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Educational, Scientific and  
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## REFLECTION AND ANALYSIS BY UNESCO ON THE INTERNET

### SUMMARY

In accordance with Executive Board decision 185 EX/42, UNESCO initiated a reflection and an analysis, in the context of its existing programmes, on all aspects of the Internet, bearing in mind its effects on the daily behaviour of individuals, media and information professionals as well as policy-makers. This report illustrates UNESCO's use of the Internet in the Organization's fields of competence, highlighting the challenges and emerging issues arising from the fast-changing Internet environment, and pointing towards recommendations for UNESCO's future action. Background information on UNESCO and the use of the Internet in its domains of competence is provided in document 186 EX/INF.11.

There are no financial and administrative implications.

Action expected of the Executive Board: decision in paragraph 42.

## Background and Context

1. The Internet has developed rapidly from its early origins as a scientific network. The past five years have seen significant growth in infrastructure and mobile access, especially in developing countries, bringing the estimated number of global Internet users to 2.08 billion by the end of 2010. New phenomena include social networking and cloud computing. Social networks are vast in scope, with Facebook for example claiming 500 million users, half of whom access the network every day. Through expanded access to and the sharing of information, the Internet offers tremendous potential to assist UNESCO in achieving its goals, in building a culture of peace and in fostering inclusive knowledge societies.

2. However, the Internet also presents several challenges. The digital divide exists not only between cities and rural areas, but cuts across gender, age, race, education and economic conditions. At the same time as the Internet opens up unparalleled opportunities for access to information and knowledge, freedom of expression and the free flow of information, there are concerns about the negative uses of the Internet, misinformation, privacy and security, and the exploitation of vulnerable people, including women and youth. The capacity of users to make effective and ethically responsible use of emerging technologies is not guaranteed by the technologies themselves: it is a crucial dimension of citizenship and social inclusion in the digital age.

3. As the Internet-related debate reaches a point of transition, moving progressively from issues of infrastructure to those of actual Internet use, UNESCO should prepare and position itself to play an active role in promoting and protecting universal values, human rights and the free flow of information, and help to build an understanding of the benefits and impacts of the Internet.

4. The context for this reflection is UNESCO's core mandate to build peace in the minds of men and women through education, the sciences, culture, and communication and information, including the principles of human rights, democracy, freedom of expression and access to knowledge. Given that potential activities relating to the Internet exceed the Organization's operational capacities, UNESCO should focus on priority areas pertinent to its core mandate and competencies, in which it can add value, rather than duplicating efforts of other agencies (e.g. in the sphere of security, cybercrime or technical standards). The cross-cutting nature of Internet issues requires UNESCO to make every effort to work continuously in an intersectoral manner and with other United Nations agencies and partner institutions, including the private sector.

### I. The Internet and Key Areas of UNESCO's Activities

#### (a) The Internet and Education

5. The Internet is already contributing to the achievement of Education for All (EFA) goals in terms of access to and the quality of education. UNESCO's extensive work in the Internet and education sphere spans policy, quality e-learning, teacher training, mobile technologies, media and information literacy, and innovation. Some examples of particular relevance are: the *ICT in Education Toolkit* which provides education policy-makers, planners and practitioners with a systematic process to formulate, plan and evaluate education development programmes enhanced by ICTs; *Open Educational Resources* (OERs) which allow teachers, learners, and education professionals to freely copy, adapt, and share their resources; and the *GigaPan Dialogues* which seeks to promote understanding between cultures and create a greater sense of community through an exchange of explorable, high-resolution digital imagery among students.

#### Challenges and emerging issues:

6. Once basic barriers to access are overcome, the Internet can enhance education through a variety of means, including open and distance learning, enhanced teaching methods, access to quality teaching and learning materials, and improved learner empowerment. This is, however, far

from being achieved in developing countries, which sometimes lack educational infrastructure, access to high-speed Internet and skilled resources.

7. A better understanding is therefore required of the disparities in Internet access. How might these disparities be overcome between urban and rural areas? How best can the Organization support teaching professionals in integrating the Internet in their pedagogical practices? How can UNESCO help to ensure the availability of quality content in local languages, or ensure that e-learning is fit for purpose, so that the quality educational process is enhanced?

8. 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. Furthermore, 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 among young pupils via the Internet, to further the role of schools and teachers as "navigators for peace and agents for positive change".

9. Understanding how individuals' self-learning and cooperative learning evolves outside official educational programmes, for example through online communities of practice and social networks, is a further challenge in this sphere. The growth of mobile phone users is significant, and the appropriate use of mobile learning (*m-learning*) to provide access to quality interactive education for all should therefore be further explored.

#### **(b) The Internet and the Natural Sciences**

10. The Internet offers unprecedented ease of sharing specialist information on a global scale, enabling instant communication of urgent information within targeted networks, for example UNESCO's regional tsunami early warning systems. Overall, the Internet can play an important role in disaster risk prevention and ensuring the sharing of humanitarian information in post-conflict and post-disaster environments. UNESCO's community multimedia centres (CMCs) are uniquely placed to function as platforms for such humanitarian information as they can ensure this is provided in local languages, and by people who have full knowledge of local needs and circumstances. Traditional scientific communities have insufficient human resources to tackle pervasive issues (e.g. biodiversity loss or climate change). The *Man and Biosphere* programme harnesses the power of the Internet through a web-based community platform enabling the exchange of information, know-how and good practices for the improvement of relationships between people and their environment.

#### **Challenges and emerging issues:**

11. An emerging issue is how to best mobilize scientific networks and leverage UNESCO's own role within them. Virtual laboratories or "collaboratories" may need to be refocused to take advantage of newer technologies including mobile broadband. Other specific challenges include the misuse or misappropriation of shared scientific data, and ethics training for science journalists. The high cost of scientific literature and restricted access is of growing concern, particularly for developing countries. While more journals are now available through Open Access, only 20% of all scientific publications are released with an Open Access license.

#### **(c) The Internet, Social and Human Sciences and the Ethical Aspects of Internet Use**

12. The Internet plays an integral role in the production and dissemination of information relating to the social and human sciences through UNESCO's online networks, e-Journals and platforms for research communities examining social transformation issues and challenges concerning the culture of peace and human rights. It also serves as an efficient online monitoring tool to facilitate follow-up of international normative instruments, including the International Convention against

Doping in Sport (2005). The Internet also serves as a tool to consult and engage youth, particularly through the *UNESCO Youth Forum* and to motivate municipalities globally, through the *International Coalition of Cities*, to publicize their efforts against discrimination.

13. The Organization reinforces relationships among ethicists, social scientists, policy-makers and civil society thus assisting Member States to enact 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.

14. Since 1997, UNESCO has also sponsored debate to address the ethical dimensions of knowledge societies. Info-ethics is one of the five priorities of UNESCO's *Information for All Programme (IFAP)*, through which work towards the drafting of a Code of Ethics for the Information Society is in progress. On the basis of intersectoral collaboration, COMEST will add value to this process to ensure an effective connection between technical and social and human science perspectives.

#### **Challenges and emerging issues:**

15. As more social and human science knowledge is made available through the Internet, there is a prevailing demand for sophisticated methods of accessing and analysing this knowledge 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 engine algorithms to analyse and transform knowledge, rendering it accessible to decision-makers. 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 UNESCO *Management of Social Transformations Programme (MOST)* policy research platform with enhanced semantic analysis.

16. The adoption of ethical standards is a key stepping stone in harnessing the potential of the Internet for sustainable development. It is, therefore, necessary to obtain a deeper understanding of the impact of digital information and communication technologies on our perceptions of social and human behaviours and needs.

#### **(d) The Internet, Culture, and the Preservation of Digital Heritage**

17. The Internet provides unprecedented opportunities for citizens to access digitized tangible and intangible cultural heritage, which serve as major sources of knowledge and cultural expression. A key priority for the Organization is to ensure that digitally born information remains accessible in spite of technological obsolescence. In this regard, the preservation of documentary and cultural heritage highlights three broad areas for UNESCO: the preservation of analogue and digitally born information; the preservation of tangible cultural heritage; and the preservation of intangible cultural heritage. Activities are centred on the implementation of the *2003 Charter on Preservation of Digital Heritage*, consulting with governments, policy-makers, information professionals, producers and heritage institutions, disseminating technical guidelines and good practices. Main programmes and initiatives for the digitization of tangible cultural heritage include the *Memory of the World Programme*, the *World Digital Library* and support for digital preservation of audiovisual archives. The preservation of intangible cultural heritage can be served by a multimedia approach, enabled by the Internet.

18. Multilingualism is of fundamental importance in promoting cultural diversity, and truly inclusive knowledge societies. Progress is being tracked on the *2003 Recommendation on the Promotion and Use of Multilingualism and Universal Access to Cyberspace*. Activities to strengthen multilingualism in cyberspace include cooperation with the Internet Corporation for Assigned

Names and Numbers (ICANN), research on methods for measuring linguistic diversity on the Internet, and the interactive *Atlas of the World's Languages in Danger*.

**Challenges and emerging issues:**

19. An increasing proportion of information risks being lost forever due to the deterioration of physical artefacts or carriers, disappearing intangible cultural practices and technological advances (digitally born documentary heritage may become impossible to access without the original software and equipment). The preservation of information is a multifaceted process that raises complex questions as to which materials should be kept for the future, how to identify criteria for the preservation of cultural objects and processes, the means of preservation, and how to strike the appropriate balance between the urgent preservation of cultural heritage and respect for legal rights. Obstacles include the cost of digitization processes, which is prohibitive in developing countries, and the lack of skills in the digitization and publishing of content, including rights management. Effective policies that provide legitimate rights of access for preservation are therefore needed and UNESCO can mobilize partners (governments, libraries, archives, publishers and ICT industry bodies) to debate the fundamental issues such as who pays, who preserves, what is preserved and under what conditions. At present, there is no universally accepted solution to the issue of digital preservation, but an understanding of its complexities can be furthered through strategies for collaboration and partnerships. The formulation and implementation of a successful policy will rely heavily on the involvement of all 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.

20. The next billion online will further diversify the Internet ecosystem, accentuating the need for content in vernacular languages. Comprehensive and appropriate language approaches and policies are also necessary to promote languages on the Internet, as well as financial resources, technical skills and political determination. The Internet can also be an efficient tool both in multilingual content transmission and language use assessment, monitoring and learning. An emerging challenge is the complexity of the interplay between multilingualism and the Internet. Paradoxically, as the goal of truly multilingual Internet is approached, there is a growing risk that the Internet could fragment along national, linguistic, cultural or political lines, undermining cultural diversity, mutual understanding and a culture of peace. UNESCO would need to carefully identify effective interventions that sustain the Organization's mission.

21. The advent of file sharing and illegal downloads facilitated by the Internet is changing the structure of cultural industries. An understanding is required of the impact of this phenomenon on creativity, and on the ability of culture professionals to breakout, especially in developing countries. Member States may require assistance in devising balanced policies and measures to stimulate local cultural industries that take advantage of new digital distribution platforms, and to create incentives for local content developers.

**(e) The Internet and Access to Information and Knowledge**

22. Access to information and knowledge is a prerequisite for building inclusive knowledge societies. Once barriers to Internet access are overcome, the Internet can provide affordable distribution of freely available information on a massive scale. UNESCO's main programmes and initiatives include supporting the *Library of Alexandria*, *World Digital Library*, *community multimedia centres* (CMCs), *OERs* and *Open Access* programmes. In working towards inclusive knowledge societies, UNESCO focuses on developing inclusive policies for empowering indigenous and marginalized communities, minority groups, youth, women, and persons with disabilities.

**Challenges and emerging issues:**

23. A major challenge is how to strike a balance between ensuring access to knowledge as a public good, and respect for intellectual property rights. Despite the strong development of Open

Access and Free and Open Source Software movements, most up-to-date knowledge is still only accessible to those who can afford access, at the disadvantage of those in developing and least developed countries.

24. Diverse formats (i.e. audio, video) can enhance access to information particularly for marginalized and vulnerable populations (e.g. minority groups, the illiterate, women, and persons with disabilities). However, such formats can also be bandwidth-hungry, excluding those with poor access. Cloud computing may offer benefits in this regard, especially in storing huge data files in multiple locations, and in saving bandwidth, pointing towards the potential for further exploration by UNESCO. At the same time, privacy issues relating to data storage in the cloud should be further studied and understood.

25. Emerging issues relating to libraries and archives include the need for developing new skills and the professional profile of information managers, and the redefinition of the role of libraries in future. E-books and mobile e-book readers offer significant opportunities for cost-effective access to information and knowledge in developing countries. The possibilities of libraries in a box using e-books may be explored for developing countries.

26. Furthermore, information and knowledge can no longer be regarded as one-way flows from producers to users. Harnessing the full potential of the Internet for positive social change requires new conceptions of, and mechanisms for, knowledge coproduction, associating users with upstream processes. The mobilization of scientific knowledge for policy purposes is of particular significance in this regard.

#### **(f) The Internet, Freedom of Expression, Democracy and Peace**

27. Freedom of expression, democracy and peace are at the heart of UNESCO's mandate. In accordance with its role in the follow-up to the World Summit on the Information Society (WSIS), UNESCO promotes these values e.g. through advocacy at the Internet Governance Forum, and through the publication of reports such as "Freedom of Connection-Freedom of Expression: the Changing Legal and Regulatory Ecology Shaping the Internet".<sup>1</sup> Other activities include high ethical and professional standards and media accountability based on self-regulation. UNESCO also advocates freedom of information to enhance transparency, access to government, accountability, women's rights to information, and public participation in policy and decision-making. Action to promote a culture of peace notably through the Power of Peace Network, engages young people as agents of change in the prevention, resolution and containment of conflict.

#### **Challenges and emerging issues:**

28. Social networks have enabled new forms of creative expression for democratic discussion and peace-building, bringing into play new means of communication and real-time interaction that go beyond national borders. These networks have played a significant role in recent popular movements. They also provide a rapid medium for news stories (e.g. through Twitter), and amateur comments on professional blogs create opportunities for dialogue between journalists and the public. This phenomenon is blurring the distinction between citizen reporters and bloggers, and media professionals, challenging traditional norms such as editorial accountability, and pointing to the need for a greater understanding of these changes in order to guide UNESCO's programme accordingly.

29. An increasing challenge for governments in an increasingly globalized environment is how to respond to illegal Internet content. Knee-jerk responses of censorship, filtering or deletion of content might create "collateral damage" thus affecting freedom of expression, damaging democracy and good governance. UNESCO's response should be to promote a legal environment

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<sup>1</sup> UNESCO Publishing, 2011.

that ensures freedom of expression, to support quality journalism education, media and information literacy and to further explore the international legal aspects of the use of the Internet.

30. The Internet is also affecting expectations about access to information, rights and privacy. Issues include how patterns of Internet use (e.g. the size of social networks controlled by single providers) are impacting on individuals' human rights and privacy, and the direct relationships between some governments and Internet giants, particularly if these undermine due legal process.

31. Another emerging issue is the role of Internet Service Providers (ISPs) whose concerns about potential liability for illegal content may inhibit the free flow of information, should they choose to remove contentious (but legal) content.

32. Other emerging issues include: the impact of converging communication media on legal and regulatory frameworks; encouraging greater interaction between freedom of information and open access advocates; and ensuring that women's organizations and networks are brought on board to further promote freedom of information to strengthen women's involvement in conflict resolution peace-building processes, and reconstruction efforts.

## **II. The Way Forward**

33. The developments of the Internet highlight a two-pronged opportunity for the Organization for the realization of its goals, underlining the instrumental role that the Internet can play in the spread of information and knowledge on the one hand, and in promoting the core values put forward by the Organization on the other. Taking up this opportunity requires resources, as well as strong intersectoral cooperation and close collaboration through the Organization's networks. Focus should be placed on areas of UNESCO's competence to achieve optimum impact and to avoid duplication with other United Nations agencies. In this regard, UNESCO's guiding principles for all actions should be its core mandate and values of building a culture of peace through the creation of knowledge societies based on freedom of expression, quality education for all, universal access to information and knowledge, respect for cultural and linguistic diversity.

34. For policy-makers, discussions about the Internet are no longer exclusively about technology, but embrace all aspects of society. In the context of illegal or harmful uses of the Internet, it is important that UNESCO continues to advocate media and information literacy and ethical aspects of Internet use that support Article 19 freedoms,<sup>2</sup> while discouraging actions that could have a potentially adverse impact on the free flow of information.

35. UNESCO is well-placed to assist policy-makers in understanding and navigating the collisions of national laws and the transborder nature of the Internet, especially in the absence of international regulations. Initial interventions could be to foster mutual understanding, including on ethical aspects, and to highlight and share good practices.

36. In all of these activities, it is important that UNESCO mobilizes the best thinkers worldwide to include long-term provisions and foresight that is regularly checked against developments and trends to ensure optimal relevance and to reduce the risk of backtracking in the face of unforeseen technological or social developments.

### **(a) Research**

37. To ensure evidence-based policy decisions as regards the complex and rapidly changing Internet: UNESCO will initiate and further promote research on aspects relevant to the Organization's areas of competence.

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<sup>2</sup> 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".

38. An information document<sup>3</sup> supporting this reflection paper sets out detailed recommendations for further research in areas of UNESCO's core mandate, including developing and sharing good practices, identifying criteria for urgency in the digitization of cultural heritage, the impact of the Internet on individuals' patterns of communication and learning, and the effects of social networking on democracy, political participation, peace-building, cultural diversity, freedom of information, social cohesion, social transformation and ethics.

### **(b) Capacity-building**

39. UNESCO's continuing efforts to build capacities are of particular significance, notably for the bridging of the digital divide through the development of gender-responsive toolkits and methodologies which empower policy-makers, educators and others to adopt measures suited to their local environments. Possible activities in this regard include the promotion of media and information literacy, the exploration of appropriate ethical responses (consistent with UNESCO's core mandate), automatic translation tools that encourage multilingualism whilst avoiding fragmentation, and the enhancement of access to digitally-born information, including data currently available on UNESCO's website.

### **(c) Working through UNESCO's Networks and Partnerships**

40. As the scope of the issues related to Internet governance increases, and pressure on financial resources intensifies, no single organization can hope to 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. UNESCO can offer its networks and expertise to other Internet governance organizations and it is critical that the Organization continues to proactively seek opportunities for multi-stakeholder, multidisciplinary partnerships. Recommendations for further action span subject areas including assistive technologies for persons with disabilities, using remote participation in Internet governance meetings, developing networks with Internet industry representatives to support access to information and knowledge and the production of multilingual and diverse content on the Internet, and developing standard responses to illegal content that support UNESCO's core mandate.

## **III. Conclusion**

41. The Internet is the technology of the future, and trends over the past 10 years support the conclusion that barriers of access to the Internet will diminish, bringing to the fore questions relating to the use of the Internet in all regions of the world. The Internet's development can therefore 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. The overarching objectives of the Organization (the building of peace, the alleviation of poverty, sustainable development, Education for All, creation and dissemination of knowledge, freedom of expression, and intercultural dialogue), and its two global priorities Africa and Gender Equality, have natural synergies with the Internet. The Internet can thus be considered as instrumental in contributing to the fulfilment of UNESCO's mission as a whole. UNESCO therefore has an opportunity to play a prominent role in unleashing the Internet's potential for development, to contribute to the building of inclusive knowledge societies and a culture of peace.

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<sup>3</sup> Background information on "UNESCO and the Use of the Internet in its Domains of Competence" is provided in document 186 EX/INF11.



#### IV. Draft Decision

42. In the light of the above, the Executive Board may wish to adopt a decision along the following lines:

The Executive Board,

1. Recalling 185 EX/Decision 42,
2. Having examined document 186 EX/37,
3. Takes note with interest of the reflection and analysis initiated by the Director-General, in the context of UNESCO's existing programmes, on all aspects of the Internet;
4. Decides to submit this report, together with the comments of the Executive Board and any other comments and observations that the Director-General may wish to make, to the General Conference at its 36th session for consideration