

Background Paper on Web Portals¹

1 Preamble

The MRC has received funding and is coordinating a project to develop an information portal relating to HIV/AIDS for the benefit of SADC countries. The consortium members and downstream collaborators have been identified and one of the first project actions has been to invite them, along with other stakeholders, to a workshop on November 7. The aims of the workshop are to:

- Examine key features of existing web portals, especially those addressing health matters in developing countries.
- Review and refine the aims and objectives of the proposed SADC HIV/AIDS portal
- Identify the primary providers and users of information on the portal (e.g., researchers, policy and decision-makers, local communities).
- Prioritise the most important categories of information and services to be provided via the portal.
- Critically examine policy and operational issues underpinning such a portal.
- Agree on the next steps in the project (timing, responsibilities, etc.).

This background paper discusses aspects of web-based portals as a brief introduction to the issues that will be tackled at the workshop.

2 What is a Web Portal?

It is estimated that there are about five billion static web pages on the Internet and that number is growing by over seven million pages a day. The Internet thus offers a vast and valuable library of information as well as a worldwide medium for meaningful collaboration among people. Whatever our domains of interest, however, we face a serious challenge in coping with this massive and burgeoning base of data. Portals have emerged as a way to meet the threat of information overload and enjoy the opportunity afforded.

Portals are applications that enable organisations to unlock all forms of internally and externally stored information, and provide members of the relevant community with a single gateway to access information. Such portals are derived from their more global counterparts—e.g., Yahoo! and Netscape—which aggregate raw information from disparate sources and provide some intuitive and personalized structure for the information. To that extent they are much more extensive than typical websites. The so-called first generation of organisational portals integrated organisation-specific information stored in the organisation's electronic vaults (i.e., databases, file systems and existing application systems) with unstructured data (text) from inside and outside the organisation. Later generation portals extended those functions to include the concept of personalisation and customisation, central search facilities, expanded access to interactive utilities, two-way interaction with data sources and ways for people to collaborate in real time.

As portals have evolved, designers and developers have tackled and are solving in different ways issues such as:

- The need to access information in diverse repositories, including file systems, HTTP web servers, Lotus Notes and relational databases.

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- The need to manage individual access control rights, so that two users issuing the same search/navigation request may see different sets of documents due to the differences in their privileges.
- The need to index and search a large variety of document types such as PDF, Microsoft Word, PowerPoint, and different languages (English, French, Asian, etc.)
- The need to combine structured as well as unstructured information in a document for search as well as classification purposes and for personalisation.

The area of portals is evolving very rapidly. There are many terms such as information portals, business portals, enterprise portals, and web portals, with a variety of associated definitions. There are countless vendors of portal technology, all vying to persuade decision makers that their offerings meet the customer needs. At the core, however, there are limited sets of functions that make up a useful portal. To quote from the current project proposal, *the purpose of the AFRO AIDSINFO portal is to deliver comprehensive and unified access to a heterogeneous collection of information sources through a secure access layer.* Specific functionality to be addressed includes:

- **Personalisation and notification** – allowing users to select and receive information relevant to their interests and roles.
- **Searching** – the ability to search for information buried across multiple formats and sources.
- **Unified access** – organizing and disseminating information assets, whether structured (databases, spreadsheets) or unstructured (e.g. documents, web pages).
- **Strict security models** – ensuring various levels of security to ensure information is accessible yet protected.
- **Content submission and sharing** – allowing collaborators to share valuable information in a simple, effective manner.
- **Intelligent classification** – allowing the subject matter to be organized according to various standards and taxonomies (e.g. scientific, legal, public categorisation).
- **Common terminology** – the portal will provide a medium to establish a common metadata repository, ensuring consistency in understanding of information.

The AFRO AIDSINFO portal intends to provide tacit knowledge flow through the interaction of individuals, using discussion forums. A system will therefore be in place for information flow and interaction among role players, which also allows transfer of knowledge for potential wider application in other African countries and contributes to the global knowledge base.

3 Meeting Common Needs

Already there are countless organisational and community portals in existence and it would take a lot of time and probably be of little merit to attempt to compare and contrast the different instances out there. Underpinning most portals however are a more or less common set of technologies and tools that are proving to be useful in meeting user needs. What is perhaps of more value, therefore, is to note examples of groups that are offering a common structure and set of technology tools that different but related communities might use to construct their own portals.

The first such example comes from the university domain. In December 1999 under the sponsorship of Sun Microsystems a group of approximately twenty of leading US and Canadian colleges and universities met to share experiences in the use of Java technology. The group became known as the Java in Administration Special Interest Group (<http://www.ja-sig.org/>). Among other things they launched an initiative known as the Common Portal Reference (CPR) framework. The intention was to cooperatively develop the specifications, to provide an operational framework and to freely distribute the CPR to all

interested institutions at no cost. Individual institutions would be able to adapt the portal framework to meet the needs of their institutions. Nonetheless the University-wide Information Portal would have to comply with the following requirements:

- Provide access to all information and services through a single graphical interface;
- Support a single log-on to obtain authentication and authorization to all information resources and applications;
- Provide a framework where all elements of the university (academic, administrative and community) and all business applications can be integrated;
- Provide a convenient set of communications services which are web-based
- Provide a one-stop place where all members of the university community can perform all business transactions
- Provide the ability to present information and access to services on an individual basis in personalized manner.
- Provide each member of the community with the ability to customize the appearance, layout and information on an individual basis;
- Grant to the university full control and self-management of appearance and content;
- Be vendor independent (not locked into proprietary hardware and/or software);
- Be free of commercialisation (no advertising or the sale of products unless university sponsored);
- Be flexible and be able to absorb new technology advances and new applications;
- Be available to all constituents 24 hours a day, 7 days a week.

This so-called “uPortal” project has indeed commenced, funded with a grant from the Andrew Mellon foundation. The beta version of uPortal v2.0 was launched July 27 2001 and will be released in final form in November 2001. To date four universities have gone live within the framework and ten universities have launched demo sites. All those instances are accessible via the JA-SIG website.

The second example of a common structure and set of technology tools for an enterprise portal is that of the World Bank’s Development Gateway (www.developmentgateway.org). To quote from the promotional material, *The Development Gateway is a portal on development issues from which users will be able to access information, resources and tools and into which they will be able to contribute their own knowledge and experience.*

The Development Gateway uses a decentralized management model, open-source software, and interactive XML communication protocols to allow users and organizations across the world to share content on development. The technology platform of the central site is also used by multi-stakeholder teams working within countries to aggregate local information and present national perspectives on issues through Country Gateways. Prototype versions were launched in October 2000 and in February and April of 2001. The current operational version (3.1) was launched in July 2001.

Technology services now available include:

- **Decentralized publishing** using a deferred publishing model and providing advanced content management tools for guides, advisors, and editors.
- **User contribution tools** that provide simple web-based forms for contributing and classifying links or documents to the Gateway.
- **Collaboration tools** that provide for forums, comments, and bulletin boards.
- **User profiles and alerts** that allow users to register with their e-mail address, indicate their topics of interest, and opt to receive e-mail alerts when new content is contributed in those areas.
- **Site-wide and topic-specific searches** using free-text, keyword-contextual references and allowing searches to be restricted to a country, community, topic, or content type.

- **Community subsites** that provide publishing tools to enable communities of practice to network with their members and other organizations, and to obtain a web presence that is uniquely branded and managed.
- **Database and ecommerce products** including an E-Bookstore, an E-Procurement business listing, and the Accessible Information on Development Activities (AIDA), each of which draws on external and internal database platforms to present information on products, services, and activities.
- **Search capability including support for three languages.**

The philosophy adopted by the World Bank Gateway group is to pursue a decentralised, open-source software approach and to share where possible their structures and technologies. Country teams have already launched several so-called “Country Gateway” portals and more are under development. There are also special topic portals—importantly one on HIV/AIDS—and a couple of separate organisations that have applied the Gateway technology to create their own portals. Readers may view all of those examples via the Development Gateway portal itself and also study the technical underpinnings that are being used.

4 HIV/AIDS Websites and Portals

There are many, many websites devoted to HIV/AIDS. Some are broad enough to be classed as 1st generation portals with comprehensive cross-references to other sites, while a few are clearly fully-fledged modern portals. Attached are brief comments on some that I visited. While none of the sites have all the following features, each of the elements appears in at least one of the sites visited:

Multiple languages
 Video streaming
 Online peer interaction fora
 List serves
 Search engines
 Personalisation
 Access control to some parts of the portal
 Jobs listings
 Professional networking information
 Event schedules
 Conference proceedings
 E-mail alerts updating feature

Several sites are clearly out of date. Some links don't work; some sites are very slow to load. Some simply list the contents of other sites. At a brief viewing, none of the sites appear to offer access to raw data, or provide analytical tools for researchers, or enable collaborative authoring.

The four sites that probably have the most ideas to offer for the AFRO AIDSINFO design are:

<http://www.aegis.org/>
<http://www.sahealthinfo.org/>
www.developmentgateway.org
<http://www.iaen.org/index.php>

Examples of HIV/AIDS-related Websites and Information Portals

Site	Comments
http://www.aegis.org/	AIDS Education Global Information System; A major and long standing portal; winner of many awards; claims to be the largest source of info on HIV/AIDS. Very good-looking site. Main funder is Boehringer Ingelheim, a pharmaceutical company
http://www.unaids.org/	One of the big ones; but tends to be one way, as most sites and portals do.
http://www.sahealthinfo.org/	Comprehensive, current health site; several peer interaction fora are important
http://www.aidsnet.co.za/	South Africa oriented; very comprehensive research source; claims to be a portal, and is, but lacks interpersonal features, personalisation; not clear how up to date it is.
www.developmentgateway.org	Major relatively new Portal developed by World Bank. Adopting a sharing philosophy.
http://www.iaen.org/index.php	International AIDS Economics Network; a strong UN-based portal, with newsletters, announcements and (in the past) online conferences; has a jobs listing and is planning a professional network feature.
http://www.worldbank.org/afr/aids/	Seems to overlap the Gateway site; not as up to date.
http://www.worldbank.org/aids-econ/	Seems out of date
http://hivinsite.ucsf.edu/InSite	An extensive site; a bit out of date.
http://www.inasp.org.uk/health/internationalnetwork.html	
http://www.hst.org.za/	Strong up to date site. Has email updates feature and an active list serv.
http://www.und.ac.za/und/heard/	Good site: planning a workshop advisory schedule.
www.shared.de	Note multiple languages
http://www.redribbon.co.za/portal.asp	A good looking up to date early generation portal.
http://gbgm-umc.org/aidschildren/	Very powerful video clip on AIDS orphans; a reminder as to what a portal can do.
http://www.rebirth.co.za/AIDS_in_Africa_1.htm	Actually a commercial site—Rebirth African Art—that has a bit on AIDS in Africa; seems exploitative.
http://www.aids.org.za/	Not up to date
http://www.nigeria-aids.org/	A small, good-looking site with a forum feature
http://www.swazinews.co.sz/www_swazi_links.htm	Gives links to other sites. Site not being updated at present.
http://www.africabridge.org/index.html	A forum on HIV/AIDS in SA and Tanzania
Various African country sites	Limited content and generally out of date.

5 What might the AFRO AIDSINFO Portal look like?

In light of the observations above, the project proposal and discussions among MRC personnel, the following is a starter set of portal elements for discussion, debate and prioritisation at the workshop.

a) A structured source of information about HIV/AIDS

- Disease
- Vaccines
- Treatment Regimes
- Prevention
- Home Care
- Counselling and counselling centres
- School Educational Materials and Programmes
- Research Instruments and methodologies
- Health Policies, White Papers and other Government Documents
- National and Regional Statistical Data
- Directories of Organisations, People and Projects
- Controversies and Myths
- Calendar of events in the region (conferences, workshops, classes, video and radio programmes)

b) Intelligence

- Full text searching capability
- Categorisation and indexing of materials
- Automatic trolling of related links and updating
- "My Portal" personalisation features and e-mail alerts

c) Interactivity and Collaborative Tools

- A Frequently Asked Question (FAQ) facility
- An e-mail service to a "cybrarian" for help in sourcing and searching, bibliographic services*
- A Discussion Group facility for one or more specialist discussion fora
- A mechanism for collaborative document authoring

d) A Generator of Income to Sustain Itself

- Provide Updated CD-ROM containing selected Portal Information
- Carry out Editorial services
- Conduct contract research
- Organise conferences and workshops
- Advertise products and services
- Provide Newsletter of Current Affairs

6 Target Audience

- Clinicians
- Researchers
- Educators
- Counsellors and Health Care Workers
- Community Workers
- Government Ministries and Agencies
- NGOs

7 Foreground Application Components

- Content Management and Publishing
- Multi-media tools (audio and video clips, audio and video streaming)
- User Contribution Tools
- Collaboration Tools (forums, comments, bulletin boards)
- User Profile and Alerts
- Calendaring
- Directories
- News
- E-Commerce

8 Background Application Components

- Open source software
- XML Standards
- Scalable architecture
- Searchbot
- Automatic classification tools
- Editorial clearing house
- Intellectual Property Protection
- Contractual Procedures
- Project management

9 Implementation

Given the ambitious scope of the proposed AFRO INFOAIDS portal, there seems to be real merit in replicating and possibly enhancing prior designs. The two described here are the North American universities uPortal and the World Bank Gateway. There may well be others, but is strongly recommended that the first step should be to explore collaboration with one or other of these portal groups.

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