001), available at: http://www.regtp.de/aktuelles/in_03-06-00-00-00_m/04/index.html; OFTEL, *Market Information: Update November 2000* (London, 2000), 11; OFTEL, *Market Information: Mobile Update January 2001*, (London, 2001), 7; Japanese Ministry of Public Management, Home Affairs, Posts and Telecommunications, *Outline of the Telecommunications Business in Japan* (Tokyo, February 2001), 13 onwards; Autorité de Régulation des Télécommunications, *Téléphonie Mobile: 31,3 millions de clients en France au 31 mars 2001* (Paris, 2001), available at: http://www.art-telecom.fr/ communiques/communiques/2001/14-2001.htm; Teligen Ltd., *France: A Newly Liberalised Market — January 1998* (Richmond, 1999), 15, available at: http://www.teligen.com/files/art_france.pdf; Federal Communications Commission, *Local Competition: August 1999* (Washington DC, 1999), 15; Federal Communications Commission, *Trends in the International Telecommunications Industry* (Washington DC, April 2001), Table 28; Federal Communications Commission, *Statistics on the Long Distance Telecommunications Industry* (Washington DC, January 2001), 17.

Table 13: Average Market Shares of Largest and Second-Largest Operator in OECD Countries

	largest operator	second-largest operator
Local and national calls	90.8%	5.2%
International calls	85.7%	7.3%
Digital mobile telephony	65.8%	22.9%

Source: O Boylaud and G Nicoletti, *Regulation, Market Structure and Performance in Telecommunications*, OECD Economics Department Working Papers No 237 (ECO/WKP(2000)10) (Paris, April 2000), 29.

Given these disappointing figures, continued government oversight through specialized regulatory bodies and/or competition authorities may, on the one hand, be the only way to prevent the incumbents from abusing their dominant positions on some markets, thus guaranteeing effective competition. On the other hand, ill-conceived regulatory arrangements — like those which were finally overcome in the past decade — can and do result in enormous welfare losses. New and better regulatory tools, therefore, need developing to ensure that the huge potential benefits of liberalizing the TLCs sectors will indeed fully materialize to the benefit of consumers worldwide.

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