

## Enhancing Research Capacity of African Institutions through Social Networking

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### Abstract and Objective

Traditionally, participation of African researchers in top Biomedical Informatics (BMI) scientific journals and conferences has been scarce. Looking beyond these numbers, an educational goal should be to improve overall research and, therefore, to increase the number of scientists/authors able to produce and publish high quality research. In such scenario, we are carrying out various efforts to expand the capacities of various institutions located at four African countries—Egypt, Ghana, Cameroon and Mali—in the framework of a European Commission-funded project, AFRICA BUILD. This project is currently carrying out activities such as e-learning, collaborative development of informatics tools, mobility of researchers, various pilot projects, and others. Our main objective is to create a self-sustained South-South network of BMI developers.

### Keywords:

Capacity building, Developing countries, Education, Social Networks, Biomedical Informatics

### Method: creating a community of developers

Within the AFRICA BUILD project, we aim to build the infrastructures needed to increase e-learning and collaborative activities in various African Countries. In such direction, we have designed an architecture, based on Web Services, to support a sustainable collaborative environment integrating a broad range of heterogeneous free and open source software (FOSS) resources. This infrastructure will be articulated around a social platform for biomedical researchers—the AFRICA BUILD Portal (ABP). With a long-term, self-sustainable goal, we have promoted the use of FOSS and design software which can be used with low bandwidth connections. Finally, we aim to create and train what we called “the AFRICA BUILD community of developers” (ABCOD).

The open, social networking tool ELGG was selected to be the core of the ABP. To train the ABCOD on the use of the social network platform, we defined a methodology consisting on: a) staff selection, b) staff training and c) development & dissemination. The staff selection phase aimed to establish local groups of developers within each institution. Staff training is oriented to teach technical skills to the staff selected, by using a “blended” learning approach [1]. Several tools facilitate learning and communication within the ABCOD: (i) a forum to

exchange information and give feedback, (ii) a wiki with technical descriptions and examples, and (iii) a centralized Subversion (SVN) repository, where the ABCoD updates and downloads their developments. Finally, the ABCoD produces their own applications for the ABP, aiming to publish their results in international conferences and journals.

### Results

The main challenges that we faced in this work were: (i) the lack of technical staff in the African institutions, (ii) the lack of tools designed by Africans, and (iii) difficulties in communication, arising from the use of English, French and Arabic. After the training was completed, our ABCoD is currently composed by ten African and five European developers, who design and implement tools for the ABP. E.g., the Cameroonian group is developing an “open access literature” plugin to access PubMed Central, BioMed Central and the African Library Journal Online through a unified interface. The Malian team is creating a plugin to automatically provide users with scientific news from selected RSS feeds according to users’ profiles. The Egyptian group is developing a database containing biomedical initiatives and projects in Africa, and the Ghanaian team is developing a database of health educational programs. All these plugins are integrated in the ABP, available at: <http://ochoa.dia.fi.upm.es/africabuildportal>.

### Conclusions

In addition to the main challenges described previously, we encountered poor Internet connection in two centers (Mali and Cameroon) and a lack of ICT skills in some cases. In later steps, the AFRICA BUILD project plans to carry out pilots in areas such as HIV/AIDS and Reproductive Health involving the Institute of Tropical Medicine of Belgium and WHO. Finally, our objective is that such educational activities can be fully carried out (i.e. teachers, students and technicians) by African scientists themselves.

### References

- [1] Osguthorpe, R. T., & Graham, C. R. (2003). Blended learning systems: Definitions and directions. *Quarterly Review of Distance Education*, 4(3), 227-234