

State of the Art of IT-enabled Tools for Strengthening Health Research Capacity in Africa: Comprehensive Analysis

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Background and Purpose: eHealth in Africa is considered as a National Socio-economic Development Strategy according to the New Partnership for Africa's Development (NEPAD) Council "5Is" Perspective for Sustainability (Innovation, Individual, Investment, Infrastructure, and Industry).

The AFRICA BUILD project (www.africabuild.eu) uses Information and Communication Technology (ICT) and know-how; e-learning and knowledge-sharing via web-enabled virtual communities to promote health research; education and healthcare practice in Africa by creating virtual centres of excellence. So, a fundamental step to achieve these goals is to analyze the state of the art of utilizing IT-enabled tools in health research and education in Africa.

Methods: 271 literatures that used in this study were obtained by searching scientific portals, scientific journals and portals of international organizations. The search was limited to literature that was published within the past 10 years and written in English. Initially, an index of the collected literature was created. Then, the synthesis matrix methodology was used to build a matrix containing the resources against the topics and subtopics covered by the literature. Finally, an analysis of each topic was conducted through comparing different perspectives and making relations between different aspects and ideas. Furthermore, a needs assessment study collected primary data (surveys and mind-maps) to deeply analyze the requirements of the African partners of AFRICA.

Results: The main outputs of this study are the following:

- State of the art in eHealth in Africa: highlighting the importance of adopting eHealth in Africa and its adoption level. This section includes capacity building programs, eHealth challenges and opportunities, lessons learned from different activities (studies and implemented projects) and future outlook.
- Training assessment and needs: covering the minimum contents of a training plan in health research, analysis of requirements in Africa and training requirements and needs.
- Research and innovation systems for health and development: new aspects of utilizing research and innovation for health and development and the current activities carried out in this emerging discipline.

Conclusion: African countries share similar challenges (e.g. urban and rural population density), strengths and opportunities to improve the entire health systems and research through ICT. Most of the African countries implemented various projects and initiatives tackling these challenges with ICT support. Furthermore, the health capacities in these countries are aware about the potential ICT to improve health. On one hand, there is a great potential in Africa to build the required "Science, Technology and Innovation (STI)" capacities in the health sector, developing synergies between successfully implemented projects, and utilizing the recent initiatives and toolkits provided by international organizations for developing robust national health research systems along with national eHealth strategies.

On the other hand, African countries still face some common challenges in deploying ICT to greater extent in the health sector, including: poor infrastructure in many African countries, lack or low adoption

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HELINA 2013 M. Korpela et al. (Eds.)

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of common legal and regulatory standards for eHealth, strong need to the qualified workforce, and lack of political will and strong commitments of all involved stakeholders.

Keywords: Biomedical and Health Informatics, eHealth, Information and Communications Technology, Health Education and Research

Acknowledgement

This work has been funded by the European Commission through the AFRICA BUILD Coordination Action under the 7th Framework Programme (Grant Agreement no. 266474).