

Highlights of the Internet for Africa meeting, Montpellier 10-12 Dec 2007



Fondation "Partager le Savoir"
Sharing Knowledge Foundation

ICT Meeting, Brussels 31 January 2008

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About our Foundation

- The series of meetings "Sharing Knowledge Across the Mediterranean" started in 2004 at CERN, and were followed by Casablanca 2005 and Trieste (ICTP) in 2006.
- The aim is to foster North-South scientific dialogue. A broad range of topics have been tackled, from fundamental science to how to meet basic needs (food, energy, water, prevention of disasters). Fighting the Digital Divide is a recurrent topic.
- The meetings were initially, under the aegis of AFAS (French Association for the Advancement of Science"). In November 2006, I established a Foundation, based in Geneva, in order to further develop that international activity.
- In addition to our yearly forum, each year we focus on one or two important problems:
 - June 2007 Geneva: "Managing water in the Middle East".
 - December 2007, Montpellier: "Internet in Africa".



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Why did we choose that particular topic?



In addition to ethical reasons, many fields of science demand universal coverage: Human and Animal Health, Earth Sciences, Environment and Prevention of disasters.



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Who came to Montpellier?

- 14 Scientists from 7 West African Countries (Senegal, Ivory Coast, Benin, Congo Democratic Republic, Congo Brazzaville, Cameroon, Ghana), including those working abroad (Brussels, Paris).
- Institutions from Europe (ICTP Trieste, Fondation FARM Paris, Fondation EADS Paris, SELEX Communication Rome, CIRAD Montpellier, IBM Montpellier and from the US (Stanford University)).
- Organisers: The Foundation, together with CNRS "Institut des Grilles".



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Internet in Africa vs.rest of the World

WORLD INTERNET USAGE AND POPULATION STATISTICS						
World Regions	Population (2006 Est.)	Population % of World	Internet Usage, Latest Data	% Population (Penetration)	Usage % of World	Usage Growth 2000-2006
Africa	915,210,928	14.1 %	32,765,700	3.6 %	3.0 %	625.6 %
Asia	3,667,774,066	56.4 %	394,872,213	10.8 %	36.4 %	245.5 %
Europe	807,289,020	12.4 %	308,712,903	38.2 %	28.4 %	193.7 %
Middle East	190,084,161	2.9 %	19,028,400	10.0 %	1.8 %	479.3 %
North America	331,473,276	5.1 %	229,138,706	69.1 %	21.1 %	112.0 %
Latin America/Caribbean	553,908,632	8.5 %	83,368,209	15.1 %	7.7 %	361.4 %
Oceania / Australia	33,956,977	0.5 %	18,364,772	54.1 %	1.7 %	141.0 %
WORLD TOTAL	6,499,697,060	100.0 %	1,086,250,903	16.7 %	100.0 %	200.9 %

NOTES: (1) Internet Usage and World Population Statistics were updated for Sept. 18, 2006. (2) CLICK on each world region for detailed regional information. (3) Demographic (Population) numbers are based on data contained in the [world-gazetteer](#) website. (4) Internet usage information comes from data published by Nielsen//NetRatings, by the International Telecommunications Union, by local NICs, and other other reliable sources. (5) For definitions, disclaimer, and navigation help, see the [Site Surfing Guide](#). (6) Information from this site may be cited, giving due credit and establishing an active link back to [www.internetworldstats.com](#). © Copyright 2006, Miniwatts Marketing Group. All rights reserved worldwide.

Three times less penetration than any other region
Enormous market opportunity and potential for growth!

Internet in Africa is hundreds times more expensive than in Europe or the US.

- A yearly subscription to Internet costs more than the average income of most Africans.
- Median Africa: 5460\$/Mbs/month (8000\$ for West Africa)
- Median OECD: 16\$, Japan: 3.09\$
- **Vital necessity to have Research and Education Networks similar to Europe's GEANT.**

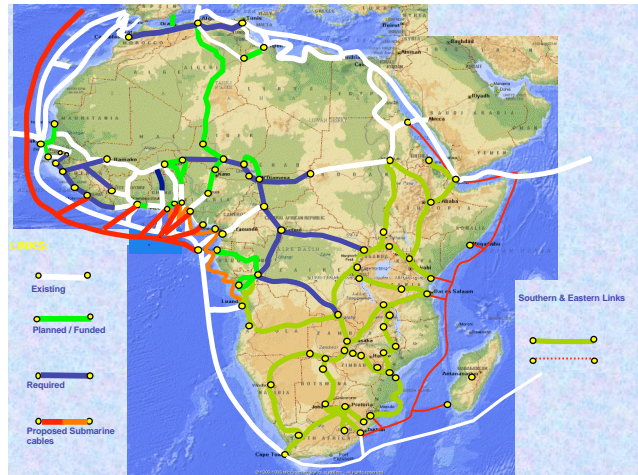


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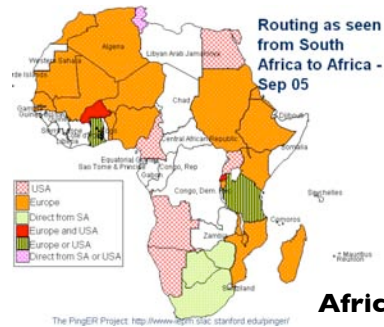
Cable Infrastructure exists but is poorly utilised



Sat-3 run by a consortium of state monopolies that has opted for elite rather than mass market.
Prices tend to align to satellite in the absence of competition!

“Black” Fibres installed along roads, pylons etc.. remain unused because of monopoly regulation!

No direct connection from one country to the other.

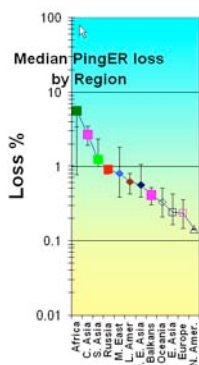


Need to go through Europe or the US

Costly waste of International Bandwidth is one of the reasons for high costs.

Africa needs International Exchange Points in every country

Shortcomings in usability



Bit losses are 100x higher than in the US or Europe. Precludes e.g. VOIP
Power outages mean blackouts in connection. Can be fatal in e.g. tele-medecine...

Vision Statement

- The development of Africa must involve Science, Technology, Education and Innovation, unleashing its potential to reach the level of the other continents.
- The Internet, including its most advanced forms such as Grids, is the tool of choice for the development of the Centers of Excellence emerging on the African continent and their international integration.
- For the general population, numerous studies show a correlation between Internet penetration and Human Development Index.
- To develop Internet in Africa, both for the General Population and for the most advanced University, Research and Learning Centers **should be a top priority of all decision makers.**



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Recommendation 1: Infrastructures

- Ask African governments to enforce a regulatory environment favorable to the development of ICT
- Develop Education and Research Networks with their own infrastructure.
- Generalise e-government infrastructures to facilitate administration.
- Set-up Exchange Ports at all levels (national, trans African, International)
- Use existing or planned infrastructure (electric power lines, pipelines, roads) as support for fiber optic network. More extensive coverage could be provided by wireless (WiMax) technology.
- Support quantitative performance monitoring, in particular International PINGER collaboration.
- Encourage the widespread use of Internet: digital literacy, favorable economic conditions to prices of access.



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Recommendation 2: Develop Scientific Collaborations using ICT

- African scientists face isolation and many of them develop their research in Northern Countries. It is difficult for them to enter scientific collaborations due to inadequate means and infrastructure.
- There is a need to network African Science in order to meet identified needs in fields such: Human and Animal Health, Environment, Climate and the Prevention of Disasters. We recommend the creation of regional and continental Thematic Scientific Communities.
- A **Pilot Programme for Grids** should be set-up at a regional level to offer African scientists the technical resources needed to implement their program.
- A top priority should be assigned to financing that pilot project.



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Recommendation 3: adaptation to African realities

- Rurality remains an important component in Africa. Hence the importance of affordable wireless solutions and fast growth of mobile telephony.
- Internet content: what language? Oral vs. written content.
- Train local technical expert and as well as mediators to improve computer literacy of general population.
- The price of ICT should be made affordable to the public in conformity with worldwide trends (see recommendation I)



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Recommendation 4 : Shared scientific Information Systems.

- ICT provides a framework for collaboration at national, regional, international level and with the Diaspora.
- Given the weak level of scientific exchanges within Africa, we recommend all regulatory measures to favor the development of ICT and the development **Shared Scientific Information Systems.**



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More information on the activities of our Foundation,
in particular about our coming meeting (7-9n April
2008, in Chania (Crete)
can be found on our site.

www.partager-le-savoir.org

or

www.sharing-knowledge.org

THANK YOU



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Grid nodes in Africa

- Given the very good synergy observed so far between emerging scientific international collaborations and grids node implementation, we would like to proceed to implement a few grid nodes in subsaharian African universities
- First candidates are South Africa and Senegal
- First themes are climate, agriculture earth sciences and health
- Gather momentum to prepare a EUAFRICAGRID FP7 project similar to EUMEDGRID, EUCHINA, EELA,... with several African partners and European EGEE members



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Details for early implementation of Grid Nodes in Africa

- Pick up a University combining a dynamic and well motivated computing group with students and a science team and decent infrastructure (networking, computers, ..)
- Organize a site visit by a few EGEE experts for about a week
- Invite two or three African scientists/students for one month in Europe for training
- Install the middleware and the applications!



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