

**ELEMENTS AND PRINCIPLES OF THE INFORMATION
SOCIETY**

Foreword

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The views expressed in this paper are those of the author and may not necessarily reflect the opinions of the International Telecommunication Union or its members. More details can be found on the ITU website at: www.itu.int/osg/spu/wsis-themes

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Introduction

Ever since the 1980s, ‘information society’ has been one of the key terms used to describe today’s world. It has been employed variously as a social, cultural, economical and technical concept, and is typically seen as the natural development of the European liberal tradition, or of American technological modernity. Whether welcome or undesired, the information society is here, and it is therefore essential to clearly define its fundamental characteristics and principles.

This document is based on a number of declarations of principles and reports on information and communication technologies (ICT) and the information society.¹ Principles have been organized under three main sections, depending on their purpose: the “vision” which includes the main common principles at the basis of the information society; “access” where more specific requirements for the establishment of the information society are listed; and “applications”, illustrating the many dimensions of the information society. A synthesis of the main points is provided in the table in [Annex 1](#).

1 Vision

ICTs represent to today’s world what industrial machines represented during the industrial revolution; they have revolutionized ways of working, transformed the economy, had an irreversible impact on the way people live, and have shaped a new “information” society.

Information and communication technologies are seen by various different bodies of the international community as being, *inter alia*:

- a *bridge* between developed and developing countries [[DOI](#) and [DOT Force](#)]
- a *tool for economic and social development* [[WTDC 1994](#), [Seoul Declaration](#), [ADF 02](#)]
- an *engine for growth* [The Missing Link Report, 1984];
- the *central pillar for the construction of a global knowledge-based economy and society* [[Florianopolis Declaration](#)];
- an *opportunity for countries to free themselves from the tyranny of geography* [[ESCAP 2000](#)].

The fundamental role of ICTs in the information and knowledge society is widely recognized, as is the fact that there is unequal distribution and sharing of this technology and of access to information. From this comes the first and most important principle for the information society: universal service.

1.1 Universal service and universal access

In an environment where information and knowledge are crucial to social and economic development, access to information and the means to use that information needs to be extended to everyone, everywhere. For this reason, universal access or universal service are a fundamental point of all declarations, in particular with reference to the needs of developing countries, where the information society both opens up great potential for development and poses new risks, widening disparities between and within countries.²

Universal service is the long-term objective of making communication facilities available to every member of society on an individual or household basis, and it is used in particular in the regulatory-

¹ References are listed at the end of this documents.

² United Nations Economic and Social Council [Draft Ministerial Declaration on Development and international cooperation in the XXI century: the role of IT in the context of a knowledge-based global economy](#), E/2000/L.9 [hereinafter ECOSOC 2000].

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legislative framework to indicate the obligation of telecommunication operators to provide their services to the entire population.³

However, the objective of universal service is still far from turning into reality in developing countries, and the universal service concept has been complemented by the concept of universal access, i.e. the opportunity for everyone, at home or at work, to be within a reasonable distance of a telephone.⁴ In fact, to connect the majority of the poor, especially those living in rural and remote areas (around 80 per cent of world's poor are rural dwellers), requires innovative approaches, including a shift from individual connectivity, which has been prevalent in developed countries, to community connectivity. Group or community connectivity, and the establishment of public access points,⁵ will enable users to have access to information and knowledge at minimal cost in areas which are not currently served, so that, in the terms of the *Missing link report*, the whole of mankind will be within an easy reach of a telephone, fax and Internet access. Public access points are indeed the first step toward universal service, and also contribute to raising public awareness about the benefits of communication and information technology—possibly even providing opportunities to acquire computer skills and training.

The necessity of universal access to information services is stated in several declarations, which stress the need to broaden access to and use of ICTs, declaring that everyone, everywhere should be enabled to participate in the global information society.

The term “universal access”, however, sometimes also assume social, economic and cultural connotations, encapsulating issues concerning equality of opportunities, literacy, diversity of content, and so on. This connotation principle alone would appear to be too vague and could lose its force as a basic principle in the information society, especially considering that there are other principles (illustrated below) specifically dealing with the above-mentioned issues. Universal access should therefore be interpreted as material and physical access to information infrastructure and services.⁶

Lack of infrastructure, according to a Statement from Developing Countries in the DOT Force, “[is] one of the major challenges developing countries have to face in their efforts to access ICTs as a tool for development”.⁷ The principle of “universality” should therefore be limited to the need to develop this infrastructure.

In addition to the need for universal service, several declarations mention the necessity of giving particular attention to the development of telecommunication infrastructures in rural and remote areas, where the telecommunication system is inadequate to sustain essential services—or where there is no service at all, but which are often home to a high percentage of the population. This is especially true in developing and least developed countries, with the latter requiring special attention.

³ Universal service is defined in national telecommunication legislation as a requirement to ensure that telecommunication services (usually telephone services) are available on an affordable and non-discriminatory basis on the entire territory, or to all the people, of the country. See Canadian Telecommunication Act, 1993; French Telecommunication regulation, 26 July 1996; US Telecommunication Act, 1996. World Telecommunication Development Report, “Universal access”, ITU, Geneva, 1998, p. 61 [hereinafter WTDR 98].

⁴ World Telecommunication Development Report “Universal access; world telecommunication indicators” [hereinafter WTDR 1998], ITU, 1998, at 61

⁵ “Establishment of public access points”, [Bamako Declaration](#), “World Summit on the Information Society, Africa Regional Conference” Bamako, 28-30 May 2002, art. A(d) [hereinafter Bamako 2002]; “group and community connectivity”, ECOSOC 2000; “community access to ICTs”, [Istanbul Declaration](#), ITU World Telecommunication Development Conference, 18-27 March 2002, Istanbul [hereinafter Istanbul 2002]

⁶ Brussels and Istanbul declarations refer specifically to “universal access to services” and “universal access to ICTs”. See [Conclusions of G-7 Ministerial Conference on the Information Society](#) (DOC/95/2), 26-26 February 1995, Brussels [hereinafter Brussels] and Istanbul 2002.

⁷ *Statement from developing countries in the DOT Force on global initiatives promoting ICT for development and future of the DOT Force implementation teams*, Calgary, 7 May 2002.

1.2 Equality of opportunity

The physical existence of infrastructures is essential but not sufficient for development of the information society: factors of gender, level of education and literacy, household income, language, race and ethnicity are all critical determinants of ICTs utilization and access within countries, whence the necessity to promote equality of opportunity to citizens, and in particular to encourage the participation of weaker categories in the use of ICTs.⁸

Each country should also promote measures “to help people of every age, background and location and level of physical ability to access ICTs”,⁹ and States should “actively involve the youth in national and regional ICT activities; ensure better gender balance in ICT use while instituting specific programmes that address the need of women particularly those aimed at rural and disenfranchised areas.”¹⁰

The use of voice and touch screen applications that enable a greater number of people to access ICTs and the development of applications and content suited to local needs, harness the potential of information and communication technologies, enabling the population to participate in the information society.¹¹

1.3 Content diversity

Content is a fundamental element for the utilization of ICTs. Development of local content on the Internet is a means to ensure a culturally and linguistically diverse cyberspace, and this diversity is also an important part of our cultural heritage and has to be protected. ICTs provide new channels for the expression of this diversity and for the worldwide dissemination of locally created content.

Diversity of content on the Internet would enable the participation of all and ensure sustainable access, realizing the full potential of the Internet as a source of information and knowledge. Appropriate content would also benefit the utilization of ICTs for educational purposes, training and human resources development.¹²

The quality and variety of content is of “great importance to encourage more people to join online activities”, and “special emphasis should be placed on the promotion of applications that are useful for various languages, such as translation, as well as development and distribution of contents that reflect local cultural or linguistic characteristics.”¹³ The Bamako Declaration acknowledged the continent's rich cultural diversity and urged that it should be reflected in cyberspace, affirming the need to “invest in African media content as well as new technologies and develop independent production.”¹⁴

The production of local, national and regional content in native languages, and the location of that content on regional servers, can also help in rationalizing access for local and regional traffic and promoting its exchange via the most direct route.¹⁵

Creation of local content, with the help of the international community and the collaboration of the private sector, should therefore be given high priority.¹⁶

Content diversity should be promoted

“The information society should serve the cultural enrichment of all citizens through diversity of content reflecting the cultural and linguistic diversity of our

⁸ ISAD, ADF 2002, artt. 14 and 46.

⁹ Tokyo, art. 11.

¹⁰ Bamako 2002.

¹¹ Bamako 2002, artt. 3 and 7.

¹² See, for example, UNESCO World information and Communication Report [hereinafter UNESCO Report], Paris: UNESCO, 1999, p. 56. Online at <http://www.unesco.org/webworld/wcir/en/report.html>.

¹³ Tokyo art. 8.

¹⁴ Bamako 2002, art. C (a).

¹⁵ Florianopolis, art. 18.

¹⁶ Digital Opportunities Task Force (DOT Force) action plan: [Digital opportunities for All: Meeting the Challenge](#) [DOT Force]: “promote national and international effort to support the creation of local content and applications”.

peoples. Diversity of content, including cultural and linguistic diversity, should be promoted. The private sector should therefore develop and build information networks with abundant capacity to accommodate a wealth of information, both locally produced and that developed in other regions and nations.”¹⁷

1.4 Freedom of expression and freedom of access

Communications can be a vehicle for the implementation of the principle of freedom of expression,¹⁸ as stated in Article 19 of the United Nations Universal Declaration of Human Rights:

Free flow of information and plurality of opinions

“Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.”

For the creation of the global information society, it is essential to safeguard plurality of opinions,¹⁹ and to promote “open access to networks for service and information suppliers” and “free expression of ideas”²⁰. This freedom should then be coupled with the right of the public to have access to “information [...] which is disseminated in all media including new multimedia systems.”²¹

2 Access: reliable, affordable and secure

Access to information and knowledge is essentially determined by connectivity, capabilities, and content. It is in these three areas that urgent action is required to ensure full access to ICTs for developing countries. Furthermore, unless connectivity and access are affordable, reliable and secure, prospects for development of the knowledge economy are dim.

2.1 Building the infrastructure

Where necessary, and particularly in developing countries, physically building up the infrastructure to access to the global information society is the first step. This is then followed by optimizing the use of the information and communication infrastructure through convergence of technologies, interconnection among different networks, standardization and management of scarce resources (such as the frequency spectrum).

In most developing countries, lack of infrastructure and connectivity are still the biggest challenges to the development of the information society. Very often, infrastructures fail to meet local demand and cannot guarantee a reliable access to global communication networks, therefore, immediate steps have to be taken “for the development of the basic infrastructure necessary for connectivity including for most remote areas.”²² The Tokyo Declaration affirms the urgent need “to develop the necessary infrastructure that will provide access to such resources as the Internet” with the encouragement and support of government and international community, where appropriate.²³

¹⁷ Brussels.

¹⁸ ECOSOC Report, 2000.

¹⁹ Brussels.

²⁰ Brussels, ISAD.

²¹ Bamako 2002, art. 2, and UN Millennium Declaration, UNGA Res. A/55/L.2. Online at <http://www.un.org/millennium/declaration/ares552e.htm>.

²² ECOSOC, art. 14.

²³ ADF 2002, art. 44; Tokyo art. 5 and 7.

The same is stated by African countries, affirming that communication infrastructures are integral components of regional integration and that “strategies need to be developed to improve connectivity and [...] develop more efficient communications”.²⁴

Representatives of the countries of Latin America and the Caribbean have declared the necessity to design and implement public programmes with a view to building up physical infrastructure and paving the way for widespread access to digital networks. The promotion of the development of state-of-the-art national and regional communication infrastructures will lead to “upgrading the “capillarity” of information and communications networks within their various territorial units, substantially upgrading key functions such as applicability and interoperability, and facilitating a swifter diffusion of technological innovations”.²⁵

2.1.1 Convergence

The utilization of the optimal mix of technologies is considered a key element for the deployment of the information society.²⁶ Asia-Pacific countries affirm that, in order to effectively promote the balanced development of information and communication infrastructure, taking into consideration the geographic and economic diversities of Asia-Pacific countries, it is necessary to use “different technologies and equipment according to local conditions, as well as to take account of changes such as technological convergence.”²⁷

As pointed out by the Valletta and Istanbul Declarations, convergence is opening up new perspectives for the ICT sector, offering opportunities for e-learning, e-commerce, e-government, e-health, environmental protection, post-war reconstruction and many other applications which are highly beneficial for social cultural and economic development.²⁸ Owing to the tremendous and multiple impacts on nations and individuals, there is growing attention to multimedia convergence, and more recent declarations are taking this into account in the definition of new telecommunication regulations and development strategies.²⁹ Technological convergence is also leading to greater optimization of costs, thus leaving scope for cost reduction and resulting in greater network access.³⁰

Convergence is the most significant feature of this information technology revolution

“The convergence of communication and computing technologies, especially through the Internet, is the most significant feature of this information technology revolution. The Internet is a widespread information infrastructure. It is at once a worldwide broadcasting system, a mechanism for information dissemination, a medium for interaction between individuals, and a marketplace for goods and services. It is therefore rapidly becoming a global communications and information tool and a source of considerable economic potential for individuals, firms and countries.

³¹

²⁴ ADF 2002, art 30.

²⁵ Florianopolis, art. 1-4.

²⁶ ISAD.

²⁷ Tokyo, art.6.

²⁸ Istanbul (e).

²⁹ Bamako 2002; Tokyo, art. 3; Buenos Aires, art. i): “Development strategies should encompass sound and television broadcasting via terrestrial and satellite systems as one of the key factors in promoting social and cultural development. The new broadcasting technologies being developed will provide opportunities, including those of distance learning, for a greater contribution to development”.

³⁰ ESCAP 2002.

³¹ ECOSOC Report.

2.1.2 Interconnection, standards and frequencies management

For the efficient development of the information and communication infrastructure, harmonization and cooperation is also necessary in such fields as interconnection, standardization or management of radio frequencies. These elements, more specifically related to technical features, are dealt with only by a few declarations, notably the G7 Information Society Conference, the Florianopolis and Tokyo Declarations and the Okinawa Charter.

Interconnectivity is a fundamental tool for the achievement of universal access to services, and for the growth of the information society. “Optimum conditions” should be created for interconnectivity and interoperability.³² The G7 States, in the conclusion of the Brussels meeting in 1995, affirmed their commitment to “[p]ursue the interconnectivity of networks and the interoperability of services [...] through the promotion of a consensual standardisation process which is market-led and which encourages open interfaces [...]”

Standardization is another essential ingredient in extending the global reach of telecommunications: “[a]ccelerating the standardisation process conducted by international bodies will contribute to developing timely and market-responsive standards.” “While the standardization process is ‘international’ in nature, the role of the private sector is always prominent: the G7 affirmed that “[c]ooperation amongst all actors should be built on private sector-led dialogue aimed at identifying critical interfaces.” The ESCAP Round Table, while stressing the need to create channels for the “development of norms and standards towards international standardization”, also pointed to the need for regional cooperation, perhaps in the form of a forum, which “could become a mechanism to address regional issues such as legal frameworks, norms and standards.”³³

Telecommunication services are also based on the utilization of radio frequencies, which are a scarce resource, the allocation of which is carried out by ITU Members at the international and regional levels and by national administrations, through a licensing procedure, at the national level. For a fair and effective allocation of these resources, transparent criteria must be applied. International cooperation and harmonization, under the auspices of ITU, should be pursued, in particular for services such as international mobile services and the implementation of global mobile and personal systems.³⁴

International cooperation is essential

“[...] international co-operation is essential in such fields as standardization or management of radio frequencies that are needed for cost-effective and efficient development of Information and communication infrastructure.”³⁵

In reference to the need to improve ICT infrastructure in African countries, the Bamako Declaration, also mentions the need to establish public access points and called for the creation of an African backbone using innovative communication infrastructures, to rationalize access to the Internet. Such considerations, however, are not dealt with in many declarations, which are often limited to the “visionary” aspect of the information society.

Probably today the global community is ready for a further step in the definition of ICTs development principles and strategies. Universal access is of course the basic issue, but afterward it will be necessary an effective development of networks, and an efficient use of resources and new technologies .

Secure and clearly-established conditions for the use of these technologies must also be ensured for users and operators alike.

³² Florianopolis, art. 14.

³³ ESCAP, art. 7.

³⁴ Brussels.

³⁵ Tokyo, art. 7.

2.2 Enabling environment: policy, regulation and cooperation

An enabling regulatory environment, a favourable investment climate and cooperation and funding of the international community are fundamental elements for the overall development of the information society.

It is difficult to define such an “adequate enabling environment”, given that each country has different needs and a different level of development. However, some basic requirements for the development of ICTs have emerged. These include:

- appropriate policy adapted to the new demands of the information society, and transparent and non-discriminatory regulation, to favour investment in telecommunication technology, mobilization of new resources and participation of private enterprises in ICT development;
- cooperation, at international, regional and national levels, coordination of efforts, exchange of information, transfer of technology and knowledge and sharing of experiences and best practices.

All the declarations examined recognized the necessity of policy and regulatory reform, which could imply market liberalization, the introduction of private investment and the creation of independent regulators. A reform may also entail a reorganization of the old regulatory framework in order to better deal with the new issues and problems of the information era.

2.2.1 Regulatory Framework

It is particularly felt that there is a need for more flexible regulation, which should be adaptable to the rapid development of new technologies and applications³⁶ and to growing private sector participation. In the ECOSOC Ministerial Declaration the need for “a conducive environment” at a national level is considered essential for the “rapid diffusion, development and use of information technology”³⁷. Similarly, ESCAP points out the necessity of a “supportive policy environment, including telecommunications policy and cyber laws” as one of the fundamental parameters for e-readiness. The ESCAP Round Table also stressed the need “for the creation of a favourable policy framework conducive to the adoption and diffusion of IT”,³⁸ while the Buenos Aires and Valletta Declarations, and the Okinawa Charter, called for the creation of “appropriate” or “adequate” telecommunication policies and regulatory structure.³⁹

Need for stable and transparent environment

“The development of telecommunications may be fostered by liberalization, private investment and competition in appropriate circumstances.”⁴⁰

“Favorable”, “appropriate”, and “adequate” not only mean that “regulatory obstacles should be lifted”⁴¹, but also that a “stable and transparent environment”⁴² should exist: legal certainty has always been a basic need for the development of the economy and society, favouring new initiatives and investment.

However, if “the establishment of an advanced information and communication infrastructure requires [...] an adaptable regulatory framework based upon competition” and “national regulatory policy

³⁶ Brussels.

³⁷ ECOSOC 2000, art 11

³⁸ Economic and social commission for Asia and the Pacific (ESCAP), [Report of the Regional Round Table on Information Technology and Development](#), 21-22 June 2000, New Delhi Paragraph I-1(1)d and II-5 [Hereinafter ESCAP]

³⁹ [Okinawa Charter on Global Information Society](#), Kyushu-Okinawa Summit, July 22, 2000 [hereinafter Okinawa Charter], paragraph 4; [Valletta Declaration](#), ITU World Telecommunication Development Conference, 1998, Valletta [hereinafter Valletta], 3d paragraph; [Buenos Aires Declaration](#), ITU World Telecommunication Development Conference, 1994, paragraph (d) [hereinafter Buenos Aires].

⁴⁰ Buenos Aires, art. e).

⁴¹ [Bamako Declaration](#), “Internet: bridges to development”, 21-26 February 2000, Bamako [hereinafter Bamako 2000], paragraph 3; [Tokyo Declaration](#) “Asia-Pacific Renaissance through ICT In the 21st Century”, APT Asia-Pacific Summit on the Information Society, 31 October – 2 November 2000, Tokyo, art. 7 [hereinafter Tokyo].

⁴² Istanbul Declaration paragraph g), Valletta, 3d paragraph.

objectives need to be transparent and consistently applied”, it is important to remember that this process should always “take into account the particular realities in each country.”⁴³

There is no “one-size-fits-all” solution

“There is no “one-size-fits-all” solution. It is critically important for developing countries to take ownership through the adoption of coherent national strategies [...].”⁴⁴

2.2.2 Private investment

The importance of mobilizing new investment, in particular from the private sector,⁴⁵ is recognised by several declarations. The private sector “should be the driving force behind the information society” and “has a vital role to play” in investment in the development of information and communication infrastructure.⁴⁶ For this reason, governments should work to create an environment that allows and encourages private-sector participation, for instance by establishing transparent legal frameworks.⁴⁷

It is up to governments to create a policy and regulatory environment necessary for the information society

“The private sector plays a leading role in the development of information and communication networks in the information society. But it is up to governments to create a predictable, transparent and non-discriminatory policy and regulatory environment necessary for the information society.”⁴⁸

Sector reforms are among the major forces shaping the development of telecommunications, and lead to greater private sector participation and competition. This new trade and regulatory environment places even greater pressure on policy-makers, regulators and operators to acquire the necessary skills and resources to manage the evolving ICT environment.

The new model of telecommunication investment, and the entry of new players onto the scene, gives rise to the need for new and “creative models of partnerships between government, the private sector and NGOs”.⁴⁹ For this, new mechanisms, such as private-public partnerships, need to be considered,⁵⁰ and “innovative approaches”⁵¹ need to be developed to achieve universal connectivity.

2.2.3 Cooperation and public sector participation

While the private sector may be the driving force behind the growth of the information society, governments and organizations should not forget that private initiative is market driven, which does not necessarily cater for the needs of the whole population, particularly in developing and least developed countries.

In such cases, it is essential for governments to take the lead in promoting equitable participation of the whole population in the information society. However, given the high cost of this participation (the need for infrastructure, equipment, education and training, appropriate content, etc.), individual governments of developing countries find it difficult to carry this objective without international support. Therefore

⁴³ [Information society and Development Conference](#) (ISAD), South Africa, 13-15 May 1996, p. 4 [ISAD].

⁴⁴ Okinawa Charter, art. 14.

⁴⁵ ISAD, page 2 and 4

⁴⁶ Bamako 2000, art. 6.

⁴⁷ eEurope 2005: an information society for all: “Both developing services and building infrastructures are mainly tasks for the private sector and eEurope will create a favourable environment for private investment”.

⁴⁸ Okinawa Charter, art. 7

⁴⁹ ESCAP paragraph 3.

⁵⁰ [Florianopolis Declaration](#), Latin America and Caribbean Regional Meeting on Information Technology for Development, 20-21 June 2000, Florianopolis, Brazil, paragraph 4 [Florianopolis]; African Development Forum III, “[Consensus Statement and the Way Ahead](#)”, 3-8 March 2002, Addis Abeba [ADF 2002].

⁵¹ ECOSOC 2000, paragraph 8.

“effective and meaningful collaborative efforts are required, involving governments, multilateral development institutions, bilateral donors and the private sector [...]”.⁵²

Market forces are fundamental but not sufficient to put ICTs in the service of development

“Market forces are fundamental, but they alone will not suffice to put ICT in the service of development [...]”

“[I]n situations where the private sector finds little incentive for investment, the participation of the public sector is indispensable in developing vital infrastructure”⁵³

In the establishment of an enabling environment for the development of the information society, the necessity of international cooperation and of “regional and global pooling of resources”⁵⁴ is affirmed, in particular with reference to the growing digital divide between developed and less developed countries and to the necessity to foster universal access.

Effective collaboration among all stakeholders

“Efforts to bridge the digital divide, as in our societies, crucially depend on effective collaboration among all stakeholders. Bilateral and multilateral assistance will continue to play a significant role in building the framework conditions for IT development.”⁵⁵

International cooperation should focus on the major impediments to the participation in the ICT revolution, such as lack of infrastructure, education and connectivity. “[C]oncerted actions at the national, regional and international levels are imperative for bridging the digital divide [...]”⁵⁶ and “global regional and national financing and investment institutions are urged to attach high priority to the growth of telecommunications, particularly in developing countries.”⁵⁷

International cooperation is mostly directed at supporting and financing the development of ICTs in less industrialized countries, but also at promoting “greater international dialogue [...] to bring together the ‘best practices’”⁵⁸ in the field of ICTs. Cooperation mechanisms touch every aspect of the information society, and can be applied, where appropriate, to “the dialogue, awareness campaigns, the definition of appropriate policies, the development and interconnection of information infrastructures, the provision of training, the distribution of applications and the development of their contents.”⁵⁹

2.2.4 Regional cooperation

Exchange of information and experience are among the main objectives of regional coordination, which is focused on tackling public policies on the information society and enabling the “sharing of experience among countries in the region on preparing for the digital era.” Workshops, seminars, databases and websites could allow different stakeholders to interact, and regional cooperation “could become a mechanism to address issues such as legal framework, norms and standards”⁶⁰ and can help to introduce

⁵² *Ibid.*

⁵³ ECOSOC art. 12; Tokyo, art. 7. See also United Nations Economic and Social Council “Development and international cooperation in the twenty-first century: the role of information technology in the context of a knowledge-based global economy”, [Report of the Secretary-General](#), E/2000/52, at 62 [hereinafter ECOSOC Report], stating that a radical and decisive action is necessary to fight against the growth of the differential access to information and access (*digital divide*), but such action “cannot be left to market forces alone; it requires a collaborative effort involving Governments, multilateral and bilateral donors, the private sector and other stakeholders, such as non-governmental organizations.”

⁵⁴ Bamako 2002

⁵⁵ Okinawa Charter, art. 15.

⁵⁶ ECOSOC 2000 art. 5.

⁵⁷ Istanbul 2002.

⁵⁸ Okinawa Charter, art. 17.

⁵⁹ ISAD.

⁶⁰ ESCAP, art. 7.

“joint technical/commercial ventures.”⁶¹ New attention is also given to “south-south” cooperation, in particular with a view to sharing best practices, exchanging information, and, more concretely, to build up direct connectivity among developing countries.⁶²

2.2.5 Technology transfer

The international community is called upon to contribute to the development of the information society by providing “technical and financial cooperation.” Cooperation in an era governed by technology must involve not only financing or exchange of information and best practices, but also the transfer of technology and knowledge, in particular in favour of developing countries.⁶³

“[Collaborative] efforts should include transfer of technology to developing countries on a concessional and preferential terms, as mutually agreed, especially technology related to knowledge-based sectors.”⁶⁴

Technology transfer programmes and technical cooperation are defined by the ISAD as a “key policy issue” and are considered fundamental also at a regional level, to “harness intraregional competencies to facilitate the transition of member countries into networked societies and economies.”⁶⁵

Cooperation is essential to develop a harmonious and equitable information society, the benefits of which are truly global.

2.3 User and operator protection: legal issues

The utilization of ICTs to generate, process and transmit data and information is creating new legal dilemmas, resulting in the need to reform legal protection mechanisms for users and operators.

This issue is not covered in all declarations: some mention in general terms the “protection of the user/customer”,⁶⁶ while others do not deal with actual application of ICTs, but concentrate mainly on the creation of the infrastructure and network and deals with wider policy issues. Only a few declarations, notably those originating from countries where ICTs already form a part of everyday life, consider issues such as intellectual property rights, protection of privacy, data and network security.

2.3.1 Intellectual property rights

Among the principles outlined in the Brussels Declaration is the need for measures to protect “intellectual property rights [...] creativity and content provision”,⁶⁷ and for such measures to be developed through national, bilateral, regional and international efforts, to “ensure that the framework for intellectual property and technical protection guarantees that the right holders enjoy the technical and legal means to control the use of their property over the Global Information Infrastructure”.⁶⁸

⁶¹ Florianopolis art. 12 and 13.

⁶² ECOSOC 2000, art. 17 (a).

⁶³ See also UN Millennium Declaration, where technology transfer is considered a special measure to foster poverty eradication.

⁶⁴ ECOSOC 2000, art. 12.

⁶⁵ ESCAP, art. 8.

⁶⁶ As, for example, the Valletta declaration “[...] network integrity should be protected and the rights of users, operators and investors guaranteed.”

⁶⁷ See also Tokyo Declaration, art. 8: “In all these development efforts, we must pay attention to the protection of intellectual property rights and social harmony.”

⁶⁸ On the protection of Intellectual Property Rights in ICT-related activities, see also WIPO Digital Agenda, online at <http://ecommerce.wipo.int/agenda/index.html> and WIPO Second International Conference on Electronic Commerce and Intellectual Property, September 19-21, 2001, at <http://ecommerce.wipo.int/meetings/2001/conference/program>.

There is a different perception of intellectual property (IP) in the digital era and new technologies are challenging the traditional instruments of protection of IP. Therefore new approaches are needed to fight violations and guarantee the adequate reward to creativity.

Protection of IPRs is vital

“Protection of intellectual property rights for IT-related technology is vital to promoting IT-related innovations, competition and diffusion of new technology.”⁶⁹

2.3.2 Privacy, data and network security

With the advent of e-commerce, and of online transactions, the protection of privacy and the security of personal data, from credit card numbers to home addresses or reserved information, is at stake.

Protecting privacy and personal data

“Protecting privacy and personal data alongside the safeguarding of plurality of opinion play an essential role in maintaining citizens’ confidence in the information society and thereby encourage user participation and strengthen competition and market access.”⁷⁰

“[...] Misuse of personal data and the circulation of indecent information, are serious threats to the stability of ICT-based economies”⁷¹, therefore the definition of a new regulatory system “to minimize the risks and uncertainties of the new environment generated by the information and communication technologies” is sought, to “ensure and lead to the swift expansion of electronic commerce [...] protecting the privacy and other interests of users, consumers and small-scale producers that engage in electronic commerce.”⁷² The protection of personal information requires that data protection provisions are defined and properly enforced and that international cooperation and dialogue on this sector are encouraged.⁷³

Protection against criminal abuse

“Only if security of information is effectively guaranteed will individuals or organisations take full advantage of information infrastructure. Citizens and society should be protected against criminal abuse of the developing networks.”⁷⁴

To protect data, however, it is not always enough to ensure the correct functioning of communication networks: cyber crimes such as hacking or the spread of computer viruses could undermine public trust in network resources. Countries should therefore cooperate in sharing information and in coordinating their efforts to prevent these crimes and to ensure network security.⁷⁵

2.4 Developing human capacity: education in ICTs and ICTs for education

Although sufficient connectivity and an appropriate regulatory and policy environment are an important step in ensuring access, human capacity is critical in supporting this access and in ensuring that the benefits of access are seized by society. Investment in basic literacy and ICT education remains the fundamental way of increasing human capacity in developing countries and should be part of every national information technology strategy.

⁶⁹ Okinawa Charter, art. 7

⁷⁰ Brussels

⁷¹ Tokyo, art. 9. See also ISAD

⁷² Brussels, Florianopolis, art 7

⁷³ Brussels.

⁷⁴ Brussels.

⁷⁵ On Network security, see the recent ITU New Initiative workshop “Creating Trust In Critical Network Infrastructures.” Online background documents at <http://www.itu.int/cni>.

Without the knowledge and skills required to use ICTs, the use of new communication technologies will be impossible, therefore information literacy, i.e. basic skills in acquiring, managing and communicating information is essential to familiarize people with new technologies, and their use.⁷⁶

Every citizen should have the basic skills needed to fully participate in the information society

“we must find ways to make sure that every citizen has at least the basic skills needed to fully participate in the information society. It is our vital and urgent task to enable people to use ICT in their daily lives, at the same time we must increase the number of skilled personnel in advanced areas of ICT. We should give high priority to human resource development in the field of ICT and to the enhancement of ICT literacy in the population as a whole.”⁷⁷

Human resources training, in particular for teachers and students, will also increase demand for the use and application of information and technology and promote content and infrastructure growth, thus facilitating the development of the ICT service industry, in particular in developing countries.⁷⁸ Investment in education, research and human capacity is seen by African countries as an essential element to reverse Africa's marginalization, and could enable the continent to address its scientific and public policy challenges.⁷⁹

The Brussels Declaration affirms the need to pursue adequate information technology education and training, which should be integrated into the regular school system, and ISAD adds the necessity of lifelong learning.

In addition to the need for training in their use, ICTs can also help in promoting learning: to participate in the knowledge based economy requires new skills, openness and creativity, acquired through life-long training. Whence the necessity to provide citizens with the tools to learn in an information society, by means of advanced multimedia information services, which can meet such requirements whilst complementing and enriching traditional education and training systems.⁸⁰

For the rapid development of the information society, ESCAP points to the necessity of training for trainers. Along the same lines, to promote awareness of ICT issues, many South American countries given a high priority to the necessity of ICT training for political and community leaders.

3 Applications

Connectivity, capability and access are the preliminary steps to the creation of an “information society”. The use of ICTs can enhance a large number of applications: from electronic commerce and valorization of small and medium-sized enterprises to the empowerment of small communities and groups, they can help in the promotion of good governance and decentralization, the observance of human rights, allow long-distance education and telemedicine, and help in the environmental management and monitoring. In other words it can help the creation of a balanced and efficient society, based on the free flow and free access to information.

Application development

“In order to allow ICT to provide the benefits of speedier and more efficient economic and social interaction, it is essential to develop various applications.”⁸¹

⁷⁶ Bamako 2002, UNESCO Report.

⁷⁷ Tokyo, art. 10

⁷⁸ Bamako 2002

⁷⁹ ADF III

⁸⁰ Brussels; see also paragraph 2.4 “Developing human capacity”.

⁸¹ Tokyo Declaration, art. 8.

There is general agreement on the potential of ICT applications to help reduce poverty, foster sustainable development, improve health, education and skills, facilitate new and transparent governance mechanisms and reinforce popular participation and informed decision-making.⁸²

Leapfrogging infrastructural development

“ICT represents a tremendous opportunity for emerging and developing economies. Countries that succeed in harnessing its potential can look forward to leapfrogging conventional obstacles of infrastructural development, to meeting more effectively their vital development goals, such as poverty reduction, health, sanitation, and education, and to benefiting from the rapid growth of global e-commerce. Some developing countries have already made significant progress in these areas.”⁸³

The international community recognizes the need to support the development of such applications in developing countries through the mobilization of the necessary resources, cooperation, exchange of information, transfer of technologies as well as new initiatives and projects.

Public authorities have an important catalytic role to play

“Sharing experiences on emerging applications would provide us with an understanding of their impact and benefits. Public authorities have an important catalytic role to play in the promotion of research, applications and generic services. They can also further initiatives in the development of applications in areas of common public interest. International cooperation on joint projects provides an opportunity to demonstrate the benefits and uses of the information society.”⁸⁴

3.1 E-commerce

The impact of new technologies on trade and commerce is already visible: distance is no longer a barrier to entry into international markets, and new business models are being generated. ICTs have allowed the creation of a global marketplace, and in particular have enabled small and medium-sized enterprises (SME) to participate,⁸⁵ giving rise to “good prospects of economic growth and development through electronic trade, investment and commerce”.⁸⁶

Focus on SMEs is due to their importance as “engine of employment creation and income generation” and as “a mean to ensure socially equitable outcome of regional integration”⁸⁷. Therefore, besides the general principles on the promotion of private initiative and the set up of adequate regulations and policies, many declarations affirm the necessity to support the involvement and participation of SMEs in the information society and economy. ICTs are now offering SME new opportunities for investment “to compete in the global marketplace” and to “have access to new business opportunities.”⁸⁸

⁸² ESCAP, art. 11 “The Regional Round Table noted the potential contribution to social development that could be made by such ICT applications as telemedicine, tele-education, telework and digital libraries. ICT (and, in particular, the Internet through cyber kiosks in rural areas) could help to improve the population’s health, education and training and to enhance the transparency of the decisions and actions taken by public and private agents in developing countries of the Asian and Pacific region. That could be achieved through the use of ICT that would help to foster effective linkages among governments, the private sector, NGOs and civil society.” On the potential of ICT applications, see also ECOSOC Report.

⁸³ Brussels.

⁸⁴ Brussels.

⁸⁵ Brussels.

⁸⁶ Brussels, see also ISAD.

⁸⁷ ADF 2002, art. 26.

⁸⁸ ESCAP; Florianopolis art. 8; ECOSOC 2000, art. 6.

Financing and means of promoting SME innovation and modernization need to be sought, “special programmes should be undertaken”⁸⁹ and “measures aiming to offer support and incentive to small to medium enterprises [...] to get online and to use the Internet effectively will also be pursued”.⁹⁰

Small and Medium Enterprises (SME) will have access to new business opportunities

“Europe needs to accelerate the growth of e-commerce, especially for SMEs, so that they can consider the whole European market as their market. This requires a reliable Internal Market legal framework, which provides legal security, removes barriers to cross-border services, encourages on-line innovation and consumer trust.”⁹¹

3.2 E-education

One of the main socially relevant areas to be targeted for the development of cost-effective and integrated solution based on ICTs is education.

Education and training are a prerequisite to the use of new information and communication technologies, but they can also help in the achievement and reinforcement of educational goals, thanks to their flexibility and their potential for interactivity. The innovative approaches to education allowed by the advent of ICTs are highlighted in the Florianopolis Declaration, which sees distance learning, non-formal education and teacher training as an “essential basis for enabling the population to play a positive role in new forms of knowledge-based production, while also promoting the access and use of information and communications technologies in methodologies designed to accelerate the educational processes of marginalized population groups and those living in extreme poverty”.

Distance learning

“Human resource development is essential for sustainable social and economic prosperity, and activities that use ICT itself, such as distance learning, can be of great help in human resource development.”⁹²

Long-distance education using ICTs can enhance the openness of education by equalizing opportunities, promoting lifelong learning and reaching the smaller communities in developing countries.⁹³

3.3 E-health

After the business sector, the health sector has become one of the major users and promoters of the use of ICT tools to gather and disseminate knowledge. ICTs give professionals and researchers access to rapid exchange of information, distance learning, and access to diagnostic assistance, and in the view of many countries should be part of national health care reforms and strategies.⁹⁴

African countries have underlined the capacity of ICTs to enhance regional approaches to major social issues, as the struggle against HIV/AIDS, and the G7 Heads of State consider “global health care applications” to be one of the main areas of concern, re-affirming the great potential of the application of telematics technologies in the field of telemedicine to fight against the major health scourges.⁹⁵

⁸⁹ Florianopolis art. 8; ESCAP, art. 6.

⁹⁰ Okinawa Charter, art.11.

⁹¹ [eEurope: an Information society for All, Communication on a Commission initiative for the special European Council of Lisbon](#), 23 and 24 March 2000. Online at:

⁹² Tokyo, Art. 12.

⁹³ UNESCO Report, p. 50.

⁹⁴ Health care improvement through ICTs is also mentioned in: ESCAP, (1)(d); Valletta and Buenos Aires Declarations; ISAD.

⁹⁵ ADF 2002; Brussels, chapt.3.

3.4 E-government

Poor networks and infrastructure exacerbate the difficulties in interaction between Governments and citizens in many parts of the world: with E-government allows new opportunities for social and economic development. The use of ICTs as a tool for governance can help to foster democracy, efficiency and transparency, and may lead to an increased possibility for countries to attract foreign investment and financial assistance.⁹⁶ As stated during the Palermo conference on e-Government for development, ICTs have the potential to dramatically broaden political participation, to increase access to information about the ways in which governments operate, and in facilitating knowledge acquisition and utilization. [...] they are as much about enhancing public administration as about improving the ways in which a society governs itself⁹⁷

Improving the efficiency of business and public services

“We should encourage the administrative use of ICT particularly through e-government and e-commerce to help improve the efficiency of business and public services including in rural areas.”⁹⁸

E-government initiatives should be undertaken in the framework of broad government reform and of an enabling environment, in which connectivity and capacity constitute basic elements.

3.5 ICTs: A multi-purpose instrument...

The United Nation Millennium Declaration stressed the importance of ICTs to help achieving the much broader goals of the Millennium Declaration, and affirmed the need to ensure that the benefits of new technologies, especially information and communication technologies, are available to all.⁹⁹

In line with this, the recent Durban Declaration on Racism, Racial Discrimination, Xenophobia and Related Intolerance, included an entire section dealing with “Information, communication and the media, including new technologies.”¹⁰⁰ This declaration recognizes the potential of ICTs as a positive instrument, along with the possible risks caused by their abuse. Participants expressed their concern at the use of the Internet for the dissemination of racist and discriminatory ideas and called upon governments to take action on these issues. However, they also recognized that “new technologies can assist the promotion of tolerance and respect for human dignity, and the principles of equality and non-discrimination.” Whence the need “to promote the use of new information and communication technologies, including the Internet, to contribute to the fight against racism, racial discrimination, xenophobia and related intolerance”.¹⁰¹

Digital technology is also a vital component for environmental information assessment and for early warning mechanisms. As the World Meteorological Organization (WMO) recently commented, a universal and equitable access to meteorological, hydrological and related information is essential for the mitigation of dangerous weather related phenomena. Access to climatological information also affects social and economic development, and is of crucial importance for the sustainable development of less industrialized countries.¹⁰²

The diffusion and application of ICTs will also have a major impact on global employment. Telework (or e-Work) allows companies to source work independently of location, and offers to countries

⁹⁶ See ECOSOC Report. See also Brussels G7 Summit on the necessity to “exchange experience and best practice on the use of on-line information technology by administrations on the establishment of procedures for conducting electronic administrative business between governments, companies and citizens.”

⁹⁷ International conference on e-Government for development, [Final Communiqué](#), Palermo, Italy, 11 April 2002.

⁹⁸ Tokyo Declarations, art. 8.

⁹⁹ UN Millennium Declaration

¹⁰⁰ Durban World Conference against Racism, Racial Discrimination, Xenophobia and Related Intolerance, South Africa, 31 August – 8 September 2001 [Durban], paragraph 4.

¹⁰¹ Durban, art. 143-145.

¹⁰² World Meteorological Organisation contribution, online at <http://www.itu.int/osg/spu/wsis-themes/contributions/index.html>.

(industrialized or developing) that have adequate infrastructure and skills the benefits of participation in the new global economy.¹⁰³ It can also decrease the need for migration in urban areas. Telework, however, could have negative effects as it may contribute to the digital divide by excluding locations that are not connected. In this context particular attention should be drawn to the development of infrastructure and skills, as well as to the establishment of new laws and regulations for the protection of online workers.¹⁰⁴

As mentioned above, ICTs are the instrument for the realization of the information society, and their use depends on society's needs and demands. The information society is growing, and has to be open to new opportunities for the improvement of human life.

4 Conclusions: building the society of the future

The purpose of the World Summit on the Information Society, as set out in [UN General Assembly Resolution 56/183](#), is to develop a “*common vision and understanding of the information society*” and, on the basis of this shared vision, to adopt a declaration of fundamental principles for the creation of an information society which is truly global in participation and benefits.

Several entities at the national, regional and international levels have already focused their work and attention on ICT uses and applications, and have formulated their vision of what constitutes the information society. In view of the fact that the scope of the World Summit should be comprehensive and address “the whole range of relevant issues related to information society”¹⁰⁵, it is important that WSIS participants acknowledge past declarations of principles and take into account the needs and opinions expressed by all sectors of society that are affected by the information revolution, in order to identify a joint and harmonized understanding of the information society.

¹⁰³ ECOSOC Report, paragraph 25.

¹⁰⁴ ILO World Employment Report, Life at Work in the Information Economy (overview), 2001

¹⁰⁵ ITU Res. 73.

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