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THE FUTURE OF INFORMATION ACCESS

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INTRODUCTION

Chairperson, the organising committee, ladies and gentlemen, thank you for allowing me to give the concluding remarks to this very productive and exciting conference. These three days have been very interesting, rich, intense and stimulating. We are gathered here to; underscore the importance of access to knowledge and information and the creation of knowledge societies, to identify constraints to accessing information and knowledge and to contribute to policy formulation towards creating conducive environments for wider access to knowledge and information.

While we are looking towards achieving open and unrestricted access to knowledge and information in the 21st century, the biggest challenge is to harness the potential of information and communication technologies to achieve the Millennium Development Goals (MDGs) and to bridge the knowledge divide. The world has already seen some dramatic changes in the area of information and communications. This field is indeed changing rapidly and today's technological innovations are challenging yesterday's methods. Lots of money is being channelled into Open Access initiatives and much more into development of institutional repositories. It is in this context, that given that researchers are both the main producers and users of scientific and technical information, they must also obtain control of the system of scientific publication.

New Information and Communication Technologies (ICTs) have helped us to achieve a lot in creating library consortia, national, regional and international library associations as well as achieve other cooperative networking in order to pool resources and learn from one another. ICTs are the driving force behind the global communities that we are creating and experiencing today. We could say that ICTs have

paved the way for greater efficiency and collaborative learning. The Internet and the World Wide Web has expanded the flow of information and communication exponentially.

Knowledge is changing at an ever-increasing rate, it is being produced and it becomes redundant at an ever-increasing pace (Nassimbeni & de Jager 2000). Knowledge continues to burgeon in importance and it seems like it is going to be a long term strategic resource for countries, regions and organisations. It is now being seen as a new source of competitive advantage for corporations, countries and regions. And a knowledge-based economy is an economy in which the production, distribution and use of knowledge are the main drivers of growth, wealth creation and employment in all economic and social sectors. Conditions must exist for knowledge to be created, effectively managed and shared. Many countries in the developing world have not embraced knowledge as a new source of competitive advantage. As such conditions for effectively creating and sharing knowledge in the region are inadequate (Ondari-Okemwa 2004).

In academic publishing, the publication processes have been computerized and the products are digital in a drive towards greater efficiency. Publishers are increasingly exploiting Internet technologies to link articles and citations in databases cut across wide areas of knowledge. These developments provide great efficiency and convenience but at a high cost. Libraries in academic institutions have been forced to cut back on journal subscriptions in order to meet the rising costs of journals as a result of the new access platforms. We have also witnessed the creation of various Electronic Site Initiatives by countries, consortia and other groupings aimed at reducing the cost of electronic journals subscriptions (Moller 2004).

The move towards Open Access is increasingly providing us with opportunities to achieve not only efficiency and save money but also to incorporate the advanced and progressive dimensions of sharing and collaborating towards a collective common good (Moller 2004). The future is however uncertain especially in developing countries where we are faced with a host of issues and challenges towards improving collaboration and knowledge sharing (Okunoye & Karsten 2003)

To address the topic **"What is the Future of Information Access?"** I will discuss the open access movement, open access and developing countries, supporting the transition to electronic open access, digital repositories and open access archives, IPR, creative commons, the success stories, challenges and the way forward.

OPEN ACCESS MOVEMENT

The Open Access movement philosophy is: putting peer-reviewed scientific and scholarly literature on the Internet. Making it available free of charge and free of most copyright and licensing restrictions and removing the barriers to serious research. The costs are met by charging authors for the publisher's services in making material available online. In return, authors retain the copyright in their articles.

Because of the opportunities offered by ICTs we have witnessed international pressure on established publishing houses to provide more free access to online journals, but this is not coming. The failure by electronic journals to provide some relief towards the high costs of subscriptions to both institutions and individuals has led to a new thinking that more and more scientific information should be made freely available to all in the global community.

According to Arzberger et al (2004:3) there are five broad issues that stand out in any examination of research data access and sharing regimes. These are:

- Technological issues: broad access to research data, and their optimum exploitation, requires appropriately designed technological infrastructure, broad international agreement on interoperability, and effective data quality controls;
- Institutional and managerial issues: while the core open access principle applies to all science communities, the diversity of scientific enterprise suggests that a variety of institutional models and tailored data management approaches are most effective in meeting the needs of researchers;
- Financial and budgetary issues: scientific data infrastructure requires continued, and dedicated, budgetary planning and appropriate financial support. The use of research data cannot be maximised if access, management, and preservation costs are an add-on or after-thought in research projects;
- Legal and policy issues: National laws and international agreements directly affect data access and sharing practices, despite the fact that they are often adopted without due consideration of the impact on sharing of publicly funded research data
- Cultural and behavioural issues: appropriate reward structures are a necessary component for promoting data access and sharing practices. These apply to those who produce and those who manage research data

Organisations that fund research have a vested interest in the widest possible distribution of research results and these organisations are encouraging open access. The leading research associations of Germany, France and Switzerland have signed the "Berlin Declaration" calling for free access to research findings (Falk 2004a). The Declaration of the World Summit on the Information Society of the United Nations – 2003 and the Budapest Open Access Initiative have all expressed support for open access to scientific publishing.

The widespread national, international, and cross-disciplinary sharing of research data is no longer a technological impossibility. Technology itself, however, will not fulfill the promise of e-science. It is up to national governments, international agencies, research institutions, and scientists themselves to ensure that institutional, financial and economic, legal, and cultural and behavioral aspects of data sharing are taken into account.

OPEN ACCESS AND DEVELOPING COUNTRIES

ICTs are increasingly playing a crucial role in developing countries' capacities to produce, access and apply information and thereby enhance the process of acquisition and sharing knowledge (Morales-Gomez and Melesse quoted in (Okunoye & Karsten 2003). With the rapid spread of the Internet, there is promise of overcoming some factors hindering researchers in developing countries and ending their isolation. Developing countries' research communities can enter the global scene in a much more visible way than before and their counterparts in other parts of the world can contact them more rapidly. In developing countries we are getting access to more free journals, but we face the following problems. Many of our authors are not able to pay to submit their articles into open access journals. We are increasingly facing challenges with access technologies and more importantly the current usage statistics are discouraging not only to current donors but also potential ones.

SUPPORTING THE TRANSITION TO THE ELECTRONIC OPEN ACCESS

In developing countries we have demonstrated through various projects that we can move towards fulfilling the requirements of Open Access. There is still a lot to be done in this area and if our organizations are interested in the further promotion of the new Open Access paradigm for the gain and benefit of science and society they should be:

- Encouraging our researchers/grant recipients to publish their work according to the principles of the Open Access paradigm.
- Encouraging the holders of cultural heritage to support Open Access by providing their resources on the Internet.
- Developing means and ways to evaluate Open Access contributions and online-journals in order to maintain the standards of quality assurance and good scientific practice.
- Advocating that Open Access publications be recognized in promotion and tenure evaluation.
- Advocating the intrinsic merit of contributions to an Open Access infrastructure by software tool development, content provision, metadata creation, or the publication of individual articles.

We should realize that the process of moving to Open Access changes the dissemination of knowledge with respect to legal and financial aspects. Our organizations should aim to find solutions that support further development of the existing legal and financial frameworks in order to facilitate optimal use and access.

DIGITAL REPOSITORIES

Given the exponential growth in the volumes of data produced each year in all disciplines, the speed at which information is provided to researchers is a crucial part of the research process. In this regard the contribution to be made by the new technologies is an obvious one. This does not mean that we have to completely replace traditional publishing systems by online publishing. Rather, the aim is to provide new solutions that are better adapted to the needs of the scientific community.

Research has a key role to play in fostering economic growth and scientific journals are an essential means of disseminating new knowledge in academic communities and beyond. Scientific journals fulfil a double role of certification and dissemination of knowledge, the later one including archiving of knowledge to guaranteeing perennial access

A lot of money is going into open access initiatives and lots into institutional repositories. Almost every other university is busy creating institutional repositories that include faculty research work. The trend towards institutional repositories is likely to continue as we see more and more institutional repositories being created. To date we have witnessed the creation of:

- Electronic thesis data bases
- Past examination papers
- National scientific associations papers
- Institutional research grantees reports
- And many other institutional repositories

For scholars and academics, there are several benefits to be gained from archiving their scientific work in e-print repositories. The benefits stem from the fact that e-print repositories lower the barriers created by the conventional publication systems (Pinfield quoted in Correia & Teixeira 2005). Consequently increasingly visibility papers become freely available for others to consult and cite.

From the institutional point of view, an institutional repository will reform scholarly communication as it serves as a tangible indicator of an institution's quality. Visibility, prestige, and public value all enhance the profile and help provide wider dissemination of research and development output. This in turn, attracts high quality researchers and more research funds because research output is widely disseminated, read and cited; it also has an impact on the number of citations of papers produced by institutional staff. Institutional repositories also provide valuable support for higher education institutions – to carry out their mission in researching and teaching.

E-prints repositories bring added benefits for scientists in those organisations or countries that are poorly resourced. Access to e-print repositories anywhere in the world provides access to global knowledge base. Equally important are the opportunities e-prints repositories create for scientists in less resourced countries

or organisations to distribute local research in a highly visible way and without the difficulties and bias associated with publishing in traditional journals, which tend to favour the publication of papers from well known authors, or from organisations in more developed countries (Chan and Kirsop quoted in Correia & Teixeira 2005)

There are wider social and economic benefits, which might follow from making high-quality research more easily available. According to Okunoye & Karsten (2003) the main problem with e-journals remains their low status in academic ranking systems; as a result, they tend to attract low quality articles. However this could work to the benefit of developing countries, which could build their own research communities around e-journals. Instead of having low-ranking global e-journals, it is possible to have high-quality e-journals specific to developing countries.

In developing countries as we build our institutional repositories we have to address the following issues:

- The quality of the repositories
- The accessibility of the information in these repositories
- The sustainability of these projects
- Give authors guarantees for long term accessibility
- Address the question of financial sustainability of the repository as business operations

Our challenge is to address these issues in order to facilitate more and easier access to scientific, technical and other research information in academic and research institutions

INTELLECTUAL PROPERTY RIGHTS

The issues of intellectual property rights are equally important as we strive towards open access and the creation of knowledge societies. Globalisation and digitization have created special problems and strains in the traditional system of copyright (Alemna & Cobblah 2005). The concept of intellectual property has never been as controversial as it has become with the rise of the information society. Knowledge and information, both subject to intellectual property legislation, are central to this development and their access and control has thus gained crucial importance.

It seems that intellectual property has come to a crossroad, where commercial interests lobbying for a further enhancement of protection are meeting a growing movement clearly seeking to advance the vision of open access for the public good. The World Summit on Information Society (WSIS) 2003 did not give clear answers to the question of intellectual property rights and some directions and compromises were urgently needed. The issue of intellectual property did not make the headlines again during the concluding

session of UN WSIS in Tunis 2005. And some critics are concerned it was intentional and that the influence of established publishing houses was at play.

CREATIVE COMMONS

The Creative Commons movement, launched by Lawrence Lessig from Stanford University in 2002, is an initiative that seeks to break the copyright stranglehold of commercial publishers. The Creative Commons philosophy promotes the free dissemination of creative or artistic works over the Internet and provides a variety of legal licenses that enables authors or artists to allow others to use their creative works without paying royalties, particularly where the use is non-profit.

The philosophy behind this movement is the vision of sharing for the greater public good. The fact that they are all emerging at the same time suggests a common rejection of the commercialisation of information, and the over-strenuous application of ever-restrictive copyright and intellectual property provisions which favour corporate interests while stifling the kind of sharing that leads to innovation and creativity.

The Creative Commons group has also announced a new license model: the "Developing Nations" license. This allows creators to make their works available for attributed distribution in the developing world, while still retaining all copyright control in high-income countries. Lawrence Lessig the Creative Commons founder says:

"The Developing Nations license allows, for the first time, any copyright holder in the world to participate first-hand in reforming global information policy. The fact is that most of the world's population is simply priced out of developed nations' publishing output. To authors, that means an untapped readership. To economists, it means "deadweight loss." To human rights advocates and educators, it is a tragedy. The Developing Nations license is designed to address all three concerns."

Intellectual Property expert Jaime Love designed the license and he has this to say about the license: "The new license makes it easier to expand access to knowledge and support development. It is a tool to make the resource-poor information-rich."

Creative commons are one easy, effective, and increasingly common way for copyright holders to manifest their consent to Open Access. Many other open-content licenses will also work. Copyright holders could also compose their own licenses or permission statements and attach them to their works. When copyright holders consent to Open Access, what are they consenting to? Usually they consent in advance to the unrestricted reading, downloading, copying, sharing, storing, printing, searching, linking, and crawling of the full-text of the work. Most authors choose to retain the right to block the distribution of mangled or

misattributed copies. Some choose to block commercial re-use of the work. Essentially, these conditions block plagiarism, misrepresentation, and sometimes commercial re-use, and authorize all the uses required by legitimate scholarship, including those required by the technologies that facilitate online scholarly research.

THE SUCCESS STORIES

Many new projects have been initiated and are running to support or narrow the digital divide between the north and south. These new projects are largely based on models of consortia purchasing, national site licensing, and donors' subsidies and they often involve access to bundled journals rather than individual titles. These include:

- HINARI
- AGORA
- Electronic Information for Libraries.net
- Programme for Enhancement of Research Information (PERI)
- African Digital Library (ADL)
- DOAJ
- Open J-Gate
- And many scientific associations and research institutions have made many of their journal titles accessible to developing countries free of charge.

While the various initiatives noted above are important and welcome steps towards improving access to research in developing countries, there are problems associated with these programs that we need to address. These include; information relevance, commercial interests, coordination, and long-term sustainability and capacity building as noted earlier (Chan & Costa 2005). Another disturbing trend has been the low usage of these facilities in the target countries. This also raises questions as to whether it is even feasible to talk of collective subscriptions at this stage.

Research on impediments to promoting access to global knowledge in developing countries shows that there are many issues that need to be addressed is information access is to be achieved. Ondari-Okemwa (2004) points out to numerous issues and these include:

- lack of goodwill;
- literacy levels,
- ICTs and computer and
- Internet usage.

These challenges need to be addressed if we are to achieve free access to information for all.

THE FUTURE

National governments, academic and research institutions have a crucial role to play in promoting data accessibility since they provide the necessary resources, establish overall policies for data management, regulate matters such as the protection of confidentiality and privacy, and determine restrictions based on national security. The WSIS also calls for government, private business, and non-government agencies to work together towards a more inclusive information society.

Drawing on good practices worldwide it has been suggested that national governments and other key stakeholders should consider the following to make the future of information and knowledge accessibility easier (Arzberger et al (2004:2):

- Adopt and effectively implement the principle that data produced from publicly funded research should be openly available to the maximum extent possible;
- Encourage their research funding agencies and major data producing departments to work together to find ways to enhance access to statistical data, such as census materials, surveys, etc.;
- Adopt free access or marginal costs pricing policies for the dissemination of research-useful data produced by government departments and agencies; and
- Analyze, assess, and monitor policies, programs, and management practices related to data access and sharing policies within their national research and research funding organizations.

More specific to developing countries, Ondari-Okemwa (2004: online) has suggested that the future of knowledge creation and access in depends on the following:

- Transparency – if access to global knowledge is to be promoted in developing countries, governments must learn to first promote transparency, unless it is matters to do with the security of the state
- Knowledge assessment- to promote access to knowledge, governments in developing countries must knowledge assessment indicators – based on the World Bank's country knowledge assessment and includes; public expenditure on education, gross enrollment rate, secondary education, tertiary education, literacy rates (newspaper readership), adult literacy rates and mean years of schooling.
- Human capital – development of human capital not only to understand technology but also to develop it and apply it across the board and to minimize the brain drain.

- Education and training- strengthen current education and training systems so that they are more relevant and more embracing.
- Development of information infrastructure – remove current barriers to information infrastructure development e.g. in telecommunications, drafting and implementing ICT policies, acquisition of new equipment and remove the high costs and poor quality of Internet service provider services.
- Change of culture – in a world where information and knowledge are not easily shared.

CONCLUSION

In developing countries, like the situation in developed countries scholarly societies, library representatives, research funding organisations need to set the conditions governing access to and the exchange, dissemination and archiving of scientific publications. Improving access to and sharing of publicly funded data is an issue that touches all aspects of the research enterprise and the development of knowledge, and involves all participants in the conduct of research. For the individual researcher, the sharing of data, particularly prior to publication, can be burdensome, time consuming, and unrewarding if the necessary measures are not taken to provide funding, facilities, and a social context that emphasises its value to the research community and to society.

Advances in ICTs, the internationalisation of science, and the trend toward issue based research hold great potential for the advancement of knowledge and for the benefit of all people. This potential will not be fully realised unless all of the concerns and recommendations made during these deliberations are properly developed. To do this we have to engage in more discussions, have more understanding and commitment on the part of all those involved in research, particularly at policy and funding levels.

Thank you.

References

Alemna, A. & Cobblar, (2005). Relevant issues in the provision of digital information in Africa. *Library HiTech News* 22(9): 18-20.

Arzberger, P. et al. (2004). Promoting access to public research data for scientific, economic, and social development. *Data Science Journal*, Volume 3, 29 November 2004 135

Arzberger, P. et al. (2004). An international framework to promote access to data. *Science* 303, 1777-78.

Chan, L. & Costa, S. (2005). Participation in the global knowledge commons: challenges and opportunities for research dissemination in developing countries. *New Library World* 106(3/4): 141-163

Chiware, E.R.T. (2005). *Scientific Content Creation and Dissemination: opportunities for African Universities in Electronic Publishing* in Proceedings of the Conference on Electronic Publishing and Dissemination, 1-2 September 2004. Dakar Senegal
http://www.codesria.org/Links/conferences/el_publ/chiware.pdf

Correia, A. M. R. & Teixeira, J.C. (2005). Reforming scholarly publishing and knowledge communication: from the advent of the scholarly journal to the challenges of open access. *Online Information Review* 29(4): 349-364.

European Commission (2006). *Study on the economic and technical evolution of scientific publication markets in Europe*. Brussels: EU Information and Communication Unit.

Falk, Howard (2004). Open Access gains momentum. *The Electronic Library*. 22(6): 527-530.

Falk, Howard (2004). The revolt against journal publishers. *The Electronic Library* 22(2): 184-187.

Igun, S. E. (2005). Implications for electronic publishing in libraries and information centres in Africa. *The Electronic Library* 23(1): 82-91.

Moller, Allison (2004). *The Rise of Open Access Journals: their viability and their prospects for the African scholarly community*. CODESRIA Conference on Electronic Publishing and Dissemination 1st -2nd September 2004, Dakar Senegal.

Nicholas, D, Huntington, P, & Rowlands, I. (2005). Open Access journal publishing: the views of some of the world's senior authors. *Journal of Documentation* 61(4): 497-519.

Okunoye, A. & Karsten, H (2003). Global access to knowledge: findings from academic research organisations in sub-Saharan Africa. Information Technology and People 16(3): 353-373.

Onduri-Okemwa, E. (2004). Impediments to promoting access to global knowledge in Sub-Sharan Africa. *Library Management* 5(8/9): 361-375