UNESCO and the Use of the Internet in its Domains of Competence

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Introduction

1. Executive Board Decision 185 EX/42 requests that UNESCO initiate a reflection and an analysis, in the context of UNESCO's existing programmes, on all aspects of the Internet. Previous resolutions of the General Conference and decisions of the Executive Board highlight relevant themes for this reflection[1], with particular regard for the building of knowledge societies and their four underlying principles: freedom of expression; quality education for all; universal access to information and knowledge; and respect for cultural and linguistic diversity. These decisions require UNESCO to play a mandated role in Internet governance dialogue, content creation advocacy and capacity development, and emphasise the importance of intersectoral cooperation and close partnerships with governments and other stakeholders.

2. In the context of the key principles highlighted above and bearing in mind UNESCO's overarching goal to build a culture of peace, this document will review all aspects of the Internet citing examples from UNESCO's existing programmes. It highlights challenges and emerging issues, and suggests the way forward. The first part of the document reviews the current state of the Internet's development in the light of UNESCO's core mandate, and lists the respective mandates of other organizations in relation to the Internet. The range of activities that this document points towards in the final chapters perhaps exceeds the Organization's operational capacities, and it is therefore recommended that Member States provide guidance as to which activities should be considered a priority for UNESCO in relation to Internet.

I. The Genesis and Evolution of the Internet

3. The Internet is a global network of interconnected computer networks. It was developed during the 1960s and 1970s, through publicly-funded research by the USA. Early users of the Internet were military and technical, then academic. From the early 1990s, the use of the Internet rapidly grew in terms of private subscriptions and commercial applications, initially in developed countries and, it was spurred in 1991 by the expansion of the World Wide Web (www) which interlinked information and knowledge. During that time, users' interaction with the Internet was primarily through e-mail, web-search, static web pages, or e-commerce. Between 2005 and 2010, the number of Internet users doubled to nearly 2 billion, with China constituting the largest number of users in the world[2]. Regions showing the highest percentage growth in Internet use since 2000 are Africa, the Middle East and Latin America and the Caribbean,[3] although the penetration rates in these regions and in Asia as a whole are still comparatively low.[4]

4. The resilience of the Internet, and its distributed nature, pose regulatory challenges. The Internet was developed through collaborative participation in advance of any overarching governance mechanism. Ownership of the interlinked networks was distributed among the public sector, the private sector, academic institutions and civil society. The World Summit on the Information Society (WSIS, 2003-2005), was the first intergovernmental process dedicated to considering the impact of emerging knowledge societies. WSIS discussions focused on how access to the Internet could be improved, how interconnection costs could

[1] 35 C/Resolution 62, and 33 C/Resolution 52, and 174 EX/Decision 13

[2] China has 420 million Internet users (source ITU, *The World in 2010,* October 2010)

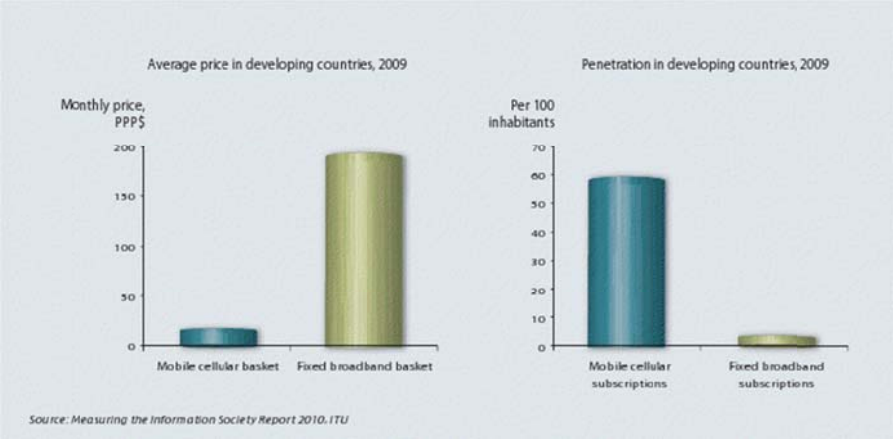
[3] Africa 2,357.3% growth between Dec 2000 and Dec 2010, Middle East 1,825.3%, Latin America/Caribbean 1,032.8%. Source: Internet World Stats

[4] Asia & Pacific 21.9%, Africa 9.6 % penetration, vs 65% in Europe. Source ITU, *The World in 2010*, October 2010

be reduced, and how to increase infrastructure development in developing countries, as well as the social, cultural and ethical aspects of inclusive knowledge societies. The *Tunis Agenda for the Information Society* (WSIS, 2005) defined the roles and responsibilities of different stakeholder groups in Internet governance.

5. Since 2005, infrastructure development has advanced; a fibre optic backbone has been built around the African continent with many inland branches, and mobile Internet technologies have been developed and deployed in regions where fixed communication infrastructure was previously lacking. According to ITU figures, there are now 5.3 billion mobile phone subscriptions worldwide, with a steady migration from 2G to 3G (third generation, Internet-enabled).[5] In Africa, mobile penetration rates reached an estimated 41% at the end of 2010.[6] Throughout the world, the rapid replacement of fixed dial-up Internet connections through broadband is vastly improving the quality of service for those connected, although in some cases the reduced availability of basic dial-up access might be slowing progress towards universal access. A comparison of the costs and uptake of mobile versus broadband in developing countries reveals the potential of mobile internet access in reducing costs while extending access, although this technology still represents only a very small fraction of mobile subscriptions in most developing countries.

Figure 1: Price and Penetration of Mobile and Broadband Technology in Developing Countries, 2009



Source: ITU

6. At the same time, major innovations have emerged in the way that people use the Internet, including "web 2.0", allowing greater user interaction and collaboration through wikis, blogs, file sharing, TV, on demand music and video streaming, e-books, social networking, virtual reality and interactive multi-user gaming.

7. The development of the Open Access movement is a major evolution whereby rights holders use special licenses like *Creative Commons* to make their works available free of charge, primarily over the Internet. The Open Access movement was activated by civil society-endorsed Declarations often referred to as the *"3B"* (the 2002 Budapest Declaration, the 2003 Bethesda Declaration, and the 2003 Berlin Declaration), and this model has since been increasingly endorsed by governments and educational institutions and specialized journals. In 2002, UNESCO organized a forum on the impact of open courseware for higher education in developing countries that defined the term "*Open Educational Resources*" for open access

[5] *The World in 2010: ICT Facts and Figures,* ITU, October, 2010
[6] *Ibid.*

to educational materials. Today there are over 6,000 open access journals[7] and over 1,200 institutional repositories providing Open Access to research results and educational resources[8], benefiting research and education worldwide, particularly scientists, educators and students in developing countries who would have previously been unable to afford access.

8. Another recent development is *Cloud Computing* - the retailing of Internet applications and services which have previously been available only to large-scale enterprises, eg. infrastructure, platforms or software. Cloud Computing has the potential to overcome inequalities of access and enable balanced growth. It can significantly lower investment requirements (eg. in servers, software and service contracts), creating dynamic opportunities for new users in developing countries. If cloud *infostructure* is created in developing countries, it also contributes to local technological capacities and livelihoods. But changes in the way that Cloud delivers software are likely to impact traditional software licensing (and investment) paradigms, will have direct consequences for the concept of *Free and Open Source Software*, a key issue for UNESCO. It also creates new challenges, for example, the domination by a few Internet giants, potential conflicts with national regulations in the areas of data security and privacy, as well as a range of cultural issues.

9. While we are witnessing widespread Internet connectivity, the digital divide - inequalities between regions and nations in access to information and communication - continues to exclude certain groups of people's access to socio-economic opportunities, education and democratic participation. The digital divide exists not only between cities and rural areas, but cuts across gender, age, race, education and economic lines. This gap takes into account factors of physical access to technology and resources, as well as the media and information literacy skills that are necessary for the effective engagement in digital society. In particular, women have historically had less access to the Internet than men, with less opportunity to build communities online and share experiences on a global scale.[9] This becomes clear if we consider the relative level of women's use of the Internet for civic participation, entry into computer science programmes, participation in information technology design, or representation in the debate on Internet governance issues. Internet is indeed a unique means for preparing the groundwork for the empowerment of women as it connects them to a wide range of resources used to enhance family life, improve health outcomes, bolster education, and pursue economic opportunities. Little research in the area of Internet use has been done on men and women as separate social groups with different needs, aspirations and requirements.

II. The Impact of Changes in the Internet Environment

10. The growth of social networking, broadband, mobile access and cloud computing provide enormous opportunities for all Internet users, especially those in developing countries who have thus far benefited less from these innovations.

11. The magnitude of these developments can be seen through the example of the largest social network, Facebook, which claims more than 500 million active users of which 70% are outside of the United States and of which 50% log on to Facebook in any given day. Social networks provide potential for building communities of practice, interest and cultural expression that can transform professional as well as personal lives by engaging individuals to adapt to changing environments and to participate in societal debates. The use of social

[7] The Directory of Open Access Journals: http://www.doaj.org/
[8] The Ranking Web of World Repositories: http://repositories.webometrics.info
[9] United Nations Statistics Division 2009

networks in education can improve not only pedagogical practices, but also the institutional fraternity in educational processes. At the same time, the rise of social networks has enhanced the commercial and quasi-regulatory power of a few Internet giants, who are increasingly defining norms of behaviour or privacy within their user bases, and setting their own *de facto* standards for information access and exchange.

12. There will be broader and more difficult questions as the Internet evolves from network of computers to a network of "objects" as devices such as mobile phones, instruments and home appliances are already being connected through the same protocols. In the longer term, perhaps smart vehicles or sensing clothing will be connected, and possibly even human brains, intensifying the info-ethical issues with which UNESCO will have to cope, particularly as they concern human rights. The exponential rise of access to the Internet through mobile devices also provides a challenge and an opportunity for UNESCO to encourage and work with innovations and new users, in particular with regard to education.

13. As Internet usage grows, so do concerns over illegal or malicious content. The anonymity afforded by the Internet can lead to harmful acts eg. the distribution of images of child abuse, grooming of young people by paedophiles through social networks, cyber bullying of children and adults, , human trafficking, especially of women and children, , the growth of suicide sites, identity theft and financial fraud, networks involved in terrorism or dedicated to the disruption of states. Many of these problems are not new, but are age-old societal problems, manifested in new forms through a new medium. Where behaviours are illegal offline, they are also illegal online. In a minority of cases, the Internet does bring new challenges in relation to illegal or harmful content. One example is the collision between national or regional ethical norms and legal systems with the global, trans-border nature of the Internet. Another is the ease and rapidity with which information can now be distributed globally through the Internet.

III. Internet Governance and the Role of UNESCO

14. The term *"Internet governance"* embraces a wide range of issues, including infrastructure, technical standards, rights, and content. There is no single institution in charge of Internet governance. The process is distributed, continues to evolve and the participants change according to the issue. Key actors currently involved in Internet governance reflect the Internet's multi-stakeholder character, including:

- *Intergovernmental actors* who are entrusted with WSIS action lines in their areas of competence, for example:
    - UN DESA (development, e-government, international cooperation)
    - ITU (infrastructure, capacity building, security, enabling environment)
    - UNESCO (access, e-science, e-learning, cultural and linguistic diversity, media, and information ethics)
    - OECD (Internet economy)
    - WIPO (copyrights)

- *Internet Corporation for Assigned Names and Numbers* (ICANN) - a private, non-profit organization, is responsible for the global coordination of Internet unique identifiers (domain names and Internet protocol numbers).

- *Internet Engineering Task Force* (IETF) - a group of volunteers funded by the civil society organization *Internet Society* (ISOC). IETF develops technical standards for the Internet.

- *Internet Governance Forum* (IGF)- set up by the WSIS Tunis Agenda as a non-decision-making forum for dialogue on all Internet governance related issues.

15. While Internet governance remains in a state of flux, most observers predict that the governance model will remain decentralized, collaborative and multi-stakeholder. As a multistakeholder Internet governance actor pursuing the key objectives set out in its mandate, UNESCO has been an active contributor to the Internet Governance Forum (IGF), and has supported it as an essential platform for the multi-stakeholder exchange of opinions, ideas and concerns. The Organization has run workshops at all five IGF meetings to date (for example on freedom of expression on the Internet, privacy and social networking, etc) and has participated as an observer to the Multistakeholder Advisory Group, consistently highlighting the importance of the key principles underpinning inclusive knowledge societies. Cooperation with governments, civil society, private sector and the academic world has been supported and synergies have been explored between stakeholders. Although most of these interactions have been informal, some have been formalised eg. the creation of a dynamic coalition on freedom of expression and freedom of media on the internet, and the Cooperation Agreement signed in 2009 by UNESCO and ICANN with the aim of strengthening multilingualism in cyberspace.

IV. Key Areas of UNESCO's Work relating to the Internet: Challenges and Opportunities

a) Education

16. The Internet has already shown that it can significantly contribute to achieving the *Education for All* (EFA) goals, especially those of access to and quality of education. It also presents enormous opportunities that look beyond the basic education goals of EFA, to harness the potential of information and communication technologies (ICTs), particularly mobile Internet, in scaling up equity, inclusion and quality in education and lifelong learning for sustainable development and a culture of peace and non-violence.

17. UNESCO is pursuing work in this area through several paths:
    - *Policy:* Working with Member States on the development and analysis of ICT policies in education and highlighting how these policies can be aligned to wider societal and economic goals
    - *Quality e-Learning:* UNESCO's aims to provide policy advice to governments and institutions on the establishment of quality assurance systems to monitor the quality of the open and distance learning, in particular the cross-border higher education. The Organization is also developing tools to support e-learning including open and distance learning, eg. the *Open Training Platform* (OTP) which promotes access to free courseware produced by UN agencies and public and private sector entities
    - *Teacher training:* A significant challenge underlying the important role of teachers in the digital age is their lack of skills and ability to take full advantage of the Internet, both as a basic educational resource and as a means of sharing educational content with other education communities. To address this, UNESCO, in partnership with major private sector entities concerned with ICT training, is developing an *ICT Competency Framework for Teachers* aimed at assisting educational planners and teacher training course developers to prepare teachers for making effective use of ICTs in their work. UNESCO has also provided capacity building and convened policy dialogues to build the institutional capacity of public teacher training institutions of Member States.
    - *Mobile:* Mobile technologies offer huge opportunities in education, in particular in developing countries, by providing access to information in the absence of fixed communication infrastructure and facilitating access to information to marginalised

groups (rural and minority communities, women and girls, persons with disabilities, etc). UNESCO is facilitating the realization of this mobile potential by investigating current practices, promoting innovations and content development in areas such as literacy, teacher development and school management, and reporting on policy developments.

- *Innovation:* In developing countries and in countries in post-conflict or post-disaster situations, there is an enormous potential for innovation inspired by technology in the field of education, including distance learning applications, economic development and poverty eradication. Necessity pushes courageous teachers and institutions to make major leaps forward to develop locally-relevant content and applications that respond to the needs of their communities in their specific communicative ecologies. UNESCO recognizes such innovations through its UNESCO King Hamad Bin Isa Al-Khalifa Prize for the Use of ICT in Education, and broadens the impact of the innovations by documenting and sharing best practices with Member States.
- *Media and Information literacy:* UNESCO promotes the concept of media, information and technology "literacies" to equip individuals and communities with essential competencies (knowledge, skills (such as critical thinking) and attitudes) required to engage effectively with information and media systems, including the Internet.
- *Open Educational Resources (OERs):* The UNESCO OER Platform, scheduled for launch in late 2011, will offer selected UNESCO-sponsored curricula and educational publications as OERs to allow global communities of practice including teachers, learners, and education professionals to freely copy, adapt, and share their resources. The Organization will also benefit by establishing stronger, continuous links with institutions, and by tapping into the new materials and innovations that are produced through this network of education practitioners. Capacity-building and awareness-raising are essential to ensure that OERs can readily be shared by many countries and higher education institutions. UNESCO has combined workshops with online fora in its recent programme "*Taking OER beyond the OER Community: Policy and Capacity*".

***Challenges and emerging* issues**

18. A better understanding is required in terms of the opportunities that the Internet can provide in helping developing countries, which sometimes lack educational infrastructure, access to high-speed Internet and skilled resources, to achieve EFA goals. This includes an understanding of how the disparities in Internet access between urban and rural areas might be overcome; how best to support the readiness of teaching professionals to use ICTs in the educational process; how to ensure the availability of quality content in local languages, etc. Once the basic barriers to access to the Internet are overcome, unique opportunities arise for enhancing education through open and distance learning, enhanced teaching methods, access to quality teaching and learning materials, and improved learner empowerment. Technological advancements will certainly cause educational practices to evolve, and the challenge here is to ensure that e-learning is fit for purpose, so that quality educational processes are enhanced. A key issue in this regard includes the extent to which distance learning can complement or replace certain traditional educational processes. In the context of the Organization's existing programme for Open Educational Resources, the balance between intellectual property rights and the goal of providing access to knowledge and the availability of educational materials in developing countries requires further exploration.

19. Education systems must respond to the evolving technology and applications of the Internet, in order to leverage the growth of the mobile Internet worldwide for educational purposes. Within this context, it is important to note that, underlying the use of ICTs in education are the challenges of addressing information, ICT and media literacy and the gender imbalance in use and representation.

20. Further understanding is required to discern the effect that the Internet is having on individual methods of self-learning and cooperative learning. Through virtual networks of peers, learners are harnessing the potential of ICTs, creating stimulating learning

environments for themselves. Such movements are, in some cases, challenging traditional educational paradigms, whilst other networks with a basic educational function (eg. YouTube) are also evolving outside of educational practice and authority.

b) The Natural Sciences

21. The Internet, which was initially developed to connect research laboratories around the world, offers unprecedented ease of sharing specialist information on a global scale, enabling instant communication of urgent information within a targeted network. Underlining the crucial role that the Internet can play in disaster risk prevention and in ensuring the sharing of humanitarian information in post-conflict and post-disaster environments, UNESCO's coordination of the development of regional tsunami early warning systems following the Indian Ocean Tsunami in 2004 has helped to enhance the capacities of Member States, and has minimised the resources needed to implement national tsunami warning systems.

22. The pervasive nature of issues such as climate change, or biodiversity loss, means that there are insufficient human resources within traditional scientific communities to gather and analyse the required data. The Internet has the potential to scale-up scientific research to reach the capacity demanded by today's environmental issues, through the development by experts of methodologies and toolkits for use by interested citizens (ie. citizen science). Within the *Man and Biosphere* (MAB) programme, a web-based community platform for the *World Network of Biosphere Reserves* enables the exchange of information, know-how and good practice. The *UNESCO-MAB Biosphere Reserve Directory* is an interactive map displaying the locations of biosphere reserves throughout the world, providing detailed information on each reserve at the click of the mouse.

23. In science education, the *World Library of Science*, a joint initiative of UNESCO and Nature Publishing Group, and the developing partnership with Apple's *iTunesU*, will enable open online science learning resources to be downloaded. Both initiatives aim to promote science literacy and accessible education.

Challenges and emerging issues

24. The Internet is enhancing interdisciplinary and cross-border networks of scientists, and fostering the inclusion of citizens in scientific research. In the new environment, an emerging issue is how best to mobilize scientific networks, and leverage UNESCO's own role within them. Virtual laboratories or "*collaboratories*", which use the Internet to facilitate and manage the cooperative work of scientists and the sharing of instruments and computers in research, are already widely used in major research infrastructures in industrialized countries. It may be appropriate to refocus the virtual laboratory model to contribute to development- related "citizen" research by taking advantage of newer technologies such as Web 2.0 tools, GPS and mobile broadband.

25. It is important that every research institution adopt the "*green*" open access approach by developing institutional repositories and by sharing knowledge created by their researchers with the rest of the world. In order to help research institutions in developing countries contribute towards the growth and access of scientific knowledge, a huge capacity-building effort is needed. A specific challenge relates to the misuse or misappropriation of shared scientific data. Ready access to specific geographical coordinates of rare species, for example, could be used either for good (conservation planning) or for harmful (poaching) purposes. Many governments consider geographical data to belong to the national security domain.

26. The mass production and use of ICTs, and in particular the emergence of the Internet, has also created stresses on the environment which will become ever more threatening without corrective measures. At present, the world's data centres are using more electricity and

generating more CO_2 than a medium-sized country, and the production of electronic components also consumes very large amounts of energy as well as natural resources. Non-recycled e-waste is also causing major pollution and health concerns, particularly in developing countries. In the absence of a thorough cost-benefit analysis of the environmental trade-offs of Internet use, which require a comparison of all the environmental versus social costs and benefits, it would be opportune for UNESCO to help promote ways to reduce energy consumption and pollution by both individual consumers and by the energy-intensive Internet servers. Several companies in this industry are already increasing their use of energy-efficient server facilities using renewable sources of energy.

c) The Social and Human Sciences

27. The Internet plays an integral role in the production and dissemination of social and human science information. This is aptly reflected through UNESCO's online networks and platforms for research communities on social transformation issues and on challenges related to a culture of peace, knowledge dissemination and knowledge exchange, accessibility, human rights, non-violence and non-discrimination. In a similar manner, UNESCO is reinforcing links between ethicists, social scientists, policy-makers and civil society to assist Member States in enacting sound and reasoned policies on ethical issues in science and technology through the Internet via the *Global Ethics Observatory* (*GEObs*), where guiding documents and intellectual and practical outcomes from UNESCO's *International Bioethics Committee* (IBC) and the *World Commission on the Ethics of Scientific Knowledge and Technology* (COMEST) are openly shared.

28. Facebook was used to raise awareness during the *World Philosophy Day*, and was combined with Twitter for a campaign to drive reflection, exchange ideas and disseminate outcomes at both the local and global levels during the *International Day for the Elimination of Racial Discrimination*. The Internet is being used similarly to reach out to the cities of the *International Coalition of Cities* and to motivate municipalities to publicise their efforts against discrimination globally, and through e-Journals such as *Diversities* which addresses migration, multicultural policies, and human rights. Furthermore, it serves as an efficient online monitoring tool to facilitate the follow-through on international normative instruments, for example the *International Convention against Doping in Sport (2005)*.

29. Youth's use of the Internet has been a particular focus for the Organization in this area, particularly with regard to the *UNESCO Youth Forum* preparation and follow-up processes. The global and the five regional online youth listservs have enabled continued exchange with these groups on different youth initiatives since 2006.

Challenges and emerging issues

30. As more social and human science information is made available through the Internet, there is a prevailing demand for sophisticated methods of access and analysis to facilitate practical outcomes in policies and actions by stakeholders. This raises the need for close collaboration between social scientists and information technology specialists to create increasingly complex meta-search engines algorithms and mineable databases to analyse and transform knowledge, rendering it accessible to decision-makers, educational institutions and the media; and to facilitate the gathering of data for research modelling and complex scenario-building for social scientists, researchers, academia and NGOs. Partnerships are being sought to acquire and implement such functionalities, for example through a funding application to the European Commission via Open University to upgrade the *Management of Social Transformations programme* (MOST) database policy research platform with enhanced semantic analysis, an improved ontology for knowledge frameworks and related guidelines.

31. UNESCO is planning to provide more online training tools in order to expand the reach of social and human science knowledge to a much wider and tech-savvy audience, as well as

reaching less Internet-knowledgeable users. Along this line, there is a need to develop Shareable Content Object Reference Models (SCORM) for Learning Management Systems (LMS) for training in human rights based approach, bioethics education, policy toolkits, and building capacity in global environmental change adaptations. There is a further need to develop Internet tools for tracking best practices and state-of-the-art research in social and human sciences; to forecast the exploitation of Web 3.0 for promoting peace and inclusive societies. Internet technology should also be harnessed to promote social cohesion through the advocacy of human rights; the eradication of stigma, discrimination and xenophobia; the prevention of violence against women; and the reinforcement of ethics and genetic privacy.

32. The Internet is also an object of study in social and human science, reflecting upon its impact on knowledge systems, social change, and individual attitudes and behaviour. The worldwide expansion of social media raises questions on the one hand, as to what the influence and impact on the social structures of youth might be, and also points on the other hand to the need for a clear strategy for the Organization on how they might participate usefully and effectively in social media. The capacity of users to make effective and ethically responsible use of emerging technologies is a crucial dimension of citizenship and social inclusion in the digital age, and a future-oriented perspective on ICTs as drivers of fundamental social and human needs should take into account ethical standards that are required to harness the potential of the Internet. In view of current developments, it is also important to reflect on the use of the Internet by youth groups as a means for social and political participation and inclusive community building; and the use of new ICTs to assist Diasporas in the development of their home countries, transforming “brain drain” into “brain gain” and social capital.

d) Culture

33. The Internet plays an important role in supporting almost all functions defined in the Culture Sector’s mid-term strategy. Unprecedented opportunities are provided for citizens to access tangible and intangible culture through the Internet, raising awareness to important cultural heritage and supporting cultural diversity. While engaging the use of the Internet, UNESCO acknowledges the importance of different socio-cultural contexts in its use and access, and strives to generate an approach based on gender equality.

34. Examples of UNESCO’s programmes to preserve tangible cultural and documentary heritage include *Memory of the World, World Digital Library, Underwater Cultural Heritage*, and support for national broadcasters to digitally preserve film archives. UNESCO assists by sharing good practices, training, and capacity-building, as well as by providing wide access to cultural heritage through its website and through partnerships that greatly enhance the scope and impact of UNESCO’s work. One such example is UNESCO’s partnership agreement with Google, which enables users to virtually visit UNESCO World Heritage Sites through an interactive map (the World Heritage Finder) shown in Google Earth and Google Maps interfaces. Other partnerships with private sector organizations such as Fotopedia and OurPlace have extended the reach for World Heritage through online image-bases (including through mobile applications, especially relevant for developing country users), and through sustainable tourism.

35. The preservation of intangible cultural heritage, including linguistic heritage, can be sustained by a multimedia approach, enabled by the Internet. Traditional methods of preservation can only be partial, whereas UNESCO’s Intangible Heritage Lists are searchable databases of text descriptions, slide shows, sound and video to capture the richness of oral traditions.

36. Multimedia tools enhance the engagement of new communities in UNESCO’s work, including younger users. The *Underwater Cultural Heritage* pages were re-launched in January 2011, with dedicated pages for children featuring interactive quizzes, animation and maps created in partnership with the Moods Group and Google. The UNESCO *DigiArts Portal* is another

example. It contains information on the history of media art and electronic music (particularly pioneer artists in developing countries); an inventory of specialized institutions dealing with the research, training creation and promotion of digital art and music; articles, essays, and course content relating to digital creativity; and digital arts productions by young people *(UNESCO Digital Arts Award* and *Young Digital Creators*).

37. UNESCO is playing an important role in advocating linguistic diversity and a multilingual, culturally- diverse Internet, without which truly inclusive knowledge societies cannot exist. There are approximately 6,000 languages in the world, but, in 2008 only 12 languages accounted for 98% of all web pages.[10] English is currently the dominant language on the Internet[11]. The *Recommendation concerning the Promotion and Use of Multilingualism and Universal Access to Cyberspace* (2003) is being followed up by Member States, with the second consolidated report on the implementation underway. Meanwhile, a partnership agreement signed in 2009 between UNESCO and ICANN foresees cooperation in strengthening multilingualism in cyberspace. The Organization also works to provide up-to-date information in this area, one such example being the publication "*Twelve Years of Measuring Linguistic Diversity on The Internet: Balance and Perspectives"* (UNESCO 2010*)*. The Organization's interactive *Atlas of the World's Languages in Danger* is made available using Google Maps and currently lists almost 2500 languages[12] (compared to 600 languages in the 2006 edition, which was developed offline). It raises awareness about the need to safeguard the world's linguistic diversity among policy-makers, speaker communities and the general public.

38. In the context of the public-private partnership between UNESCO and Daimler Chrysler, *Mondialogo* encouraged global dialogue between young people from diverse cultural, religious, and linguistic backgrounds to put into practice the principles of UNESCO's *Universal Declaration on Cultural Diversity* (2001), thus encouraging them to develop new approaches to intercultural learning.

Challenges and emerging issues

39. UNESCO's current programmes in the field of culture demonstrate how the Internet is enhancing and preserving cultural diversity and encouraging quality research on multilingualism. The next billion online will accentuate the need for local language content, and will likely further diversify the Internet content ecosystem. There is a need for comprehensive and appropriate language approaches and policies, which build a clear picture of the use of any language in its specific context (value system, community, intellectual property framework, etc). Financial resources, technical skills and expertise as well as political determination are needed to promote languages on the Internet, and the Internet can be an efficient tool both in multilingual content transmission as well as in assisting in language use assessment, monitoring and learning.

40. It is important to note that securing a place for language on the Internet, also means ensuring its presence offline: language revitalization initiatives should include terminology standardization, a range of measures in education systems, intergenerational transfer of language, positive attitudes by communities towards their own languages, and access to a critical mass of qualitative content available through various communication channels (not only on the Internet, but also education, theatre, music, cinema, radio, books, TV, etc).

[10] Source: UNESCO 2008: Securing a Place for a Language in Cyberspace, Marcel Diki-Kidiri.

[11] Source : http://www.internetworldstats.com (accessed March 2011)

[12] 2473 languages listed in April 2011 http://www.unesco.org/culture/languages-atlas/

41. The advent of file sharing and illegal downloads facilitated by the Internet has undermined the traditional income streams of creative industries. The impact was first seen in music and not only led to the collapse of a number of eminent music publishers/distributors (eg. EMI) but also to the emergence of new and legal methods of monetizing downloading (eg. iTunes). As broadband capabilities increase, these trends have moved to film and other visual media. Consumers have growing expectations that all content should be available on-demand from any connected device (TV, mobiles, etc) and are more and more accustomed to free content readily available online for downloading or streaming. Broadcasters, magazines, content producers, and also connectivity providers, struggle to retain their existing customer bases and attract new users and are constantly attempting to reinvent their existing business models and deliver value-added services, such as better quality content. The growing consumption of online content turns advertising, promotion, and marketing strategies towards the Web, entailing a significant shift in the source of revenue for many cultural industries.

42. UNESCO needs to understand the impact of the Internet on creativity, especially in developing countries. It may become more difficult for new artists to break out, and financial rewards for creativity may be further diminished. Alternatively, a restructuring of the creative industries may lead to new forms of monetization, and social networks can create a new channel for artists, which might tend to benefit those from developing countries by providing a more level playing field. Member States will require advice on devising appropriate and balanced policies and measures taking into account all stakeholders (content producers, users, public authorities) and actions (awareness, business/price models, new distribution systems, alternatives to traditional intellectual property systems, etc). Foreseeing an expansion of broadband access, developing countries' digital strategies should take these challenges into account and find ways to stimulate local cultural industries to take advantage of new digital distribution platforms and create incentives for content developers. Lowering the cost of access to the Internet (broadband connectivity) and encouraging the creation of local products created by cultural industries (theatre, music, cinema and others) are essential steps to promote cultural diversity.

e) Access to Information and Knowledge

43. Access to information and knowledge is a prerequisite of building inclusive knowledge societies, and the Internet holds promise for the acceleration of access to information and knowledge for all. The right to seek, receive and impart information is an indispensable corollary of the right to freedom of opinion and expression (Article 19 of both the 1948 *Universal Declaration of Human Rights* and of the 1966 *International Covenant on Civil and Political Rights*). Access to Internet, although not a right in itself, is therefore fundamental in the realization of these two interconnected rights.

44. There is a close link between access and education, and several Member States have responded by channelling their investment in ICT infrastructure through public education institutions, including those in rural areas. Libraries and archives continue to have a distinct role in supporting development at all levels, including education and training, and notable successes supported by UNESCO, such as the *Library of Alexandria* and the *World Digital Library*, exemplify new opportunities created by the Internet that open up access to information and knowledge on a scale that was not possible before. Access to information has also been facilitated in collaboration with Member States through various interventions, including the creation of *community multimedia centres* (CMCs)[13] and the encouragement to invest in infrastructure and conducive policy frameworks.

[13] CMCs were fostered as a model that provides not only for collective access at the community level, but also for the communication and the contextualization of information gleaned from the Internet using radio as a intermediary medium, including for overcoming language barriers.

45. The Internet can provide for affordable distribution on a massive scale, and is therefore an ideal tool to facilitate access to freely available information (with due regard to intellectual property and other legal and ethical concerns). Examples of UNESCO's contribution in this sphere include the policy guidelines for the development and promotion of governmental public domain information. The *Open Educational Resources* programme and the *Open Access* programme promote open access to educational materials and to peer-reviewed scientific research respectively via the Internet, free of charge. UNESCO works both top-down (through policy-makers) and bottom-up (through training and capacity-building in partnership with NGOs, civil society organizations, professional organizations, etc). Free access is also provided to the Organization's own knowledge resources. 191,000 bibliographic records have been documented since 1946, and these are accessible without cost, as well as the full text of most documents, publications and articles (comprising some 90,480 items and growing daily). A reference service is available by email to all interested in the Organization.[14]

46. In working towards inclusive knowledge societies, UNESCO focuses on developing inclusive policies for empowering indigenous and marginalised communities, minority groups, youth, marginalized women, and women and men with disabilities, to be able to access and actively participate in the spread of knowledge on the Internet. Within this context, and in collaboration with other UN and private and public sector partners, the ITU and UNESCO launched the *Broadband Commission for Digital Development* at the 2010 WSIS Forum. The purpose of the Commission is to advocate for broadband as a tool of development that will benefit both girls, boys, women and men, to define strategies for accelerating broadband rollout worldwide, and to promote applications that can improve the delivery of a wide range of services. UNESCO's places special emphasis in this context on the delivery of local and multilingual content and applications through broadband networks, to promote cultural diversity, access for all, and to bridge the linguistic divide on the Internet.

47. Young people are often at the forefront of technological innovation and are among society's most dynamic groups. They are also among the most vulnerable and disproportionately affected by difficult social and economic conditions. Through its *Youth and Information Programme*, UNESCO is exploring the natural affinity between youth and the Internet to promote universal access to information, local content production and international cooperation. This action will assist policy makers through sharing of knowledge and good practice on youth policies, and should bring many ancillary benefits which support UNESCO's wider strategic objectives (eg. cultural and linguistic diversity, fostering a culture of peace).

48. The international debate on information ethics *(Info ethics)* addresses the ethical, legal and societal aspects of the applications of information and communication technologies. Ethical principles for knowledge societies derive from the *Universal Declaration of Human Rights* (1948) and include the right to freedom of expression, universal access to information, particularly that which is in the public domain, the right to education, the right to privacy and the right to participate in cultural life. Along with the benefits of a digitally-connected world come the threats of misuse and abuse. Some countries are building mechanisms to protect their people against these risks, for example to ensure the safety of children on the Internet, but clearly a lot more needs to be done globally to address the ethical implications of the information society.

49. Since 1997, UNESCO has sponsored info-ethics debate among specialists and decision-makers to address the ethical dimensions of knowledge societies, info-ethics being one of the five priorities of UNESCO's *Information for All Programme* (IFAP). Action along several lines to promote info-ethics includes the promotion of freedom of access to official information and

[14] library@unesco.org

notably to governmental public domain information; the integration of info-ethics into mainstream discussions on ethics; awareness-raising on the ethical dimensions of the use of ICTs; the encouragement of research on the ethical dimensions of ICTs; and training on info-ethics. At the request of several Member States, the Organization contributed to the drafting of a Code of Ethics which is currently under examination by an IFAP Bureau-appointed Working Group. On the basis of intersectoral collaboration, the *World Commission on the Ethics of Scientific Knowledge and Technology* (COMEST) will add value to this process by ensuring an effective connection between the technical and social and human science perspectives.

Challenges and emerging issues:

50. Information is accessible through the Internet almost without limits, providing a cause for concern for policy–makers with regard to the spread of disinformation and illegal or malicious content. UNESCO can respond to this challenge by advocating education, awareness-raising and gender-responsive capacity-building for media and information literacy that can provide users with the ability to assess the quality and reliability of Internet content.

51. Building on this, information and knowledge should not be regarded solely as one-way flows from producers to users. Harnessing the full potential of the Internet for positive social change requires new concepts of, and mechanisms for, knowledge *coproduction*, associating users with upstream processes, and the mobilization of scientific knowledge for policy purposes is of particular significance in this regard.

52. A related issue concerns the potential abuses of data-mining where machines retrieve data intended to be private, or consolidate masses of data in ways in which the originators could not, or did not foresee. Distinguishing genuine issues of cybercrime and security from the exercise of the basic human rights of access to knowledge and freedom of expression may be expected to become increasingly complex.

53. Issues relating to the commoditization of information and knowledge are increasing and will continue to do so. The main concern is to ensure access to knowledge as a public good, while at the same time protecting intellectual property rights holders and other legitimate owners of information from unauthorized use of that information. Despite the strong development of Open Access and Free and Open Source Software movements, which aim to fairly redistribute the costs of information rather than to eliminate them, most up-to-date knowledge is still only accessible to those who can afford to access it, the majority of whom are men. As an example, the complex bundle of private rights related to the digitization and/or dissemination of publicly-funded research, or of cultural heritage, may inhibit access to information of public concern through the Internet.

54. As library and archive roles are changing, there emerges a need for developing new skills and redefining the role of the libraries in the future and the professional profile of information managers. While books will continue to play a significant role in the education and development of human society, books delivered in digital formats such as e-books and other open formats on the Internet make it possible to deliver libraries in a box to developing countries. E-book readers can also use portable devices like smart mobile phones and hand-held e-book readers, which can hold a large number of books and which can serve as a cost-effective provision of books in developing countries. What is more important is that these developments can also potentially support environmentally-sustainable access to knowledge.

55. The trans-border nature of the Internet creates regulatory and enforcement challenges. As Internet use spreads, the question of the role of Internet Service Providers (ISPs) emerges, in particular in relation to the standards of behaviour and professionalism expected of them in the areas of individual privacy, and their responsibility (or not) for illegal or malicious content carried on their networks. Concerns about the potential liability of illegal content tend to

inhibit the free flow of information, as ISPs choose to remove contentious - but legal- content for fear of incurring liability.

56. The presence of marginalized and vulnerable populations (eg. minority groups, the illiterate, women, persons with disabilities, etc) accentuates the need for inclusive policies that take into account the online rights and access needs of all people.

f) Freedom of Expression, Democracy and Peace

57. The WSIS Tunis Commitment recognises that "*freedom of expression and the free-flow of information, ideas and knowledge are essential for the Information Society and beneficial for development"*.[15] Freedom of expression is also highlighted by the Organization as a key component for the establishment of democratic processes. In this context, UNESCO's role is to advocate the continuing development of the Internet as a global public resource that is open to everyone.

58. UNESCO has taken a lead role in fostering Internet governance workshop discussions regarding freedom of expression and freedom of information on the Internet. An in-depth report on "*Freedom of Connection-Freedom of Expression: the Changing Legal and Regulatory Ecology Shaping the Internet"* (UNESCO 2011) was developed on the basis of discussions at the 2010 Internet Governance Forum (IGF), tracking Internet legislation and policy-making in the field of freedom of expression. The Organization has also been active in the field of freedom of information, as a corollary of freedom of expression. Member States can proactively make information available to their citizens and use Internet portals to respond to public information requests in a timely, affordable and efficient manner, thus enhancing transparency, access to government, accountability and public participation in policy and decision-making. Many governments have experienced the benefits of proactive information disclosure supported by freedom of information legislation, setting up mechanisms to respond to freedom of information requests electronically. UNESCO is also ensuring that women's organizations are brought on board to further promote freedom of information, particularly in developing countries, also fostering awareness among other stakeholders on the relevance of freedom of information for women's rights.

59. Internet-based applications, and in particular the emergence of social networks, user-generated content, and micro-blogging have introduced new patterns of communication, breaking down language barriers and enabling new forms of creative expression for democratic discussion, civic participation, intercultural dialogue and peace building. This phenomenon is blurring the distinction between citizen reporters and bloggers and media professionals, challenging the traditional self-regulatory professional norms that are assured through the process of editorial accountability. UNESCO promotes media accountability through assistance for the establishment of self-regulatory systems, including codes of ethics for journalists, press councils and news ombudsmen. UNESCO also promotes the discipline of verification within journalism education, for example by using the Internet to produce fast, flexible, free online resources (eg. UNESCO's "*one stop shop*" of searchable online information on media accountability in Africa).

60. Action to promote a culture of peace is founded in UNESCO's constitutional mandate to "*build peace in the minds of men*", and the Internet's networking potential has also been harnessed by the Organization for this purpose. One such example is the *Power of Peace Network* (PPN) which aims to engage and inspire young people as agents of change in the prevention, resolution and containment of conflict. The PPN online component's long-term aspiration is to be become an interactive repository and facilitator which enables peace-building efforts to flourish through the use social networking tools (including video streaming

[15] World Summit on the Information Society *Tunis Commitment*, 18th November 2005

and wikis). [16] In a similar manner, the *GigaPan Dialogues* seek to promote understanding between cultures and create a greater sense of community through an exchange of explorable, high-resolution digital imagery among students.

61. Building on the successful experience of Mondialogo, a public-private partnership linking schools and 90 000 students in over 160 countries, the Associated Schools Project Network (ASPnet) site could also include more interactive materials for the promotion of global cross-cultural interaction amongst young pupils via the Internet, to further the role of schools and teachers as navigators for peace and agents for positive change.

Challenges and emerging issues:

62. In the area of mass communication, the Internet presents an excellent opportunity to access a huge variety of audiovisual goods, as well as Internet versions of traditional media. It provides new means of communicating and interacting "live" and beyond the national borders. The growth of user-generated content offers new opportunities for the enhancement of freedom of expression, democracy and peace, and UNESCO should continue to defend the premise that freedom of expression also applies to online, converged media, as well as to traditional media.

63. Social networks can provide a rapid medium for news stories (eg. via Twitter) and amateur comments on professional blogs that create dialogue between journalists and the public. Within this context, a deeper understanding is required of what it means to be a media professional in the new environment, the effect of immediate user feedback on journalism (eg. comments on journalistic articles), and the extent, if any, to which these phenomena alter traditional roles and paradigms.

64. The Internet is also accelerating the pace of convergence between the regulatory and legal environments of telephony, broadcast and Internet communications, which were previously technologically different. This creates a need for policy-makers to understand the regulatory implications of such convergence, and whether they should lead to the translation of broadcast norms into the Internet sector, or a rethinking of the way that communications as a whole are to be regulated.

65. Public and policy-makers' expectations about access to information, rights and privacy are also being affected by developments in the Internet realm. Emerging issues include whether patterns of Internet use (eg. the size of social networks controlled by single providers) are impacting on individuals' human rights and privacy, and the close, direct relationships between some governments and Internet giants, particularly if these undermine due legal process.

66. Freedom of Information provisions for government information should continue to be increasingly implemented as democracies mature and as Internet connectivity expands. National policy debates relating to Freedom of Information have often taken place in silos, and could benefit from greater interaction with freedom of information and open access advocates. It is also key to ensure that women's organizations and networks are brought on board to further promote freedom of information, and to foster awareness on the relevance of freedom of information for women's rights among other stakeholders. Sustainable development is inconceivable unless women are empowered through access to information on issues key to their well-being and rights, and through equal responsibilities in media organizations and other information gatekeepers. Increased access to information by women would also strengthen involvement in conflict resolution and peace-building processes, as well as reconstruction efforts.

[16] http://www.thepowerofpeacenetwork.com

67. An increasing challenge for governments is how to respond to illegal Internet content. One needs to look at the trend to move towards the tighter control and regulation of ICT services as it becomes clearer that ICTs empower citizens to access information almost immediately, increasing the demand for accountability. Knee-jerk responses of censorship, filtering or deletion of content might create “collateral damage” thus affecting freedom of expression, and damaging democracy and good governance. A key element of appropriate response is quality education, and information and media literacy.

g) The Preservation of Digital Heritage

68. Digital heritage comes in a variety of formats (eg. text, database, audio, film, images, etc) and is a major source of knowledge. However, there is poor understanding of the resources required to generate and ensure permanent access to digital heritage, as well as of the risks of disappearance, particularly for commonly used forms of digitally-born information such as email and websites. The digitization of historical documents is a complex and costly process, and frequently involves the physical restoration of the original. UNESCO recognises that access to digital information must be ensured in spite of technological obsolescence and changes in technical architecture, legislation and commercial applications, in order to reconcile economic interests and the public good. UNESCO’s strategy for the promotion of the concept of digital preservation is centred on consulting with governments, policy-makers, information professionals and producers, and heritage institutions, on disseminating technical guidelines and on implementing the 2003 *Charter on Preservation of Digital Heritage*.

Challenges and emerging issues:

69. The preservation of information is a social and cultural process that raises complex questions as to which materials should be kept for the future, the means of preservation, how to navigate legal rights associated with each object. If no action is taken, there is a risk that an increasing proportion of information will be lost forever, or, as technology moves on, will become impossible to access without the original programmes and hardware.

70. The challenge of digital longevity resides in maintaining access across technological developments, at the same time that the growth of social media is rapidly creating new forms and formats of knowledge. Key obstacles include the cost of the digitization process, which is often prohibitive in developing countries and capacity building in digitization and publishing of content, including rights management. Few countries authorize copying of copyrighted digital content for preservation purposes except under highly restrictive conditions. Effective policies are needed that provide for legitimate rights of access for the preservation of digital memory. UNESCO is in a position to mobilize partners such as governments, libraries, archives, publishers and ICT industry bodies to debate fundamental issues, such as who pays, who preserves, what is preserved and under what conditions.

71. At present, there is no single long-term solution to the issue of digital preservation, but understanding its complexities has contributed to the exploration of strategies for collaboration and partnerships. Indeed, UNESCO’s ‘*Guidelines for the Preservation of Digital Heritage’* (2003), state that "*working collaboratively is often a cost effective way to build preservation programmes with wide coverage, mutual support and the required expertise*".[17] Since individual heritage institutions are unlikely to be the legal owners of online heritage material, or to have the full range of resources needed for its preservation, this responsibility will need to be shared with third-party services. The formulation and implementation of a successful policy will rely heavily on the involvement of various stakeholders as partners in devising stable standard digital formats, appropriate legal frameworks, and a broad awareness of the role of digital heritage in sustainable development.

[17] Guidelines for the Preservation of Digital Heritage, UNESCO 2003, p.24

V. The Way Forward

72. This section draws on the issues outlined above, putting forward recommendations for future action. Meeting the challenges of organizational readiness requires resources, as well as cooperation across the Organization and close collaboration within its networks. Focus should be placed on areas of UNESCO's competence to achieve optimum impact and to avoid duplication with other UN agencies. UNESCO's guiding principles for all actions should be:
    - *The concept of building knowledge societies* and its four underlying key principles: freedom of expression, quality education for all, universal access to information and knowledge, and respect for cultural and linguistic diversity.
    - *Reaping the benefits of inter-sectoral collaboration, close partnerships with governments and other stakeholders* to deliver on complex priorities in the fields of education, the sciences, culture, and communication and information.

73. For policy-makers, discussions about the Internet are no longer exclusively about technology, but embrace all aspects of society. As they struggle to address the issues of illegal or harmful uses of the Internet, it is important that UNESCO continue to advocate information and media literacy, and the responsible use of the Internet that supports Article 19 freedoms[18], to discourage actions that could have a potentially adverse impact on the free flow of information.

74. UNESCO needs to assist policy-makers in understanding and navigating the collisions of national laws and the trans-border nature of the Internet, especially in the absence of international regulations on adverse uses of the Internet. Initial interventions could be to foster mutual understanding, highlight good practices.

75. In all of these activities, it is important to mobilize the best thinkers worldwide to include long-term previsions and foresight, regularly checked against actual developments and trends, to ensure optimal relevance and to reduce risks of having to backtrack in the face of unforeseen technological or social developments.

a) Research and Normalization:

76. To ensure wise policy decisions in an area as complex and changeable as the Internet, and in order to anticipate future developments, an evidence-based approach is required. Despite the abundance of information available on the Internet, there are also surprising gaps in many areas within UNESCO's competence, where an understanding of the Internet's impact is incomplete, and further research is necessary. In some cases, this research may require or lead to concomitant normalisation efforts.

77. Areas highlighted are:
    - **Understanding the advances in the Internet environment:**
        - How to maximise the benefits and minimize the risks of cloud computing for developing countries
        - The impact of Free and Open Source Software on Internet applications in education, science, culture and communication, especially in regard to the gender-divide in FOSS in both developed and developing countries

[18] Article 19 of the Universal Declaration of Human Rights (1948): *"Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers"*

- Development of actions and priorities to strengthen UNESCO's working methods through the use of the Internet, learning from good practice within the Organization
- The environmental trade-offs of Internet use and how they can be minimalized

- **Access to information and knowledge:**
  - Given the immense divide in Internet access for the least developed countries, particularly in Africa, how to make full use of the "low-tech" mobile phone technology which is now available to almost everyone
  - Measuring and reaching online populations of vulnerable or marginalised users, both women and men, including persons with disabilities
  - The impact of proactive rather than reactive publication of government materials, thus enabling the development of new and innovative value-added information services, enhancing e-governance and strengthening citizen participation in governance
  - Best practices in digital preservation, including born-digital information, and the digitization of cultural and documentary heritage

- **Education:**
  - The impact of ICTs on traditional educational paradigms and relations between teacher and learner
  - The evolving roles of non-formal, informal and for-profit education on the Internet, especially for women
  - The impact of cyber bullying on school-age children, particularly girls

- **Natural Sciences:**
  - Innovative approaches for using the Internet and mobile communication technology in research in developing countries for:
    - Formulating non-duplicating and comprehensive research proposals,
    - Recruiting social networks and citizen scientists, both women and men, for cost effective data collection eg. by applying mobile device cameras and GPS,
    - Distributed data processing eg. by sharing processing power in computers networked in grids via the Internet,
    - Sharing of research results through Open Access databases and digital libraries, and
    - Opportunities for cooperative research project management and implementation in South-South and North-South contexts.

- **Social and Human Sciences:**
  - The ethical dimensions of Internet use in the fields of education, the sciences, culture, and communication
  - The impact of the Internet on women's and men's patterns of communication, information processing and learning
  - The impact of the Internet and of social networks, and subsequent innovative approaches using such technologies to enhance the following areas:
    - Political and civic participation, especially of youth
    - Participatory democracy
    - Social cohesion and social transformations
    - Production and dissemination of social and human science knowledge
    - Improved access to context-sensitive social research; stemming the North-South knowledge divide
- **Culture:**
  - How social networks and changes in the structure of artistic industries are affecting cultural expression, including the emergence of new art forms, with a special focus on female artists

- Extension of existing work on tracking the growth of multilingualism to explore ways of enhancing its benefits, and on monitoring usage of languages in e-mail, chat and on websites
- The drivers for local language content, including regulators, infrastructure and availability and use of technological tools in local languages

- **Media practice and consumption:**
  - The implications of new digital platforms for the future of print and broadcast media and for the reading culture
  - Media literacy strategies available for multi-stakeholders in the context of web 2.0
  - Community media for disaster preparedness

- **Freedom of Expression:**
  - The impact of the Internet and of social networks on freedom of expression and privacy (focusing on human rights including women's rights, and legal issues)
  - Enhancing the development of the Internet and social networks as platforms for democratic discussion and civic participation for women and men alike.

b) Capacity-building:

78. UNESCO's continuing role in capacity-building is of particular importance, notably for the development of gender-responsive toolkits and methodologies which empower policy-makers, educators and other key development actors to adopt measures to suit their local environments.

79. Such activities and tools could cover:
- Policies orientated towards digital and information literacy to compliment access, focusing on the need for education, training and capacity-building to minimise the harm of malicious or illegal Internet content and to encourage the optimal use of the Internet.
- Assistance to Governments in navigating the legal rights relating to publicly funded materials, in order to increase access to information of public concern, paying special attention to the concepts of Open Access and Open Educational Resources.
- The development of gender-sensitive policies, training and guidelines for public officials regarding the proactive disclosure of public information through the Internet, and for the development and effective implementation of online portals to manage freedom of information requests.
- Strengthening training and capacity-building in formal and non-formal education through specific ICT training modules, including on the use of new technologies for distance learning programmes. Peer-to-peer education equally plays a vital role in this respect and should be promoted.
- Applying the virtual laboratory/"*collaboratory*" concept to contribute to development related and "citizen" research, taking advantage of newer technologies such as Web 2.0 tools, Web 3.0, GPS and mobile broadband.
- Promotion of ethical principles and democratic and gender sensitive values among young users of the Internet.
- Promotion of a universal code for developing software accessible for persons with disabilities, and applications to adapt those already existing.
- Building capacity to generate knowledge and public domain content in cyberspace at the local level and in local languages.
- Development of automatic translation tools, to encourage multilingualism within a single Internet space.
- Digital preservation, through development of tools and methodologies which better suit the needs of developing countries, with special reference to Africa.

- Enhancing and preserving access to born-digital information, including data currently available on UNESCO's website, to ensure that it remains accessible to future generations. Possible solutions could include encouraging the development of standard interfaces (APIs) to facilitate platform-agnostic data sharing.
- Application and adaptation of media accountability systems based upon voluntary self-regulation mechanisms in a media context deeply changed by the increasing relevance of the Internet

c) Working through UNESCO's Networks and Partnerships:

80. As the scope of the issues related to Internet governance increases, and pressure on financial resources intensifies, no single organization can cover all areas alone. UNESCO has a history of building and leveraging networks, and has been using the Internet to enhance its work in this regard. The Organization can offer its networks and expertise to other Internet governance organizations and it is critical that opportunities for multi-stakeholder, multidisciplinary partnerships are actively sought.

81. Specific actions could include:
    - Continued advocacy for the use of broadband for development within the framework of the *Broadband Commission for Digital Development*, a joint ITU-UNESCO initiative.
    - Strengthening multi-stakeholder and inter-sectoral collaboration for building inclusive knowledge societies, and for maintaining, increasing and diffusing knowledge.
    - Exploring ways of widening dialogue on Internet issues within UNESCO's mandate to include all actors (including large private sector endeavours) whose actions have significant impact on Internet use, trends and behaviours.
    - Advocacy work with policy-makers and specialized NGOs to advance practical solutions to assist marginalized women, the elderly and persons with disabilities to fully benefit from the Internet.
    - Promotion of dialogue between advocates of freedom of information and of open access to assist policy-makers to develop standards for information which should be proactively disclosed by governments.
    - Stimulation of online networking for the promotion among youth of the values of inter-cultural dialogue, tolerance, non-discrimination and peaceful co-existence, as well as for community building, eg. for out-of-school or marginalized youth, especially girls.
    - Leverage and enhancement of existing scientific and other expert networks, including good practices in online participation tools.
    - Development of networks involving Internet Service Providers in order to support freedom of expression on the Internet, and to develop standard approaches to harmful content, in line with the principles of UNESCO's core mandate.
    - Reinforcing UNESCO's support for development in the area of Internet capacities and usage, working as a neutral facilitator with funding partners, including the private sector, to help developing countries to practically apply feasible and useful innovations.

Conclusion

82. The Internet is the technology of the future, and trends over the past ten years support the conclusion that issues of access to the Internet will diminish, bringing questions relating to the use of the Internet to the fore in all regions of the world. Internet development and Internet governance have therefore reached a point of transition, and UNESCO is well-placed to play an active role in this transition, to help to provide answers to the complex challenges and opportunities which arise. As the Internet becomes ubiquitous, it will offer opportunities for human development that will enhance the fields of education, science and culture. At the same time, the borderless nature of the Internet will likely continue to create tensions with national systems of legal regulation and societal norms.

83. Overall, the Internet's development can be seen as moving squarely into the core areas of UNESCO's mandate, promising potential for the free flow of ideas by word and image, and for fostering the generation and diffusion of knowledge. UNESCO's focus should be to assure universal access to information and knowledge and work to continuously enhance the benefits of the Internet, for women and men alike, to understand the impact of the Internet in its areas of competence. Within this context, the empowerment of marginalised communities (eg. minority and indigenous communities, the illiterate, women and girls, persons with disabilities, etc) is of particular importance. At the same time, the Organization should continue to develop its action to empower all individuals through media and information literacy as a crucial instrument in the bridging of the digital divide.

84. The overarching objectives of the Organization and its two global priorities, Africa and Gender Equality, have natural synergies with the Internet, and the Internet can thus be considered as instrumental in contributing to the fulfilment of UNESCO's mission as a whole. UNESCO therefore has a distinct opportunity to play a prominent role in unleashing the Internet's potential for development to contribute to the building of inclusive knowledge societies.

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