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Note by the WSIS Executive Secretariat

**COMPILATION OF CONTRIBUTIONS SUBMITTED BY MEMBERS OF THE
HIGH LEVEL SUMMIT ORGANIZATION COMMITTEE (HLSOC) AND
OTHERS ON THE THEMES AND ACTIVITIES OF THE WORLD
SUMMIT ON THE INFORMATION SOCIETY**

At a working level meeting of the High Level Summit Organizing Committee (HLSOC) focal points in March 2002, at which the OECD also participated, members of the Committee were asked to submit brief written contributions concerning the proposed themes for WSIS. The Executive Secretariat has received contributions from the following organizations:

Food and Agriculture Organization of the United Nations (FAO)

International Labour Organization (ILO)

United Nations Conference on Trade and Development (UNCTAD)

United Nations Educational, Scientific and Cultural Organization (UNESCO)

High Commissioner for Refugees (UNHCR)

World Health Organization (WHO)

World Intellectual Property Organizations (WIPO)

World Meteorological Organization (WMO)

Economic Commission for Latin America and the Caribbean (ECLAC)

Organization for Economic Cooperation and Development (OECD)

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)

Information and Communication Technologies (ICT) – Initiatives

First of all, let me express our personal and institutional interest to continue supporting the activities of the HLSOC in order to ensure complementarity, well co-ordinated and adequate response to Member Countries needs on information and communication technologies.

FAO and its 180 Members highlight information as one of the priority areas in fighting hunger and achieving food security. As a result, FAO established the World Agricultural Information Centre (WAICENT) for agricultural information management and dissemination, in an effort to fight hunger with information.

We would like to suggest the contribution of WAICENT in achieving some of the objectives of the Summit to strengthen access and dissemination of essential documents, statistics, maps and multimedia resources to millions of users around the globe and as a mean to promote sustainable development. Also, FAO established the First Consultation on Agricultural Information Management (COAIM) from 5 – 7 June 2000, as an intergovernmental process to discuss and set policies related to management of and access to agricultural information. The Second Consultation will be held in Rome, Italy from 23 - 25 September 2002.

As you can see, both international initiatives complement the efforts of our institutions in providing the framework to discuss ways and mechanisms to improve the capacities of decision-makers, professionals and the public at large to access and use information and communication technologies for achieving sustainable development goals.

If there is an opportunity of having a small stand/exhibition during the Summit, we would like to ratify our interest to establish a WAICENT stand in order to share our institutional experience on agricultural information management and distribute other relevant information.

In line with the celebration of the second COAIM, <http://www.fao.org/coaim> we would like to extend you an invitation to attend this important meeting and jointly identify ways, and strategies to improve information management at national level.

Finally, I would like to express the importance to include into the agenda of the Summit and the Regional Preparatory meetings, the management of agricultural information issues as a contribution to reduce digital divide and ensure food security.

INTERNATIONAL LABOUR ORGANIZATION (ILO)

ILO's suggested themes for the World Summit on the Information Society Preliminary draft for discussion

1. The very rapid evolution of information and communication technologies (ICTs) is contributing to the widening income and social gaps both within and across countries. It do so by leveraging existing endowments: Economies with a poor infrastructure (transport, energy, telecommunications), scarce human resources, limited entrepreneurial skills, volatile financial markets and weak judicial systems will find it increasingly difficult to integrate themselves into global supply chains. Indeed, ICTs are changing the operations of markets for goods, services and production factors. Search costs (incurred while looking for the least expensive and best quality input) and transaction costs fall, giving those enterprises with access to new technologies a competitive advantage. Economies where enterprises can profit from low-cost intermediary goods and which can integrate effectively to supply chains will become increasingly competitive, edging out firms in less well-endowed countries. Under these circumstances, low labour costs cease to be, on their own, competitive advantages.
2. The development of ICTs has enhanced the growth of global supply chains. Such evolution has important consequences over the structure and survival of firms in developed and developing countries alike. Changes on employment and incomes resulting from changes in the structure and operations of enterprises are a large component of the digital divide both within and between countries. The employment and income effects of ICTs are not found by examining exclusively enterprises that provide data processing or telecommunications goods or services. In many instances, structures of whole sectors are being transformed into "virtual" corporations with nimble, mobile and highly adaptable subcontractors around the world. Over time, the international division of labour can be affected by these transformations.
3. Affordable, sustainable and accessible communications have become necessary, but not sufficient condition for economic growth and social progress. Developing countries can encourage the use of information and communications technologies as powerful development tools through investment in both entrepreneurial and human resource development, targeted public expenditure strategies, modifications in governmental managerial practices as well as pragmatic energy and telecommunication polices. Societies must ensure access to telecommunications and data processing facilities but must also enhance the capacity of the population and its enterprises to use them effectively.
4. This effort, however, must be part of a common endeavour of enterprises, workers and the state. As beneficiaries or affected parties, the active participation of workers and their organisations is essential in any program to harness the benefits of new technologies. Societies and enterprises will adapt with greater ease to these new circumstances if all social partners understand the process and cooperate in the adjustment efforts required. The accrued competition facilitated by ICTs make employers and their enterprises the central stakeholders in the adaptation process. This is true for all enterprises that must increasingly integrate production chains and manage resources and inputs ever more effectively. Governments and employers' organisations thus must play an active role in the preparation and implementation of integrated policies to harness the benefits of ICTs.
5. Operating systems and protocols are the backbone of information systems. Control of these can lead to monopolies that might hamper development. Moreover, products -particularly software- with embedded knowledge pose one of the greatest challenges to economic policy makers. The

introduction of specific computer based applications can change radically labour demand and might increasingly shift labour from developing to developed countries (ATM machines that replace tellers or numerically controlled machinery that replaces semi-qualified workers in the metal-mechanic sector, for instance). International efforts to bolster the use of, and training in, open source operating systems and software will be indispensable. This will be the only way to ensure that developing countries can jumpstart their own efforts in this field.

6. Information plays a role in the functioning of labour markets too. Unequal access to telecommunications leads to unequal access to employment. Low income workers will have less access to information about job offerings, and therefore have more difficulty in searching for better work. Public authorities and employers' and workers' organisations could join forces to strengthen labour market information systems and develop strategies to improve access to these systems.
7. Widely available information facilitates social participation. Workers' and employers' organisations must be empowered to develop their own information systems to enhance their communications with their respective memberships. This strengthens democracy and allows civil society to interact effectively in the process of change. National and international agencies must therefore strive to strengthen the capacity of Workers' and employers' organisations to adopt, for their own internal use, modern information and communications technologies.
8. The ILO believes that the World Summit on the Information Society will make a strong contribution by exploring the digital divide as one contributing factor to the global social deficit. To do so, it should expand its policy scope to include factors that limit the effective use of new technologies, and emphasise the role of social actors as agents of change. In particular the Summit could suggest, among other things, the following:
 - a. Stimulate the demand for information services and products by:
 - i. Strengthening managerial skills to permit an effective use of richer, more pertinent and reliable data;
 - ii. Ensuring that conditions will exist to permit local enterprises to participate competitively in supply chains;
 - iii. Enhancing public statistical and economic data sets to improve policy formulation and improve marketing exercises;
 - iv. Improve the accessibility, quality, reliability and scope of labour market information systems;
 - v. Developing business development services that place emphasis on the appropriate use of information and provide services to harness it;
 - vi. Promoting associative or cooperative use of infrastructure and services to permit small enterprises, workers and their organisations affordable access to information services; and
 - vii. Adopt e-government strategies (including procurement, transaction and taxation processing, public policy dissemination and forums for civil society participation) contracted locally and based on publically available open source code.
 - b. Enhance human resource development by:
 - i. Enforcing high quality education for all;
 - ii. Introducing life-long training practices and strengthening retraining for unemployed workers; and
 - iii. Promoting the use of open source code throughout the educational system.

- c. Facilitate the introduction of new information and communication technologies by:
 - i. Ensuring active tripartite dialogue on the economic transformations required;
 - ii. Hosting internet sites and virtual fora for social partners and providing technical support for the development and use of such facilities; and
 - iii. Generating a wide public debate on the importance of training and information as a means to enhance the competitiveness and democracy in societies.
- d. Adopt macroeconomic policies that minimise the cost of operating telecommunications and data processing equipment and of accessing the corresponding services.

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD)

Proposals for possible themes for the Summit

We are pleased to suggest the following as UNCTAD's proposals for possible themes for the Summit:

1. E-business for development
 - E-business opportunities for economic diversification in the least developed countries
 - E-business as a means to increase the share of developing countries in value-creation chains: tourism, commodities ...
 - The role of e-finance in promoting entrepreneurship in developing countries
 - E-logistics: quicker, cheaper access to foreign markets
 - E-government and business : improving efficiency, promoting good governance
2. Transfer and diffusion of ICTs : an examination of the extent to which ICTs are being used and diffused in developing countries, identifying strategic policy options aimed at helping countries at the bottom of the scale in technology development catch up and those keeping pace to become more competitive.

As requested, we are also attaching a text on UNCTAD's main activities in the field of ICTs and the information society for posting on the Summit website.

ANNEX

Information and Communication Technologies (ICT)

The UNCTAD secretariat is responsible for the implementation of a research and analysis work programme related to the role of Information and Communication Technologies (ICT) and particularly the Internet in economic development. In this context, it implements three technical cooperation programmes that use ICT as tools to facilitate development: the ASYCUDA customs reform and automation programme, the Advance Cargo Information System (ACIS) and the Trade Point Programme.

Electronic Commerce and Development

The UNCTAD secretariat conducts research and analysis work aimed at policy makers and practitioners in the field of e-commerce, Internet and ICT. Particular emphasis is placed on the study of the economic, social and legal aspects of electronic commerce from a developmental perspective, and the impact of electronic commerce for the enterprise sector of developing countries.

The UNCTAD secretariat has recently undertaken basic statistical work on global e-commerce flows. The results of this work are disseminated through a number of publications, among which the annual *E-Commerce and Development Report* is the leading one. UNCTAD also organises expert groups, seminars and workshops focusing on various aspects of e-commerce and development.

More information about the work of the Electronic Commerce Branch, including most of its publications and background documentation of events it organises, is available at www.unctad.org/ecommerce.

The ASYCUDA Programme

UNCTAD's Automated System for Customs Data (ASYCUDA) is applying ICT in over 80 developing countries and countries with economies in transition as instruments to reform and modernize the management of their customs administrations. The aim is to speed up customs clearance through the introduction of computerization and simplification of procedures and thus minimize the administrative costs to the business community and the economies as a whole. The introduction of ASYCUDA also allows an increase in customs revenue (which is often the major contributor to national budgets in most countries), by ensuring that all goods are declared, that duty/tax calculations are correct and that duty/exemptions, preference regimes, etc. are correctly applied and managed. Furthermore, it helps producing reliable and timely trade and fiscal statistics to assist in the economic planning process.

The ASYCUDA software is developed by UNCTAD in Geneva and implemented in the field through national and regional projects. The system is completely vendor-independent. User countries are free to choose the providers of the software and hardware platforms on which to run their system. More information about ASYCUDA is available at www.asycuda.org

ACIS

The Advance Cargo Information System (ACIS) is a logistics information system that uses ICT to improve transport efficiency in developing countries by tracking equipment and cargo on transport modes (rail, road, lake/river) and at interfaces (ports, Internal Clearance Depots) and providing information in advance of cargo arrival. ACIS is designed, developed and installed by UNCTAD. It is operational or being installed in 19 developing countries. For the

railways currently using its RailTracker module, benefits comprise: (a) better use of transport equipment (locating equipment, quicker turnaround times enabling wagon fleets to generate higher revenue if traffic increases, simplified maintenance monitoring); (b) reduction in transit times of goods (facilitation of traffic flows at border crossings and interchange of rolling stock between networks), simplified wagon hire compensation formalities; (c) improved quality of transport services offered to the customer (shipper, forwarder) and data on cargo whereabouts, thereby facilitating off-take and delivery, reduction of insurance costs. More information about ACIS and RailTracker can be found at www.railtracker.com and www.unctad.org/en/techcop/tran0105.htm.

Trade Point Programme

Launched in 1992, UNCTAD's Trade Point Programme aims at facilitating the use of ICT by those who had traditionally been disadvantaged in this area, namely developing and in particular the Least Developed Countries, and small- and medium-sized enterprises (SMEs). Among the main constraints facing developing countries and their SMEs with regard to the use of ICT, the Trade Point Programme has particularly focused on problems of: (a) access to ICT and the Internet, (b) lack of knowledge with regard to these technologies and ways of using them, and (c) trust in respect of conducting business over the Internet.

As the Global Trade Point Network has gained maturity, a gradual withdrawal of UNCTAD from several aspects of the programme is taking place. In order to facilitate this process, in November 2000, Trade Points decided to create the World Trade Point Federation, a non-profit organization representing all the Trade Points. Its main short- and medium-term goal will be to conclude strategic partnerships with private sector players capable of contributing to a further development of the Programme. More information about the Trade Point Programme is available at www.gtpnet-e.com.

United Nations Commission on Science and Technology for Development (CSTD)

UNCTAD is the secretariat of the United Nations Commission on Science and Technology for Development (CSTD). The CSTD was created by the General Assembly in 1992 to give high-quality advice on S&T to the General Assembly and the Economic and Social Council (ECOSOC), and to serve as a forum to discuss and advance understanding on emerging science and technology issues. At its fifth regular session, which was held in Geneva from 28 May to 1 June 2001, the Commission decided that the substantive theme and focus of its work during the inter-sessional period 2001-2003 would be «Technology development and capacity-building for competitiveness in a digital society». The work of the Commission in the current inter-sessional period will be carried out through panels, which will address different aspects of the main substantive theme, namely: technology transfer, diffusion and capacity-building with particular attention to absorption and application of ICTs to enhance competitiveness. The findings and policy recommendations to emerge from the various panels will be considered by the Commission at its sixth session in May 2003, and subsequently by ECOSOC at its substantive session of July 2003. The outcome of the panels as well as the background papers could serve as valuable substantive inputs to the WSIS.

The objective of the first panel, scheduled to be held in Colombia in May 2002, would be to identify the most important factors affecting technological mastery and technology development for competitiveness, measure them and provide a rational explanation of their determinants. To accomplish this, the panel would concentrate on stocktaking of the development and use of technology, especially information and communication technologies. The panel would compile/develop a set of technology and ICTs indicators -

both input and output and based on economic and scientific parameters- in order to uncover interesting trends in “digitilization”, including, Internet connectivity, ICT use and diffusion, institutional Internet factor (Internet use in schools and universities, local firms, hospitals, etc...), cost of Internet use, local ICT skills, personal computers, etc... Countries would then be grouped into those that are catching up, keeping up, and getting ahead, with a view to identifying policies and programmes, which allow countries to move from one stage to another.

The second panel (September 2002) will address the role of foreign direct investment in building technological capabilities and enhancing competitiveness. In particular, the panel would focus on the strategic use of FDI to transfer technology and to build ICT capabilities. It would examine the instruments that could be used to achieve “deep integration” between foreign affiliates and local firms and suppliers. The outcome would be a menu of concrete policy options for governments to select and attract the right kind of FDI that is compatible with their domestic technological needs and conducive to enhancing domestic capacity building. The panel would also address the importance of domestic investment, particularly in R&D and in ICT infrastructure to improve industrial productivity and enhance innovation and competitiveness.

The third panel (January 2003) will focus on the transfer and diffusion of ICTs. The panel would also examine the extent to which ICTs are being used and diffused in developing countries and how they affect their ability to catch up, keep up and get ahead. The panel would draw on the experiences of those successful countries that have been able to build an indigenous human resources capacity in ICTs, which in turn enabled them to become internationally competitive in software development and high-technology exports. The exercise would involve identifying strategic policy options aimed at helping those countries that are at the bottom of the scale in technology development to catch up and those that are keeping up to become more competitive.

Background

During its second session in May 1995, the CSTD identified information and communication technologies (ICTs) for development as the main substantive theme for its inter-sessional work for the period 1995-1997. A working group consisting of Commission members was subsequently set up to examine, in an in-depth manner, the recent advances in information and communication technologies and their implications for development, focusing mainly on the problem of access to ITCs and the potential developmental impact of these technologies on developing countries and countries with economies in transition. In this task, the Working Group was assisted by the UNCTAD secretariat.

The working group concluded its work programme and prepared a report (E/CN.16.1997/4), which was considered by the Commission at its third session in May 1997. On the basis of that report, the CSTD made a number of recommendations addressed to governments, as well as to the United Nations system, which were subsequently adopted by ECOSOC.

Those recommendations are very similar to those outlined in the ministerial declaration of the high-level segment of the substantive session of ECOSOC, held in New York from 5 to 7 July 2000, which considered the theme "Development and International Cooperation in the Twenty-first century: the role of information technology in the context of a knowledge-based economy".

The Commission's Working Group on Information and Communications Technologies had also commissioned a number of background reports. It subsequently convened a scenario-building workshop, which included inputs from various research entities. From the wealth of accumulated knowledge, a source book was compiled and edited for use by policy makers in the public and private sectors, as well as by academia. The book, entitled "*Knowledge Societies: Information Technology for Sustainable Development*", was published in 1998. It offers policy-oriented perspectives on the major sets of issues - constructing and assessing the ICT infrastructure, building capabilities and skills for developing or using ICTs and services, connectivity, and preparing the framework of strategies, policies, and regulations that will help to ensure that developing countries can move towards innovative "knowledge societies" that support their development goals. The book also contains empirical evidence on the diffusion of ICTs and accumulation of capabilities for producing or using these technologies in developing countries. It also outlines current knowledge about technological innovation and the learning process. It illustrates the potential applications of ICTs to facilitate the provision of public services, achieve productivity gains, improve the quality of life, enhance access to information and facilitate knowledge-sharing. Applications of ICTs in such areas as manufacturing and public administration, transport, health, education, agricultural and tourism sectors, as well as electronic commerce are highlighted.

UNCTAD recently set up the Science and Technology for Development network (www.unctad.org/stdev/) to serve as a gateway to provide information on activities in the area of science and technology for development.



UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

**UNESCO and the
World Summit on the Information Society**

Summary

This document is UNESCO's contribution to the first meeting of the Preparatory Committee (1-5 July 2002) of the World Summit on the Information Society (WSIS).

In the light of UNESCO's mission, it intends to contribute to the development of a vision of the information society, by proposing principles and courses of action which could be retained for consideration by the Summit. It also outlines the concrete steps that the Organization has so far undertaken to facilitate the Summit preparation process.

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Introduction

1. The emergence of the Information Society is a revolution comparable to the deep transformation of the world engendered by the invention of the alphabet and the printing press. A new culture is emerging, based on symbols, codes, models, programs, formal languages, algorithms, virtual representations, mental landscapes, which imply the need for a new “information literacy”. Information and knowledge have not only become the principal forces of social transformation. They also hold the promise that many of the problems confronting human societies could be significantly alleviated if only the requisite information and expertise were systematically and equitably employed and shared.

2. There can be no doubt that the emergence of an information society, at very different rates in different parts of the world, arouses great hopes. But these developments have to confront the extreme disparities of access to this new culture and this new literacy between the industrialized countries and the developing countries, as well as within societies themselves.

3. In this perspective, the main challenge that the World Summit on the Information Society has to address, is the digital divide. This divide accentuates disparities in development, excluding entire groups and countries from the benefits of information and knowledge. This is giving rise to paradoxical situations where those who have the greatest need for them – disadvantaged groups, rural communities, illiterate populations, or even entire countries – do not have access to the tools which would enable them to become fully fledged members of the information society.

4. A second challenge of the Summit is to work towards ensuring the free flow of, and equitable access to, data, information, best practices and knowledge across all sectors and disciplines. For free flow to be meaningful, access to information alone will not be enough. Other needs must also be addressed, such as developing appropriate contents as well as building human capacities and technical skills conducive to translating knowledge and information into assets of empowerment and production.

5. A third challenge of the Summit is to build international consensus on newly required norms and principles to respond to emerging ethical challenges and dilemmas of the information society. In view of the vast prospects for creation and innovation opened up by technological changes, particular attention must be paid to ensuring authentic cultural diversity and promoting genuine pluralism to reduce the risks of homogeneity in the fields of education, culture, sciences and communication. The growing commercialization of many of these spheres previously considered as public goods affects weaker, economically less powerful but nevertheless equally important segments of the world community. Technological developments and powerful mechanisms of control demand new approaches to the protection of the rights of the individual that, at the same time, ensure adequate protection against e-piracy which severely affects the development of creativity.

A. UNESCO's Input to WSIS

6. UNESCO's mandate to bolster respect for universal norms and values are of particular relevance in the development of the Information Society in general and the preparation of the Summit in particular. UNESCO's core missions – to promote “the free exchange of ideas and knowledge” and to “maintain, increase and diffuse knowledge” – have possibly never been more relevant as ICTs open up new horizons for progress and the exchange of knowledge, education and training, and for the promotion of creativity and intercultural dialogue.

7. Therefore, UNESCO stands ready to contribute to the goals of the Summit its specific vision and competence according to the following three main strategic thrusts of the Organization:

- Developing universal principles and norms, based on shared values, in order to meet emerging challenges in education, science, culture and communication and to protect and strengthen the “common good”;
- Promoting pluralism, through recognition and enhancement of diversity together with the observance of human rights;
- Promoting empowerment and participation in the Information Society through equitable access, capacity-building and sharing of knowledge.

8. The growth of networks and ICT applications will not in itself provide the foundations for knowledge societies. While replicating and disseminating information can be both fast and relatively cheap, constructing and disseminating knowledge with its intrinsically complex cognitive elements, is a far more intricate and costly process. Knowledge societies, capable of applying information and knowledge to the generation of new knowledge in an iterative process, are built up through long-term institutional, social and political mediations. Knowledge societies are, thus, not just other dimensions of the market economy. They inevitably induce the need for a clear vision of social goals to be attained - particularly in order to enhance equitable access to education and knowledge - and for fundamental policy choices to be made.

9. In short, information is not enough. Even information for all is not enough. If the potential of ITCs and scientific and technological progress is to be fully harnessed for development through human empowerment and economic growth world wide, the information society has to be shaped in such a way that it evolves into knowledge societies that fully respect the huge diversity of cultures and identities and the universality, indivisibility and interdependence of human rights. Beyond the information society, UNESCO’s efforts are designed to pursue that goal.

10. It is precisely in UNESCO’s fields of competence - education, science, culture and communication – that the impact of ICTs on the activities and product of the human mind is most strongly felt. UNESCO, thus, puts emphasis on the content aspect of the Information Society, including its sociocultural and ethical dimensions.

11. Guided by the United Nations Millennium Declaration and in keeping with the international development goals, UNESCO’s contribution to the Summit focuses on four main objectives, which strongly correlate with the themes of the Summit: each of these objectives, their underlying principles and related actions contribute to the themes that structure the preparation of the Summit and its Declaration of Principle and Plan of Action:

- Agreeing on common principles for the construction of knowledge societies;
- Promoting the use of ICTs for capacity-building, empowerment, governance and social participation;
- Strengthening capacities for scientific research, information sharing and cultural creations, performances and exchanges;
- Enhancing learning opportunities through access to diversified contents and delivery systems.

WSIS		UNESCO
Main concerns ¹	Proposed themes	Strategic objectives ²
Vision: To develop a common vision and understanding of the information society	Opening the Gates	To agree on common principles for the construction of knowledge societies
	Developing a framework	
Access: To promote urgently needed access of all the world's inhabitants to information, knowledge and communication technologies for development	The needs of the users	To promote the use of ICTs for capacity-building, empowerment, governance and social participation
	Building the Infrastructure	
Applications: To harness the potential of knowledge and technology for promoting the goals of the UN Millennium Declaration	Services applications and	To strengthen capacities for scientific research, information sharing and cultural creations, performances and exchanges
	ICTs and Education	To enhance learning opportunities through access to diversified contents and delivery systems

a) **WSIS proposed themes: Opening the Gates/Developing a framework**
 UNESCO: Agreeing on common principles for the construction of knowledge societies

12. For the information society to evolve into knowledge societies, it should be based on the sharing of knowledge and incorporate all the sociocultural and ethical dimensions of sustainable development; beyond the technological aspects, it should take account of the human dimension of the digital divide; and, most importantly, it should be strongly based on a commitment to human rights and fundamental freedoms.

13. Freedom of expression, media pluralism, multilingualism, equal access to education, to scientific and technological knowledge and to artistic and cultural expressions are essential for progressing towards equitable knowledge societies respectful of cultural diversity. The Summit should therefore focus on the need to reinforce the right to education, to strengthen international scientific and intellectual cooperation, to protect cultural heritage and bolster diversified cultural expression, to promote media development and to broaden public domain access to information and knowledge.

¹ UN General Assembly Resolution A/RES/56/183

² UNESCO Medium Term Strategy 2002-2007 (31 C/4)

14. The right to education is a human right and unless it can be secured, all other development goals are bound to suffer. Free, compulsory and universal primary education for all is among the most clearly defined of these rights which governments have a duty and responsibility to make a reality. Advancing the right to education should therefore be a central concern in the Information Society and strong emphasis should be placed on harnessing the potential of ITCs so as education becomes truly inclusive, in particular by effectively reaching the unreached.

15. Freedom of expression as enshrined in Article 19 of the Universal Declaration of Human Rights is the condition *sine qua non* for the self-realization and participation by citizens in a democratic setting, for promoting diversity, for scientific progress and for the preservation of peace. Indeed, the freedom of expression, and its corollary, the freedom of the press, represent pillars of every democratic society. They must remain of prime concern in the Information Society which should devise new approaches to ensure freedom of expression, access for all, and the free flow of information and knowledge within the new media landscape generated by ICTs.

16. In the era of globalization, the preservation and promotion of cultural diversity is of prime importance. The information society must aim at ensuring the full realization of cultural rights, as stipulated by the UNESCO Universal Declaration on Cultural Diversity, whereby all persons have the right to express themselves, to create and disseminate their work in the language of their choice - particularly in their mother tongue; all persons are entitled to quality education and training that fully respect their cultural identity; and all persons have the right to participate in the cultural life of their choice and conduct their own cultural practices, subject to respect for human rights and fundamental freedoms.

17. While the Summit should pay due attention to the need of ensuring diversity of the supply of educational and scientific material and creative work, it should duly recognize the rights of authors and artists and the specificity of educational and cultural goods and services which, as vectors of identity, values and meaning, must not be treated as mere commodities or consumer goods. In the face of current imbalances of educational and cultural goods and services at the global level, it is necessary to reinforce international cooperation and solidarity aimed at enabling all countries, especially developing countries and countries in transition, to develop ICT-based educational services and to establish cultural industries that are viable and competitive at national and international level. From this perspective, the pre-eminence of public policy, in partnership with the private sector and civil society, must be reaffirmed.

18. The Summit should promote the protection and strengthening of the "global public good" in the Information Society which include, for example, the equitable access to information for educational, scientific and cultural activities, a vibrant public domain of information, as well as the concept of public service broadcasting acting in the public interest.

Principles and actions for consideration by the Summit

Principles

- The Information Society should be strongly based on a commitment to human rights and fundamental freedoms and should in particular ensure the full realization of the right to education and all cultural rights as well as freedom of expression as fundamental human rights.
- In the Information Society, access to the public domain of information and knowledge for educational and cultural purposes must be as broad as possible.
- Information must be of high quality, diversified and reliable.
- The Information Society must ensure the diversity of languages, scripts and cultures.

Actions

- Consensus-building among States, intergovernmental and non-governmental organizations, civil society and the private sector on a number of basic principles, concepts, objectives, policies and practices for progressing towards equitable knowledge societies.
- Awareness-raising and design of patterns of cooperation that are most conducive to diversity of supply and effective participation of all countries as producers and consumers of information, knowledge, as well as cultural works.
- Encouraging linguistic diversity as well as the production, safeguarding and dissemination of diversified contents in the media and global information networks and, to that end, promoting the role of public radio and television services in the development of audiovisual productions of good quality, in particular by fostering the establishment of cooperative mechanisms to facilitate their distribution.
- Ensuring protection of copyright and related rights and fair remuneration of creative work, while at the same time upholding a public right to access to information.
- Recognizing and encouraging private sector's contribution to enhancing cultural diversity in the Information Society.
- Producing studies and research on the impact of the information society, in particular on education, science and culture, and fostering the exchange of knowledge and best practices in this respect.

b) WSIS proposed theme: The needs of the users

UNESCO: Promoting the use of ICTs for empowerment, governance and social participation

19. The Information Society must have human rights at its core: it should be based on equity, human dignity and social justice, and geared to addressing the needs and aspirations of all groups of societies. The Summit should ensure that these ethical dimensions are fully addressed. The world community should therefore be encouraged to promote in the Information Society the observance of universally recognized values and of the principles enshrined in the Universal Declaration of Human Rights: freedom of expression and its

corollary, freedom of the press, respect for privacy, security of the person, including the protection of children and young people against violence and pornography, the rights to information and education, protection of the moral and material interests inherent in intellectual works, fair use of educational, scientific and cultural works, respect for legality, universal principles of law and ethics.

20. The use of the Internet and ICT-related applications to advance democracy should be equally highlighted. The use of ICTs is potentially beneficial to development as it encourages the sharing of information and the effective involvement by social groups at various levels, offering, in particular, the possibility of networking individuals and systems. The participatory aspect of community life is thus strengthened, as are relations with authorities, at all levels. The Summit, therefore, should promote the development of appropriate information and communication tools to support decision making processes and encourage dialogue between citizens and public authorities, thereby reinforcing democratic governance and citizen participation.

21. The Summit should also encourage initiatives to promote the use of ICTs, in particular multi-purpose community telecentres (MCTs) and community multimedia centres (CMCs), for educational, scientific or cultural purposes or in support of development programmes. The strategy should focus on the integration of new technologies and “traditional” technologies such as library services and community media; the production, adaptation, translation and sharing of local contents; the setting up of pilot projects corresponding to different cultural contexts and stages of development; the inventorization, evaluation and exchange of experience at the national and international levels and the formulation and implementation of national policies to encourage community action and cooperation.

22. For an Information Society to be open and inclusive, high priority should be devoted to addressing the needs of those disadvantaged and marginalized groups that are normally excluded or “unreached”. Improving access to the benefits of the Information Society for women and youth is another essential issue. The Summit should therefore adopt principles and encourage actions that actively assist women and young people in participating in the process both of producing and «consuming» information. For women, the strategy should be aimed at helping them to benefit from ICTs for network strengthening, information sharing, creating knowledge resources and developing skills necessary for work in the new media industries. For youth, the Summit should set the ground for the creation of national and regional youth information and communication networks, and by providing appropriate technologies and training to disadvantaged young people, specialized NGOs and youth leaders.

Principles and actions for consideration by the Summit

Principles

- The Information Society is only equitable if all people, including disadvantaged and marginalized groups, as well as women and youth benefit equally from ICTs for network strengthening, information sharing, creating knowledge resources and developing skills necessary for life/work in the new digital environment.
- The enhancement of dialogue between citizens and public authorities must be one of the major objectives of the Information Society.
- The Information Society must be based on the sharing of information and the genuine participation of social groups at various levels; and on the use of ICT as a means of empowering local communities and help them combat marginalization, poverty and exclusion.

Actions

- Consensus building on common shared values and ethical principles that should underlie the Information Society.
- Promoting the creation and sharing of local content and ICT applications and studying their impact.
- Fostering increased participation of citizens in civic life and in decision making by means of ICTs.
- Strengthening capacity building for ICT use by citizens including through networked MCTs and CMCs.
- Promoting the development of appropriate information and communication tools to support decision making and to encourage dialogue.
- Encouraging the formulation of policies for enhancing the role of women and youth in the Information Society, and the diffusion of information on gender and ICT policy issues.
- Promoting the access to information and knowledge sources of youth as a prerequisite for their competent social choice, behaviour and participation.
- Improving training of women and youth in ICT literacy and technical skills in order to enable them to enter empowered into the information society.

c) WSIS proposed themes: Services and applications

UNESCO: Strengthening capacities for scientific research, information sharing, cultural creation, performances and exchanges

23. The Summit should encourage access to and participation in all forms of intellectual activity for educational, scientific, cultural and communication purposes. To that end it should promote the establishment of a public forum for creation and exchanges at all levels. The importance of the production and dissemination of quality educational, scientific and cultural materials, of independent and pluralistic media, and the preservation of the digital heritage should constitute an important aspect of its Declaration of Principles and Plan of Action.

24. The Summit should also emphasize how ICTs can, in particular through the formation of networks of specialists or of virtual interest groups, increase exchanges and cooperation in the fields of education, science, culture and communication. The Summit should encourage the use of new methods of content development and access to education and to scientific information – virtual universities, virtual laboratories and research groups. The development of such methods contribute to bridging the scientific divide, notably by enabling researchers in developing countries to participate in research at the international level and to share its results. In this context, the Summit should encourage actions that focus on building linkages and synergies between science and local and indigenous knowledge, so as to transform environmental management practices; and to revitalize the intergenerational transmission of local knowledge, in tandem with conventional forms of education. It should also support initiatives aimed at developing local and indigenous knowledge systems as a means of empowering local communities and a tool to combat marginalization and impoverishment.

25. Independent and pluralistic media, public service broadcasting and community media play an important role in two fundamental aspects of an inclusive information society by promoting participatory governance and democracy and by fostering informed public opinion. The Summit should acknowledge this role. It should also recognize the importance of capacity building in this area that includes the strengthening of media and communication, training of media professionals and media education for the public. Strategic importance should be given to all forms of capacity building that promote the effective use of new ICTs by traditional media and by new and emerging media.

26. ICTs hold the potential to foster hitherto unknown types of engagement, contacts and interaction among individuals, peoples, communities, nations, cultures and civilizations: ICTs that are bringing about decisive changes in the way cultures are created and communicated also have to meet new social demands. The Summit should promote those types of links with a view to building peace and solidarity at all levels and to reduce isolation and exclusion.

27. The promotion of creativity, the protection and safeguarding of cultural heritage which is of the essence for protecting cultural diversity, intensified intercultural cooperation, new forms of cultural exchanges and dialogue among cultures and civilizations leading to better understanding and interaction are other important areas to be covered by the Summit in this context.

Principles and actions for consideration by the Summit

Principles

- For the Information Society to be equitable for all, access to and participation in all forms of intellectual activity for educational, scientific, cultural and communication purposes must be ensured.
- The production and dissemination of educational, scientific and cultural materials and the preservation of the digital heritage should be regarded as crucial elements of the Information Society.
- Networks of specialists and of virtual interest groups should be developed as they are key to efficient and effective exchanges and cooperation in the Information Society.

Actions

- Enhancing the capabilities of national institutions in developing countries to adapt to the demands of the information society.
- Improving access by developing countries to ICTs for scientific data and information dissemination.
- Increasing the effective use of ICTs for better transmission and sharing of scientific knowledge at all levels, including the establishment of virtual universities, also taking into account local and indigenous knowledge.
- Fostering the use of ICTs by cultural industries in developing countries.
- Contributing to broadening the international exchange of cultural goods and services through the development of endogenous cultural industries; fostering the use of ICTs for exhibition, promotion and marketing of cultural works.
- Developing an international framework for the preservation of digital heritage.

d) WSIS proposed theme: ICTs and Education

UNESCO: Enhancing teaching and learning opportunities through access to diversified contents and delivery systems

28. ICTs offer the potential to expand the scope of teaching and learning, breaking through traditional constraints of space and time as well as boundaries of current educational systems. Moves towards learning societies are based on the need to acquire new knowledge throughout life. ICTs offer more and more opportunities for learning outside formal education systems. But as educational demand increases and supply diversifies, increased disparities can be observed in respect of access, affordability and quality. After decades during which education was acknowledged as a public good that promotes equity through free basic education and fosters social cohesion, the accelerating privatisation of educational goods and services, partly driven by the potential and impact of ICTs, poses an entirely new challenge for the international community.

29. A major challenge of the Summit is to define the best use of ICTs for improving the quality of teaching and learning, sharing knowledge and information, introducing a higher degree of flexibility in response to societal needs, lowering the cost of education and improving internal and external efficiencies of the education system.

30. The Summit should promote the judicious use of ICTs as innovative and experimental tools to renew education, recognize their potential as new delivery mechanisms and for system-wide expansion of educational provision and quality, especially through distance education and open learning opportunities, including through non-formal education.

31. The Summit should recognize as well the potential of ICTs as levers for attaining the Millennium Goals for education and, more generally, the Education For All (EFA) objectives set out by the international community in Dakar in April 2000, and encourage an increased use of ICTs with a view to reaching out to the excluded, to improving the quality of content, to enhancing and upgrading teacher skills, and to establishing and strengthening education management systems.

32. The Summit should emphasize the need for policy dialogue between all actors and stakeholders in education (governmental, non-governmental – in particular teachers' associations -, civil society and private sector and intergovernmental organizations) so as to foster better public understanding of educational issues as affected by ICTs. Platforms for dialogue and action involving both the public and private sector providers of educational goods and services should be given particular attention with a view to promoting quality and encouraging participation in all cultural and linguistic settings.

33. The Summit will need to address ethical and legal issues concerning wide-spread use of ICTs in education (e.g. ownership of knowledge; legal and tariff frameworks; learning opportunities and educational materials; new challenges related to education as a commodity; the impact of education on cultural diversity).

34. Finally, the Summit should also recognize that computer literacy is a basic skill for performing in knowledge societies and that ICTs provide the means for a better management and use of educational resources.

Principles and actions for consideration by the Summit

Principles

- ICTs must contribute to enhancing the quality of teaching and learning, the sharing of knowledge and information.
- ICTs have the potential to introduce in the educational process a higher degree of flexibility in response to societal needs.
- The potential of ICTs to lower the cost of education and to improve internal and external efficiencies of the education system must be grasped.
- The Information Society must seize the opportunities of ICTs as innovative and experimental tools to renew education.
- ICTs should be seen both as educational discipline and as pedagogical tools capable of enhancing the effectiveness of educational services.
- Broad-based dialogue among all stakeholders and consensus building at national and international levels can yield strategies and policies for expanding access to education and learning, progressing towards EFA targets at country level and renewing formal and non formal education systems.

Actions

- Disseminating knowledge and best practices related to the use of ICTs in education and learning processes and to their impact on education systems (e.g. through online clearing houses and multimedia resource centres).
- Demonstrating the impact of ICT-based alternative delivery systems through pilot projects, notably for achieving EFA targets.
- Furthering teacher training in the use of ICTs in education and learning as well as new forms of networking of teacher institutions and teachers.
- Promoting the use by governments of ICT-based delivery systems in formal and non-formal education, utilizing different mixes of new and traditional media and appropriate methodologies.
- Disseminating research results on ICT facilitated dynamics of the teaching/learning process and its impact on content and teacher-learner interaction, in particular as regards distance education and teacher training and development.
- Fostering international debate and reflection in favour of developing internationally compatible descriptors and standards for distance and e-learning courseware, and for e-learning institutions.

B. UNESCO's Preparatory Work for the Summit

35. In preparing its input to the Summit, UNESCO is acting on two levels: on the one hand, the governmental level involving Member States through their National Commissions for UNESCO and, on the other hand, on the non-governmental level through professional communities and civil society. In both cases, UNESCO mainly intends to set the ground for the Declaration of Principles and the Plan of Action that the Summit is expected to adopt. (Annex I - Calendar of UNESCO WSIS Preparatory Activities).

a) Involving UNESCO's Member States

36. UNESCO is closely involving its Member States in the preparation of the World Summit on the Information Society. It is drawing on its intergovernmental bodies, notably the Intergovernmental Council for the Information for All Programme, for the preparation of its contribution to the Summit and to sensitize all Member States to its importance.

37. In addition, a series of regional UNESCO pre-conferences and symposia are being organized in cooperation with the National Commissions for UNESCO, to provide forums for discussions on the regional specificities and challenges of the Information Society in the areas of education, science, culture and communication. For example, the UNESCO Regional Pre-Conference for Europe will take place in June 2002, in Mainz (Germany) on the issue: "Information Cultures and Information Interests". A regional symposium "Informatica 2002: Latin American and the Caribbean Symposium on Education, Science and Culture in the Knowledge Society" was held in Havana (Cuba) in February 2002. An international symposium entitled "Freedom of Expression in the Information Society" will take place in Paris (France) in November 2002.

b) Involving professional communities and civil society

38. On the non-governmental level, UNESCO is preparing its contribution to the WSIS through a series of thematic consultations and regional conferences. They are intended to serve as platforms to representatives of civil society and of professional non-governmental organizations working in the area of competence of UNESCO to debate on the Information Society and for the preparation of their input to the Declaration of Principles and the Plan of Action of WSIS.

39. In this regard, a series of meetings were organized for representatives of more than 100 organizations in February and April 2002 at UNESCO Headquarter in Paris, France. The results of these meetings (Annex II) have been forwarded to the WSIS Executive Secretariat for submission to the 1st Preparatory Committee meeting (PrepCom I, 1-5 July 2002, Geneva, Switzerland).

c) Providing background for discussions and decisions

40. During the preparation process, UNESCO will prepare and widely distribute (off-line and online) background material for discussions and decisions of the Summit in its areas of competence. This includes studies on specific subjects, such as ICTs and education, cultural diversity and multilingualism, libraries and archives in the Information Society, media in the Information Society, gender issue, access of disabled persons to ICTs, etc..

41. The UNESCO Institute for Statistics (UIS) is preparing a statistical report giving a global picture of the present status of ICT usage in education, sciences, culture and communication. The report will include a representative range of quality statistical information, as well as key indicators measuring the economic and social impact of ICTs. An overview on key Information Society related parameters (data on personal computers, Internet hosts and users, mobile phone subscribers and ICT market) will also be included in the report.

ANNEX I

Calendar of UNESCO WSIS Preparatory Activities

Objectives	Audience	Type of activity	Year		
			2001	2002	
Input for Declaration of Principles/Action Plan	NGOs	Consultations On-line fora	-	Thematic NGO Workshops ³ Regional NGO Workshop ⁴ Regional Branches of the International Council on Archives ⁵ ITU/UNESCO NGO consultation ⁶	Regional NGO Workshop (APA) ⁷ Regional NGO Workshop (LAC) ⁸

³ Paris, France, 8, 12, 18, 22 February 2002; website/electronic discussion forum at http://www.unesco.org/webworld/ict_ngo/ngos.shtml/

⁴ Bamako, Mali, 28-30 May 2002; in conjunction with the ITU Ministerial Pre-Conference

⁵ Beijing, China, 30-31 May 2002

⁶ Place and dates to be determined

⁷ Place and dates to be determined

⁸ Place and dates to be determined

Objectives	Audience	Type of activity	Year		
			2001	2002	
	National Commissions for UNESCO Policy Planners	UNESCO Regional Pre-conferences Thematic seminars Symposia		Europe ⁹ LAC ¹⁰ Symposium "Freedom of expression in the Information Society" ¹¹ Symposium on education, science and culture in the Information society ¹²	Africa ¹³ Arab States Asia and the Pacific ¹⁴
	Experts	Symposia Seminars	Infoethics Seminar ¹⁵ Multilingualism Seminar ¹⁶	Information Literacy ¹⁷	Media and the Internet Multilingualism + Internet

⁹ Mainz, Germany, 27-28 June 2002; "Information Cultures and Information Interests (ICII): European Perspectives for the Information Society. UNESCO European Pre-conference for the WSIS"

¹⁰ Countries interested: Brazil

¹¹ Paris, France, November 2002; organized by the French Commission for UNESCO

¹² Havana, Cuba, 18-21 February 2002; "Informatica 2002: Latin American and the Caribbean Symposium on Education, Science and Culture in the Knowledge Society"

¹³ Countries interested: Cameroon (DR at the 31st General Conference), South Africa, Senegal

¹⁴ Countries interested, India, Malaysia

¹⁵ Teheran, Iran, 3-5 September 2001; "InfoEthics Seminar"

¹⁶ Seoul, Korea, 26-27 September 2001; "Multilingualism in Cyberspace"

¹⁷ Written proposal by the U.S. National Commission on Libraries and Information Science, in co-operation with ED

Objectives	Audience	Type of activity	Year		
			2001	2002	
Professional and public information	UNESCO constituency Professionals Broad Public	UNESCO WSIS Website	-	Launch of website	Continuous up-dates
	UNESCO constituency Professionals Broad Public	Research studies Statistical Report	-	Preparation of studies Data collection and analysis	Publication of research studies Publication of the statistical report
Understanding the challenges of the Information Society	UNESCO Sectors	Coordinating internal cooperation		Internal meetings of the Task Force on Information Society (TFIS)	Internal meetings of the Task Force on Information Society (TFIS)
		Intergovernmental Council for the Information For All Programme		First Session Paris, 15-17/4/2002	Second Session
	26 Member States	Executive Board	-	Ongoing	Ongoing
Planning and reviewing preparatory activities	56 Member States	Executive Board	-	Ongoing	Ongoing

ANNEX II

Results of the NGO Consultations

Preparing the World Summit on the Information Society Consultations with non-governmental organizations

organized by
UNESCO and the WSIS Executive Secretariat

Input of Civil Society and non-governmental organizations for PrepCom I

UNESCO and the Civil Society Division of the Executive Secretariat of the World Summit of the Information Society (ES/WSIS) organized in February and April 2002 five consultative meetings with representatives of Civil Society organization and professional non-governmental organizations many of them having formal relations with UNESCO and represent professional communities working in UNESCO's areas of competence.

The agenda of the meetings had two main items

- Discussion of the role and place of Civil Society and NGOs in the preparation and the holding of the Summit;
- Formulation of proposals to be included in the Declaration of Principles and the Plan of Action to be adopted by the Summit.

Under the first item, participants discussed possibilities and limitations related to their organisations' effective participation in both the preparation and deliberations of the Summit. First, they wanted to make it very clear that civil society actors need to be treated as peers and equals to the other participants: governments and the private sector. Furthermore, they proceeded to identify a set of principles and actions that should guide WSIS efforts to effectively involve civil society organizations.

Under the second item, the participants formulated, on behalf of the communities which they represent, a set of proposals to be included in the Declaration of Principles and the Plan of Action that the WSIS is expected to adopt.

The present report summarizes the results of these consultative meetings for consideration by the participants of the WSIS Preparatory Committee (PrepCom I, Geneva, 1-5 July 2002) which will set the rules and framework of the Summit, consider its agenda, themes and substance, as well as determine the modalities of participation of stakeholders.

A. Recommendations on the participation of Civil Society and professional NGOs

Principles:

1. The information society emerging from the WSIS must have human rights and needs at its core, and that the modalities for participation of civil society must recognize this and build on established human rights principles and participative practices and modalities.
2. There must be free and open access to information in the WSIS process, in a timely manner.
3. Civil Society actors should, in substantive agenda development, debate and drafting modalities, be treated as peers and equals to nation-states and private sector organizations/corporations.
4. Civil Society participation must be balanced, ensuring that the voice of all is heard taking into account geographical spread and Male-Female parity.
5. Civil Society should be supported to create its own public spaces and for both virtual and face-to-face meetings, in which their representatives can debate and develop positions free from fear of censure and arrest.
6. Irrespective of official accreditation, all civil society organisations wishing to have their voice heard should be given appropriate means to do so.
7. Continuity with civil society mobilisation in other areas, such as sustainable development, emphasis on Male-Female parity and cultural rights, is to be encouraged.
8. Civil society must have opportunity on an equal parity basis with governments and the private sector to fully participate in and contribute to the monitoring and implementation of Summit outcomes.

Actions:

- i. Without delay, a process to stimulate interaction and information on the WSIS should be initiated, supported by the Secretariat and other donors, but planned and run by existing civil society organizations. The aim is to begin deep and widespread dissemination, to stimulate debate and obtain feedback on the issues of the WSIS and the appropriate means for participation. The means should include Internet, but must also incorporate more traditional media (radio, print, etc.) and other communication systems and practices.
- ii. A protocol for information dissemination and transparency in relation to the WSIS process should be explicitly agreed and experimented.
- iii. Civil society should be represented on the Bureau of the Summit, as a means for participating in the ongoing preparatory process and to enhance its transparency.
- iv. The NGOs participation to the Summit should be clarified, in terms of selection and invitation to the World Summit. In particular, the criteria for NGOs participation should be clearly set up to clarify the difference between those who are lobbying organizations (by level and how they are funded) and those who are NGOs.
- v. A fund should be established to support effective and balanced civil society representation. States and donors agencies should be encouraged to contribute to this fund, which would be allocated according to agreed upon criteria by a competent agency, for instance the UN NGLs.
- vi. Decentralisation of the consultation and mobilization process could be reinforced by regional “animators” working within established NGO networks and properly resourced.
- vii. Official recognition should be given to the consultations organized by civil society itself and mechanisms be made available to incorporate their outputs into the official process.

- viii. An ongoing mechanism for monitoring progress across all domains of the information society might be useful to identify ongoing and emerging concerns.
- ix. The Summit should be accompanied by a NGO forum, in which Civil Society can discuss and organize input into the process and outcomes.

B. Basic Principles and actions to be adopted by the Summit

- 9. ICTs are important to development including human capacity development.
- 10. Priority must be given to those excluded from the information society (the “un-reached”), especially to the disabled as a special interest group.
- 11. The right to information must be installed as an additional basic human right, with a view to male-female parity.
- 12. Freedom of expression must be ensured.
- 13. Governments must ensure an inviolable public sphere of information.
- 14. Local initiatives are crucial to the Information Society.
- 15. Cooperation between the North and the South, the South and the South and the South and the North must be promoted, overall on the basis of partnership.
- 16. Civil society must be given a key role in the creation of the Information Society.

C. Infostructures in developing countries

Principles:

- 17. The principle right for everybody to have access must be ensured.
- 18. Priority must be given to those who have no access and are excluded from the information society, more specially to young people and women, taking into account their specific knowledge abilities and facilitating their participation capabilities.
- 19. Equitable tariff structures (backbone, local access, telecommunication) must be created.
- 20. The sustainability of hard- and software installation must be ensured.
- 21. The importance of Internet related standards and importance of the application of those standards and principle of sharing on the application side must be recognized.

Actions:

- x. Create an economic Development Fund for infostructures at an international level.
- xi. Link “traditional” media and the Internet for community access to information (“mixed media approach”).
- xii. Find mechanisms to limit access and telecommunication tariffs (similar to UNESCO Coupon Scheme).
- xiii. Promote budget policies that include regular budgetary provisions for updating/enhancing hard- and software and human capacities.
- xiv. Promote the development of open sources technologies and free/open soft ware.

D. Cultural diversity and public domain of information:

Principles:

- 22. Governments must keep the right and the obligation to protect cultural diversity and promote the largest public domain.
- 23. National policies for cultural industries in developing countries must be developed.
- 24. International standards for ensuring multilingualism must be developed.

25. Appropriate balance of the interests of the public sphere and the private sector must be established.
26. The principle of fair use/exemptions to copyright laws in cyberspace must be supported, especially for education, conservation and male-female knowledge parity purposes.

Actions:

- xv. Implement legal provisions for the appraisal and preservation of, and access to information in all its forms. The creation of a Global Knowledge Portal should be contemplated.
- xvi. Support local creativity in any country.
- xvii. Promote the creation and preservation of traditional and indigenous knowledge, and taking into account Male-Female parity.
- xviii. Promote tools for ensuring multilingualism in cyberspace.
- xix. Ratify and implement international copyright conventions in order to obtain a standard international copyright protection and protect public access to public domain archives and bibliographic information.
- xx. Work towards harmonizing exemptions for non-commercial use of information.
- xxi. Create awareness among civil society at large for the need to support an independent, open-access public domain.

E. Freedom of expression in the Information Society:

Principles:

27. The Internet is a public space as well as a medium.
28. The Universal Declaration of Human Rights, especially Article 19, and the UN Declaration on Human Rights Defenders must be applied in the Information Society.
29. Guarantee of anonymity must be ensured as a crucial element of freedom of expression.
30. International legal guarantee for freedom of expression must be given.
31. The exercise of independent and professional journalism in all media is vital to the information society.

Actions:

- xxii. Remove existing obstacles, including obligations to register or license websites or Internet protocols constraints
- xxiii. Create awareness of the need for freedom of expression and freedom of access to the means of production and distribution of information particularly through the Internet, at all level of societies and in all regions
- xxiv. Take appropriate action to protect privacy, including the use of privacy enhancing technology.
- xxv. Extend international declarations concerning freedom of expression to the Internet and ensure transparency in the application of these laws.
- xxvi. Promote the exercise of independent and professional journalism in all regions and all media.
- xxvii. Strengthen the role of civil society, including NGOs and foundations, particularly those from developing countries in the process of promoting freedom of expression, multilingualism and multiculturalism.

F. Education in and for the Information Society

Principles:

32. Access to education must be ensured anytime, for anybody, in all regions for affordable costs.
33. ICTs in education must be considered as a support/interface/delivery system to facilitate exchange between teachers and learners.
34. Training of teachers in the use of distance learning methods must be a priority.
35. Important information/ educational material must be easily accessible (exemptions of copyright).
36. Diversity of educational hard and software must be ensured to support creative expression and not exclude other/traditional supports.

Actions:

- xxviii. Establish specific country strategies for the use of ICTs in education and use public locations/ institutions as access point to educational resources.
- xxix. Foster research into the impact of ICTs and education (comparative, cross cultural and cross regional studies).
- xxx. Improve teacher training by providing ICT facilities in teachers training institutions in developing countries.
- xxxi. Create awareness among governments (in developing countries) on the issue of copyright/ exemptions to copyright in the education sector.
- xxxii. Develop affordable hard- and software tailored to the needs of education and promote the combination of various media.

HIGH COMMISSIONER FOR REFUGEES (UNHCR)

Information and Communication Technologies (ICT)

UNHCR's interest is in protecting refugees, providing immediate assistance and seeking durable solutions. Durable solutions can be in the form of :

- Local integration – into the local community of host country
- Return to country of origin
- Resettlement - to a third country

A further aspect of UNHCR's mandate is seeking asylum for persons who are persecuted or in fear of persecution.

The speed of progress in Information Technology over the last 10 years in particular has left many population groups in a time warp – especially refugees. Many countries have national programs to educate their population on various aspects of this information revolution. However in most cases refugees are not included in any national program, social, educational or otherwise. In short they fall through the cracks because host governments either do not have the resources, were never willing to take these people in the first instance or believe that the refugee problem is short lived.

The people of concern to UNHCR number around 20 Mil many of which are in Asia, Middle East and Africa. The development of telecommunications and the reduction of data tariffs has made the provision of information in electronic form commercially very attractive compared to the traditional print media. Many in developed countries depend on the Internet as their primary means of information and email is a well accepted means of communication. More advanced countries with resources are able to 'tap' into the vast resources it presents. Sadly many other poorer developing countries are not able to do so. Access to information presented through this advancement in technology has widened rather than narrowed the digital divide.

The durable solutions pursued by UNHCR can only be successful if refugees are able to find a safe, meaningful, and productive life wherever they eventually settle. In this time warp refugees find the world has passed them by. Access to information in all forms is necessary to bring them back in par with the general populace. The initiative of the WSIS is an opportunity to address this divide.

UNHCR is particularly keen on encouraging the following themes:

Government responsibilities

Ensure governments take into account the situation of the refugees in national technological programs especially in education.

Developing Infrastructure

Have in place policies which encourage the development of telecommunication infrastructure there by enabling affordable access to the Internet, an initial step towards being able to make use of such information.

UNHCR believes that a stable economy in addition to a stable government reduces the risk of armed conflicts which contribute to the refugee problem. Economies are now relying on electronic information more and more. National policies that reflect this trend and encourage businesses to move with the information age is necessary.

Education

Education on the use of such tools and the benefits it can offer to businesses, the general population and refugees.

NGOs in education

For NGOs who are involved in refugee education the access to electronic information, the ability to use and contribute to this information base is as important as basic education.

WORLD HEALTH ORGANIZATION (WHO)

The vital role of the information society in health development

The International Telecommunications Union is preparing a World Summit on the Information Society, to be held in two phases: in Geneva (December 2003) and in Tunis (2005). The Summit aims to be a unique opportunity for the world community – governments, private sector, NGOs and civil society – to facilitate the growth of the “information society” and is expected to adopt a Declaration of Principles and Action Plan towards that end. WHO proposes an outline for a **session on Health** :

Objectives

- Demonstrate the range of needs, models and impact of using information and communications technology (ICT) in support of health care, research and policy.
- Outline the issues, problems and progress in efforts to provide equitable access to health information.
- Ensure that health institutions are given high attention when building and financing connectivity and infrastructure.
- Stimulate interest in private sector and governments to support WHO’s work (health systems development, Health InterNetwork).

Rationale for ICT and Health session

Health and education cannot be separated from progress on social and economic fronts, although for a long time economists have seen capital, labor and natural resources as the main ingredients of economic development. In recent years, however, they have come to recognize the role of technology, information and innovation in expanding economic potential. In particular the Internet has been central to efforts to provide greater and more equitable access to information for health development. The world may well continue to see striking imbalances towards 2020 – but it need not be the case and it definitely cannot be our perspective.

Focus

The Health session will examine ideological, economic, professional and political issues – the hype, the hope and the practical challenges – of using information and communication technologies in health development. It will show how effective use of ICT can contribute to the delivery of health services, the conduct and sharing of health research and the formulation of sound health policy. It will present research, experience and policy studies from the health sector and related sectors, to highlight the many issues in the use of ICT for health in a networked world.

Some examples of topics:

- At the international level: the role of international agencies; multi-government policies, standards, infrastructure investment and agreements (eg intellectual property);
- At the national level: government policies and practices that affect private sector investment and infrastructure and uptake of ICT in the health sector;
- At the local level: use and impact of ICT on health services, research and policy.

Speakers

Contributors and speakers will include international, national and local colleagues who can bring evidence, experience and/or analysis to bear in discussing issues, trends and areas for action in stimulating and shaping ICT for health development.

WHO involvement

WHO is prepared to design the WSIS Health session in co-operation with the ITU and other partners, identify and recruit potential speakers, and chair the session. However, no direct financial resources are available from WHO.

WORLD INTELLECTUAL PROPERTY ORGANIZATIONS (WIPO)

Proposed WSIS themes

The following is a proposal from the World Intellectual Property Organization (WIPO) for a main theme for the World Summit.

WIPO proposes the theme,

"Intellectual Property and the Creation of Value in the Information Society".

This rather broad formulation could give the possibility to approach the issues of intellectual property in the digital society from different perspectives

Possible elements that could be considered under this topic are:

1. General introduction to the intellectual property system in the digital age;
2. Intellectual property as a central intangible asset in the digital economy, knowledge and information as new factors of production and growth, the concept of "intellectual capital";
3. The intellectual property system as an indispensable element of the institutional, social, cultural and economic infrastructure;
4. Intellectual property as an indispensable instrument for balancing creativity and reward in the digital age;
5. Digital developments and global phenomena reinforcing the role of the individual in the knowledge-based economy;
6. The public awareness of the intellectual property advantages as a prerequisite for economic, social and cultural development;
7. New instruments and approaches, the consequences of "going digital" on classical perceptions of intellectual property;
8. Public and private partnerships in managing the digital world;
9. The intellectual property system facing the challenges of technologies-adequate responses, working together in fighting piracy;
10. Internet's influence on leveling the differences between the different players;
11. The future of the intellectual property system-ongoing and future projects undertaken by WIPO, WIPO's response to the challenges-expanding the intellectual property universe to new policy areas such as trade, the Internet, allowing the system to adapt through the WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT), contributing to the efficiency of the domain names system, etc.

WORLD METEOROLOGICAL ORGANIZATION (WMO)

WSIS THEMES

In the framework of the proposed themes for the World Summit on Information Society, WMO has identified the following sub-themes that it considers important to be dealt with by the Summit.

1. Theme "Opening the gates".

- Achieving universal and equitable access to the Information Society
- Meeting the needs of the developing world

1.1 **WMO sub-theme: *The information society for mitigating natural disasters and dangerous weather related phenomena: universal and equitable access to meteorological, hydrological and related information and warnings.***

1.1.1 Most of all weather elements of unusual severity or for abnormal duration pose a threat to life, property, human activities and the environment, including tornadoes, thunderstorms, storms, cyclones, flood-producing rain or drought. In addition to the direct damages, severe and extreme weather has serious indirect effects on food security and spreading of diseases, and sustained problems of desertification, famine and mass emigration. Severe weather has impacts on almost the entire world.

1.1.2 Universal and equitable access to meteorological, hydrological and related information enables National Meteorological and Hydrological Services to provide comprehensive and effective services to their population in support of safety of life and property and the general welfare and convenience of the people. To be effective, information must obviously reach people in a timely fashion and in suitable forms and formats.

Combined with more effective awareness programmes, and risk evaluation, disaster prevention and other preparedness measures, universal and equitable access to meteorological information results in reducing loss of life and property caused by severe weather to a minimum. In addition to its humanitarian goals, the information society will help to pave the way for sustainable development for developing and less-developed countries, which are mostly situated in areas prone to natural disasters and dangerous weather related phenomena.

1.1.3 Accidental or intentional (e.g. war-induced) release of hazardous materials into the atmosphere and water bodies also constitute a major threat to life and safety of mankind and can take on international or even global dimensions. Equitable access to information and warnings on the concentration of toxic or radioactive materials and their probable transportation in the atmosphere and water bodies is essential for mitigating the disastrous impact of such incidents on population and economy.

1.1.4 The WMO Programmes of direct relevance to this sub-theme are the following:

World Weather Watch Programme (WWW)

Tropical Cyclone Programme

Public Weather Services Programme

Emergency Response Activities Programme

Marine Meteorology and Related Oceanographic Activities Programme

Hydrology and Water Resources Programme (HWRP)

2. Theme "Services and applications"

- The implications of the Information Society for economic, social and cultural development

2.1 WMO sub-theme: *The information society – Access to meteorological, hydrological and climatological information for economic and social development.*

2.1.1 Provision of and access to weather information, forecasts and warnings along with climatological and hydrological data and analyses, to the large range of weather-sensitive economic sectors can be of enormous socio-economic benefit. Agriculture, fishery and forestry, energy and water resources management, land, marine, and aviation transports, banking and insurance, construction and urban design, and also human health, recreation activities and tourism all directly benefit from access to meteorological, hydrological and related information. Major societal and economic benefits for countries are expected from the access to climate information, including in particular climate predictions and assessment of climate change.

2.1.2 Access to meteorological, hydrological and climatological information is of crucial importance for the sustainable development of developing and less-developed countries, which are mostly situated in areas exposed to severe weather. It includes in particular applications of weather and climate information to urban development and management in the context of population pressures, water supply, pollution, transportation and sanitation.

2.1.3 The WMO Programmes of direct relevance to this sub-theme are the following:

World Weather Watch Programme (WWW)

Public Weather Services Programme

Marine Meteorology and Related Oceanographic Activities Programme

Agricultural Meteorology Programme

Aeronautical Meteorology Programme

Hydrology and Water Resources Programme (HWRP)

World Climate Programme (WCP)

World Climate Research Programme (WCRP)

Atmospheric Research and Environment Programme (AREP)

3. Theme "Developing a framework"

- Intellectual property rights and legal exceptions

3.1 WMO sub-theme: *The information society for the universal exchange of meteorological and related information*

3.1.1 As a fundamental principle of the World Meteorological Organization and in consonance with the expanding requirements for its scientific and technical expertise, WMO commits itself to broadening and enhancing the free and unrestricted international exchange of meteorological and related data and products.

ECONOMIC COMMISSION FOR LATIN AMERICA
AND THE CARIBBEAN (ECLAC)

A PROPOSAL FOR A CONCEPTUAL FRAMEWORK
ON THE INFORMATION SOCIETY ¹

April 2002

¹ This proposal was prepared by Martin R. Hilbert of the Economic Commission for Latin America and the Caribbean of the United Nations (ECLAC, UN) mhilbert@eclac.cl. It is part of an ongoing research project at ECLAC. All rights are reserved. The views expressed in this document, which has been produced without formal editing, are those of the author and do not necessarily reflect the views of the Organization.

A Proposal for a Conceptual Framework on the Information Society

The concept of the "Information Society" is very complex. Intellectual thought will need to reduce this complexity through a process of abstraction, whereby 'reality' is expressed in terms of specific entities and their relationships to each other. Words and schemata need to be found in order to discuss it. In order to master the challenging task of indicating and structuring the themes and issues involved in this complex paradigm, we propose a three-dimensional conceptual framework, which is structured along different horizontal, vertical and diagonal areas of interest.²

The basic idea behind this conceptual framework can be traced back to the general architecture of Information and Communication Technologies (ICT) (see ANNEX 3). The advent of modern ICT has a significant impact on how information and codified knowledge is handled throughout the world. Information flows, communication- and coordination mechanisms are digitized and handled over vast electronic networks. The Information Society paradigm is a direct result of this information and communication "high-speed-evolution".

As a direct result from this technological architecture of modern ICT, different Layers can be derived, which help to structure the concept of "digital conduct" and the process of digitalization (see ANNEX 4).

First requirement for "digital conduct" is the physical **infrastructure** (the "Net"). The build-out of a computer network, digital TV, digital cell-phones, telephone lines, fiber-optic networks, as well as wireless networks, and all kinds of hardware make up for this Layer. Secondly, **applications** are needed which make it technologically feasible to create value with this physical infrastructure. All kinds of software, Webhosting, browser and multimedia applications fall into this category. Since this "Infrastructure Layer" and "Applications Layer" set the ground on which the process of digitalization takes place, they can be referred to as **HORIZONTAL AREAS**.

Based on the technological architecture of the two horizontal areas, it is aimed at digitizing information flows and communication mechanisms in different sectors of society (for example in the business and commerce sector, in the health sector, in public administration and government issues, in education, etc). The different sectors of society, which are subject to the process of digitalization, build up vertically onto the horizontal groundwork. They can be identified as **VERTICAL AREAS** of an Information Society. The fact that information flows and communication processes take place through electronic networks in the specific sector, is usually underlined in literature by adding an "e-" as prefix. Many different "**e-Sectors**" can be identified. The process of digitalization is surely most advanced in the business sector (e-business and e-commerce). However also other sectors of society can greatly benefit from digitalization (such as e-government, e-health, e-culture, e-learning, etc). This list of vertical areas can be

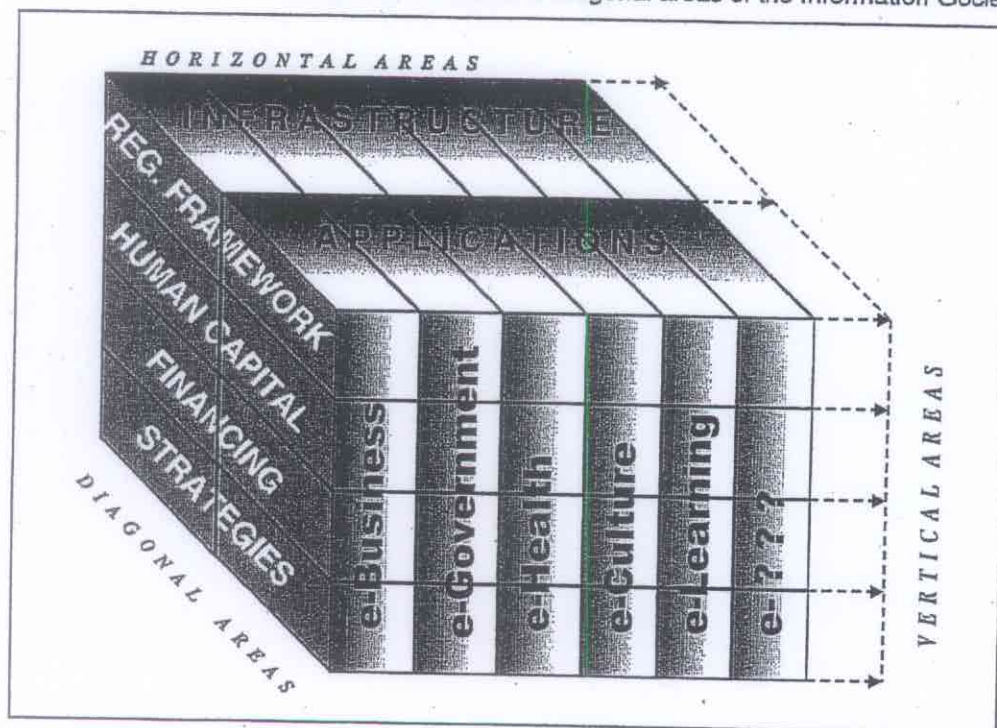
² Alternatively, the different areas of interest could also be structured along a two-dimensional conceptual framework (see ANNEX 2).

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extended to further sectors (such as e-democracy, e-security³, e-media, e-entertainment, e-banking, e-payment, e-research, e-tourism, etc.) (see dashed arrows in graph below).

Besides the different horizontal and vertical areas, it becomes clear that the process of digitalization needs to be supported by a number of interrelated fields, which otherwise might bottleneck the formation of digital organization in an Information Society. These issues penetrate diagonally different subjects that belong to both horizontal areas and vertical areas. These **DIAGONAL AREAS** are namely a **regulatory framework** that embraces and supports the new forms of conduct, **human capital** as the driving force behind the technology, **financing mechanisms**, and the establishment and implementation of development **strategies**.

Horizontal, Vertical and Diagonal areas of the Information Society



Note: see ANNEX 1 for a detailed graph.

Even though this conceptual framework might seem very complex at the beginning, it is very useful to recognize and identify interdependencies, direction and causality of and between the different layers. This allows to work with it, to identify eventual bottlenecks in the different areas and to come up with adequate policies. It also enables to demonstrate how the different areas relate to each other.

³ A broader understanding of the term e-security would also include environmental disaster prevention and the use of digital networks to support fire fighters and to fight crime.

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For example, the question about the role of Regulatory Frameworks in an Information Society could be tackled, as an example of a diagonal area. There are aspects of the Regulatory Framework, which touch every single one of the different horizontal and vertical areas (for example user protection, intellectual property rights, etc.). However, regulatory issues might also focus on specific layers, for instance the regulation of the "Infrastructure" (horizontal Layer; telecommunications regulation, liberalization and competition in the telecom sector, and regulatory issues with regard to technical standards all fall into this category). On the other hand, the regulation of standard issues for example, also accounts for the "Applications Layer" (e.g. standards for software agents, open vs. proprietary software, etc.). Furthermore, the "Regulatory Framework" touches all different vertical areas. Legislation relating to secure data transmission (authenticity, confidentiality, etc.) and privacy can bottleneck the development in every single vertical area. Missing or inadequate digital signatures and electronic certificate regulations can be a potential obstacle for the development of the different vertical areas. On the other hand, some special legislation might be required for specific vertical areas (for example special privacy laws in the e-health sector, etc.).

Human Capital (including issues like "life-long-learning", "on-the-job-training", required professional profiles, etc.) is also essential to both horizontal areas (e.g. telecommunication engineers and software programmers) and the different vertical areas (focus on entrepreneurship, training of the workforce in the health sector and public sector, as well as training teachers⁴, etc.). Complex discussions like the "brain-drain" can be structured with the help of this conceptual framework along the different fields of interest.

"Financing an Information Society" is another issue that diagonally penetrates the Infrastructure Layer (foreign investments in telecommunication markets, etc.), as well as the Applications Layer. Ways need to be found to finance adequate applications, which are required by specific (and often local) vertical areas. The market may produce video games and adult entertainment, but it is not necessarily producing adequate applications to confront local needs in health care or educational services. Going further into the vertical areas, the discussion about financing in the e-business sector might touch the creation of Venture Capital markets, etc. General trade issues and economic support would embrace all horizontal and vertical areas.

Also the diagonal area of development Strategies can be employed for every single one of the different horizontal and vertical areas, or can aim for an integrated approach. Local ICT initiatives, national development strategies, public-private sector partnerships, non-governmental and civil society activities and partnerships, regional efforts and global initiatives aim for achieving a large variety of socioeconomic development goals through the help of ICT.

⁴ The diagonal issue "Human Capital" should analytically not be confused with the vertical issue "e-learning". The first issue centers in the discussion on how the workforce can be prepared to exploit the ICT-paradigm adequately. Human capital in an Information Society serves to deploy the technology correctly, as well as to win competitive advantages in a knowledge-based economy. "E-learning" instead, is about digitizing education systems. The goal is to support the education process by using information processing and communication facilitating technologies. Of course, between these two issues exist countless spillover effects. As ICT make educational networks easier than ever it is also an adequate tool to support the capacitation of human resources.

A Proposal for a Conceptual Framework on the Information Society

Another advantage of this conceptual framework is that it allows to structure complex issues like the “Digital Divide”. The discussion about the Digital Divide often loses focus, since different horizontal areas and different vertical areas get mixed up. The Digital Divide clearly originates in the Infrastructure Layer. However, it also extends to the Applications Layer, since ICT-access costs are a combination of hardware and software pricing. Furthermore, the lack of adequate WebSites and applications itself can be an obstacle. Different policies can aim on different ends. It becomes clear that a generic issue like “Internet penetration”, parts in the horizontal areas and is felt in all of the different vertical areas. However, the discussion can also center on the Digital Divide inside specific vertical areas (for example connectivity of companies (e.g. SMEs), connectivity in schools, connectivity in hospitals, connectivity of municipalities, etc.).

It is important to point out that the presented conceptual framework has to be understood as a “generic” model that allows us to explore different behavioral scenarios in the transition to the Information Society. The “generic” model can be used on different geographic levels (global, regional, national and local level⁵). Applying the model to a country or region specific situation requires the consideration of regional peculiarities (general degree of development, markets, institutions, public policies, customs, traditions, etc.).

The final determination of the different vertical areas, which are included in the discussion, is subject to the interests and priorities of the participants. Also the diagonal areas selected are not necessarily binding. “Global partnerships for development” –as one of the goals of the UN Millenium Declaration— could be another potential diagonal area for example⁶.

Summing up, the focus on Infrastructure and Applications issues (**horizontal areas**) is necessary, but not sufficient for the creation of an Information Society. The inclusion of different **diagonal areas** enables to identify issues that require adjustment in the existing environment and to find policies to support the creation of an Information Society. The various **vertical areas** show the different sectors that are subject to change. The stage of development of an Information Society can be shown through them.

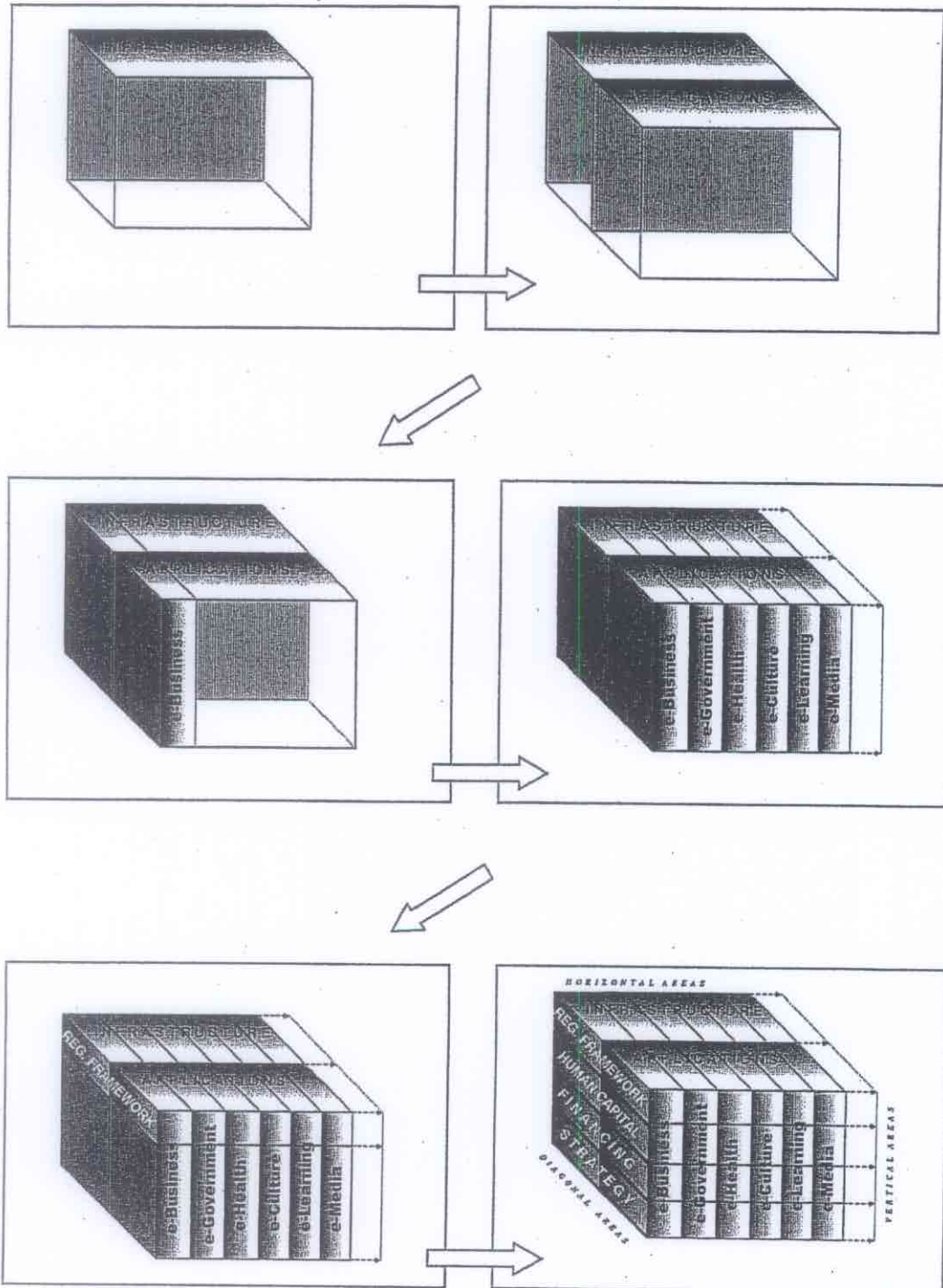
⁵ The differentiation of these levels would create a scenario of “cubes into cubes”.

⁶ Gender equality –as another goal of the UN Millenium Declaration— could be included as a diagonal issue as well.

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ANNEX 1

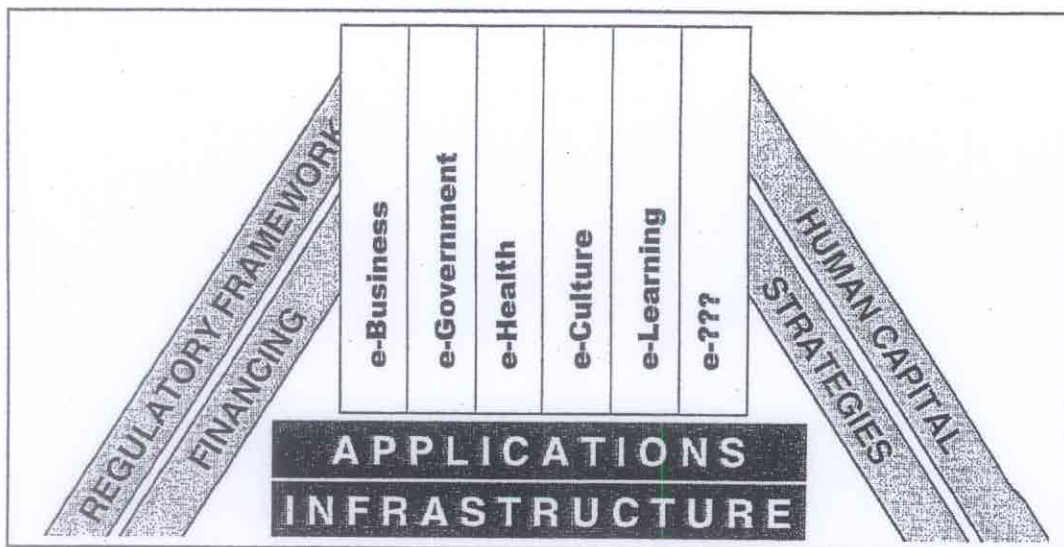
Presenting the building of "the cube":



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ANNEX 2

Alternatively to the three-dimensional framework that is proposed in the main article, the themes and issues involved in an Information Society could be structured along a two-dimensional concept. However, reduced complexity and greater abstraction in the two-dimensional framework, make it more difficult to see direct and indirect dependencies and interrelations between the different Layers.



For example, in this two-dimensional frame, the generic and all-penetrating role of the diagonal areas (Strategies, Regulatory Framework, Financing and Human Capital), does not become as obvious as in "the cube". This makes it more difficult to work with it efficiently.

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ANNEX 3

THE ARCHITECTURE OF INFORMATION AND COMMUNICATION
TECHNOLOGIES

A fundamental characteristic of Information and Communication Technologies (ICT) is that it basically unites three different technological evolutionary paths in a process which is often referred to as "ICT-convergence". First of all there would be **Information Technologies**. There are many systems, which support the flow of information. The importance of information, its storage and spread has long been recognized and a broad variety of supporting technologies had a tremendous impact on human development. One very traditional system to support the flow of information would be books. It started with the Chinese invention of paper (usually cited 105 A.D.) and got innovated through Gutenberg's invention of the printing press⁷ (mid-1450s).

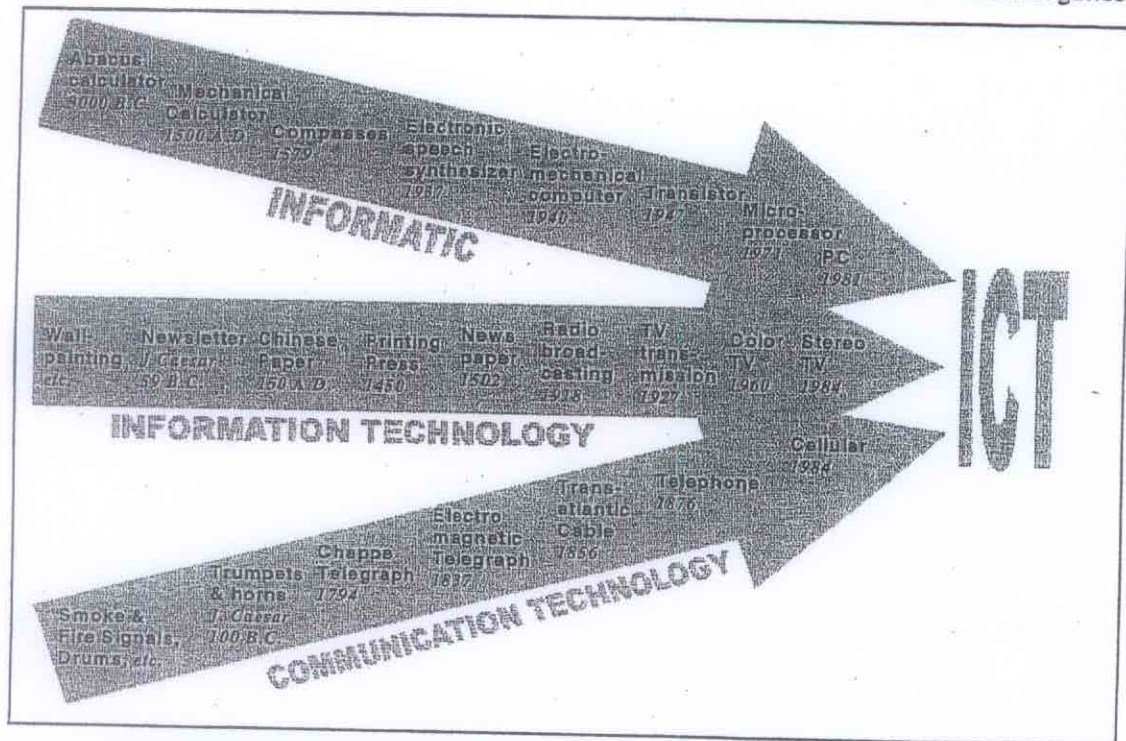
Secondly there is the evolutionary path of **Communication Technologies**. On contrary to Information Technologies, Communication Technologies are not as much focused on transmitting vast amounts of information, but rather transmit small messages fast, over a large distance. Since the beginning of the 19th century, they have been increasingly characterized by adding the prefix "tele-", which is Greek for "far away" (e.g. Tele-communication). Of course there are various technical solutions that can be used for both means, communication and information services. This comes per definition of the word "communication" and "information", since "exchanges of information" can broadly speaking be termed "communication".

A third evolutionary path is what could be referred to as **informatic applications**. For centuries technological solutions have been pursued that help to process information and to codify formerly tacit knowledge and skills. "Calculating", for example, has once been seen as pure tacit knowledge (a skill). Later on, "calculators" codified a large part of this formerly tacit knowledge into technological applications. In the middle of the last century this evolution accelerated tremendously. Basic tools, which have been used for centuries to support "brain work" and skills (such as the geometric triangle or compasses), have suddenly been replaced by electronic solutions that substituted their purpose. The invention of the transistor and the microprocessor enabled new dimensions of information working.

⁷ By many considered the "most important invention of the past millenium".

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ICT-Convergence



Note: Dates in this graph as well as the inventions selected might be subject to historic discussion.

The convergence of all three of them, is what generally is referred to as Information and Communication Technologies (ICT). Their usage brings about a new paradigm with regard to the way information is processed, the way communication takes place and the way knowledge is passed on. In addition to the book and Gutenberg's printing press for example, ICT not only enables the storage and diffusion of information, but also its exchange in "real time" (communication). A very illustrative example is television. Traditionally being a tool for information dissemination (one way, IT), Communication Technology gets integrated, which then allows data exchange in both ways by digitizing the network (digital television, ICT). Adding informatics to this process of convergence (for example translation software), now enables a person to read a book (*information*) in a foreign language (*informatics*) and to comment on it in "real time" (*communication*), through an ICT infrastructure. The process of ICT-convergence has a tremendous impact on the nature of human conduct and on the dynamic of knowledge.

It is interesting to observe that Information Technologies and Communication Technologies are built on a similar architecture. First of all there is the (1) physical infrastructure. It is the "hardware" which enables to carry information (the physical paper-based book or letter). Secondly (2) a language is required which enables the standardized exchange of information (in forms of letters or drawings or Morse-codes for example). Thirdly (3) a certain structure is needed, which enables the efficient use of the content (in a dictionary it would be an alphabetical list of contents, in a Newspaper it would be headlines). Finally there is the (4) final content which is transmitted (for example a textbook, a dictionary, a children's book, a comic, a love-letter or a declaration of war, etc.).

ICT builds on the same architecture along four different layers. It consists of (1) "the Net" (the physical infrastructure). All kinds of hardware, modems, transmission cables and wireless

A Proposal for a Conceptual Framework on the Information Society

technologies fall into this category, (2) A language which enables communication, i.e. the transformation and re-transformation from information into data in order to enable transmission (binary digits over Internet Protocol, IP). (3) "The Web", which structures communication and coordination mechanisms in some way. The World-Wide Web (www) or similar Webs (like WAP) are structuring "cyberspace" through hyperlinks. It is a non-linear, de-centralized structure. (4) The final content, which is the information transmitted.

The often mentioned "change in paradigms" with regard to the introduction of modern Information and Communication Technologies (ICT), is based on impacts on all four layers:

(1) The infrastructure: All kind of electronic equipment gets connected to fixed, wireline, wireless or mobile networks. This equipment has an immense and ever increasing capacity of information storage. The resulting network between the equipment builds on ever increasing bandwidth, maximizing communication capacity. The decentralized network of networks reaches "worldwide" in "real time".

(2) The language of information codification is modified: besides spoken and written language, digital applications and software also enable the transmission of images, sounds, moves, entire videos, codified smells, holographs, etc.;

(3) The structure of communication and coordination mechanisms --as the way information is structured, organized and handled (through dynamic, non-linear networks)-- brings about organizational changes.

(4) The content transmitted: storage, diffusion and real-time exchange of information is part of every sector of society. Therefore modern ICT can be deployed generically for many different means: commerce, health, government and public administration, education, military, civil society activities, etc.

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ANNEX 4

THE FOUR LAYERS OF DIGITAL CONDUCT

As a direct conclusion from the technological architecture of modern ICT (presented in ANNEX 3), different Layers can be derived, which will help to structure the concepts of an "Information Society".

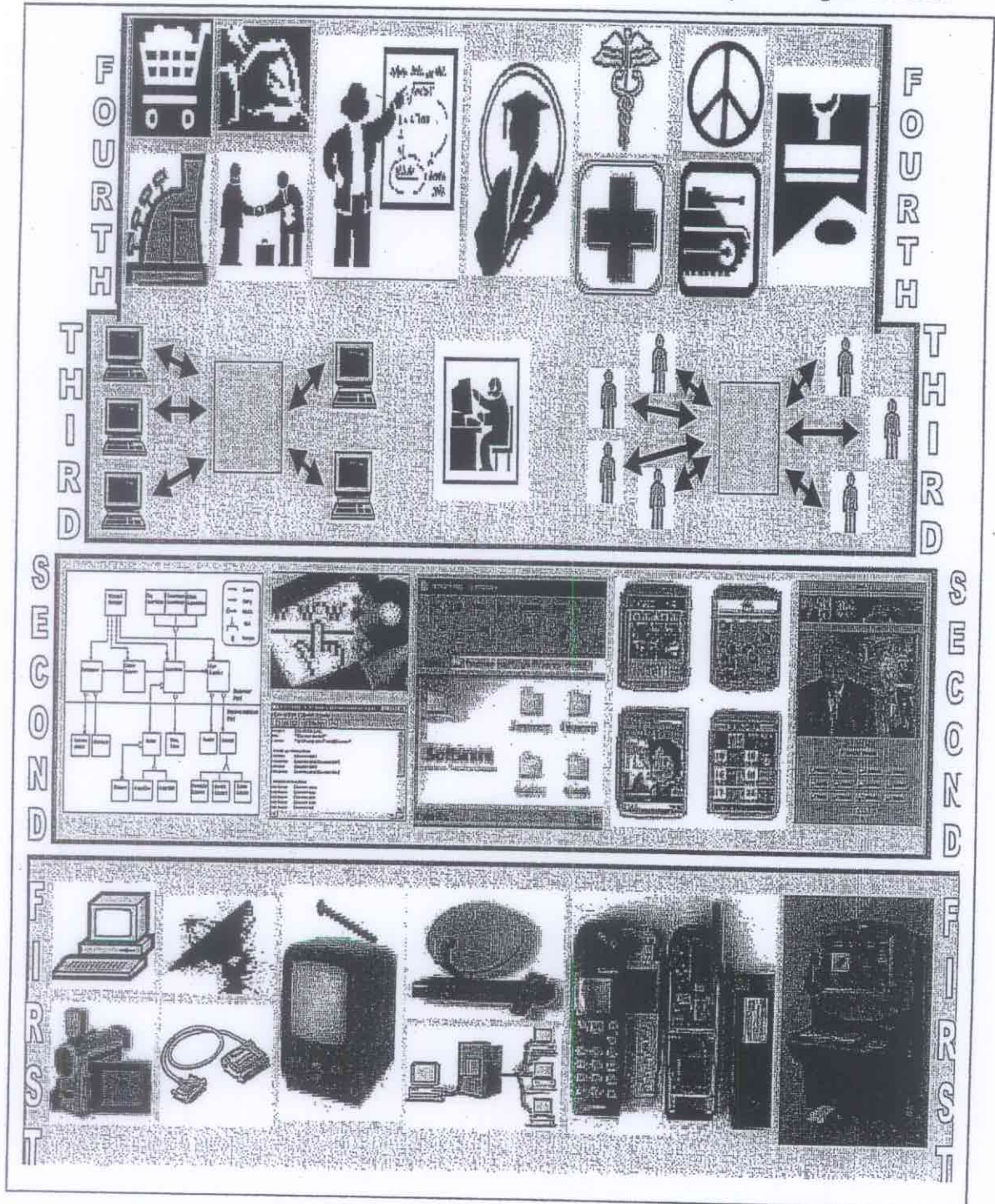
The **First Layer** is referred to as the "**INFRASTRUCTURE LAYER**". The build-out of a computer network, telephone lines, fiber-optic networks, as well as wireless networks, and all kinds of hardware, etc. make up for this Layer. It is the physical creation of "the Net". Large companies in this layer would be telecom operators, such as Telefonica, Telecom Italia or AT&T; electronic companies such as Ericsson, Lucent or Sony; service provider such as AOL and UOL; as well as all equipment producers, such as Nokia, Palm, IBM or Compaq. In Latin America, for example, the infrastructure network with the highest diffusion is mobile telephony. 52.8 million 2G cell phone subscribers can be found in the region in the first quarter of 2001⁸. The **Second Layer** is referred to as the "**APPLICATIONS LAYER**". Products and services in this layer build on the First Layer network infrastructure and make it technologically feasible in order to create value. All kind of software production, such as Microsoft, Oracle, SAP; Webhosting, such as Quest and Latin-Host; as well as browser and multimedia applications, such as Netscape and RealPlayer, fall into this category. The **Third Layer**, the "**INTERMEDIARY LAYER**", increases the efficiency of electronic markets by structuring communication in a certain way. It is the facilitation of meetings and interactions of online activities. Horizontal and vertical portals, such as Yahoo or Google, and electronic market places, such as Ariba or Mercado Electronico are considered intermediaries. Also governmental or civil society sites and international organizations often act as intermediaries⁹. The **Forth Layer** is the "**FULFILLMENT LAYER**". It makes use of digitizing part of the final performance –if not all of it. The fulfillment could take place in the health sector, in education, entertainment, for military means, for public administration, for civil society organization activities, etc.. In the business sector, participants of this Layer are differentiated by different segments: B2B, B2C, B2G, etc..

⁸ 2G: GSM: 4.9 million; CDMA: 15.9 million; TDMA: 32 million; additionally 17.6 million analogue 1G user. 2G (second generation) is a term, which refers to mobile telecommunication, which is allowing voice and data transmission through a mobile network. Data transmission is slow and generally between 9.6 Kbit/s and 14.4 Kbit/s. 2G networks are getting gradually evolved over 2.5G (GRPS, EDGE) to 3G (UMTS, cdma200, etc.), which is then promising data transmission speeds between 400 and 2000 Kbit/s.

⁹ ECLAC, for example, set up a virtual network to connect Social institutions in Latin America and the Caribbean in 2002: <http://www.eclac.cl/dds/noticias/proyectos/6/7796/index.asp>. Infodev's development gateway would be another example of an international, non-profit intermediary <http://www.infodev.org>.

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The Four Layers of Digital Conduct



While the first two Layers do have the characteristics of traditional production industries, the Third and the Fourth Layer are more generic and penetrate existing sectors of society by digitizing

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them. The fact that information flows and communication processes are taking place through electronic networks in the different sectors, is usually underlined in literature by putting an "e-" in front of the word (e.g. e-business, e-government, e-learning, e-health, etc.). Many different "e-SECTORS" can be identified. The most popular ones might be "e-business" or "e-commerce". However also other sectors of society can greatly benefit from digitalization. "E-health" holds great promises to improve performance in the health sector, which is an urgent task in developing countries. "E-government" can introduce transparency and efficiency in public administration. "E-education" or "e-learning" promises to provide a better and cheaper performance in educational practices. At the end, countless vertical areas can be identified: e-democracy or e-governance; e-payment and e-banking; e-tourism; e-security (including environmental disaster prevention and the use digital networks for fire fighters and to fight crime¹⁰), e-research networks and e-cooperation, etc, etc...

The Third and the Fourth Layer are highly interdependent. Even though they play different roles and pursue different goals, the Intermediary highly depends on the specific field of Fulfillment. An intermediary in the educational sector differs significantly from an intermediary in the B2B commerce sector, for example. For this reason, the Third and Fourth Layer are not treated separately in this approach and are subject to a united analyzes.

¹⁰ In a situation where seconds can decide about life and death, "real-time" ICT networks bear high potential

ORGANIZATION FOR ECONOMIC COOPERATION
AND DEVELOPMENT* (OECD)

Proposed WSIS themes

The OECD submits the following proposals to the WSIS Secretariat. The remaining proposal for the Key Theme Paper will follow in due course.

1. List of thematic conferences, meetings etc., on Information Society, to be included on the WSIS website.

Please put in the following OECD thematic conference:

OECD Global Forum: "Policy Frameworks for Digital Economy", in co-operation with APEC, in the Asia-Pacific area in January 2003.

- a) The main objectives are:
 - Gain understanding of the policy implications of the challenges and opportunities of the next decade of development of information society.
 - Promote consensus on broad principles of policy strategies to encourage development of digital economy and global information society, to ensure greatest participation in global information society and to maximise and widely share the benefits of the global digital economy.
 - Clarify the roles of the various stakeholders.
- b) The outcome or deliverables of this Forum will be transmitted to other landmark events such as WSIS.

* OECD is not a member of HLSOC but participates in working level meetings.