
ICTs and Social Development: The Global Policy Context

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◆ Summary/Résumé/Resumen

Summary

In conjunction with the remarkable growth and integration of the ICT industry over the past decade, world communications politics and policies are undergoing profound change. For almost a hundred years, since the earliest international agreements facilitating intercontinental radio and telephone communication, the role of international institutions has primarily been to co-ordinate national policies, independently shaped by sovereign governments. Today, however, the space for independent national policy making is shrinking; and the international policy context increasingly takes precedence over all others.

In this paper, Cees Hamelink analyses the changing international environment for resolving outstanding issues in the information technology field. He begins with a discussion of the decade-long process of negotiation culminating in the World Telecommunications Agreement, through which the telecommunications industry has gradually come to accept progressive liberalization and privatisation. This affects the availability, accessibility and affordability of ICT infrastructures and services in all countries around the world, as do negotiations in three other fields briefly covered in the paper: reform of the account rate settlement system for international calls; control over satellite services; and management of the electromagnetic spectrum.

Other international policy debates, such as those related to the protection of intellectual property rights (IPRs), affect the diversity of information and knowledge that can be made freely available to the public. In recent years, the international regime has moved away from the public interest dimensions of IPRs and has tended to privilege the economic interests of owners. At the same time, access to a wide array of information is seriously threatened by the strong trend toward consolidation within the world info-com market and the absence of credible competition policy in many national contexts.

Hamelink also considers new issues emerging in connection with electronic commerce, including problems of taxation and legal jurisdiction over companies operating at a transnational level, control over cryptography, the protection of privacy and the problem of how to validate digital signatures. Finally, he explains some of the institutional issues to be resolved in the process of devising a system of international governance for the Internet.

Transnational corporations are playing an increasingly visible role in the resolution of these questions. In the process, the locus of much policy making is shifting from governments to private business associations. The relative importance of various international organizations in shaping ICT policy is also changing, as communications politics shift from traditional venues like the International Telecommunications Union, UNESCO and the World Intellectual Property Organization to the World Trade Organization. This shift in policy is symptomatic of a growing tendency to speak of information as a commodity, to be provided to customers, rather than as a public good made available to citizens.

This is a troubling development. What can be done to improve the quality of governance in the ICT field, and to reinforce the public-interest dimensions of policymaking on information and communications issues? In the last section of his

paper, Hamelink discusses some principles of action for those who want to ensure that ICTs will be used to benefit as wide a segment of world society as possible.

He suggests, first of all, that the debate not be framed in terms of a false dichotomy between state and market. Neither governmental institutions nor market forces are capable, in themselves, of guaranteeing adequate service to the public at large. The challenge, in both public and private scenarios, is to place the public interest at the centre of policy considerations and to ensure that adequate mechanisms for public accountability exist. This is primarily a national debate. But since global forces are now so powerful, it is also necessary for policy makers and citizens who share common concerns to mobilize across borders and regions, and to insist upon good governance at the international level.

Policy making within the principal international organizations dealing with ICT issues should be marked by transparency, accountability and broadly based civic participation. The representation of “civil society” in international fora nevertheless raises complex substantive and logistical questions, including the sheer impossibility of ensuring that any NGO or group of NGOs can adequately represent the range of interests present in “global civil society”. Since different issues require different modalities of intervention, Hamelink suggests a flexible approach to public representation in international organizations and events, through which ad-hoc coalitions form around specific problem areas. An interesting model in this regard is the opposition mobilized from 1996 onward—to a large extent through the use of the Internet—against the Multilateral Agreement on Investment (MAI). An important characteristic of this kind of activism is its success in developing constructive alternative proposals.

Civic intervention is obviously rather meaningless if people are inadequately informed. Therefore there is an urgent need for well-designed programmes of ICT education, both of a formal and informal nature, which go beyond technical training and encourage critical thinking about the social implications of information and communication technologies.

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Résumé

Avec l'expansion et l'intégration remarquables que connaît le secteur de l'information et de la communication depuis dix ans, les politiques et les enjeux politiques des communications mondiales sont en train de subir de profonds changements. Pendant près de cent ans, depuis les premiers accords internationaux signés pour faciliter les communications intercontinentales radio et téléphoniques, le rôle des institutions internationales a consisté essentiellement à coordonner les politiques nationales, élaborées de manière indépendante par des gouvernements souverains. Toutefois, aujourd'hui, les latitudes laissées pour élaborer en toute indépendance la politique nationale se restreignent, le contexte politique international l'emportant de plus en plus sur tous les autres.

Dans cette étude, Cees Hamelink analyse les changements qui s'opèrent dans l'environnement international pour résoudre les questions encore en suspens dans le domaine de la technologie de l'information. Il commence par relater les dix ans de négociation qui ont abouti à l'Accord mondial sur les télécommunications,

lequel a peu à peu amené l'industrie des télécommunications à accepter une libéralisation et une privatisation progressives. Cette évolution a des répercussions sur la disponibilité, l'accessibilité et le coût des infrastructures et des services de ces technologies dans tous les pays. Il en est de même des négociations engagées dans trois autres domaines brièvement abordés dans le document: la réforme du système des règlements internationaux applicable aux appels téléphoniques, la maîtrise des services satellites et la gestion du spectre électromagnétique.

D'autres débats sur des questions de politique internationale, sur la protection des droits de propriété intellectuelle (DPI) par exemple, ont une incidence sur la diversité des informations et des connaissances susceptibles d'être mises gratuitement à la disposition du public. Ces dernières années, le régime international s'est éloigné des aspects des DPI d'intérêt public pour privilégier plutôt les intérêts économiques des propriétaires. En même temps, l'accès à un large éventail d'informations est sérieusement menacé par une forte tendance aux fusions qui se manifeste sur le marché mondial de l'information et de la communication et par l'absence d'une politique crédible de la concurrence dans de nombreux pays.

Cees Hamelink aborde aussi des problèmes nouveaux en rapport avec le commerce électronique, notamment la taxation des sociétés opérant au niveau international et la juridiction légale dont elles relèvent, la maîtrise de la cryptographie, la protection de la vie privée et le problème de la validation des signatures numériques. Enfin, il explique certaines des questions institutionnelles qu'il faut régler avant de concevoir un système de gouvernance internationale pour l'Internet.

Les sociétés transnationales jouent un rôle de plus en plus visible dans le règlement de ces questions. Une grande partie des politiques est élaborée non plus par les gouvernements mais par des groupes commerciaux privés. L'importance relative de diverses organisations internationales sur les politiques de l'information et de la communication se modifie aussi, à mesure que les enjeux politiques de la communication échappent aux instances traditionnelles telles que l'Union internationale des télécommunications, l'UNESCO et l'Organisation mondiale de la propriété intellectuelle au profit de l'Organisation mondiale du commerce. Ce déplacement est symptomatique d'une tendance de plus en plus nette à parler de l'information comme d'une marchandise à fournir à des clients, plutôt que comme un bien public mis à la disposition des citoyens.

C'est là une évolution troublante. Que faire pour améliorer la qualité de la gouvernance dans le domaine de l'information et de la communication et donner une place prépondérante à l'intérêt public dans les politiques concernant ces questions? Dans la dernière partie de son étude, Cees Hamelink aborde quelques-uns des principes devant régir l'action de ceux qui veulent s'assurer que les technologies de l'information et de la communication profitent au plus grand nombre.

Il suggère en premier lieu de ne pas présenter le débat comme s'il s'agissait d'une fausse dichotomie entre l'Etat et le marché. Ni les institutions gouvernementales ni les mécanismes du marché ne sont capables en soi de garantir des services satisfaisants au grand public. Que le scénario soit public ou privé, le défi consiste à placer l'intérêt public au centre des considérations politiques et à veiller à ce qu'il

existe des mécanismes suffisants de responsabilisation à l'égard du public. Il s'agit avant tout d'un débat national. Mais avec la puissance actuelle des forces de la mondialisation, il faut aussi que les décideurs et les citoyens qui ont les mêmes préoccupations se mobilisent par-delà les frontières et les régions et réclament une bonne gouvernance au niveau international.

L'élaboration des politiques dans les principales organisations internationales compétentes en matière d'information et de communication doit se caractériser par la transparence, la responsabilité et une large participation citoyenne. La représentation de la "société civile" dans les instances internationales soulève néanmoins de complexes problèmes de fond et de logistique, ne serait-ce que l'impossibilité de trouver une ONG ou un groupe d'ONG qui soit vraiment représentatif de l'éventail des intérêts que l'on trouve dans la "société civile mondiale". Comme des questions différentes appellent des modalités d'intervention différentes, Cees Hamelink suggère que le problème de la représentation du public dans les organisations et les manifestations internationales, qui amènent des coalitions ad hoc à se former autour de questions spécifiques, soit réglé de manière flexible. L'opposition à l'Accord multilatéral sur les investissements (AMI) qui s'est mobilisée à partir de 1996, dans une large mesure au moyen de l'Internet, est à cet égard intéressante. Ce genre de militantisme se distingue notamment par le fait qu'il parvient à élaborer des solutions de rechange constructives.

Il ne sert évidemment pas à grand chose que les citoyens interviennent s'ils sont mal informés. On a donc un besoin urgent de programmes d'éducation bien conçus sur les technologies de l'information et de la communication à la fois dans un cadre formel et informel qui, au-delà de la formation technique, encouragent une réflexion critique sur les répercussions sociales de ces technologies.

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Resumen

Junto con el importante crecimiento e integración de la industria de la ICT (tecnología de la información y de las comunicaciones) en el último decenio, las políticas mundiales de comunicaciones están experimentando un profundo cambio. Durante casi cien años, desde los primeros acuerdos internacionales que facilitaron la comunicación intercontinental por radio y teléfono, la función de las instituciones internacionales ha sido principalmente la coordinación de las políticas nacionales, forjadas independientemente por los gobiernos soberanos. Sin embargo, actualmente se está reduciendo el espacio para la elaboración de políticas nacionales independientes, y el ámbito de las políticas internacionales cada vez adquiere mayor preferencia sobre los restantes.

En este documento, Cees Hamelink analiza el entorno internacional cambiante para resolver las cuestiones importantes de la tecnología de la información. Comienza con una exposición del proceso de negociación que abarcó todo un decenio y que culminó en el Acuerdo Mundial de Telecomunicaciones, a través del cual la industria de las telecomunicaciones ha logrado aceptar la liberalización y la privatización progresivas. Esto repercute en la disponibilidad y accesibilidad general y financiera de las infraestructuras y servicios de la ICT en todos los países del mundo, al igual que sucede con las negociaciones en otros tres ámbitos

tratados en este documento: reforma del sistema de liquidación de las tasas contables para las llamadas internacionales, control de los servicios por satélite y gestión del espectro electromagnético.

Otros debates sobre las políticas internacionales, como los relacionados con la protección del derecho de propiedad intelectual (IPR), afectan a la variedad de información y conocimientos puestos gratuitamente a disposición del público. En los últimos años, el régimen internacional se ha alejado de los aspectos de interés público del IPR y se ha inclinado a favorecer los intereses económicos de los propietarios. Al mismo tiempo, el acceso a una gran diversidad de información se está viendo seriamente amenazado por la fuerte tendencia a la consolidación que experimenta el Mercado mundial de información y comunicaciones, y por la ausencia de una política de competencia convincente en muchos ámbitos nacionales.

Hamelink también considera nuevas cuestiones emergentes en conexión con el comercio electrónico, incluidos los problemas de impuestos y jurisdicción legal aplicados a las empresas que funcionan a nivel transnacional, el control de la criptografía, la protección de la vida privada y el problema de la validación de las firmas electrónicas. Por último, explica algunas de las cuestiones institucionales que deben resolverse en el proceso de elaboración de un sistema de gobierno internacional de Internet.

Las empresas transnacionales desempeñan un papel cada vez más importante en la resolución de estas cuestiones. En este proceso, el lugar geométrico para la elaboración de políticas está desplazándose de los gobiernos a las asociaciones comerciales privadas. También está cambiando la importancia relativa de algunas organizaciones internacionales en la formulación de políticas de la ICT, a medida que las políticas de comunicaciones se desplazan de los puntos de reunión tradicionales, como la Unión Internacional de Telecomunicaciones y la Organización Mundial de la Propiedad Intelectual a la Organización Mundial del Comercio. Este cambio político denota una creciente tendencia a considerar la información más bien un producto básico que debe facilitarse a los clientes que un producto público que debe ponerse a disposición de los ciudadanos.

Esta evolución es preocupante. ¿Qué puede hacerse para mejorar la calidad del gobierno en el ámbito de la ICT y para reforzar los aspectos de interés público en la elaboración de políticas sobre cuestiones de información y de comunicaciones? En la última sección de este documento, Hamelink estudia algunos principios de acción para aquellos que desean garantizar que la ICT se utilizará en beneficio del sector más amplio posible de la sociedad.

En primer lugar, propone que el debate no se centre en un marco de falsa dicotomía entre el Estado y el mercado. Ni las instituciones gubernamentales ni las fuerzas del Mercado pueden, por sí mismas, garantizar al público en general un servicio adecuado. El desafío para los sectores tanto públicos como privados es lograr que las consideraciones políticas se centren en el interés público y asegurar el establecimiento de sistemas adecuados para la responsabilización pública. Esta cuestión es, fundamentalmente, un debate nacional. Pero, en vista de la gran influencia actual de las fuerzas mundiales, también es preciso que los formuladores de políticas y los ciudadanos que comparten intereses comunes se

movilicen a través de fronteras y regiones, y que insistan en el buen gobierno a nivel internacional.

La elaboración de políticas en las principales organizaciones internacionales que abordan las cuestiones de la ICT debería caracterizarse por la transparencia, la responsabilización y la amplia participación cívica. No obstante, la representación de la “sociedad civil” en los foros internacionales plantea complejas cuestiones administrativas y logísticas, incluida la imposibilidad absoluta de asegurar que una ONG o un grupo de ONG represente adecuadamente la diversidad de intereses de la “sociedad civil mundial”. Dado que las distintas cuestiones exigen diferentes modalidades de intervención, Hamelink propone un planteamiento flexible de la representación pública en las organizaciones y acontecimientos internacionales, a través del cual se formen coaliciones *ad hoc* en torno a sectores problemáticos específicos. Un modelo interesante al respecto es el movimiento que surgió en 1996—en gran parte por el uso de Internet—contra el Acuerdo multilateral de inversiones (MAI). Una característica importante de este tipo de movilización es su éxito en la elaboración de propuestas alternativas constructivas.

Evidentemente, la intervención cívica resulta insignificante, si se facilita una información inadecuada. Por lo tanto, urge el establecimiento de programas de educación sobre la ICT bien elaborados, de carácter formal e informal, que superen la formación técnica y fomenten la visión crítica de las consecuencias sociales de las tecnologías de la información y la comunicación.

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◆ Abbreviations and Acronyms

APC	Association for Progressive Communications
DNS	Domain Name System
FNC	Federal Network Council
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GIS	Geographical Information Systems
GMPCS	Global Mobile Personal Communications by Satellite
IANA	Internet Assigned Numbers Authority
ICANN	Internet Corporation for Assigned Names and Numbers
ICT	information and communication technology
IPR	Intellectual Property Rights
ISOC	Internet Society
ISP	Internet service provider
ITU	International Telecommunication Union
MAI	Multilateral Agreement on Investment
MoU	Memorandum of Understanding
NGBT	Negotiating Group on Basic Telecommunications
OECD	Organization for Economic Cooperation and Development
PC	personal computer
PTO	public telephone/telecom operator (??)
TRIPS	Trade-Related Intellectual Property Rights
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICTRAL	United Nations Commission on International Trade Law
US	United States
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

INTRODUCTION

Whatever development paradigm one may prefer, there is growing consensus that social progress must be based upon a process of participation and deliberation; and this, in turn, requires democratizing public decision making structures at local, national and global levels.

There is also little controversy about the assertion that sharing knowledge is a basic element in improving the lives of people. Most development experts would agree with the statement made in the 1997 **Human Development Report**: “Poverty has many faces. It is much more than low income. It also reflects poor health and education, deprivation in knowledge and communication, inability to exercise human and political rights and the absence of dignity, confidence and self-respect” (UNDP, 1997:iii). Thus the international community has realized that poverty can no longer be defined only in terms of a lack of material resources, but also reflects inadequate access to economic, technical and socio-political knowledge.

If social development requires deliberation, participation and information, then there must be

- public spaces and *networks* for deliberation and exchange among people,
- *channels* through which knowledge and experiences can be shared among people, and
- *sites* where information/knowledge sources can be consulted.

New information and communication technologies (ICTs) have the potential to meet these requirements. They can facilitate the creation of public fora where knowledge and experiences are shared and public choices are deliberated. They can provide channels of access both to unprecedented amounts of information and to those individuals and institutions whose role it is to assist in transforming information into applicable knowledge.

The trouble with ICTs, however, is that although they offer the technical means for establishing channels, networks, and sites, they cannot by themselves ensure either that these are used for deliberation, or that they promote participation, or that they provide access to needed information. The actual social uses of ICTs are to a large extent guided by the political-institutional arrangements within which they are embedded. Whether the potential to support social development will be realized depends much more on the institutional environment of the technology than on its technical features *per se*. Therefore analysis of the relation between ICTs and social development has to give ample attention to their policy context.

Furthermore, it is increasingly the *international* policy context that takes precedence over all others, influencing even the effectiveness of action at the local level. If, for example, local communities want to retain an autonomous space for cultural policy making, their strategies must extend beyond local boundaries, since their chances of success will be affected by such global policies as World Trade Organization (WTO) decisions on trade in services or on intellectual property rights. Similarly, national telecommunications policy is influenced more by decisions taken in global bodies like the International Telecommunication Union

(ITU) and the WTO than by purely national debates. It is therefore necessary to look carefully at ways in which global institutional arrangements foster or hamper the social development potential of ICTs.

ISSUES

The discussion of global governance issues that affect the development potential of ICTs can be structured under four headings: questions of availability, accessibility and affordability of ICT infrastructures (such as telecommunication networks), as well as of the services that are rendered through such infrastructures; the diversity of information and knowledge sources that these services offer; the challenges of ICT-related trading; and complex problems associated with the development of the Internet.

◆ The Policy Context for Expanding and Improving Telecommunications Infrastructures and Services

The increasing demand for ICTs in developing countries finds expression in long waiting lists for telephone connections, the increase in use of cellular systems and the rapidly growing number of Internet users.¹ To meet this demand, more and more developing countries include ICTs as an integral part of national agendas for social and economic development. In fact, it is increasingly felt that it is impossible to compete in world markets without adequate telecommunication infrastructures. Thus there is currently phone frenzy in the developing world. The planned increase in telephone lines for the next five years in developing countries will require an investment of some \$200 billion—to be achieved largely through a massive inflow of foreign investment. The pattern of thinking that predominates on the subject of infrastructure can be summarized as follows:

- telecommunication infrastructures are essential for development;
- their installation and upgrading are expensive;
- private funding is needed;
- to attract private funding, countries will have to liberalize their ICT markets (i.e., adopt pro-competition regulatory measures) and privatize their public telecom operators (PTOs).

While liberalization can be defined as the opening of markets to competition, privatization refers to the transfer of state-owned institutions or assets to various degrees of private ownership. These two processes can be in conflict. Liberalizing national markets may create a policy context that is less attractive for potential buyers of public telephone companies. In that case, liberalization can work against the desire of the government to get the highest price when selling its monopoly PTO. And once privatization occurs, liberalization may be more difficult, because the incoming operator may demand monopoly control for an initial period.

¹ In 1999 there are less than one billion telephone lines for six billion people. Some 500 million households (34 per cent of all households in the world) have a telephone. In early 1997 62 per cent of all telephone lines were installed in 23 rich countries with less than 15 per cent of the world population.

Nevertheless these are the two guiding principles in the current policy context. The goal is to create a situation in which the governance of the telecommunications system is left to freely operating private entrepreneurs. Any parts of the network that may be unprofitable can be left to the state, which will expend public resources to ensure that no citizen is ultimately disenfranchised.

There is a considerable gap between stated adherence to these principles and current practice in the telecommunications sector. But the transition to market-dominated telecommunications governance is under way, driven by a series of international agreements that have created a new policy framework for the ownership and use of the basic infrastructure for ICTs.

Liberalizing telecommunications markets: The General Agreement on Trade in Services

For all intents and purposes, the telecommunications industry now operates under the rules for “trade in services” worked out over the past decade in a series of international conferences. A significant milestone in this process was the Marrakech Agreement establishing the WTO (Morocco, 15 April 1994), which completed the Uruguay Round (the eighth multilateral round of trade negotiations held under the auspices of the General Agreement on Tariffs and Trade, or GATT). A General Agreement on Trade in Services (GATS) was part of the final treaty. The most elaborate annex of this document concerned telecommunications. The annex defined basic telecommunication services and networks as follows:

- *Public telecommunications transport service*: any telecommunication transport service which is required to be offered to the public in general by a Member [government];
- *Public telecommunication transport network*: the public telecommunication infrastructure that permits telecommunications between and among defined network termination points.

There are also many telecommunications services that are not basic. Sixty of the 125 signatory countries of the Marrakech Agreement made some commitment to open their markets for telecommunication services. These commitments ranged from allowing full competition for all telecommunication services to situations in which exceptions would be made for basic telecommunication services, for cellular services or for local services.

The Marrakech meeting established the Negotiating Group on Basic Telecommunications (NGBT), to take further steps toward liberalizing telecom services and to conclude its work by April 1996. Nevertheless, the NGBT failed to reach agreement by this date. Several issues remained undecided, such as the liberalization of satellite services and the reform of settlement arrangements for international telecommunication rates. The negotiations did lead to an agreement on a set of basic rules laid down in a so-called “Reference Paper”, which deals with competitive safeguards, interconnection among companies, universal service obligations,² transparency of licensing criteria, independence of the regulator and the allocation and use of scarce resources.

² The term “universal access” has conventionally been used in developed countries to mean that there should be a telephone in every household. In developing countries, it has usually meant a telephone within a reasonable distance from every household. “Universal service”

A new group continued this work after July 1996. Called the Group on Basic Telecommunications, it met monthly and was open to all WTO member states. Its main mandate was to stimulate more countries to make commitments, to deal with the issue of liberalizing satellite services and to solve a number of other problems related to the provision of telecommunications services. Among the latter were issues of restrictions on foreign ownership that were closely associated with privatization.

The government of the United States pushed hard for allowing maximum foreign ownership of domestic telecommunications. Some countries agreed; they considered foreign ownership an opportunity to attract necessary foreign investment (ITU, 1997:102). But others felt that such a policy posed a threat to national sovereignty, and they retained domestic control over between 25 and 80 per cent of their industry. National governments have full control over the scope, phasing and timing of their commitments. Once they have made those commitments, however, they cannot change their concessions in the future.

Liberalizing the provision of mobile phone services, provided through satellites, was also a thorny issue. Although the allocation of satellite frequencies is the responsibility of the ITU, there is a trading angle when national governments use national procedures for spectrum allocation as barriers to trade. According to the provisions of the GATS, such procedures should not be discriminatory.

The World Telecommunications Agreement

The long process of negotiation described above produced the Fourth Protocol of the GATS, signed on 15 February 1997 by 72 member states of the WTO (engaging in some 93 per cent of all world trade in telecommunications services). Also known as the World Telecommunications Agreement, this protocol (which entered into force on 5 February 1998) requires much greater liberalization than any previous agreement. In particular, it has far-reaching implications for governance of *basic* telecommunications infrastructures. And this can potentially affect the degree to which national governments can pursue social goals through requiring that telecommunications services be made available to all citizens, whatever their capacity to pay or their remoteness from major population centres.

The Agreement is ambiguous on the issue of universal service: “Any member has the right to define the kind of universal service obligation it wishes to maintain. Such obligations will not be regarded as anti-competitive *per se*, provided they are administered in a transparent, non-discriminatory and competitively neutral manner and are not more burdensome than necessary for the kind of universal service defined by the member”. Such a commitment seriously limits the space for independent national policy making on the access issue. Since foreign industries cannot be placed at a disadvantage, national standards for universal service have to

expands and extends the notion of universal access. It refers to a goal of ensuring that telephone service is widely available, accessible on a non-discriminatory basis, and affordable. Particularly in developing countries, it can be difficult to ensure all three goals of universal service. For example, the size of investments required to make a telephone available in a remote area can mitigate against charging low rates for its usage. As telecommunications develop beyond the sphere of telephone service, the concept becomes still more complex. With the growth of the Internet, a question arises concerning whether facilities to access it should also be considered an essential component of universal service.

be administered in a competitively neutral manner. They cannot be set at levels more burdensome than necessary. Thus, if national policy promotes access to telecommunication services on the basis of a cross-subsidization scheme (charging higher rates for international calls, and requiring that these resources be used to ensure lower rates for local calls in rural areas, for example), this exception to the practice of purely cost-based tariffs might be considered by foreign market entrants to be more burdensome than necessary. In consequence the policy would be perceived as a violation of international trade law. It would be up to the (largely obscure) arbitration mechanisms of the WTO to judge the legitimacy of the national policy proposal.

This kind of provision in the World Telecommunications Agreement is symptomatic of the rationale underlying a decade-long process of international negotiation in which trade interests, rather than socio-cultural aspirations, determine national communications policy. The document is far more concerned with ensuring that foreign suppliers have access to national markets for telecommunication services than with guaranteeing access by national citizens to those same services. The assumption is that these different forms of access can be equated. But the creation of worldwide free markets for any type of services does not necessarily imply the availability of such services to all who could benefit from them.

Growing participation in the telecom negotiations, as well as expanding commitments to liberalize, would suggest that more and more countries find market opening to be beneficial. In fact, the real political issue is no longer whether countries will liberalize but rather when they will do so. The WTO suggests that, by the year 2004, up to 93 per cent of the world market for basic telecommunication services will be liberalized. Yet opinions continue to differ, as the World Telecommunication Development Report observes. “Market access will be viewed by some [governments] as an opportunity, while others . . . attempting to develop their own domestic telecommunication service industry might see it as a challenge and a threat to nascent local operators” (ITU, 1997:102). In some countries there will be an increase in revenues for domestic operators as a result of liberalization, while in other countries most revenues may accrue to foreign entities. As the ITU report rightly notes, “there will be winners and losers” (1997:106).

Privatization

As part of the opening up of their markets, many countries have also begun to privatize their public telecom operators (PTOs). Governments pursue privatization and/or liberalization policies for quite different reasons. In some cases—and especially in poorer countries—the total or partial sale of state-owned telecoms to private buyers may be more related to the fiscal crisis of the state than to any desire to improve and upgrade telecommunication services. Privatization may also be promoted by a desire to follow the political wisdom of the day (for example neoliberalism) or by the hope that technology will be transferred in the process. Like liberalization, privatization is neither an unequivocal recipe for disaster nor an ironclad guarantee of successful economic and technological performance. Results will be different in different countries, and much more study is needed to establish what social conditions determine benefits and costs.

In 1997, majority shares in 29 out of the top 40 international carriers were still owned by states. “Rather than full privatization, it is corporatization of state-owned telecommunication companies that has instead proceeded across all regions” (ITU, 1998b:9). But the transfer of public telecom operators to private ownership has occurred in a fairly large number of countries. Since 1984, 44 PTOs have been privatized (ITU, 1997:2), and these operations have raised some \$159 billion. The 12 major privatizations in 1996 alone raised over 20 billion, with roughly 50 per cent of this investment coming from domestic sources and 50 per cent from foreign buyers. The overall trend has been for approximately 30 per cent of the capital invested in privatized PTOs to come from foreign sources. And as the ITU reports, the most active investors in PTOs that have been put up for sale are the PTOs of other countries.

The expectation that privatization will encourage more competition and more choice has not always been fulfilled. As a matter of fact, in smaller developing countries national telecommunication operators have lost out against big global coalitions—the new monopolists. Even in large markets, there is a trend toward less competition, as contenders shake rivals out of the market or merge with each other. The real question is not about monopoly versus competition, but about the efficiency and effectiveness of state-run monopolies versus private monopolies.

To support privatization, it is usually argued that networks will be expanded and upgraded, services improved and telecom rates lowered. Experiences are, however, quite varied. In several countries rates have gone down, but mainly for big corporate users, while the telephone bills of ordinary consumers have hardly changed at all. Experiences with the provision of services are also far from uniform. Much depends upon the kinds of agreements hammered out in negotiations preceding the sale of PTOs. This point is clearly illustrated by recent experiences in Peru and Panama. In both cases, privatization has been followed by significant expansion in the telecom network. As the ITU notes, “One reason [for this positive experience] is that network expansion targets have increasingly been made a requirement of privatization concessions” (1998b:71). The added telephone lines of course benefit those users who can afford the service. The privatization scheme does not enlarge the group of citizens who have the purchasing power that is required for the use of telecom networks.

In sum, the expectation that private funding will create worldwide equity in the access to and use of ICT resources deserves careful scrutiny. It is important to remember that a significant improvement in access to telecommunications services in many parts of the world is blocked not only by the lack of financial resources but also by political considerations. Creating worldwide adequate access to ICT resources should be no problem in a global economy of some \$22 trillion. Yet expenditures for development assistance (\$55 billion) represent only 0.25 per cent of this amount. As the United Nations Development Programme (UNDP) recently reported, “Official development aid is now at its lowest since statistics started” (UNDP, 1998:37).

To provide universal access to basic ICT equipment and services in all developing countries—adding one billion telephone lines, subsidizing over 600 million households that cannot afford basic telephone charges, providing personal computers (PCs) and access to the Internet for schools—might require an expenditure of \$80 to 100 billion per year, over 10 years. This should not be an

insurmountable level of funding. It represents some 11 per cent of the world's annual spending on military projects, 22 per cent of total annual spending on narcotic drugs, and is roughly equal to annual expenditures on alcoholic drinks in Europe alone (UNDP, 1998).

Yet for a variety of political and economic reasons, many donor governments are presently cutting down on their financing of ICT-related development. Between 1990 and 1995, multilateral lending for telecommunications decreased from \$1,253 million to 967 million. Bilateral aid for telecommunications decreased from \$1,259 million to 800 million over the same period (ITU, 1997).

The account rate settlement system

The availability of financing for expanding and improving telecommunications infrastructure in Third World countries is also likely to be affected by changes in conventions concerning the division of revenues from international calls.

These conventions have a long history. In fact, one of the central regulatory issues taken up in the first International Telegraph Convention Treaty of 1865 was how to find an adequate system for dividing communications revenues among operators in countries of origin, transit and destination. Over the years, a system developed in which the PTO in the country of origin of an international telephone call would charge its local customer a certain amount for the completed transaction. Afterward it would pay an agreed fee to the PTO in the country of destination of the call. This fee, negotiated among telephone operators, is called the account rate.

The general regulatory framework for the settlement of charges among carriers has been provided by the International Telecommunication Regulations, a treaty administered by the ITU and last revised at the World Administrative Telegraph and Telephone Conference in 1988. The recommendation of the ITU has usually been to divide charges on a 50/50 basis between carriers. This worked well in a system based upon bilateral relations among public telephone monopolies, in which the facilitation of international communication was considered to be a jointly provided service. It is, however, breaking down under the impact of rapid technological change and the move toward telecommunications liberalization and privatization. Not only are there more and more private commercial operators in both countries of origin and countries of destination, but these companies offer new services (such as phone cards or Internet telephony) that bypass the existing settlement system.

The new institutional context for account rate settlement has important implications for Third World telecommunications. Since developing countries have usually applied relatively high charges for the completion of international calls, initiated outside their borders, the settlement system has been an important source of foreign exchange. According to the ITU, net transfers of up to \$10 billion may flow each year from developed to developing countries, to cover telecommunications settlements. This income can (at least in principle) be used to provide access to people who would otherwise remain unconnected. It can also contribute to the overall economic strength of poor countries. In an atmosphere of heightened competition, however, critics of the conventional system argue that payments above real costs can no longer be condoned within the telecommunications marketplace.

Reform of the existing account rate settlement system was first discussed within the OECD in 1991, and within the ITU in 1992. It has since been taken up within the WTO. Unhappy with the pace of change, the United States government issued a Notice of Proposed Rulemaking in November 1996 that unilaterally determines how much American operators can pay in settlement charges to counterparts in foreign countries. The ruling, which took effect in January 1998, provides on average for half the level of payment that was previously in force. At the same time, the European Union is moving away from the account rate system, at least as this affects intra-EU telecommunications traffic. As part of its pro-competition policies, the Union has endorsed a system of cost-based charges for interconnection services that will replace the traditional approach to settling accounts among providers within the region.

In March 1998 reform of the international account rate system was an important topic on the agenda of the ITU World Telecommunications Policy Forum. Critics of the long-standing arrangement contend that it is unacceptable for countries of origin to pay above cost for the completion of calls. Those who defend the system, on the other hand, refer to the critical importance of these payments for the provision of universal access to telecommunications services in poor countries. They also argue that lowering account rate payments will lead to an increase in costs to local customers in Third World settings. These debates deserve close attention.

Satellite services

Access to ICT services, in the Third World and elsewhere, is becoming less and less dependent upon extending telephone lines and cables to every point of use, and more dependent upon wireless communications. The growing importance of satellite services—and of the hand-held cellular telephones that depend upon these services—raises a number of new issues of ICT governance. Traditionally, satellite use has been managed through international satellite organizations. The largest of these intergovernmental institutions are INTELSTAT (for fixed satellite services) and INMARSTAT (for mobile services). National telephone companies conventionally provide interconnectivity between end users and satellite service providers.

When countries began to make market-opening commitments under the GATS, many insisted upon exceptions for satellite services, preferring to ensure that the PTO monopoly in this area would continue. As the process of market liberalization proceeds, this is slowly changing. Negotiations are now addressing the issue of conditions under which worldwide coverage of mobile services for hand-held cellular phones can be provided. Such services are offered within what are called Global Mobile Personal Communications by Satellite (GMPCS) systems. To make the latter effective, the private companies operating them must have market access in a large number of countries. But many governments fear that these systems will bypass local operators and thus promote a marked reduction in revenue within the national telecommunications system. There is also the likelihood that the cost of using these services will be prohibitive for most people.

The regulatory issues raised by GMPCS were discussed in October 1996 by the ITU World Telecommunication Policy Forum, which issued a draft Memorandum of Understanding (MoU) that formulated some regulatory principles on licensing, customs, and access. National regulators retain sovereign rights over the regulation

of mobile services but agree to take questions of international compatibility systematically into account. They also agree that GMPCS systems and services should only be regulated to the extent necessary to achieve national policy goals, such as universal service. Competition between GMPCS providers should be encouraged and no operator should be excluded from the market unless there are compelling public policy reasons to do so. The Memorandum was subsequently endorsed by 120 signatories. The first review meeting of the signatories to the Memorandum was held in December 1998 in Geneva. In the implementation of the GMPCS Memorandum of Agreement, public officials, industry (manufacturers and service providers) and the ITU are co-operating closely.

In addition to questions concerning the changing institutional organization of mobile telephone services, rapid advances in satellite technology are raising issues particularly related to the uses that can be made of information generated in space. In late 1997, there were some 1,000 satellites in orbit, and the ITU expects this number to double by 2007. Although most satellites are used for telecommunications, a minority are deployed for earth-monitoring purposes; and they are providing more and better information about the surface of the Earth. In particular, the combination of more sophisticated sensing techniques with the application of Geographical Information Systems (GIS) generates a great deal of data which is very useful for such purposes as resource management, monitoring (of crop development, deforestation or floods), disaster warning and relief. Developing countries should benefit from this situation. But information collected by remote resource-sensing satellites can only be used if the technical knowledge required for processing it is widely shared. The amount of knowledge currently transferred is still fairly minimal, and even that which is transferred is not always useful.

Although some of the space organizations are involved in programmes for technical assistance, the more general trend is toward a market-guided regime. The predominant view in Europe and the United States is that "market conditions will, in the long term, enable indigenous value-added companies to spring up in developing countries . . ." (Gavaghan, 1998:11). Nevertheless it is a matter of global governance to ensure that the benefits of remote sensing technology are more equitably shared. The technology is there, but the policy choices tend to privilege commercial exploitation over development benefits.

Management of the electromagnetic spectrum

A final issue of international governance, affecting the conditions under which telecommunications services can be provided to people throughout the world, has to do with the management of the electromagnetic spectrum. The latter is a global public resource (or *res communis*); and despite impressive technological advances (in such fields as compression techniques), radio frequencies remain scarce. They are allocated by national governments, which are ultimately co-ordinated through the ITU.

Since the early 1990s, a tendency has emerged in several countries (among them the United States, Belgium and the Netherlands) to consider that rights to frequencies in the radio spectrum are no longer a matter of public ownership, but have become marketable commodities. The countries that follow this approach have begun to auction licenses for frequency use. The allocation of frequencies as

a matter of public decision making has thus given way to the trading of these resources on markets.

In such situations, the quality of the surrounding regulatory environment is crucial. Citizens of democratic societies should expect that regulatory intervention will ensure a fair and equitable sharing of common resources. And, in fact, spectrum management issues are today gaining importance in Europe, Asia and the Americas. They do not have a similar regulatory importance in Africa or the Arab States, mainly because there are (as yet) only a few operators active in the mobile communications market of these regions.

◆ Sharing Information and Knowledge

Turning to international policies that obstruct or facilitate sharing knowledge widely, the first issue deserving analysis is the protection of intellectual property rights (IPRs). The two institutions which play the greatest role in the debate on this subject are the World Intellectual Property Organization (WIPO) and, increasingly, the WTO, as this organization oversees execution of the legal provisions contained in the agreement on Trade-Related Intellectual Property Rights (TRIPS) within the framework of the General Agreement on Trade in Services.

Intellectual property rights

From its inception, the protection of intellectual property rights IPRs has been inspired by three motives. The first is the notion that those who invest in the production of intellectual property should be guaranteed financial remuneration. Beginning with the first international treaties on intellectual property protection (the Paris Convention for the Protection of Industrial Property, in 1883, and the Berne Convention for the Protection of Literary and Artistic Works of 1886), monetary benefit has always been perceived as a necessary incentive to invest in innovation and creativity.

During the 1928 revision of the Berne Convention, the notion of moral rights was added to the list of essential justifications for the protection of intellectual property rights. Reference to the moral value of works grew out of the recognition that these works represent the intellectual personality of the author. Moral rights protect a work against modification without the creator's consent, they substantiate the claim to authorship and they protect the right of the author to decide whether a work will be published. Early in the development of IPR law, it was also recognized that there is a public interest in the protection of intellectual property. IPRs promote innovation and progress in artistic, technological and scientific domains, and therefore benefit public welfare. The protection of intellectual property is thus in fact a delicate balancing act between private economic interests, individual ownership, moral values and public interests.

In recent years the international regime has moved away from the moral and public interest dimensions of IPRs and, in actual practice, has mainly emphasized the economic interests of owners of intellectual property. By and large, these owners are no longer individual authors and composers, who create cultural products, but transnational corporate cultural producers. The latter are in general more concerned to win their battle against "piracy" and to reduce the losses this implies

than to protect the moral integrity of creative works or the cultural interests of the public at large.³

The agreement on Trade-Related Intellectual Property Rights (TRIPS) that emerged under the GATT negotiations (as Annex 1C to the General Agreement on Tariffs and Trade in the Uruguay Round of Multilateral Trade Negotiations, 1993) reinforces the economic dimension of IPR protection. As Venturelli notes, “The balance has tipped entirely toward favouring the economic incentive interests of third-party exploiters and away from both the public access interests of citizens and the constitutional and human rights of creative labour” (Venturelli, 1998a:63). As music, film and video have achieved a prominent place among the world’s most important tradeable commodities, the current trade-oriented IPR regime favours corporate investors (publishers, broadcast companies, music recording companies, advertising firms) over individual creators.

This insistence upon protecting the economic interests of corporate producers was reflected in attempts by the government of the United States and the European Union to include digital databases and (even temporary) digital copies in the revision of the Berne copyright convention at the end of 1996. In support of this position, a powerful lobby developed that combined the resources and interests of the Motion Picture Association, the International Federation of Phonographic Industries, the Federation of European Publishers and the Business Software Alliance, as well as companies like Microsoft, Apple and IBM. They proposed that Article 7 of the revised treaty contain the provision that “direct and indirect reproduction . . . whether permanent or temporarily, in any manner or form” would fall under copyright protection. For the consultation of Internet sources this would imply a “pay-per-view” system. The opposition—a lobby that brought together telecommunication firms (such as AT&T, Philips, British Telecom and France Telecom), the Internet browser company Netscape, libraries, Internet Service Providers and Internet users—argued that Article 7 would undermine the attractiveness of the Net and seriously hamper free access to information.

On 20 December 1997 the conference decided to cancel the contested Article 7. This halted the expansion of copyright protection, at least temporarily, but it is uncertain whether the attempts of its proponents will end with this defeat. Meanwhile, the European Union directive on databanks indicates that efforts to extend copyright protection to digital information sources continue unabatedly. The directive subjects formerly free access to databanks to the provisions of copyright protection.

One of the serious problems with current trends is that the emerging regulatory framework stifles independence and diversity in creative production around the world. The regime is particularly unhelpful in the protection of the “small” independent originators of creative products. It also erects formidable obstacles to the use of creative products, since it restricts the notion of “fair use” under which

³ US software firms, entertainment companies and publishers claim that in 1995 they lost some \$14 billion to the pirates. The International Federation of Phonogram and Videogram Producers estimates that a quarter of all musical recordings are pirated copies. The most active pirates were found in Asia (\$6 billion), Western Europe (\$3.6 billion), Latin America (1.8 billion dollars) and Eastern Europe (\$1.8 billion). Source: International Intellectual Property Alliance, Washington, DC, 1996.

these products could traditionally be used for a variety of purposes, including education. And it greatly complicates the use of information in the public domain. It is particularly worrisome that any products in the public domain come under IPR protection once they have been incorporated into electronic databases. This opens the way for private businesses in effect to appropriate public information, which becomes a saleable commodity. In sum, the regime threatens to negate the possibilities that cyberspace offers for a new global forum, and to reduce this space to a marketplace where a controlled volume of ideas will be traded.

Competition policy and the diversity of information sources

The volume and quality of information that will flow through the rapidly evolving ICT system depends not only on how intellectual property is defined, but also on evolving patterns of ownership and control within the information technology field. Every area of policy change discussed above, with reference to development of the terrestrial telecommunications infrastructure, satellite services and the assignment of radio frequencies, has implications for the degree of diversity that is likely to predominate, and the uses that are likely to be made, of the new technologies. The evolving structure of power within the ICT industry will be discussed in a separate section of this paper. But at this point, it is important to stress the fact that free access to a wide array of information sources and creative products is seriously threatened by the strong trend toward consolidation in the world “info-com” market.

When measured against this reality, the dominant policy framework seems extremely weak. The potential for control of information that is inherent in the distribution of forces in the ICT market is not on the agenda. Neither is the question of whether the conduct of major players should be scrutinized. Current competition policies mainly address the dismantling of public services and the liberalization of markets, not the issue of oligopolization. For example, the World Telecommunications Agreement does not guarantee that there will be an effective, open competition between commercial actors, once markets have been liberalized. The non-discrimination principle, which provides for most favoured nation treatment of foreign competitors during the struggle to gain control over national telecommunications markets, does not preclude eventual co-operation among a small number of (often foreign) businesses.

The lack of a serious competition policy is worrisome. It allows unhindered market concentration in the ICT field and reinforces foreign ownership of essential market domains, particularly in developing countries. But serious questions must be asked about whether a genuine international competition policy (Holmes and McGowan, 1996:755) is a realistic option. Such an effort clashes with the predominant concern to reduce regulation; and in any case, the global governance of cartels would be very difficult. Approaches to cartels differ widely across national legal systems and traditions, and would not easily be reconciled. Therefore it will probably be up to national governments to devise regulatory approaches that ensure relative diversity of information and equality of access to ICT channels, within an increasingly oligopolistic setting.

◆ **Electronic Trading**

New governance issues have also emerged in connection with ICT-supported trading, and particularly with the rapid growth of electronic commerce. The OECD

defines the latter as commercial transactions that take place through open networks (like the Internet). These transactions are both business-to-business and business-to-consumer. Although electronic commerce is still of limited economic significance (approximately \$26 billion in revenues for 1998), it is expected to exceed the trillion dollar mark in the early 21st century. Thus the growing number of people around the world who are connected to the Internet (estimates vary between 50 and 80 million for 1998, and between 100 and 200 million for 2002) have begun to develop a digital economy.

Taxing e-commerce

Electronic commerce raises governance issues in a number of fields, including taxation. For example, should customs duties be eliminated for products traded electronically? There is some movement in this direction.⁴ And how can existing tax laws be enforced in the case of digital trading, since monitoring is almost impossible? Conventional taxation is linked to the place of residency of the taxpayer; but Internet technology makes it possible to have floating residences, so that it becomes difficult to link the potential taxpayer to any precise residency at a given point in time.

Other legal issues

There are questions about how laws should be harmonized to ensure that public confidence in electronic trading systems is promoted, and about the kinds of measures that can be taken to ensure that proprietary standards do not create entry barriers to electronic commerce.⁵ There are problems of authentication, requiring agreement on techniques that establish security and trust in digital commerce, such as the validation of electronic signatures across borders. And there are questions of jurisdiction and liability: which laws are applicable in particular cases, and who is liable in cases of errors (in the event of telemedical diagnosis, for example)?

If recent discussions about jurisdiction are any indication of things to come, e-commerce companies may well decide to set up residence in countries with the least stringent laws—just as investors seek tax havens and manufacturers relocate to places where wages are particularly low. In a proposal for a European Parliament and Council Directive on certain legal aspects of electronic commerce in the internal market (European Commission, 1998a), it is suggested that firms be bound only by the legislation of their country of residence when they perform trade transactions on the Internet. Up to now the rule has been that traders must also follow the laws of the countries where they sell their products or services.

Control of cryptography

Electronic commerce of course also involves complex security issues. Digital trading can only be successful if those involved can count on security and confidentiality, and this implies the need for cryptography. But opinions on the admissibility of robust cryptography techniques differ across the world. Some

⁴ In the Information Technology Agreement of December 1996 (Singapore, Ministerial Declaration on Trade in Information Technology Products), 28 countries agreed to eliminate customs duties on ICT products.

⁵ For example, the United Nations Commission on International Trade Law (UNCITRAL) has drawn up a Model Law on Electronic Commerce, which addresses the matter of contracts in the digital trading sphere. There are also OECD Recommendations on Electronic Commerce, 1997.

governments allow greater latitude in the application of such techniques and their export, others consider encryption algorithms as classified material and prohibit their export.

According to the 1996 Wassenaar Arrangement on Export Controls (which replaces an earlier Cold War arrangement known as the Co-ordinating Committee for Multilateral Export Controls), cryptography techniques are considered dual-use technologies. They can be used both for civil and military purposes, and therefore are subject to close regulation. In November 1998, 31 countries meeting in Vienna endorsed export controls on all encryption software of 64 bits or longer.⁶ The level of 64 bits is important because, below it, it is relatively easy to break the code. Companies using more complex encryption are required to provide much commercially sensitive information about their clients, as well as the basic codes being employed, to governments in order to obtain export licenses. Actually, as Gerald Wakefield warns, people using encryption codes longer than 64 bits on their laptop computers could have these confiscated by customs officers in the Wassenaar countries (in Goldman and Winsbury, 1998:31). This creates a large space for misuse, whether by intent or default.

The protection of privacy

Both the Wassenaar Arrangement and the Vienna agreement tend to lower international standards for the protection of privacy. Therefore there is a potential conflict between the Wassenaar provisions and the European Union standards for data protection (as articulated in the Directive on “The protection of individuals with regard to the processing of personal data, and on the free movement of data”, issued by the European Parliament and the Council of the European Union in November 1995.) The Directive sets out to combine the protection of freedom of information with the protection of fundamental privacy rights. Article 25 of the Directive, which went into effect October 1998, states that the transmission of personal data to countries without adequate data protection laws (like the United States, Japan, Canada or Australia), should be limited. And this implies that when countries lack privacy protection laws, there can be no electronic trading.

Five possible outcomes can be envisioned if the Directive is enforced. It could isolate the European market, the rest of the world may adopt stricter privacy legislation, there could be nasty trade wars, Europe could back away from its commitment, or all parties could begin to negotiate a solution (Connor, 1998:6).

Digital signatures

The validity of digital signatures is another vital issue for electronic commerce. In line with its general view that global regulation of digital trade is required, the European Commission feels that national rules concerning digital signatures should be harmonized. The US government, in contrast, prefers a deregulatory approach and has no interest in creating an international authority for the certification of digital signatures. Meanwhile, important work has been done by

⁶ Argentina, Australia, Austria, Belgium, Bulgaria, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Luxembourg, The Netherlands, New Zealand, Norway, Portugal, Republic of Korea, Romania, Russian Federation, Slovakia, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom and the United States of America.

the UNCITRAL, which has proposed a Model Law for electronic commerce that provides the basis for uniform rules on digital signatures.

Since the regulatory authorities of European Union member states follow different approaches, the European Commission has developed a proposal for a Directive on “A common framework for electronic signature” (European Commission, 1998b). “The key aim of the proposed directive is to establish a harmonized Community-wide legal framework for electronic signatures and for electronic certification services” (Baresch and Schlechter, 1998:8). The authenticity of signatures would be established by national certification agencies.

◆ Internet Governance Issues

The rapidly growing use of the Internet causes complex problems of governance. The same tool that facilitates new forms of commerce and economic productivity also provides opportunities for the exchange of materials that violate legal and moral standards. It is an old dilemma with new dimensions (related to such features of the digital technologies as speed, scope, interactivity, anonymity and decentralization), and it cannot be resolved by decree. Public debate among members of the world community is essential.

Censorship

Censorship may be oriented toward limiting the global dissemination of harmful materials (paedophilia, pornography, or extremist hate messages) without unduly restricting freedom of information. Or it may involve a systematic attempt by authoritarian regimes to limit access to information and communications capabilities judged dangerous to the government in power. Thus there are a wide variety of measures designed to limit the flow of certain kinds of material on the Internet. Germany has laws prohibiting pornography and racism in cyberspace (1997), and Australia requires self-censorship by Internet Service Providers (1996). There are Japanese laws against Internet offences (1996). In China, Internet subscribers must register with the authorities (1996), and in Cuba there is control over individual access (1996). Malaysia monitors Internet contents (1996). Both the Philippines and the Republic of Korea enacted Internet censorship measures in 1996.

These restrictive regulatory measures have been contested across the globe by Internet service providers (ISPs), Internet users (like the members of the Electronic Frontier Foundation), computer professionals (including the Association Française des Professionnels d’Internet) and human rights organizations (like the American Civil Liberties Union). Their protests usually focus on the danger that restricting Internet access for valid reasons eventually slips into forms of censorship that erode the constitutional principle of freedom of expression. Moreover, they point to the ineffectiveness of efforts at controlling this technology. Even if national attempts are partially successful, this does not imply that control over the global decentralized infrastructure is feasible.

A crucial issue that has not yet been resolved is the matter of liability. Does this rest directly with users, or indirectly with Internet Service Providers? The problem is that ISPs generally facilitate the relay of messages without monitoring the contents, which are provided by users—often under the guise of anonymity. There is a trend to consider the ISPs solely as “carriers”, but still to make them

accountable in cases where they could have intervened to delete harmful materials. In response to the threat of state regulation, several attempts at self-regulation (“Netiquette”) have emerged. Various self-regulatory, voluntary codes of conduct have also been designed.

Allocation of domain names

The core of the Internet structure is the Domain Name System (DNS). This system transforms common e-mail and website addresses into the numbers with which Internet computer communications operate. There are top-level domain names for countries (for example, .nl for the Netherlands) or for general categories (generic top level domain names, such .com for businesses or .edu for educational institutions). Then there are second-level names such as un.org (for United Nations offices) and third-level domain names as well. Users apply to a domain name registry with the authority to register such names. In recent years, the Internet Assigned Numbers Authority (IANA) has been responsible for this system. The faultless functioning of IANA has been essential to the operation of the whole network of networks.

IANA received its authority from a mandate given by the Internet Society (ISOC) and the US Federal Network Council (FNC). ISOC is a non-governmental organization. The FNC was set up by the US National Science Foundation to coordinate the US Federal Interagency Internet Program. As an OECD report notes, “Most commentators would agree that the present authority claimed by the IANA emerged from a US government contracting process over many years when the network was primarily for military and then academic purposes. There is much less agreement on how this authority and governance structure should be interpreted in the transition to a fully commercial Internet or on how it translates in terms of international jurisdiction” (OECD, 1997d:16). In each country, the IANA gave authority for the allocation and administration of top-level domain names to one registrar. In the US this was InterNic, a private company owned by Network Solutions Inc.

In 1998 a new umbrella institution received the mandate formerly held by IANA: the Internet Corporation for Assigned Names and Numbers (ICANN). The establishment of ICANN follows upon instruction by the President of the United States to the Secretary of Commerce (1 July 1997) to privatize the management of the Domain Name System. With the formation of ICANN the dominant role of the United States government in the management of Internet names and numbers was thus effectively ceded to a non-profit corporation which, according to its articles of incorporation (21 November 1998), “shall operate for the benefit of the Internet community as a whole. . .” This reform has been endorsed by the European Commission.

It is becoming increasingly obvious that Internet governance issues cannot be resolved at the national level alone and that international regulatory cooperation is necessary. Thus ICANN is likely to be developed as a supra-national body. Nevertheless in 1999 the membership structure of ICANN is still being discussed, and the precise role of commercial operators in this non-profit institution has not been clarified.

Ideally, international co-operation on Internet governance issues should be handled by a trilateral forum, including governments, business corporations and non-

commercial users. In such a forum institutions like the Internet Society should be involved. This is a professional membership organization with over 150 institutional and 6,000 individual members in more than 100 countries. Since 1992 the Internet Society has been facilitating co-ordination and co-operation on the Internet and addresses such issues as network standards. ISOC stands for open use of the Internet, self-regulated content providers, on-line free expression, and the use of encryption without restriction. It also supports technical assistance for developing countries to improve their use of the Internet.

Under the ISOC umbrella one finds organizations that are responsible for the technological development of the Internet (including attention to interconnectivity and standardization), the Internet Engineering Task Force, the Internet Engineering Steering Group and the Internet Architecture Board.

The rate system

Other Internet governance issues are associated with reform of the current rate system. Some Internet Service Providers claim that the rules for Internet traffic—and in particular those regulating exchanges between smaller and bigger providers—are discriminatory and lack transparency. Meanwhile, international ISPs complain about the inadequacy of compensation for the traffic they carry. Settlement and accounting problems are complicated by the fact that Internet traffic does not flow between precisely defined sources, but may take a variety of routes across countries.

Furthermore regulatory provisions conventionally applied to international telephony are no longer relevant for the Internet. The Internet is a very different system, beginning as an international network and then developing local applications, whereas the telephone networks began as local systems and later became international. Thus, in the phone system, subscriber numbers are allocated nationally, while for the Internet many names and addresses are assigned internationally. And since much regional and national traffic within the Internet structure may be routed through international channels, the performance of local providers becomes more dependent upon foreign providers and carriers than has ever been the case for telephone traffic. The optimization of network performance is a priority on the agenda of most institutions and individuals working on Internet issues, as this is expected to largely determine future use and commercial success.

MARKETS⁷

Governance issues have to be assessed in the context of a rapidly changing ICT industry, marked by a strong tendency toward consolidation. In the telecommunications sector, mergers are largely the consequence of liberalization and privatization policies. These have caused pressures on the prices for telecommunication services and as a result have forced companies to protect their financial positions through merging with other companies. This is an endless process, since the economic benefits that accrue from mergers create new competitive pressures, compelling new waves of consolidation.

⁷ Sources: **Fortune**, 27 April and 3 August 1998; **Business Week**, 13 July 1998; and various annual reports of companies.

Three recent examples are sufficient to illustrate current trends in the telecommunications industry. In 1998 WorldCom merged with MCI, creating the second largest telephone company in the world (after AT&T). MCI WorldCom controls some 25 per cent of the US market for long-range telephone connections. It is also now the largest international provider of access to the Internet. Meanwhile, during the same year AT&T merged with Tele-Communications Inc. And shortly thereafter AT&T announced plans to co-operate with British Telecom for the provision of global telecommunication networks to transnational firms. The expected joint revenues will exceed \$10 billion a year.

Co-operation among telephone giants continues to grow, as Deutsche Telekom, France Telecom and Sprint now share their global telecommunications activities in the joint venture known as Global One. But the most noteworthy arena for acquisitions and mergers at present is that associated with control over access to cyberspace. The gates that provide access to the World Wide Web—the so-called “Web portals”—have become crucial elements in the on-going struggle for dominance. Thus in 1998 the media giant Walt Disney announced that it would spend \$70 million for the purchase of 43 per cent of the stock of the search engine Infoseek. The US broadcasting network NBC invested \$165 million to purchase the on-line service Snap!, owned by Cnet. Time-Warner and News Corp. also began the development of Web portals.

Mergers across sectors, of the kind just described, are facilitated by digital technology. Technical convergence has made it very attractive for companies to expand into new territory, as the recent activities of Microsoft well illustrate. In April 1997 Microsoft bought (for \$425 million) WebTV Networks, a company that produces set-top boxes for surfing the World Wide Web by television. Two months later, Microsoft invested \$1 billion in a cable company, Comcast Corporation (the fourth largest cable system in the United States). In June 1998 Microsoft, together with Compaq Computer Corporation, acquired 20 per cent of the stock in another cable company, Road Runner. Meanwhile Microsoft had already begun to co-operate with the television network NBC on plans for a new cable TV channel, MSNBC. The purpose of all these acquisitions is to find a bigger market for Microsoft software and for a range of on-line services such as sales of cars and travel. Even media mogul Murdoch has become sufficiently worried to state in the **Guardian** of 8 December 1997 (Media, page 10): “We have to stay on our toes to make sure Bill Gates doesn’t erect a toll gate in every house”.

Deals between Internet Service Providers and manufacturers of search engines are also being struck. Thus WorldCom MCI, which provides access to the Internet, has concluded a deal with Yahoo!, to guide clients to the web site of that company. Furthermore, if traffic on the Internet continues to grow, ISPs are likely to accept payment for granting certain web sites “priority”. This implies that if too many clients browse the Web, the customers of privileged sites will have to wait less time than other clients.

Table 1 provides a synthetic picture of the leading contenders in the struggle for control of an integrated, and ultimately highly oligopolistic, ICT industry. The structure of ownership that it reflects poses important policy issues for global governance for a number of reasons. First, these are economic interests that neither governments nor intergovernmental organizations can ignore. Giant corporations have an enormous capacity to lobby and to influence the course of international

negotiations. Second, these market leaders set *de facto* standards that limit the range of users' choice (as illustrated during the debate on Microsoft Windows and the Web-site browser Explorer). And third, a small number of companies determine both price and the diversity of available services and products.

Table 1
Principal enterprises in the information technology field
(1997 sales in \$ millions)

Manufacturers of personal computers	
IBM (US)	78.505
Hewlett Packard (US)	42.895
Fujitsu (Japan)	40.613
Compaq ¹ (US)	24.584
Digital Equipment (US)	13.047
Dell Computer (US)	12.327
Designers of operating systems	
Microsoft ² (US)	11.358
Sun Microsystems (US)	8.598
Apple Computer (US)	7.081
Browser makers	
Netscape (US)	not available
Microsoft (US)	11.358
America On-line (US)	1.685
Telecommunications companies³	
AT&T (US)	51.319
Deutsche Telekom (Germany)	37.891
Bell Atlantic (US)	30.194
France Telecom (France)	26.197
British Telecom (Britain)	25.504
SBC Communications (US)	24.856
L.M. Ericsson (Sweden)	21.420
BellSouth (US)	20.561
MCI Communications (US)	19.643
Ameritech (US)	15.998
Sprint (US)	14.874
TCI (US)	7.570
Internet service providers	
WorldCom ⁴ (US)	7.351
America On-line ⁵ (US)	1.685
Search engines	
Excite (US)	89
Yahoo! (US)	67
Infoseek (US)	52
Producers of information and entertainment	
Disney (US)	22.473
Sony Music Entertainment (Japan)	16.900
Bertelsmann ⁶ (Germany)	14.006
Viacom (US)	13.505
Time Warner (US)	13.294
News Corp. (Australia)	11.216
Seagram (Canada)	11.000

¹ In 1998 Compaq Computer acquired Digital Equipment, in a deal worth US\$ 9.6 billion. Combined revenues of the two companies are estimated at \$38 billion.

² In 1997 Microsoft bought a 5 per cent participation in Apple Computer for \$150 million. As part of the deal Microsoft insisted that the Microsoft "Web browser" Explorer should be installed on Apple Mac computers.

³ Worldwide revenues in the telecommunication industry were close to \$ 600 billion in 1997. Almost 75 per cent of these revenues came from sales of equipment and the rest from services. Various analysts expect this to grow to some \$1,400 billion by 2000.

⁴ WorldCom MCI now controls some 60 per cent of worldwide Internet traffic and is thus a major gatekeeper of access to lines and networks.

⁵ In September 1997 America On-line (AOL) acquired Compuserve through a complicated arrangement that made WorldCom the owner of Compuserve's infrastructure (for access to the Internet). WorldCom paid \$1.2 billion to H&R Block (Columbus, Ohio) for the purchase of Compuserve. The subscribers of Compuserve were sold to America On-line. Through this deal, AOL became the largest ISP on the European market with 1.5 million subscribers. On the world market, AOL has some 12 million subscribers.

⁶ Bertelsmann is very active on the Internet. Since 1997, it has a 50/50 partnership with America On-line for Internet services in Europe, and in October 1998 it invested \$300 million in a 50/50 joint venture with Barnes and Noble, for the on-line sale of books.

SHIFTS

In conjunction with the remarkable growth and integration of the ICT industry over the past decade, world communications politics and policies are undergoing profound change. Among the most important shifts are the following.

From national to supra-national governance: For almost a hundred years, the role of international institutions in the communications field was primarily to co-ordinate national policies that were independently shaped by sovereign governments. Today, however, the space that national governments have for independent policy making is to a large extent determined supra-nationally.

From invisible to highly visible private interest: The "invisible" hand of the economic interests that have always guided political decision making has become much more visible in recent years. Transnational corporations have stepped into the foreground as dominant players in the arena and have defended their interests explicitly. And in the process, the locus of much policy making has shifted from governments to private business associations.

Recent developments in connection with the proposal for a Global Charter on Communications demonstrate this reversal of roles. During the Interactive Conference of the ITU in September 1997, European Commissioner Martin Bangemann proposed the idea of drawing up a Charter that would contain key principles for a global information society. The Charter was to be a political declaration which would launch a process of dialogue between governments and companies on the global electronic market place (I-Ways, 1998:11). Commissioner Bangemann had suggested that the goal would be a market-led approach "whereby the private sector can participate actively in a consultative process with governments and international organizations in the shaping of global communications policy" (I-Ways, 1998:11).

On 29 June 1998, Commissioner Bangemann invited some 50 board chairmen and corporate presidents from 15 countries to a roundtable discussion on global communications. Among the companies invited were Microsoft, Bertelsmann, Reuters, Polygram, IBM, Siemens, Deutsche Telekom, Sony, Toshiba and VISA. And on the agenda were questions such as "What are the most urgent obstacles to

global communications and what are the most effective means to remove them?” Intellectual property rights, taxation, tariffs, encryption, authentication, data protection and liability were identified as urgent issues for discussion.

Before the roundtable began, some American corporations had already expressed reservations about the usefulness of a Charter. During the roundtable, business participants proposed that regulation be kept to a minimum, since the global nature of the on-line economy makes it impossible for any single government or body to regulate it. The industry expressed a clear preference for self-regulation and proposed setting up a Business Steering Committee to ensure that the initiative would be business-led. Industry leaders then decided to begin a new Global Business Dialogue, to which governments and international organizations would be invited. Ironically, the initial Bangemann plan was for a political declaration that would launch a dialogue between governments and companies on the global electronic market place. This process has now been taken over by the private sector, which will invite governments and international organizations—when it sees fit—to assist in shaping a self-regulatory regime.

From some international organizations to others: Meanwhile, the relative importance of various international organizations in shaping ICT policy is changing. World communication politics was traditionally made in such intergovernmental fora as UNESCO, WIPO and the ITU. These organizations were relatively open to discussion of the socio-cultural dimensions of developments in the field of information and communication technologies. Moreover, they offered a platform where the interests of developing nations could be voiced.

In recent years the position of these intergovernmental organizations has been considerably weakened, as the major players begin to prefer discussion within the framework provided by the WTO. Actually, it should surprise no one that communication politics has shifted to this trade forum, given the increasing economic value of communications networks and information services. The global info-com market generated revenues in 1997 of more than \$1.5 trillion. And since the major ICT corporations provide essential support structures for commodity and financial markets, they are an indispensable part of the global trade regime. Global governance structures are thus largely committed to minimizing public intervention and maximizing freedom for market forces in the ICT field—another major change that should be highlighted.

From public service to commercial priorities: As an integral part of this trend, world communication politics is undergoing a historic shift in priorities, from a public service orientation to one that gives greatest attention to private commercial issues. Evidence of this can be found in the growing emphasis on the economic importance of intellectual property and the related priority of providing protection for investors and corporate producers. In the telecommunications field, standards of universal public service and cross-subsidization have given way to cost-based tariff structures. In the area of transborder electronic data flows, the substance of debate has changed from political arguments about national sovereignty and cultural autonomy to such notions as trade barriers and market access.

Within current debates on ICT issues, people are often seen as consumers for whom telecommunications provides commercial services, rather than as citizens for whom telecommunications offers a forum in which to interact and exchange

ideas. This tendency is visible not only in discussions at the WTO, but in other institutions as well. For example, in the **Greenbook on Convergence in the Fields of Telecommunications, Media and IT** (European Commission, 1997), users of ICTs are almost exclusively perceived as purchasers of goods and services in a market.

Consequently, in most ICT policy plans, the provision of non-commercial services is neglected. A very important exception to this trend is provided in the Protocol on Public Service Broadcasting to the European Union's Amsterdam Treaty (June 1997). The EU has agreed that public service broadcasting has social and cultural functions, preserves media pluralism and strengthens democracy. The social and cultural significance of public broadcasting is acknowledged by allowing it to function outside the regime of free-market funding.

It is too early to say how the new multilateral regime will operate, and it is also too early to conclude who will benefit and who will pay the costs. There are, however, no indications that—by some miraculous stroke of luck—less powerful groups will begin to benefit in equitable ways. This can only come about when there is strong worldwide intervention on behalf of the public interest.

CIVIL INTERVENTION

What are some of the essential elements in a strategy to improve the quality of governance in the ICT field, and to reinforce the public-interest dimensions of policy making on information and communications issues? If the current system leans too far toward favouring private commercial interests, and increasingly reduces the possibilities for public control over the development and application of ICTs, how can the situation be changed for the better? Some principles for action are briefly noted below.

◆ The False Dichotomy Between State and Market: A Need for Flexibility

In very general terms—and based on the lessons of past experience—one could suggest that policies for future ICT governance should avoid the false dichotomy between state regulation and market self-regulation. Neither governmental institutions nor market forces are capable (without further qualification) of ensuring that ICTs serve the interest of the population at large. The challenge, in both public and private scenarios, is to place the public interest at the centre of policy considerations and to ensure that adequate mechanisms for public accountability exist.

Privatization of telecommunications infrastructure provides a case in point. Simply to object to privatization is not convincing. In many cases, state-run telecommunications systems have not functioned very effectively and have done very little to provide “universal access” to the broader public. Nevertheless, the market is unlikely to deliver what the state failed to deliver unless there are adequate regulatory mechanisms that imply accountability and permit remedial action by users against providers of inadequate services. The real problem is the absence of an adequate public interest policy, not public or private ownership.

Universal access to telephony, for example, is quite possible in a privatized environment, if there is a public policy that allocates revenues for connecting users who would otherwise remain disenfranchised.

◆ The Need for Stronger Policy Research and Co-ordination within the South

Policy making in the ICT field can no longer be a strictly national affair. It is fundamentally affected by global forces. Therefore policy makers and citizens who share common concerns must be capable of forming a constituency and mobilizing support across borders and regions. Since the globalization process is today largely driven by Northern business interests acting with the support of their governments, it is especially important for Southern governments and people to develop coherent policy proposals and to make their voices heard at the international level.

At the moment, there is no coherent Southern position on ICT issues. “The G-77 lacks a research facility or a permanent secretariat, and is unable to carry out long-term planning or strategizing for international meetings and negotiations” (Khor, 1995:18). This must be remedied. “Without policy co-ordination, Southern countries will stand to lose out in the formulation of international policy frameworks that will have important impact on their national policies” (Khor, 1995:16).

◆ Encouraging Good Governance at the International Level

Since the early 1990s, national and international donor institutions have insisted that their partners practice good governance. Although this standard is not always clearly defined, it generally implies that there must be transparent procedures for public decision making, as well as civic participation in the decision making process. Surely such requirements are valid for all parties involved in processes of social development. They must therefore also be applied to institutions of global governance. This means that global policy making on ICT issues requires transparency, accountability and broadly based civic participation.

The currently dominant institutions of global ICT governance, such as the WTO and the World Bank, are not particularly noted for the transparency of their decision-making processes or for their commitment to public accountability. Thus, in his speech to the Second WTO Ministerial Conference in Geneva (May 1998), US President Clinton insisted that “We must modernize the WTO by opening its doors to the scrutiny and participation of the public”. Specifically, he proposed that private citizens should be able to present their views before the WTO and that “all hearings by the WTO be open to the public”.

Participation by representatives of non-governmental sectors has been an important asset of the UN system from its inception. Intergovernmental organizations such as the United Nations Educational, Scientific and Cultural Organization (UNESCO) and WIPO have throughout the years benefited from the contributions made by institutional and individual members of civil society. In the ITU the active participation of NGOs has tended to be restricted to private commercial parties. Thus the 1994 Kyoto ITU Plenipotentiary conference adopted a resolution that recognized the rights of the private sector to be included in the

decision-making process of ITU study groups. In September 1998, however, the ITU decided to allow more participation in its deliberations by public interest NGOs. Such openings are useful and should be further encouraged.

◆ Forming Cross-Border Coalitions

Although it may seem obvious that civil society should be mobilized to represent the public interest in international fora, this requirement in fact raises complex substantive and logistical questions. In much of the literature and debates on development, there is a tendency to romanticize civil society, which is taken to be inherently both good and homogeneous. In reality, it is neither. The civic sector of most societies is composed of a heterogeneous collection of (often mutually exclusive) interests. There are divisions and antagonisms among the members of any society. Some members of the public are criminals and bigots. Moreover, the civic institutions that defend various aspects of public interest are not necessarily paragons of democratic governance.

As a result, it seems unrealistic to hope for public interest intervention in global fora by a permanent, homogeneously oriented entity that represents civil society. A more flexible approach is in order. Different fora and different issues require different modalities of intervention. It will be necessary to establish changing *ad hoc* coalitions that focus on specific issues and put pressure on various kinds of decision makers to take the public interest into account. These *ad hoc* coalitions should be cross-border in nature—not only in the geographical sense, but also in terms of discipline and orientation. They should involve civil movements that are active in the info-com field, but stretch beyond this community to include public interest groups in fields such as human rights, environmental concerns, peace and security matters, and so forth. There could also be alliances on certain issues with representatives from the business and diplomatic communities.

An interesting model for public interest intervention is the opposition mobilized from 1996 onward—to large extent through the use of the Internet—against the Multilateral Agreement on Investment (MAI). The MAI was to be ratified at the OECD annual ministerial meeting in April 1998. By that time, however, so much public opposition had been expressed that negotiations could not be completed. A very effective NGO campaign ensured that questions about the implications of the agreement were raised in a number of national parliaments; and parliamentarians began to realize that they were being left out of the MAI deliberations. It is significant that the extent of public concern with this issue prompted governments to announce, in their 1998 Ministerial Statement, that there would be consultations with civil society.

The MAI negotiations were of course affected not only by the NGO campaign but also by divisions among the negotiating parties. The French government withdrew from the negotiations in October 1998; and there is disagreement between Europeans and Americans about modalities for continuing the negotiations. The European Union prefers to shift negotiations to the WTO, while the United States prefers to continue discussions in the Organization for Economic Cooperation and Development (OECD).

An important characteristic of anti-MAI activism has been its success in developing constructive alternative proposals. Those opposing the agreement have

not only challenged the uncritical deregulatory approach taken by official negotiators, but they have also suggested alternative forms of investment regulation. Thus key features of the MAI model, which provide lessons for international civic mobilization, are

- the formation of an *ad hoc* coalition;
- defining a very precise target for public interest intervention; and
- proposing alternative governance measures.

One public interest coalition, specifically presenting alternative policy proposals in the ICT field, is the Platform for Co-operation on Communication and Democratisation, established in 1995. At present, this group is made up of AMARC, APC, Article 19, Cencos, the Cultural Environment Movement, GreenNet, Grupo de los Ocho, IDOC, IFJ, IPAL, the International Women's Tribune Centre, the Mac Bride Roundtable, MedTV, One World On-line, Panos, the People's Communication Charter, UNDA, Vidéazimut, WACC, WETV, and the Worldview International Foundation. Members of the platform have agreed to work for formal recognition of the right to communicate. They also insist upon the need to defend and expand an open public space, where it is possible to build an ethical position on equitable and effective access to information and communication.

Several Platform members are currently involved in promoting a World Congress on Media and Communication, to be held in 2000. This will be a civil society summit on current trends in the info-com arena, which will challenge the new free-market orthodoxy in the deployment of ICTs. The Congress will promote implementation of existing international NGO initiatives, such as those formulated in the People's Communication Charter,⁸ as well as the establishment of an umbrella organization that can co-ordinate the actions of concerned groups and individuals. It should also contribute to improving media coverage on, and public awareness about, info-com issues.

CONCLUSION

If the potential of new information and communications technologies to promote social development is to be realized, there must be forms of governance that promote the widest possible accessibility to ICT infrastructures and services, the greatest possible diversity of information and knowledge sources, and the democratic nature of global ICT policy making. This implies reform, because there is a tendency in the current system to place commercial concerns above the protection of the public interest. To reverse this trend, there must be active intervention by civic coalitions representing those whose lives are deeply affected by the choices being made on ICT issues in global fora. This conclusion has three related implications.

International institutions must apply to themselves the criteria of good governance they require of others. They must be open to the control and participation of public interest institutions. At the same time, civic organizations that represent public

⁸ For more information on the People's Information Charter, see www.waag.org/pec

interest issues must be strong and innovative, and they must be capable of forming broad alliances that can intervene effectively in both national and international arenas.

Finally, civic intervention is obviously rather meaningless if people are inadequately informed. Therefore there is an urgent need for well-designed programmes of ICT education. Although interest in this is growing, resources are insufficient. Moreover, the dominant approach tends to focus on the development of functional ICT skills. These are certainly important, but they have to be complemented by training which helps people think critically about the social implications of information and communications technologies. An understanding of both their risks and their benefits is essential.

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