



*Civil Society Working Group
Scientific Information
<http://www.wsis-si.org>*

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V2

**Substantive contributions as material to synthesis
papers
in view of the first meeting of the
Internet Governance Forum**

Introduction: .These contributions are sent as material to be taken into consideration by the IGF secretariat that is going to prepare synthesis papers,

Our contribution is structured as follows :

- 1/ Introduction to Open Access**
- 2/ Presentation of WSIS recommendations of interest.**
- 3/ Commentaries on selected WSIS recommendations.**
- 4/ Contribution of UNESCO and Russia to the WSIS process.**
- 5/ Contribution of UNESCO 33C**
- 6/ Civil Society Statements and Declarations**
- 7/ Aspects relevant to Internet Governance.**
- 8/ Conclusions.**

1/ Introduction to Open Access

Openness has been selected as one the four main themes by [Internet Governance Forum \(IGF\)](#), for the [Internet Governance Forum 2006 event](#) (first edition, Monday 30 October - Thursday 2 November 2006, Athens,

Greece).

Our contribution may be understood under the overall theme of Openness as retained by the IGF for the second day, and in particular the issue of empowerment and access to knowledge.

As indicated in the Tunis Agenda, the task to *promote and assess, on an ongoing basis, the **embodiment of WSIS principles in Internet governance processes*** is included within the mandate of the IGF. Open Access is mentioned in the Geneva Declaration of Principles and Plan of Action as we shall see below.

First we are going to briefly present the overall issue of “Open Access”, then we are going to quote and comment related WSIS recommendations, and finally we are going to assess the relevant Internet Governance issues

The current prevailing situation is that scientists are donating their research accounts to scholarly journals. Accounts are then reviewed for free by fellow scientists (peer review) and most of the time, the Editor-in-Chief, as it is a prestigious position, is not paid, or with petty sums. However, the subscriptions to scientific journals is very expensive. This situation is the result of history (see for more info: [Oldenburg's Long Shadow, by J.C Guedon](#) -)

The current situation is absurd, in macro-economics terms, because the scientific community is donating content to publishers that are then reselling to the same community, the very same donated content at a very high price. An analogy can be made for limited illustration purpose with software : Let us imagine for a second that all programmers are paid by states, philanthropic organizations, or research companies, and they are donating their work for free to "publishers", and then that this software is resold, even to donors, at a very high price with no content modification except for a packaging that, most often, is not even appealing.

We are also underlining that Open Access would also benefit to small and large businesses that may access freely to scientific and technical information, and therefore, adoption of an Open Access policy is expected to spur economic growth and high tech employment. It is completely wrong to picture the Open Access movement as being anti-business as some publishers are trying to do.

The economic analysis that we used during some rather tense WSIS negotiations can be summarized as follow : Public authorities are funding research in the hope of generating an overall economic growth. It is well known from economics theory ([Keynesian economics](#)) that public expenditures can accelerate economic growth through a lever mechanism known as the Keynesian multiplier factor. It must be appreciated that the main output of Scientific Research is information. By imposing a high toll on information, the output of those public expenditures, the multiplier effect is much reduced. In other words, oligopolistic publishers, sucking the blood of public expenditures, are constituting a class of macro-economic parasites that are anti-business and anti-growth.

It must be underlined that Open Access issues cannot be reduced to another business model concerning journals, it is about searching for all

available avenues to achieve Open Access to research accounts & data. In this context, one should seek a better interaction between ITCs scientists and Open Access.

Issues must be evaluated both from the perspective of developing and transition countries as well as from the standpoint of industrialized nations. Developing and transition countries must be able to access to scientific information located in industrialized countries.

Awareness was raised, during the WSIS negotiations, upon the fact that Open Access is a prerequisite to sustainable development. Without a decent access to scientific knowledge, any able scientist and engineer is almost forced to flee to a country where such a decent access exists, therefore creating a brain drain which is an insufferable damage to nascent academic bodies that are the basis of a high quality education system. The brain drain also affects the pool of technologists that constitutes the reservoir of high tech entrepreneurs.

In industrialized countries, in contrast to developing countries, because the suffering was less acute, awareness in favor of Open Access is more recent. This awareness was spurred by the spiral of ever increasing subscription prices to restricted journals. With commercial publishers, the current situation can be understood as the result of an unfair market place. With a few learned societies, this can be understood if those learned societies see their publications as their main financial resource for maintaining an overabundant infrastructure, while adopting the somewhat unethical policy that free diffusion of knowledge is not their prime concern.

The current policy that the WSIS-SI recommends to authors is to follow an updated version of the so called Unified dual Open Access provision that has been advocated for years by the Open Access movement :

1/ Publish article in a open-access journal whenever one exists in the relevant topic (for a directory of existing OA journals : <http://www.doaj.org>)

or

2/ if an OA journal does not exist, publish article in a toll-access journal with a suitable copyright policy (<http://romeo.eprints.org/>) that allows open archiving.

and

3/ in all cases, archive a supplementary version of your article, in an institutional (university, funding agency, governmental) repository (<http://archives.eprints.org/>) if one exists, or any other existing repository (eg. personal web site), or resource (eg. P2P).

and

4/ Publish an account of the same research in a second disclosure open-access resource whenever one exists in the relevant topic.

The provision 4) is rather rhetoric at the present time, since it is new and no second disclosure resource (journal, archive, P2P) has been created yet.

Efforts made in favour of Open Access can be can also be accounted as contributions toward bridging the Digital Divide.

2/ Presentation of WSIS recommendations of interest.

As stated in the Tunis Agenda, the task to *promote and assess, on an ongoing basis, the **embodiment of WSIS principles in Internet governance processes*** is included within the mandate of the IGF.

Therefore it is of interest to review all relevant recommendations of WSIS dealing with access to knowledge and to further study their implications in terms of Internet Governance.

Therefore recommendations of interest are the following :

GENEVA DECLARATION of PRINCIPLES

B. An Information Society for All: Key Principles

3) Access to information and knowledge

24. The ability for all to **access and contribute information**, ideas and knowledge is essential in an inclusive Information Society.

26 **A rich public domain is an essential element for the growth of the Information Society**, creating multiple benefits such as an educated public, new jobs, innovation, business opportunities, and the advancement of sciences. Information in the public domain should be easily accessible to support the Information Society, and protected from misappropriation. Public institutions such as libraries and archives, museums, cultural collections and other community-based access points should be strengthened so as to promote the preservation of documentary records and **free and equitable access to information.**

28. **We strive to promote universal access with equal opportunities for all to scientific knowledge and the creation and dissemination of scientific and technical information, including open access initiatives for scientific publishing.**

C. Towards an Information Society for All Based on Shared Knowledge

67. We are firmly convinced that we are collectively entering a new era of enormous potential, that of the Information Society and expanded human communication. In this emerging society, information and knowledge can be produced, exchanged, shared and communicated through all the networks of the world. All individuals can soon, if we take the necessary actions, together build **a new Information Society based on shared knowledge and founded on global solidarity and a better mutual understanding between peoples and nations.** We trust that these measures will open the way to the future development of a true **knowledge society.**

GENEVA PLAN of ACTION

C. Action Lines

C3. Access to information and knowledge

10. ICTs allow people, anywhere in the world, to access information and knowledge almost instantaneously. Individuals, organizations and communities should benefit from access to knowledge and information.

h) Support the creation and development of a digital public library and archive services, adapted to the Information Society, including reviewing national library strategies and legislation, developing a global understanding of the need for “hybrid libraries”, and fostering worldwide cooperation between libraries.

i) Encourage initiatives to facilitate access, including free and affordable access to open access journals and books, and open archives for scientific information

C7. ICT applications: benefits in all aspects of life

14. ICT applications can support sustainable development, in the fields of public administration, business, education and training, health, employment, environment, agriculture and science within the framework of national e-strategies. This would include actions within the following sectors:

18. E-health

b) Facilitate access to the world’s medical knowledge and locally-relevant content resources for strengthening public health research and prevention programmes and promoting women’s and men’s health.

22. E-science

b) Promote electronic publishing, differential pricing and open access initiatives to make scientific information affordable and accessible in all countries on an equitable basis.

c) Promote the use of peer-to-peer technology to share scientific knowledge and pre-prints and reprints written by scientific authors who have waived their right to payment.

d) Promote the long-term systematic and efficient collection, dissemination and preservation of essential scientific digital data, for example, population and meteorological data in all countries.

e) Promote principles and metadata standards to facilitate cooperation

and effective use of collected scientific information and data as appropriate to conduct scientific research.

C8. Cultural diversity and identity, linguistic diversity and local content

23. Cultural and linguistic diversity, while stimulating respect for cultural identity, traditions and religions, is essential to the development of an Information Society based on the dialogue among cultures and regional and international cooperation. It is an important factor for sustainable development.

a) Create policies that support the respect, preservation, promotion and enhancement of cultural and linguistic diversity and cultural heritage within the Information Society, as reflected in relevant agreed United Nations documents, including UNESCO's Universal Declaration on Cultural Diversity. This includes encouraging governments to design cultural policies to promote the production of cultural, educational and scientific content and the development of local cultural industries suited to the linguistic and cultural context of the users.

b) Develop national policies and laws to ensure that libraries, archives, museums and other cultural institutions can play their full role of content—including traditional knowledge—providers in the Information Society, more particularly by providing continued access to recorded information.

c) Support efforts to develop and use ICTs for the preservation of natural and cultural heritage, keeping it accessible as a living part of today's culture. This includes developing systems for ensuring continued access to archived digital information and multimedia content in digital repositories, and support archives, cultural collections and libraries as the memory of humankind.

o) Governments, through public/private partnerships, should promote technologies and R&D programmes in such areas as translation, iconographies, voice-assisted services and the development of necessary hardware and a variety of software models, including proprietary, open source software and free software, such as standard character sets, language codes, electronic dictionaries, terminology and thesauri, multilingual search engines, machine translation tools, internationalized domain names, content referencing as well as general and application software.

TUNIS AGENDA

31. We recognize that Internet governance, carried out according to the Geneva principles, is an essential element for a people-centred, inclusive, development-oriented and non-discriminatory Information Society. Furthermore, we commit ourselves to the **stability and security of the Internet** as a global facility and to ensuring the **requisite legitimacy of its governance, based on the full participation of all stakeholders**, from both

developed and developing countries, within their respective roles and responsibilities. And

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72. We ask the UN Secretary-General, in an open and inclusive process, to convene, by the second quarter of 2006, a meeting of the new forum for multi-stakeholder policy dialogue called **the Internet Governance Forum (IGF).**

The mandate of the Forum is to:

a) Discuss public policy issues related to key elements of Internet governance in order to foster **the sustainability, robustness, security, stability and development of the Internet**

b) Facilitate discourse between bodies dealing with different cross-cutting international public policies regarding the Internet and discuss issues that do not fall within the scope of any existing body.

c) Interface with appropriate intergovernmental organizations and other institutions on matters under their purview.

d) Facilitate the exchange of information and best practices, and in this regard make full use of the **expertise of the academic, scientific and technical communities.**

e) Advise all stakeholders in proposing ways and means to accelerate the availability and affordability of the Internet in the developing world.

f) Strengthen and enhance the engagement of stakeholders in existing and/or future Internet governance mechanisms, particularly those from developing countries.

g) **Identify emerging issues, bring them to the attention of the relevant bodies and the general public, and, where appropriate, make recommendations.**

h) Contribute to capacity building for Internet governance in developing countries, drawing fully on local sources of knowledge and expertise.

i) **Promote and assess, on an ongoing basis, the embodiment of WSIS principles in Internet governance processes.**

j) Discuss, inter alia, issues relating to critical Internet resources.

k) Help to find solutions to the issues arising from the use and misuse of the Internet, of particular concern to everyday users.

3/ Commentaries on above selected WSIS recommendations.

Commentaries are needed to better appreciate the meaning of the texts, their extent as well as their legal and political consequences within the context of Open Access.

GENEVA DECLARATION of PRINCIPLES

The term win/win proposition has been present for a long time in the various drafts, but has been removed, possibly being too colloquial, and replaced by the term “digital opportunity for all”. Open Access may be identified as a

win/win proposition because it creates immediate benefits to transition countries, while providing long term savings to industrialized nations.

B. An Information Society for All: Key Principles

3) Access to information and knowledge

26 This importance of the public domain is recognized, and this implies that national regulations should not hinder its growth. The role of libraries and archives is underlined.

28. This is a key paragraph for Open Access. The term “strive” is a strong term that replaced “encourage” upon proposition of the Iranian delegation, after negotiation with the United States. The words “**including open access initiatives for scientific publishing**” are the results of the joint efforts of the WG-SI and the Croatian delegation that brought this language to the floor. Tense negotiations were conducted with the United States and the European Union delegation (then represented by Italy) to the effect of agreeing on a precise language that they would not veto. China and India were consulted also on the precise language.

CI.Towards an Information Society for All Based on Shared Knowledge

An interesting aspect of the summit is that progress a

process of the WSIS.

C3. Access to information and knowledge

10.

i) This paragraph is a key paragraph in explicit support to Open Access and was the occasion of an intense lobbying by the WG-SI and many diplomatic discussions. The initial text of this paragraph has been written by the WG-SI and has been included in the governments' draft at the end of PrepCom2 (Phase I). The text came under discussion during PrepCom3. The current text is fruit of the joint efforts by the Kenyan and Croatian delegations at PrepCom3B. The word "free and affordable access" may seem redundant at first glance, but it was added at the request of the representative from Sudan (at PrepCom3, during an *ad hoc* government working group where Dr. Francis Muguet was kindly allowed to assist.). It may be explained from the perspective of an access from a developing country, where the cost of communication and not just the free access to the server must be taken into account. The WG-SI also included books because accounts of scientific research are also reported in books. Support to the open archive initiative (<http://www.openarchives.org>) is also explicitly mentioned. Open archives constitute a crucial component of the Open Access movement, along with Open Access journals.

C4. Capacity building

It implies that national bodies are invited to finance Open Access Initiatives. An innovative Open Access initiative can certainly be construed as a pilot project involving news of forms of ICT-based networking, between and among developed and developing countries.

C7. ICT applications: benefits in all aspects of life

14. Open Access Initiatives may also be considered as ICT applications within the framework of national e-strategies.

18. E-health

b) The only way to truly facilitate access to the world's medical knowledge that is contained in scientific journals is that all medical journals should be open access. It is an urgent health matter, an international emergency. It is not exaggerated to state that people are currently dying because of the lack of open access that prevents many medical practitioners from accessing to updated or specialized medical knowledge.

22.E-science

This paragraph is a key paragraph where Open Access is explicitly supported several times.

b) The WG-SI has been very active in promoting Open Access in this paragraph

c) This recommendation is one of the most innovative of the Summit, on two aspects. This recommendation is relevant to Internet Governance.

d) As well as traditional books, digital data should be preserved. It would be appropriate to consider, in cooperation with National Libraries, to start a concerted effort to preserve scientific resources (journals, archives, data).

e) This recommendation, which is due to the lobbying of librarians, and IFLA in particular, is extremely important and is relevant to Internet Governance.

C8. Cultural diversity and identity, linguistic diversity and local content

23.a). It should be underlined that scholarly resources are not only used as a mean of information exchange within the academic community, but are also prime resources for educators and advanced students, and at this level linguistic diversity is a serious challenge. As it would be almost impossible to require each author to translate their works into several language, at least we can recommend that authors would do so in their mother tongue.

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23 o) This paragraph alludes technology and R&D programs, search engines and machine translation tools. It is interesting to mention the [Linguistic SWgTLDs](#) proposal see below in 7/

TUNIS AGENDA

72.

d) It must be underlined that the IGF is expected to benefit from the expertise of the academic community.

g) It quite interesting to note that the IGF can make recommendations on emerging issues, Digital Identifiers are constituting an emerging issue.

i) Open Access as an embodiment of one of the principles mentioned in the Declaration of Principles should be accounted for, within Internet Governance.

4/ Contribution of UNESCO and Russia to the WSIS process.

Before the Geneva summit, and significantly before the Tunis meeting, some international organization and governments organized a series of [Regional and Thematic Meetings](#) . A joint UNESCO-Russia thematic meeting “**UNESCO between two Phases of the World Summit on the Information**

Society" was held in Saint-Petersburg (Russian Federation, 17-19 May 2005). The final document of this meeting has been disclosed on August 09, and it contains detailed innovative "[Recommendations of the Conference to UNESCO](#)" (see also <http://www.wsis-si.org/unesco-russia05-recomm.html>) concerning the implementation of Open Access. :

We recommend UNESCO and other UN specialized agencies, as well as other public and private funding institutions in the world:

- *to concentrate their financial resources on supporting or implementing self-sustainable Educational, Scientific and Cultural Information systems without costly recurrent licensing fees, with the help of Open Access repositories as well as Free Software, Open Source, and proprietary Freeware tools;*
- *to support creation of second disclosure Open Access information resources whereby authors are describing the results of their research that have already been published elsewhere;*
- *to provide financial support to first and second disclosure Open Access resources to eliminate the need to charge publication fees;*
- *to support the creation of an association of Open Access Publishers to reinforce their effectiveness in collaboratively raising financial resources and in gaining collective renown;*
- *to create or support seed funding programs to create new Open Access information resources everywhere in the world and to promote the conversion of existing resources to the Open Access model;*
- *to require as a grant or endorsement condition, publication in the Open Access model of any full report of research being even partially funded, or morally endorsed by them;*
- *to support and endorse the initiatives of Funding Institutions to implement their own mandatory Open Access Archives;*
- *to create or support the implementation of a free Digital Object Identifier system to retrieve and directly and freely identify digital documents; and*
- *to build Open Access repositories in a way that would allow easy site mirroring as well as complete copying on portable media, such as CDs or DVDs, to allow access to knowledge in regions with little or non-existent Internet connections;*
- *to provide funding and in-kind assistance to a Free Software project that implements the peer-to-peer functionality as recommended by the WSIS Plan of Action to allow efficient exchange of scientific information.*

From an international public law point of view, these "recommendations" to UNESCO, because there was no formal voting process in Saint-Petersburg, belong in reality to a Declaration. It is however, an intergovernmental declaration that is giving practical suggestions to implement the Geneva recommendations.

5/ Contribution of UNESCO 33C

The WSIS Geneva recommendations, as well as the WSIS Saint-Petersburg meeting recommendations, were mentioned but not quoted explicitly in the UNESCO draft budget that was prepared to be presented at the 33rd conference, in September 2005. However Italy submitted an [Amendment to the Draft Programme and Budget](#) including suggestions concerning Open Access in paragraph 0511 (33G p 195) V1.1 "Creating an enabling environment for the promotion of freedom of expression and universal access" strategic approaches. (18 August 2005) :

Requests the Member States (a) (b) (c) to foster through the International Federation of Library Associations and Institutions (IFLA) dissemination of the principles of open access; to foster dissemination of the principles of open access, particularly in universities; to promote developing countries' open access to archives for the sake of spreading scientific know-how;

Invites the Director-General (a) to assess the feasibility of creating a database on existing open access initiatives worldwide and to report at the forthcoming sessions of the Executive Board and the General Conference on the progress of open access strategies throughout the world; to promote a network of national working groups with a view to fostering open access in their universities, to cooperate internationally in initiatives and projects on the subject of open access, and to promote the training of experts for cooperation in the publication of and open access to texts free of charge.

This amendment was taken into account in the following way in the [Records of the General Conference - Resolutions](#) page 227 / p 225 pdf : 20. *Having examined 33 C/DR.68 (submitted by Italy) which proposes in paragraph 0511 to include a reference to UNESCO's contribution to the implementation of the concept of "universal access" and "open access", particularly to scientific works in universities, the Commission recommended that the General Conference invite the Director-General to take the concerns of its author into account in formulating the work plans.*

It appears that the UNESCO 33rd conference, before the Tunis summit, occurred a little too early so that UNESCO could fully take into account the WSIS recommendations. In its important role as moderator/facilitator of the C3 and C7 E-science action lines, UNESCO is expected to implement and to help implement those action lines in detail.

6/ Civil Society Statements and Declarations

Universities, scientific and educational institutions are not considered, under international public law, as governmental bodies. They are considered

was outlined that considers both the Open Archives initiative and the Open Access Journal movement :

To achieve open access to scholarly journal literature, we recommend two complementary strategies

I. Self-Archiving: First, scholars need the tools and assistance to deposit their refereed journal articles in open electronic archives, a practice commonly called, self-archiving. When these archives conform to standards created by the Open Archives Initiative, then search engines and other tools can treat the separate archives as one. Users then need not know which archives exist or where they are located in order to find and make use of their contents.

II. Open-access Journals: Second, scholars need the means to launch a new generation of journals committed to open access, and to help existing journals that elect to make the transition to open access.

In the Budapest Open Access Initiative , the Bethesda Statement on Open Access Publishing(30 June 2003) and the position statement by the Wellcome Trust in support of open access publishing (October 1,2003) various philanthropic foundations and institutions have taken a position in favour of Open Access.

The Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (22 Oct 2003) constitutes a step further, because it is a declaration that has been undersigned by the main French and German public research and funding agencies. Institutions from Greece and China also joined recently. The Bethesda Statement and Berlin Declaration were submitted by the WSIS-SI group as contributions submitted by accredited NGOs and are now part of the UN document system (WSIS/PC-3/C/0184 and WSIS/PC-3/C/0187 (English, French)).

Related to Open Access, speeches given by Dr. Lin and Dr. Muguet as speakers during the formal plenary sessions of the WSIS in GENEVA in December 2003, before the WSIS are also Civil Society statements. A speech was also given by Dr. Muguet at the plenary session of the WSIS in TUNIS in November 2005,

7/ Issues relevant to Internet Governance

The current evolution of the Web has been termed the Web 2.0. One of the characteristics include enriched multimedia content, the Semantic Web (XML, RDF, OWL etc...) and peer-to-peer networks (such as BitTorrent).

7a/ Metadata standardization

As mentioned in the European Commission study on the economic and technical evolution of the scientific publication markets in Europe

Standards are a key element in the publishing system; as different open and proprietary applications are being developed by different actors, the use of standards is crucial to enable and facilitate data exchange and communication on the network, and thus definitely improve dissemination and access to scholarly publications. Their use at every stage of the publishing process creation, description, dissemination, preservation- will ensure that the user can search, view and print the article whatever its hosting platform, that

scientific publications are widely visible and searchable from a variety of service providers (be they free or charged), and that the scientific literature remain accessible for the future. We underline future developments that could be supported by research funding programmes: Metadata provide structured information that is crucial for the digital object exchange, use and management. Though some descriptive metadata standards are well established in the libraries and publishers sectors, their specificity hinders their efficiency in enlarged scientific search and retrieval applications through the internet. On the other hand, the widely used and supported Dublin Core metadata set appears too general to provide fine-grained search results, adapted to scientific information search practices. This calls for a standard qualified version of the Dublin Core for scientific outputs to be defined. Standards for other types of metadata -notably for technical metadata, rights management metadata and preservation metadata- should also be further investigated and used. Metadata are essential elements to the future of scientific publishing and to the development of new forms of scholarly information dissemination such as e-print repositories. The efficiency of harvesting protocols, such as the OAI-PMH, and of search engines and services built on the harvested metadata repositories relies on the quality and adequate granularity of the metadata. The XML format appears as the main thread in the whole publishing process, i.e. creation, description, dissemination and preservation. Developing software applications for the creation of XML documents would highly simplify the publishing process and help its wider use at all stages of the process (e.g. a Wysiwyg (What you see is what you get) editing tool). Furthermore, in order to take full advantage of XML throughout the publishing process, additional research and developments would be welcome, for instance, to define a standard XML schema to structure the full text, to specify a qualified Dublin Core adapted to scholarly documents, to automatically create metadata from the full text. Further developments of the XML format will improve and accelerate the overall publishing process. At present, searching publications by name of author or institutions appears difficult due to homonyms, spelling errors, the use of acronyms, reduced or translated institution denominations, etc.

Therefore, as stated in the WSIS recommendation, Plan of Action, C7 22 e) above quoted, it is important to promote metadata standards.

It could be the basis for establishing a unified [ontology](#) in the spirit of the [Semantic web](#) envisioned by [Tim Berners-Lee](#), the Web inventor, and director of the [World Wide Web Consortium](#), to become the second evolutionary step of the Web.

[7b/ Locating, linking and searching digital documents](#)

As mentioned in the same [European Commission study on the economic and technical evolution of the scientific publication markets in Europe](#)

In the publishing sector, the DOI (Digital Object Identifier) system, recently accepted for standardisation within ISO, was developed and is managed by the International DOI Foundation (IDF). CrossRef is the largest DOI registration agency that covers scholarly and professional research content.

As IDF and CrossRef associations are directed by the main commercial scientific publishers, control over DOI allocation has raised concerns as an internet governance issue in the WSIS Civil Society working group. This group might recommend the creation of an inclusive multi-stakeholder partnership under the aegis of the United Nations to implement a free and public digital object identifier system. The opportunity to create such an agency should be further investigated.

Besides advanced search functionalities, linking technologies are being integrated in article databases such as hyperlinks, which launch a new search when clicking on the item. Furthermore, various linking technologies enable data hosted on different servers to be related:

- Reference linking, provides links from the bibliographic references of an article to the full-text articles of other platforms. CrossRef provides publishers with such a cross-publisher citation linking system based on DOIs, allowing a researcher to click on a reference citation on one publisher's platform and link directly to the cited content on another publisher's platform, subject to the target publisher's access control practices.*
- The OpenURL standard (Open Uniform Resource Locator166) provides an extended and dynamic open linking technology, allowing a user to navigate across different platforms, be they reference, article or full-text resources, which are relevant to his search topic. An increasing amount of data providers, including CrossRef, are making their database OpenURL compliant to facilitate navigation to their content.*
- Other linking systems provide information on citation counts and links to citing articles ("cited-by"). Such added-value functionalities are found in subscription-based services (e.g. Thomson ISI Web of Science, Elsevier Scopus) and more recently in Google Scholar which automatically analyzes and extracts citations and presents them as separate results, even if the documents they refer to are not online. These technologies and services are improving cross-platform search and navigation to scholarly publications available on the internet. However improvements still have to be achieved, particularly at the description and indexing level, in order to reach the high-performance search level of dedicated abstract & indexing databases. The exchange of data and their integration in large searchable repositories present today major ICT challenges.*

The current [Domain Name System](#) allows to resolve sites, but only indirectly documents, as parts of a site.

Commercial publishers have set up a private DOI ([Digital object identifier](#).) system that is using the [handle.net](#) resolver system, that is quite remarkably, completely independent from the [Domain Name System](#) controlled in part by ICANN. This system has been triggering some [concerns](#) from Civil Society and the WSIS-SI group.

The DOI is protected by the US software patent (Pat. No. [6,135,646](#)). The [handle.net](#) resolver system is also protected by a software patent. Any production operation seems to require a Licence from the [Corporation for National Research Initiatives](#) (CNRI). However, during the [Ninth session of the UN Commission on Science and Technology for Development CSTD](#) (Geneva), on 19 May 2006, the Commission heard a presentation by Robert Kahn, Chairman, Chief Executive Officer and President of the Corporation for

National Research Initiatives (see [report](#)) who declared, in response to a question from the WSIS-SI coordinator, that the [handle.net](#) resolver system is now completely free and open to use without license.

Yet another recent object retrieval system is the [Object Naming Service](#), based on the traditional [Domain Name System](#) system, has been designed to work with [RFIDs](#). However, there are some serious security concerns with the [Domain Name System](#) , in particular [DNS poisoning](#) or spoofing. When one is aware that [RFIDs](#) are used for inventories, this could lead to real thefts and burglaries. In that regard, the [handle.net](#) resolver system is much more secure, and it might be more advisable to use the [handle](#) instead of the [Object Naming Service](#) in conjunction with [RFIDs](#).

[RFIDs](#) can be used also for security checks. For security purposes, the risks might be too great and could raise serious privacy concerns, therefore the use of [RFIDs](#) in this context might not be advisable.

7c/ Peer to Peer networks.

[Peer-to-peer](#) networks (such as [BitTorrent](#)). have been become one of the most popular application of today's internet. The WSIS recommendation, Plan of Action, C7 22 c) above quoted, is the only WSIS recommendation is that is mentioning P2P. It also recognizes the special situation of Sciences; where except few cases (in some fields like law), authors of articles published in scholarly journals are not paid. Researchers are “volunteer” authors that are donating their research accounts to publishers that become copyright holders. The text is precise, and it does not mention copyright holders but only authors. It means that private exchange, as embodied by the P2P technology, between people should be promoted. It could be considered as an evolutionary step from private mail exchange between people. This private exchange concerns only scientific information produced by volunteer authors.

Use of attractive multimedia requires high bandwidth. The need for high bandwidth can be however alleviated thanks to the use of the peer-to-peer technology whereby all members of the same downloading swarm are playing the role of micro servers to one another. This approach is very effective within high bandwidth networks. P2P TV clients and servers (eg. <http://p2ptv.cc>) can be customized towards this goal.

P2P has been also identified as a tool to empower freedom of expression, as content can be broadcast with much lower financial barriers.

7c/ Multilingualism.

Linguistic diversity is recommended in paragraph C8 23 of the Geneva Plan of Action. In this regard, one should mention the creation of the World Language Diversity Network ([REDILI](#)) under the inspiring direction of H.E Adama Samassékou, president of the WSIS PrepCom of the Geneva phase.

7d/ Semantic Web gTLDs.

A proposal that features the possibility to address previous issues (metadata, DOI, P2P, Multilingualism) is the [Semantic Web gTLDs](#) (<http://semantic.cc>) proposal. In a nutshell, all [SWgTLDs](#) registrants in a

specific SWgTLD must follow the same [ontology](#) (ie same set of metadata with rules) whether described with the [Web Ontology Language](#) (OWL) or [RDF schemas](#) and/or a set of specific [XML-schemas](#). Registrants that are not abiding by those rules shall be removed from the SwgTLD. Therefore it is possible to build areas of trust (ie where metadata can be trusted) within the Web. In other words, the goal is to build areas of confidence, safeguarded from metadata pollution. This item is also of relevance to the IGF theme *Security - Creating trust and confidence through collaboration*.

Furthermore it is proposed a public identifier system to replace the private DOI ([Digital object identifier](#),) system. Proposed identifiers are based on [Torrent](#) files . Therefore an added advantage is that the whole extensions are P2P friendly allowing sites with small bandwidth to still be able to broadcast information efficiently.

For Open Access content, it is proposed to create the SWgTld . **open** extension, and within this scheme, Open Access content would benefit from a superior availability over locked contents.

Another application of the [Semantic Web gTLDs](#) is the [Linguistic SWgTLDs](#) proposal. Briefly, an extension shall be assigned to each language (according to the three-letter code [ISO 639-2](#)) so that sites or sites' versions written in specific languages can be easily found and identified. It would facilitate greatly the task of search engines and would foster linguistic diversity. The LSWgTLD proposal is not made for the sake of selling yet another batch of domain names as ICANN is perceived to do, by many detractors, but to empower technology advances. Automatic [machine translation](#) tools are giving sometimes surprisingly good outputs, but most often they are producing contents of a very unequal quality, where good translations are sitting beside hardly understandable babbling, sometimes ~~incomprehensible~~ because it could means the reverse of what it is intended. This is because automatic translation tools have difficulties in catching semantics. Automatic translation would be much improved if [machine translation](#) h

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to further enhance the efficiency of automatic translation tools and to promote linguistic diversity. Therefore, each time an automatic translation tool is providing on request a translation, the translated text will be displayed on a [Wiki](#) so that a good speaker in the target language could correct the mistakes that have been made in the automatic translation. This strategy should quite efficient when dealing with scientific and technical documents.

7e/ Legal Frameworks for Multi-stakeholder Partnerships for Governance.

It is clear it is important to find a suitable legal framework for governance bodies that would set metadata standards, that would deal with a public identifier system, the [handle.net](#) resolver system, the [Semantic Web gTLDs](#) , etc...

It is important to learn from the current legal problems that are facing [ICANN](#) which was a pioneer in terms of multi-stakeholder governance, and to start from inception with the right structure concerning emerging issues.

It is important to underline also that is not feasible to establish suitable structures one by one, as it is a recurring problem.

Therefore it has been proposed instead to build a global framework that would allow the easy and flexible creation of multi-stakeholder partnerships (MSP) : the [UNMSP](#) proposal. In a nutshell, it is proposed to create within the UN system, a new financially self-sustainable, lightweight agency in the spirit of the ongoing UN reform efforts. This agency ([UNMSP](#)) would permit the easy formation of MSPs within an international public law framework, by a simple decision of its assembly, without the need of lengthy multi-lateral treaty negotiations.

11/ Conclusions.

After its initial birth from [DARPA](#), the Internet has been nurtured by the Scientific Community before being used by a wider audience, while its management fell out of the hands of scientific agencies. A similar process happened with the World Wide Web, born at [CERN](#), conceived, at first, for information exchange between scientists.

Therefore, if there is a lesson to be learned from history, it is that emerging issues such as Openness within the scientific community are likely to become, tomorrow, full scale world wide issues.

The Internet Governance issues that have been identified, as relevant to Openness are the following :

Metadata standardization

Locating, linking and searching digital documents,

Peer to Peer networks,

Multilingualism,

Legal Frameworks for Multi-stakeholder Partnerships for Governance;

and two proposals were set forward :

[Semantic Web gTLDs](#) , and the ([UNMSP](#)) agency.