Connect Africa Summit

Kigali, Rwanda, 29-30 October 2007

Africa's Development Goals: a Role for CERN

Efforts must be stepped up in the fields of education, science and technology in order for Africa to meet its Development Goals. Successful attainment of these goals requires international co-operation and science with its world-wide collaborations is well placed to make an effective contribution to achieving the necessary improvements in education, science and technology in Africa. Information and Communication Tools are the crucial and proven tools for such collaboration.

CERN is an intergovernmental organization with the mission to carry out fundamental research in Particle Physics. In pursuance of this main mission, CERN is also tasked with developing technologies, providing training and promoting international collaboration. These last three missions are directly related to the theme of this summit, and I am grateful for the opportunity to present CERN's vision and the actions it is ready to take towards implementing the goal of connecting Africa.

CERN produces and disseminates knowledge on an open access basis for the benefit of the worldwide scientific community and, indeed, for the benefit of society as a whole. Its research work is conducted collaboratively by thousands of scientists and engineers in global partnerships that transcend its 20 European Member States. CERN has formal agreements with over 40 countries around the world, including in Asia and Latin America as well as in Africa.

In developing the infrastructure and technologies needed to pursue its goals at the cutting edge of scientific research, the Organization has always been a pioneer of new technologies. In particular, the World-Wide Web was invented at CERN in order to enable scientists in all countries to work together, and then made freely available to the global community, thereby breaking down information barriers around the world.

In CERN's view, Science has always played and will continue to play a crucial role in the development of the Information Society. The international scientific community has a key role to play in contributing towards resolving two significant challenges for Africa, the digital divide and the training and knowledge deficit, in particular by providing open access to scientific results from publicly-funded research and by capacity-building through education and training. CERN wholeheartedly supports Africa's efforts to attain the Millennium Development Goals and is ready to play its part in assisting Africa to achieve them by providing access to its facilities and training opportunities.

Since the scientific community in Particle Physics has a long tradition of global collaboration, CERN is ready to grant access to its information and communication technologies to empower scientists not previously prominent in scientific research. Several general themes emerged from WSIS and received support from CERN:

- education as a key for development;
- fundamental scientific information must be made freely available;
- software tools for disseminating this information should also be made freely available;
- networking infrastructure for distributing this information should be established world-wide;
- training of people and equipment to use this information should be provided on the spot, where appropriate.

I would now like to describe how CERN addresses these challenges with specific actions.

CERN is in the vanguard of the Open Access movement which aims to grant anyone, anywhere access to the results of publicly funded scientific research at any time. In this regard, it operates an Open Access digital library with almost 1 million records relevant to its scientific field and is now promoting a consortium to make peer-reviewed literature available to scholars worldwide free of charge. CERN is working with the UNESCO International Basic Science Programme to clone its digital library system and make it available to scholars in African countries such as the Central African Republic, Ghana, Madagascar, Rwanda and South Africa, thus solving bandwidth problems. It also offers to host African theses and other scientific literature in its digital library and make them generally accessible. These latter actions are being taken in liaison with the DATA-D project of the AAU and with ICTP.

Following the example of the World-Wide Web, CERN and its partners are leading the development of Grid computing for science, which harnesses the power of advanced data centres in research institutions. Another form of Grid computing, called volunteer computing, aggregates the spare computing capacity of millions of ordinary PCs around the world. In this context, CERN contributed to launching the Africa@home partnership for volunteer computing, which also includes the World Health Organization. This partnership promotes the use of volunteer computing to resolve humanitarian challenges facing Africa, and disseminates this technology to African scientists. Over 50 scientists from 20 African countries have participated in Africa@home workshops, and an initial application for malaria epidemiology is now running on over 30,000 volunteer PCs around the world.

CERN makes training opportunities available to students, physicists, information technologists and engineers, partly in partnership with the UNESCO International Basic Science Programme. These training opportunities include CERN's Openlab for collaboration on Grid technology and the Summer Student programme for undergraduate students of science, engineering and information technology, as well as cutting-edge scientific research. The latter is partly in collaboration with ICTP. CERN has established a network of education and training in Particle Physics together with other European and with Latin American organizations. This network called HELEN, financed to a large extent by the EU, is considered to be very successful. CERN is exploring the possibility of developing an analogous Africa-Europe network adapted to your wishes and needs.

CERN also welcomes African participation in its programmes for high-school teachers which already include a few participants from African countries. We are willing to expand the opportunities for African teachers to participate in these Physics Teachers' programmes. CERN may offer to organize schools in information technology, including digital libraries, which could be organized in any interested country in Africa, financed from sources outside CERN.

As Rwanda is among the leaders in information technology in Africa, it could play a prominent role in all these activities. CERN looks forward to developing a fruitful relationship with your country and with your continent.

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