

Capacity Building through Education, Research and Collaboration: AFRICA BUILD, an eHealth Case-Study

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Introduction

AFRICA BUILD (AB) is a Coordination Action project under the 7th European Framework Programme (the list of partners is available in the footnote).

Partners in the project are:

1. Universidad Politecnica de Madrid;
2. Ministry of Communications and Information Technology (CIT), Egypt;
3. Faculté de Médecine de Pharmacie et d'Odonto Stomatologie (FMPOS) de Bamako, Mali;

4. University of Geneva; 5. Institute of Tropical Medicine (ITM), Antwerp (Belgium);
 5. 6. World Health Organization, Department of Reproductive Health and Research;
 6. 7. Faculty of Medicine and Biomedical Sciences (FMSB) University of Yaoundé;
 7. 8. University of Ghana, School of Public Health
- It aims to improve the capacities for health research and education in Africa through Information and Communication Technologies (ICT). Since

AFRICA Build

To promote health research, education and practice in Africa through the creation of centres of excellence, by using:

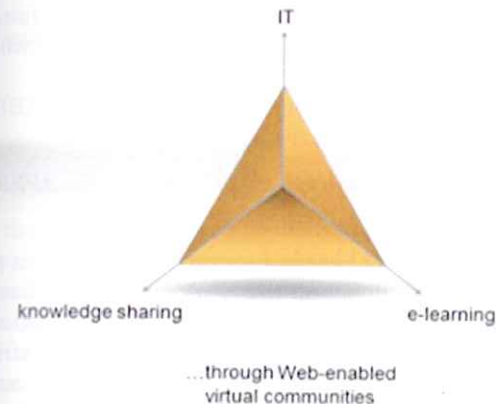


Figure 1. AFRICA BUILD, project aim

its launch in 2012, the AB project has promoted health research, education and evidence-based practice in selected countries in Africa by attempting to create centers of excellence through the use of ICT, “know-how”, eLearning and knowledge sharing and through Web-enabled virtual communities [Fig. 1].

One essential step in the project has been to develop an innovative Web portal that enables capacity building through eLearning and allows African health researchers to get in touch with peers and share knowledge and their work [1]. Building such virtual communities requires a user-friendly and customizable interface in 4 languages and allowing the integration of

numerous applications. As educational activities and knowledge-sharing applications were developed for this interface, the portal was adapted to the educational and other needs of the users visiting the portal to access educational resources or the knowledge-sharing applications.

At Med-e-Tel 2014 we propose a skills-building workshop to showcase what we have learned in the process of developing the portal. We believe our experience will of interest for IT developers, educational workers, health-care researchers and other health - care professionals with an interest in eLearning as part of continued medical education. Topics covered in the workshop are outlined below:

1. The AB project and objectives of the AFRICA BUILD portal (ABP);
2. Case-studies of ABP development and discussion
 - Technical aspects and architecture of ABP;
 - Scientific news widget on the ABP: development of a search tool for scientific information;
 - DUDAL webcasting: the past, the present and the future of the webcasting tool and the technical issues overcome when integrating it in the ABP;
3. Closing session: the lessons learnt from the use of the ABP and its eLearning courses and the next steps ahead

1. *The AB project and the purpose of developing the AFRICA BUILD portal (ABP)*

Over the past decade, the EU has supported many initiatives that involve IT and health. However, none of the projects to date have involved significant transfer of expertise in research in health informatics, use of IT in health and the IT tools that have been used to countries in Africa. The AB project aimed to analyse the state of the art in health research and education in Africa and implement an IT-enabled, open and collaborative infrastructure for education, training and knowledge-sharing for health researchers in English-, French- and Arabic-speaking African countries, developing virtual communities of practice. The web-based hub created for this exchange was the Africa Build Portal (ABP).

A large number of e-learning courses validated learning resources and methodologies are currently being offered through the ABP. These learning resources aim to improve the education capacities of selected centres of excellence in the field of health research in Africa. Through researchers' mobility and participation in local and international meetings, the knowledge-sharing was taken even further than would have been possible though web-based exchanges alone.

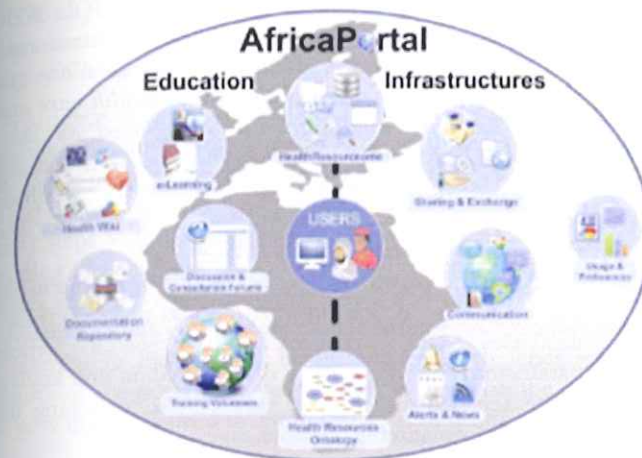


Figure 2. A representation of the AFRICA BUILD Portal

2. *Case-studies of the ABP development and discussion*

Built on the Social and Semantic Web platform (Web 2.0 and Web 3.0, respectively), ABP supports networking and allows access to a wide variety of open-source informatics tools for health. It also allows the creation of new virtual communities of health researchers, biomedical informatics developers and users, facilitating the exchanges of methods, tools, knowledge and expertise with international subject matter experts.

With the final aim of embedding distance-learning and remote ICT expertise tools in ABP, several facilities were included in the portal, such as:

- a) A social kernel, powered by Elgg. This is a social networking engine, delivering the building blocks that enable businesses, schools, universities and associations to create their own fully-featured social networks. This feature allows African researchers to connect with others researchers to share knowledge and collaborate.
- b) A method to plug-in Moodle instances to make their courses immediately accessible and reuse them in a social context.
- c) A research interface called the eLaboratory. This is a Widget-based environment that integrates different research resources

such as PubMed Central, BioMed Central, AJOL, WHO news, a Research Projects GIS and an African Educational catalog and Cochrane Reviews. [Cochrane Reviews are systematic reviews of primary research in human health care and health policy and are internationally recognized as the highest standard in evidence-based health care. They investigate the effects of interventions for prevention, treatment and rehabilitation also the main source content for the WHO Reproductive Health Library (RHL)].

- d) A "Scientific News" widget accessible from the eLaboratory, allowing users to find information and news on these various databases and websites. The search criteria are parameterizable: the source of information and keyword need to be selected and can be saved. Also searching the users' profile information is possible.
- e) A "Projects widget" accessible from the eLaboratory, collecting a wide scope of projects in Africa related to Healthcare with a focus on eHealth. Projects are sought according to topics and/or countries, and the results are retrieved on a geographical map.
- f) A "Survey Widget" offering to build and disseminate surveys among the AFRICA BUILD portal community. The aim of this widget is to foster collaboration and research among the African researchers and communities of practice.
- g) A Mobility Brokerage Service designed to help African researchers to find training opportunities, jobs or mobility opportunities.
- h) DUDAL— a video webcasting tool for lectures or tutorials. This tool makes it easy to record and embed courses in ABP. It also facilitates streaming or downloading of webcasts. This user-friendly software has already been tested in Africa by the RAFT telemedicine network to work in "infrastructure-deficient environments", in particular when faced with low-bandwidth and unstable Internet connectivity [2].

In addition to the above tools or facilities, the "Social" Web 2.0 and the "intelligent" or "semantic" Web 3.0 facilities have granted the possibility for collaborative work within the project consortium. AFRICA BUILD has created networks and virtual communities in health research and biomedical informatics, where professionals can exchange wide-ranging materials and knowledge [3-4].

3. Closing session: lessons learnt from the use of the ABP and its eLearning courses and the next steps ahead. The experience at the University of Ghana, School of Public Health

The experience gained in developing the ABP, and using it to train African colleagues in bio-informatics and health research, will be used to improve know-how, research and technological capacities at selected African institutions or so-called "centres of excellence".

The next steps will be to sustain the resources and knowledge resulting from building the ABP and the bio-informatics and health research courses and transfer them to other bio-informatics and health research initiatives. Health educators and researchers will continue to develop courses and content relevant to the African health and research landscape to ensure sustainability of the portal. The knowledge is there, on the ABP and at the partners, now there is a need to apply it further in health research.

Acknowledgment

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