




# 2010 Euro-Africa e-Infrastructures Conference

Helsinki, Finland - December 9-10, 2010



Teaming up for a strengthened and coordinated approach to foster Euro-African cooperation on e-Infrastructures

## CONFERENCE OUTPUTS





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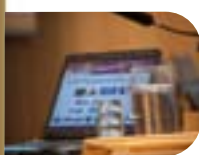
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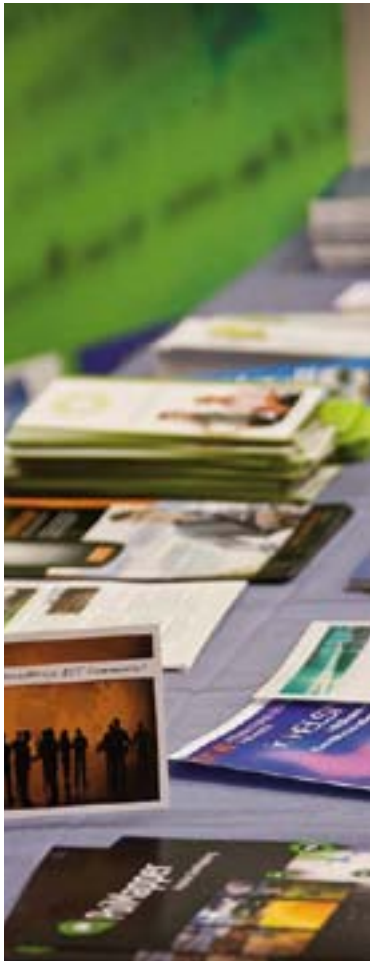
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## **USEFUL LINKS** 55

- Conference agenda  
[http://ei-africa.eu/files/2011/01/2010\\_EuroAfrica\\_eInfra\\_Conference\\_Agenda.pdf](http://ei-africa.eu/files/2011/01/2010_EuroAfrica_eInfra_Conference_Agenda.pdf)
  
- Photo gallery  
<http://ei-africa.eu/photo-gallery/>
  
- Survey analysis  
[http://ei-africa.eu/files/2011/02/EuroAfrica\\_Week\\_Survey\\_Results.pdf](http://ei-africa.eu/files/2011/02/EuroAfrica_Week_Survey_Results.pdf)
  
- Delegate information package  
<http://ei-africa.eu/files/2010/09/Delegate-Information-Package.pdf>
  
- Online attendee list  
<http://ei-africa.eu/attendees/>



# ACKNOWLEDGMENTS



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- The European Commission Directorate-General Information Society and Media (DG INFSO) for its constructive assistance and comments in the preparation of this event; especially Zoran Stančić (Deputy Director-General), Kostas Glinos (Head of Unit, GÉANT & e-Infrastructures),

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We would like as well to express our gratitude to the event sponsors (the EC / the AUC / the Ministry for Foreign Affairs of Finland / the Ministry of Employment and the Economy of Finland / the Department of S&T of South Africa / eLearning Africa / Google / Nokia / VTT Finland / ACU, UK / AUF, Belgium / CSIR-Meraka Institute, South Africa / KIST, Rwanda / Makerere University, Uganda / Sigma Orionis, France / TWAS, Italy) who have significantly contributed in financially supporting African participation in the event. Thank you also to all event associated partners.

Our deepest appreciation also goes to the conference speakers, the session chairs and the session rapporteurs for their invaluable contributions to the event.

Thanks also to all those who have - in a way or another - contributed to the organisation and success of the “2010 Euro-Africa e-Infrastructures Conference” and to the large delegations of Africa and Europe for having taken some time of their busy schedules to participate in this important event.

Finally, we are grateful to the European Commission DG INFSO for having entrusted the e-Africa consortium with this great opportunity of teaming up for a strengthened and coordinated approach to foster Euro-Africa cooperation on e-Infrastructures.



# INTRODUCTORY REMARKS



It was a real privilege for the el-Africa Consortium to host the “2010 Euro-Africa e-Infrastructures Conference” held in the capital city of Finland on December 9-10, 2010, and aiming at paving the way for a strengthened and coordinated approach to foster Euro-Africa cooperation on e-Infrastructures.

This Conference - the 1st of its series - aimed at providing a forum for discussions and debates on recent developments and perspectives in the field. And it was really an honour for the el-Africa Partnership to host this very important meeting and to give its upmost support to those who are engaged in fostering cooperation between the two regions.

e-Infrastructures are a new way of doing research... They have not only become a prerequisite to deal with increased complexity in tackling scientific challenges, but they became a strategic tool to foster collaborative innovation globally. This new research environment in which all researchers - whether working in the context of their home institutions or in the framework of national or multinational scientific initiatives - have shared access to unique or distributed scientific facilities (including data, instruments, computing and communications) regardless of their type and location in the world, is of high interest and mutual benefits to Europe and Africa.

As a result and given the challenges we are facing in fostering this cooperation between the two continents and the growing interest in e-Infrastructures, the European and African Union Commissions, the Government of Finland, and the el-Africa Partnership believe

this meeting was particularly opportune and timely. We all were very encouraged by the impressive turnout for this important event despite the difficulties we met to organise it (Finnair strike and incredibly bad weather conditions). The high attendance to this meeting really demonstrated the community confidence in the future of collaborative initiatives between the two regions.

It is with great pleasure that we present this report on the “2010 Euro-Africa e-Infrastructures Conference” which brought together an array of expertise from Africa, Europe and the rest of the world.

Against the backdrop of the global financial crisis, speakers agreed that now more than ever Africa is poised to play a great role in the new world order. Panellists, along with some 200 of the participants, debated on the role of e-Infrastructures.

e-Infrastructures are crucial for enabling virtual global research communities, which are drivers for social and economic well-being. Furthermore, the combination of ICT-based resources and associated tools and services allow new ways of collaborating and sharing resources independently of the researcher's geographical location.

This document relates the many interesting and stimulating discussions we had during the event. We had much to learn and many voices to hear over two days.

We hope this report gives useful insights into our debate. Despite enormous challenges, a growing number of success stories in public and private sectors must not be forgotten. This report offers examples of these. We would certainly encourage you to help us to keep the momentum...

**KORINE VALIN**

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*On behalf of the el-Africa Partnership*

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PART I  
2010 EURO-AFRICA WEEK  
ON ICT RESEARCH &  
E-INFRASTRUCTURES  
(DEC. 7-10)



# 1. THE EURO-AFRICA WEEK: AT A GLANCE

2010 EURO-AFRICA WEEK ON ICT RESEARCH & E-INFRASTRUCTURES  
Marina Congress Centre - Helsinki, Finland - December 7-10, 2010

A series of events held under the aegis of the European Commission (DG INFSO: International Relations Unit + GéANT and e-Infrastructures Unit) and the African Union Commission with the support of the Finnish Government (Ministry for Foreign Affairs + Ministry of Employment and the Economy).

A week organised by the FP7 EuroAfrica-ICT ([www.euroafrica-ict.org](http://www.euroafrica-ict.org)) and the ei-Africa ([www.ei-africa.eu](http://www.ei-africa.eu)) EU-funded projects with the support of the VTT Technical Research Center of Finland ([www.vtt.fi](http://www.vtt.fi)) and the ERINA4Africa EU-funded project ([www.erina4africa.eu](http://www.erina4africa.eu)).



	Tues. 7/12	Wed. 8/12	Thur. 9/12	Frid. 10/12
3rd Euro-Africa Cooperation Forum on ICT Research ▶	[Event]			
2010 Euro-Africa e-Infrastructures Conference ▶			[Event]	
Lab Visits ▶				[Event]

## SPONSORS



## ASSOCIATED PARTNERS



## 2. THE EURO-AFRICA WEEK: BACKGROUND

S&T COOPERATION BETWEEN EUROPE AND AFRICA HAS ENTERED A VERY PROMISING PHASE...



In the last decade, the African continent has quite significantly changed politically and economically and seems to have entered a true period of economic and social development, and started to move - under the aegis of the African Union (AU) created in 2002 - towards an integrated area of peace and prosperity.

In this context, many world powers have logically been striving during this period for closer links with the African continent. It has obviously been the case of European countries but it has, first and foremost, been the case of the European Union (EU):

- Adopting a "EU Strategy for Africa" in 2005; promoting in particular a more coordinated approach of the European Member States (MS) policies and activities regarding Africa
- Agreeing with the AU, end of 2007 in Lisbon (during the second EU-AU Summit), on a "Africa-EU Joint Strategy and Action Plan - JSAP" going beyond donor-recipient arrangements, and paving the way for a partnership of equals based on mutual interest
- North Africa - addressed through the "Euro-Mediterranean Partnership" (Euromed), formerly known as the "Barcelona process" and re-launched in 2008 as the "Union for the Mediterranean"
- Sub-Saharan Africa - addressed through the "ACP-EC Partnership Agreement", known as the "Cotonou Agreement" signed in 2000 in Cotonou, Benin and entered into force in 2003
- South Africa - addressed through a Strategic Partnership signed in 2007 and building on former and thematic agreements





Africa has also recognised that S&T and ICT are key vectors for bridging the scientific and digital divides, for reducing poverty and ensuring socio-economic development, for reaching the Millennium Development Goals (MDGs), and, eventually, for supporting the sustainable evolution of Africa. The Africa Science and Technology (S&T) Consolidated Plan of Action (CPA) formulated by the New Partnership for Africa's Development (NEPAD) and the AU, the creation of the African Ministerial Council on Science and Technology (AMCOST), and the African Regional Action Plan on the Knowledge Economy (ARAPKE), are only some of recent examples of Africa's determination to rely on S&T and ICT to achieve its growth and development objectives.

Meanwhile, in their determination to ensure Europe's global leadership in ICT and in line with their i2010 initiative, the EU Member States have earmarked a total of EUR 9.1 billion for funding ICT research over the duration of FP7, a research programme including an important international dimension, being open to the participation of sub-Saharan African organisations. In this context, a strengthened S&T cooperation between Europe and Africa on ICT is of mutual and strategic interest to the European and African research organisations and industries, and can efficiently contribute to implementing the new EU-AU Joint Strategy.

It is also quite logical that one of the 8 thematic partnerships identified in Lisbon in 2007 on the occasion of the EU-AU Summit is a "Partnership for Science, Information Society and Space" (also known as the "8th partnership"). This thematic partnership focusing on 19 lighthouse projects (6 of them being considered as early deliverables) is under implementation since October 2008 and should widely contribute to strengthening S&T cooperation links between the two continents in the ICT domain.

### In the Information Society domain: AfricaConnect and the African Internet Exchange System (AXIS) are considered as early deliverables.

#### ▪ AFRICACONNECT



The AfricaConnect project will support the development of regional research and education networks in sub-Saharan Africa and their interconnection with the European GÉANT network, building on a similar initiative, Eumed Connect, implemented in North Africa (currently interconnecting around 1,5 Million users across more than 500 research organisations).

The objective will be to contribute integrating the African research community both at regional and international levels, through interconnection with the most cost-effective high bandwidth capacity.

#### ▪ THE AFRICAN INTERNET EXCHANGE SYSTEM (AXIS)

This project aims to support the establishment of a continental African Internet infrastructure through national and regional Internet exchange points. Such deployment is considered crucial for the development of the Internet in Africa, generating huge costs savings by keeping local traffic local and offering better quality of service and new applications opportunities. AXIS activities will include technical assistance on planning, regulatory/policy issues, as well as human training to achieve this objective.



## 3. THE EURO-AFRICA WEEK: EXECUTIVE SUMMARY

Bringing together around 325 attendees coming from 55 different countries over Europe and Africa, the “2010 Euro-Africa Week on ICT Research and e-Infrastructures” took place in Helsinki, Finland, on December 7-10 and ended on a very high note of optimism. Presentations and debates were welcomed with very enthusiastic participation from the delegates and most of the interviewed participants judged the event to be a resounding success, giving a very good or excellent rating to the overall event (including networking opportunities) and content.

### 3.1 - Event background

This series of events (conference, forum, lab visits, brokerage meetings) was held under the aegis of the European Commission (DG INFSO: International Relations Unit + GEANT and e-Infrastructures Unit) and the African Union Commission with the significant support of the Finnish Government (Ministry for Foreign Affairs + Ministry of Employment and the Economy). This week was organised by the FP7 EuroAfrica-ICT ([www.euroafrica-ict.org](http://www.euroafrica-ict.org)) and the eI-Africa ([www.ei-africa.eu](http://www.ei-africa.eu)) EU-funded projects with the assistance of the VTT Technical Research Centre of Finland.

Expressing the current political momentum for boosting both scientific and ICT partnerships between Africa and Europe, the “2010 Euro-Africa Week on ICT Research and e-Infrastructures” was designated as an official side event to the “3rd Africa-EU Summit” (November 29-30, 2010 - Tripoli, Libya) with the main objective of launching the newly adopted Action Plan 2011-2013 of the “8th Africa-EU Strategic Partnership on Science, Information Society, and Space”.

### 3.2 - Event context

A first wave of market liberalisation and private investments are at the origin of impressive developments in Africa such as the unprecedented boom in mobiles with a number of mobile users that grew from nearly 10 millions in 2000 to almost 400 millions today (note: mobile networks currently covers 90% of the urban population...). This means that through innovative business models (i.e. e-Services) as well as infrastructures sharing, network operators are today cutting costs and increasing access. But these efforts have limitations without favourable regulatory environments, licensing and taxation regimes that further enhance business, investments and penetration, instead of inhibiting them. There is a lot to do in this field, especially since the high levels of coverage hide significant variations between countries.

Unlike expanded access to mobile telephony services, access to the Internet and broadband services remain very low on the continent, mainly due to prohibitive tariffs, limited capacity and availability of infrastructures as well as poor computer literacy. In this domain again, fair and predictable pro-access regulatory environments, promoting markets liberalisation and competition need to be implemented as well as sound spectrum management, which is essential for the roll-out of wireless broadband services.

The challenges are now to tackle those remaining gaps in line with the AU Summit outcomes, in order - among other things - to exploit the potential of mobile and wireless technologies, including

satellite technologies, for high speed data services, and leverage the conditions that fuelled the success of mobile telephony penetration, to further increase investments in broadband infrastructures. New international submarine cables are bringing the broadband fibre capacity Africa was lacking, and competition among providers is resulting in substantial tariffs decreases. But still, terrestrial backbones are missing and strong coordination and investments efforts are needed for bridging the gaps and exploit synergies, especially with the transport and energy sectors.

### 3.3 - Event outputs

Among the main issues that came under the spotlights of this important event focusing on the “Information Society” component of the 8th Africa-EU Strategic Partnership on Science, Information Society, and Space (the so-called Partnership 8) and aiming - among other things - at getting an insight into the status and perspectives of the Euro-African collaborative initiatives addressing research, development and innovation on ICT (ICT research: forum of Dec. 7-8) and the research and education networks (e-Infrastructures: conference of Dec. 9-10) were the following:



- Presentation of the different S&T/ICT cooperation frameworks by the European and the Africa Union Commissions

- Identification of leading S&T/ICT research areas of common interest and mutual benefits to the two regions (especially in the health and the education sectors)

- Reassertion of the necessity to have in Africa a more inclusive and affordable access to ICT applications and services and a widespread use of ICTs (in particular the Internet) across all socio-economic sectors in order to fast-track the MDGs objectives

- Reaffirmation of the need to promote cooperation in Research and Education Networking exploiting interconnection between the European GEANT network and established African regional networks, and supporting the development of an integrated pan-African Research and Education Network

- Identification of impediments to be overcome such as the lack of a dedicated financing tool and appropriate financing sources which constitute a prerequisite for the implementation of Partnership 8; this despite the recognition at the highest level of ICT as a critical driver to fast-track African transformation (i.e. the 2010 Addis Ababa AU Summit Declaration on ICT for Africa's development where African Union leaders have declared ICTs as a top-level priority in their development programmes and paved the way to the necessary reforms and programmes to be launched in order to unleash the full potential of those technologies on the continent)

- Reassertion of the need to enhance cooperation as regards the digital economy and to reduce the digital divide (including the private sector, international financial institutions and United Nations agencies)

The overall consensus among the participants who attended the event was that the "2010 Euro-Africa Week on ICT Research and e-Infrastructures" had provided them with significant insights into the on-going and planned EU-AU programmes for ICTs. Delegates found the opportunity to meet key players from the region and exchange experiences with international experts of great value and generally departed in an optimistic mood knowing that significant advances have been made since the launch of the "Africa-EU Strategic Partnership" in Lisbon in 2007 and the "1st Euro-Africa Cooperation Forum on ICT Research" that was convened in Brussels in March 2009.

### 3.4 - Event partners

The el-Africa and EuroAfrica-ICT Partnerships would like to express their gratitude and special thanks to the "Euro-Africa Week" partners:

- Event Hosts - European Commission / African union Commission / Finnish Ministry for Foreign Affairs

- Event Sponsors - ACU, UK / AUF, Belgium / CSIR, South Africa / DST, South Africa / ESASTAP / eLearning Africa / Google / KIST, Rwanda / Makerere University, Uganda / Ministry of Employment and the Economy, Finland / Ministry for Foreign Affairs,

Finland / NOKIA, Finland / Sigma Orionis, France / TWAS, Italy / VTT, Finland

- Event Supporting Organisations - Abidjan Live News, Nigeria / CAPDA, Cameroon / CTO, UK / eMobility European Technology Platform / e-ScienceTalk / GDCO / ICT4D / ICTD2010 / ISI European Technology Platform / NEM European Technology Platform / NESSI European Technology Platform / ITU-WSIS Stocktaking Platform

### 3.5 - About the el-Africa project

- el-Africa (e-Infrastructures Africa) is an EU/FP7 support action aiming at strengthening Euro-African cooperation on e-Infrastructures.

- Partnership: Sigma Orionis, France (Coordinator)

- [www.ei-africa.eu](http://www.ei-africa.eu)

### 3.6 - About the EuroAfrica-ICT project

- EuroAfrica-ICT is an EU/FP7 support action with the aim of enhancing and supporting the development of S&T cooperation on ICT research between Europe and Africa.

- Partnership: AUF, Belgium / ACU, UK / CSIR, South Africa / KIST, Rwanda / Makerere University, Uganda / Sigma Orionis, France (Coordinator) / TWAS, Italy

- [www.euroafrica-ict.org](http://www.euroafrica-ict.org)





PART II  
3RD EURO-AFRICA  
COOPERATION FORUM  
ON ICT RESEARCH

(DEC. 7-8)



## 1. EUROAFRICA-ICT AT A GLANCE

### SUPPORTING POLICY DIALOGUES & STRENGTHENING COOPERATION WITH SUB-SAHARAN AFRICA

**E**uroAfrica-ICT ([www.euroafrica-ict.org](http://www.euroafrica-ict.org)) is a EU/FP7 project spanning over 24 months (2010-2011) with the aim of supporting policy dialogues and strengthening cooperation on ICT research between Europe & sub-Saharan Africa. The EuroAfrica-ICT project is defined in full continuity with and builds upon the substantial results obtained and the significant momentum created by two previous initiatives: the FP6/IST START project (2006-2008) and the FP7/ICT EuroAfrica-ICT project (2008-2009) - both coordinated by Sigma Orionis.

**T**he EuroAfrica-ICT initiative which has been developing since 2005 through these two projects and which is supported by a high number of key stakeholders in the field both in Europe and in Africa, has established close synergies with most national and international programmes and initiatives; has already started to identify policy and research priorities to support the development of policy dialogues and has provided the European and African research communities with continuous and reliable support and guidance.

**E**uroAfrica-ICT has the strategic objective to promote and enhance ICT research cooperation between the two continents thanks to - among other things - the organisation of the "Euro-Africa Cooperation Forums on ICT Research" - conferences filled with discussions and debates, networking opportunities and knowledge-sharing among key stakeholders in the field and policymakers coming from all over Europe and Africa. As an international project, EuroAfrica-ICT also seeks to raise awareness on FP7/ICT cooperation opportunities between the two continents.

### EuroAfrica-ICT PARTNERSHIP

- ▶ ACU - The Association of Commonwealth Universities, UK
- ▶ AUF - The Agence Universitaire de la Francophonie, Belgium
- ▶ CSIR - The Meraka Institute of CSIR, South Africa
- ▶ KIST - The Kigali Institute of Science and Technology, Rwanda
- ▶ MAKERERE - The Makerere University, Uganda
- ▶ SIGMA - Sigma Orionis, France (Project Coordinator)
- ▶ TWAS - The Academy of sciences for the developing world, Italy





## MAIN PROJECT ACTIVITIES & EXPECTED OUTPUTS



**I**dentification of Euro-African ICT Research Priorities (once identified and analysed in detail, these priorities will lead to recommendations which may be taken into consideration in facilitating the rapid emergence of Euro-African collaborative projects addressing identified ICT research areas).

**P**rovide Support and Guidance to European and African organisations in their efforts to connect and develop collaborative research projects in the ICT field (virtual community of researchers, database of research institutes, proactive helpdesk services, etc).

**O**rganisation of Cooperation Events both in Europe and in Africa (concertation meetings targeting the development of synergies between national and international cooperation initiatives, awareness and thematic workshops mainly aiming at raising awareness on FP7/ICT and cooperation opportunities, and cooperation forums focusing particularly on ICT policy and research priorities).



▶ Project acronym	EuroAfrica-ICT.org
▶ Project baseline	Supporting Policy Dialogues and Strengthening Cooperation with sub-Saharan Africa
▶ Project Number	248376
▶ Funding Scheme	Coordination & Support Action / CSA-SA
▶ Programme	FP7
▶ Specific Programme	Cooperation
▶ Call Identifier	FP7-ICT-2009-4
▶ Thematic Area	International Cooperation / Information and Communication Technologies (ICT)

▶ Duration	24 months (2010-2011)
▶ EC Project Officer	Thierry Devars, International Relations Unit, DG INFSO, EC
▶ Project Coordinator	Karine Valin, Sigma Orionis (www.sigma-orionis.com)
▶ Partnership (7)	ACU / AUF / CSIR / KIST / Makerere / Sigma Orionis / TWAS
▶ Website	www.euroafrica-ict.org
▶ E-mail	info@euroafrica-ict.org



## 2. 3<sup>RD</sup> FORUM: AGENDA AT A GLANCE

3RD EURO-AFRICA COOPERATION FORUM ON ICT RESEARCH  
Helsinki, Finland (Scandic Marina Congress Centre) - December 7-8, 2010

DAY 1 - December 7, 2010	
07:00+ am	Registrations & welcome of participants
08:30 - 10:00 am	Opening session & welcome addresses
10:00 - 10:30 am	Coffee & tea break offered by Google 
10:30 - 10:45 am	UNCTAD 2010 Information Economy Report: ICT, enterprises & poverty alleviation
10:45 am - 12:00 pm	AU and EU Frameworks - Priorities, implementation status, and remaining challenges
12:00 - 01:00 pm	Networking buffet lunch
01:00 - 03:00 pm	Africa-EU Partnerships - Strengthening capacities
03:00 - 03:30 pm	Coffee & tea break
03:30 - 04:30 pm	ICT Key mechanisms for innovation - The enabling environment (tangible case studies & flagship projects)
04:30 - 05:30 pm	Roundtable Discussion - Financing ICT development & innovation in Africa
05:30 - 06:30 pm	Roundtable Discussion - Public-Private Partnerships (PPP): the private sector's viewpoint
07:00 - 10:00 pm	Networking buffet dinner offered by the Ministry for Foreign Affairs of Finland 

DAY 2 - December 8, 2010				
08:00+ am	Registrations and welcome of participants			
09:00 - 10:00 am	Cooperation under EU Research Programmes			
10:00 - 10:30 am	Coffee & tea break			
10:30 am - 12:00 pm	Thematic sessions - Part I			
	Session 1a - e-Learning & e-Skills (technology enhanced learning)	Session 1b - e-Infrastructures & GÉANT (from research networking to global virtual research collaboration)	Session 1c - e-Health (advanced technology to improve health)	Session 1d - e-Libraries (services & digital content infrastructures)
12:00 - 01:30 pm	Networking buffet lunch			
01:30 - 03:00 pm	Thematic sessions - Part II			
	Session 2a - e-Agriculture, e-Food, ICT for Environmental Sustainability & Energy Efficiency (enabling environment, climate change effects, disaster management, etc.)	Session 2b - Evolution and convergence of networks, infrastructures, equipment and services towards Future Network solutions	Session 2c - e-Inclusion & e-Accessibility (ICT for independent living, social inclusion, youth/women and the Information Society, etc.)	Session 2d - e-Governance (secure services to citizens & business)
03:00 - 03:30 pm	Coffee & tea break			
03:30 - 05:00 pm	Thematic sessions - Part III			
	Session 3a - Local innovation & technology transfer	Session 3b - m-Banking	Session 3c - WORKSHOP Building and Strengthening Capacities in ICT Research in Africa (training programmes, ongoing initiatives, etc.)	Session 3d - WORKSHOP Identifying joint ICT Research Priorities
05:00 - 05:30 pm	Closing session & concluding addresses			
06:30 - 08:30 pm	Networking dinner			



PART III  
2010 EURO-AFRICA  
E-INFRASTRUCTURES  
CONFERENCE

(DEC. 9-10)



## 1. FOREWORD FROM THE EUROPEAN COMMISSION

As a combination of ICT-based resources and associated tools and services such as networks, computing systems and scientific data repositories... As a new way of collaborating and sharing resources independently of the researcher's geographical location. As a key enabler for virtual global research communities... As a driver for social and economic well-being... e-Infrastructures are definitely changing the way science is carried out!

Researchers are today facing unprecedented levels of complexity in tackling scientific challenges with global societal impact. These challenges cannot be addressed by a single researcher, institution or country. Examples: researching climate change requires complex computer simulations that access data stored in on-line repositories all over the globe; creating individualised models of humans for targeted healthcare requires increasingly sophisticated modelling and simulation; and emulating catastrophes such as pandemics and tsunamis requires researchers to increasingly experiment in virtual worlds rather than in real environments. In all these examples it is essential to bring together scientists from different scientific fields, from different parts of the world, and to give them access to top-of-the-line computational and data resources. This is what e-Infrastructures are about: enabling collaboration, sharing resources, and providing access to information.

The insufficiency of infrastructure on the African continent (Intra-African telecommunications mostly need to be sent via the North due to poor interconnection facilities...) severely constrains economic growth and unfortunately hampers human and social development.

In the meanwhile S&T cooperation between Europe and Africa has now entered a very promising phase. In this framework, e-Infrastructures are logically playing a key role (whereas S&T cooperation between the two continents has to be strengthened) since they provide research organisations with a key opportunity to share access to (regional or global) scientific facilities and to support the development of their

collaborative projects. Cooperation between Europe and Africa in the e-Infrastructures field particularly benefits from:

- The signature in October 2007 in Addis Ababa, Ethiopia, of the "EU-Africa Partnership on Infrastructure" ("creating and sustaining regional infrastructure networks and services") aiming at interconnecting the African continent (in transport, water, energy, and ICT), identifying EASSy (Eastern Africa Submarine Cable System) as a flagship project, and supported by the creation of the EU-Africa Infrastructure Trust Fund
- The quick development of African National Research and Education Networks (NRENs) and of their interconnection, a momentum supported by the African UbuntuNet Alliance
- The launch of the EU-funded FEAST study, coordinated by the Swedish Royal Institute of Technology (KTH), supported by Dante and the TERENA forum and aiming at providing the EC with recommendations concerning the implementation of a NREN backbone in Sub-Saharan Africa
- Last but not least, the AfricaConnect project supporting the development of NRENs in sub-Saharan Africa and their interconnection with Europe's GÉANT network

The "2010 Euro-Africa e-Infrastructures Conference" - the first of its kind - was an event that nobody wanted to miss. Aiming at standing out as the premier gathering place for all stakeholders engaged (or interested) in the e-Infrastructure domain, everyone concerned with e-Infrastructures developments and exploitation in Africa was very welcome to join the Conference to both share and learn!



**Kostantinos Glinos**

*Head of Unit GÉANT and e-Infrastructures  
Directorate-General Information Society and Media (DG INFSO)  
European Commission*



## 2. WHAT ARE E-INFRASTRUCTURES ?



e-Infrastructures are changing the way science is carried out. They are...

- A combination of ICT-based resources and associated tools and services such as networks, computing systems and scientific data repositories
- A new way of collaborating and sharing resources independently of the researcher's geographical location
- A key enabler for virtual global research communities
- A driver for social and economic well-being

## 3. E-INFRASTRUCTURES BY THEMES



e-Infrastructures comprise the following main components:

- Linking ideas at the speed of light: GÉANT
- Sharing the best scientific resources: e-Science grids
- Accessing knowledge: scientific data
- Designing future facilities: novel e-Infrastructure
- Innovating in the scientific process: global virtual research communities

## 4. THE GÉANT & E-INFRASTRUCTURES UNIT OF THE EC



The Research Infrastructures, part of the FP7 Capacities Programme, support an innovative way of conducting scientific research (referred to as e-Science) by the creation of a new environment for academic and industrial research in which virtual communities share, federate and exploit the collective power of scientific facilities.

The term e-Infrastructures refers to this new research environment in which all researchers – whether working in the context of their home institutions or in national or multinational scientific initiatives – have shared access to unique or distributed scientific facilities (including data, instruments, computing and communications), regardless of their type and location in the world.



The EC GÉANT and e-Infrastructures Unit (DG INFSO) aims at:

- Extending and reinforcing the high capacity communication infrastructure GÉANT
- Strengthening multidisciplinary grid and supercomputing infrastructures
- Expanding scientific data infrastructures
- Encouraging the adoption of e-Infrastructures by an increasing number of user communities
- Stimulating new organisational models
- Supporting the construction of new computation and data treatment facilities
- Exploiting the power of e-Infrastructure as a vector of international cooperation



## 5. E-INFRASTRUCTURES: THE POLICY CONTEXT



The Lisbon Strategy aims to build “the most competitive and dynamic knowledge-based economy in the world” in response to today’s economic and social challenges. The European Research Area (ERA) is a key component of the Lisbon Strategy because it boosts research infrastructures, promotes industry investment in European research and contributes to the creation of sustainable growth and jobs. e-Infrastructures are one of the central pillars of the ERA and support the i2010 initiative.

This is the EU policy framework for the information society and media. It fosters the use of information and communications technology (ICT) for research through:

- Building a common European information space: e-Infrastructures know no borders, allow researchers to co-operate, facilitate flow of information across Europe and beyond, and are easily accessible
- Strengthening ICT research and its deployment in Europe: as early adopters of new ICT developments, e-Infrastructures are validating ICT research results and paving the way for further innovation. They are an

excellent example of how ICT can be used to make science more effective

- Promoting an inclusive information society: e-Infrastructures make science accessible to all by facilitating access to scientific discoveries and increasing international cooperation

e-Infrastructures are rooted in the Capacities objective of the EU’s FP7 and inspired by the policy work carried out in the context of European Strategy Forum on Research Infrastructures (ESFRI), e-Infrastructures Reflection Group (e-IRG) and the ERA.



## 6. el-Africa: AT A GLANCE

### STRENGTHENING COOPERATION ON E-INFRASTRUCTURES BETWEEN EUROPE & AFRICA

el-Africa ([www.ei-africa.eu](http://www.ei-africa.eu)) is an EU/FP7 project spanning over 18 months (Oct. 2009 - March 2011) with the aim of strengthening cooperation on e-Infrastructures between Europe & Africa.

el-Africa (e-Infrastructures Africa) has the strategic objective to promote European e-Infrastructures developments and exploitation in Africa and to develop stronger cooperation links between Europe and Africa thanks to - among other things - the organisation of the "2010 Euro-Africa e-Infrastructures Conference". As an International e-Infrastructures project, el-Africa also seeks to reinforce the relevance of Europe's e-Infrastructures in Africa, to raise awareness on e-Infrastructures in Africa, and to ensure that e-Infrastructures project activities can get the highest visibility on the African continent.



Event addressed topics: from research networking to global virtual research collaboration...

- ▶ Innovating the scientific process (global virtual research communities)
- ▶ Accessing knowledge (scientific data)
- ▶ Experimenting in silico (simulation and visualisation)
- ▶ Sharing the best computational resources (e-Science grid, supercomputing)
- ▶ Linking at the speed of the light (GÉANT)

The European Union and the African Union have agreed, end of 2007 during their Summit in Lisbon, on an ambitious "Joint Africa-EU partnership" paving the way for a partnership of equals based on mutual interest, fully taking into account the increased economic and social development of the African continent and its move towards an integrated area of peace and prosperity. S&T cooperation on ICT can fully contribute strengthening the relations between the two continents, which has been acknowledged by the implementation of the so-called 8th Partnership: "EU-AU Partnership for Science, Information Society, and Space".

E-Infrastructures are logically playing a key role in the development of this cooperation, benefiting from the "EU-Africa Partnership on Infrastructures" signed in Oct. 2007, the quick development of African NRENs and their interconnection, the launch of the FEAST feasibility study, the AfricaConnect flagship project supporting the development of NRENs in sub-Saharan Africa and their interconnection to the European's GÉANT network, the AXIS flagship project, etc.

Meeting the networking needs of the e-Infrastructures domain, the "2010 Euro-Africa e-Infrastructures Conference" aims at becoming a key place for main stakeholders in the field coming from all over Africa and Europe. The conference organising team is gearing up for a very first exciting event filled with discussions and debates, networking opportunities, and knowledge-sharing among all key stakeholders in the field and policymakers. This event - the first of its kind in the field - aims at standing out as the premier gathering place for all experts and stakeholders engaged (or interested) in the e-Infrastructures domain.





The “2010 Euro-Africa e-Infrastructures Conference” is an event designed to anyone with an interest in e-Infrastructures. This Conference represents a unique opportunity for all parties involved in e-Infrastructures (from strategy to management), to increase the visibility and the impact of their activities, to network, and expand their knowledge:

- ▶ Find out how to increase the visibility and impact of your projects/ programmes!
- ▶ Meet with your worldwide peers and debate/ discuss best practices!
- ▶ Understand what is important when implementing NRENs or RRENS!
- ▶ Hear about success stories and case studies presenting innovative approaches and strategies!
- ▶ Benefit from valuable opinions and long experience of acknowledged experts in the field!
- ▶ Stay up to date with latest developments and trends in the e-Infrastructures field!
- ▶ Examine key components of effective e-Infrastructures developments and applications!
- ▶ Discuss with high-level policymakers!
- ▶ And many more benefits!

▶ Project acronym	el-Africa
▶ Project baseline	Strengthening Cooperation on e-Infrastructures between Europe & Africa
▶ Project Number	246650
▶ Funding Scheme	3.3 - Coordination & Support Action / CAS-SA
▶ Programme	FP7
▶ Specific Programme	Capacities
▶ Call Identifier	FP7-INFRASTRUCTURES-2009-1

▶ Thematic Area	Research Infrastructures
▶ Duration	18 months (Oct. 2009 - March 2011)
▶ EC Project Officer	Leonardo Flores, GÉANT and e-Infrastructures Unit, DG INFSO, EC
▶ Project Coordinator	Karine Valin, Sigma Orionis (www.sigma-orionis.com)
▶ Website	www.ei-africa.eu
▶ E-mail	info@ei-africa.eu



## 7. THE CONFERENCE: AT A GLANCE

### 7.1 - Context

The “2010 Euro-Africa e-Infrastructures Conference” was held on Dec. 9-10, 2010 in Helsinki, Finland, in the framework of the “2010 Euro-Africa Week on ICT Research and e-Infrastructures”:

- The “3rd Euro-Africa Cooperation Forum on ICT Research” (Dec. 7-8) was organised by the EuroAfrica-ICT Project ([www.euroafrica-ict.org](http://www.euroafrica-ict.org))
- The “2010 Euro-Africa Conference on e-Infrastructures” (Dec. 9-10) was organised by the ei-Africa Project ([www.ei-africa.eu](http://www.ei-africa.eu))
- And the visits to the Aalto University and to the Technical Research Centre of Finland (VTT) ICT laboratories (Dec. 10) were organised by both projects

This series of events (conference, forum, lab visits, brokerage meetings) was held under the aegis of the European Commission (EC DG INFSO: International Relations Unit + GÉANT and e-Infrastructures Unit) and the African Union Commission (AUC: Department for Human Resources and S&T + Department for Infrastructure & Energy) with the significant support of the Finnish Government (Ministry for Foreign Affairs & Ministry of Employment and the Economy).

This week was organised by the FP7 EuroAfrica-ICT ([www.euroafrica-ict.org](http://www.euroafrica-ict.org)) and the ei-Africa ([www.ei-africa.eu](http://www.ei-africa.eu)) EU-funded projects with the assistance of the VTT Technical Research Centre of Finland ([www.vtt.fi](http://www.vtt.fi)) and the ERINA4Africa EU-funded project ([www.erina4africa.eu](http://www.erina4africa.eu)).

Important note: expressing the current political momentum for boosting both scientific and ICT partnerships between Africa and Europe, the “2010 Euro-Africa Week on ICT Research and e-Infrastructures” was designated as an official side event to the “3rd Africa-EU Summit” (November 29-30, 2010 - Tripoli, Libya) with the main objective of launching the newly adopted Action Plan 2011-2013 of the “8th Africa-EU Strategic Partnership on Science, Information Society, and Space”.

The “3rd EuroAfrica-ICT Cooperation Forum on ICT Research” and the “2010 Euro-Africa Conference on e-Infrastructures” have been co-located in the same week in order to make it easier for African delegates to attend both events and to make it possible for the organisers to offer more mobility grants to African scientists.



### 7.2 - Addressed topics

The Conference addressed the whole e-Infrastructures programme (from research networking to global virtual research collaboration):

- Innovating the scientific process (global virtual research communities)
- Accessing knowledge (scientific data)
- Experimenting in silico (simulation and visualisation)
- Sharing the best computational resources (e-Science grid, supercomputing)
- Linking at the speed of the light (GÉANT)

### 7.3 - Programme

The Conference organising team geared up in early 2010 for a very first exciting event promising to be filled with discussions and debates, networking opportunities, and knowledge sharing among all key stakeholders in the field and policymakers.

The conference was arranged around six main themes (e-GOVERNMENT, e-SECURITY, e-LEARNING, e-HEALTH, EARTH OBSERVATIONS, and e-AGRICULTURE) and did feature various session types such a plenary sessions, presentation sessions, discussion and debate sessions, and networking sessions.



2010 EURO-AFRICA E-INFRASTRUCTURES CONFERENCE  
Helsinki, Finland (Scandic Marina Congress Centre) - December 9-10, 2010

<b>DAY 1 - December 9, 2010</b> Setting the Scene...	
07:30+ am	Registrations & welcome of participants
09:00 - 10:00 am	Opening session & welcome addresses
10:00 - 10:45 am	Setting the Scene... Part I - Research Infrastructures & e-Infrastructures for Science
10:45 - 11:15 am	Coffee & tea break offered by Google 
11:15 am - 12:00 pm	Setting the Scene... Part II - From research networking to global virtual research collaboration...
12:00 - 12:30 pm	Interconnecting Africa - Creating and sustaining regional infrastructure networks and services in Africa
12:30 - 01:30 pm	Networking buffet lunch
01:30 - 02:30 pm	Interconnecting the African NRENs to each other & to global research and education resources via GÉANT
02:30 - 04:00 pm	Roundtable Discussion - International Cooperation; Donor Partners
04:00 - 04:30 pm	Coffee & tea break
04:30 - 05:15 pm	Cables - Status & Perspectives
05:15 - 06:15 pm	Shaping the NRENs landscape in Africa - Harnessing on European National Research & Education Networks (NRENs) Best Practices
06:15 - 08:30 pm	Networking cocktail sponsored by the ERINA4Africa EU funded project 

<b>DAY 2 - December 10, 2010</b> Linking Policies to Applications	
08:00+ am	Welcome of participants
08:30 - 08:45 am	Linking policies to applications - Overview and existing synergies
08:45 - 10:45 am	Exploiting e-Infrastructures potential for boosting research and innovation in Africa and for fostering Euro-Africa cooperation Investigating best practices for e-Infrastructure application development - Part I SPECIFIC FOCUS on e-GOVERNMENT, e-SECURITY, e-LEARNING and e-HEALTH 
10:45 - 11:15 am	Coffee & tea break
11:15 am - 12:15 pm	Exploiting e-Infrastructures potential for boosting research and innovation in Africa and for fostering Euro-Africa cooperation Investigating best practices for e-Infrastructure application development - Part II SPECIFIC FOCUS on EARTH OBSERVATIONS & e-AGRICULTURE 
12:15 - 01:15 pm	Roundtable Discussion - Linking policies to applications: recommendations & action plan 
01:15 - 01:45 pm	Closing session & concluding addresses
01:45 - 02:30 pm	Networking buffet lunch & end of the event
02:30 - 04:10 pm	Lab visits to the Otaniemi Research Campus (organised by VTT) 



## 7.4 - Objectives

Meeting the networking needs of the e-Infrastructure domain, the “2010 Euro-Africa e-Infrastructures Conference” main objective was to team up to pave the way for a strengthened and coordinated approach to foster Euro-Africa cooperation on e-Infrastructures:

- Allow European and African stakeholders involved in the development of cooperation on e-Infrastructures to get together
- Allow participants to exchange views, share information, and identify synergies in order to increase the impact of their activities
- Further support policy dialogues, apprehend medium- to long term perspectives and agree on an overall and coherent vision
- Raise awareness and promote the use of e-Infrastructures under development, encouraging the emergence of early adopters, of flagship projects in terms of application
- Give the highest visibility to on-going initiatives aiming at supporting the development of NREs in Africa and their interconnection to GÉANT
- Increase the number of sub-Saharan organisations involved in EU/FP7 collaborative projects

The “2010 Euro-Africa e-Infrastructures Conference” was an event designed to anyone with an interest in e-Infrastructures. This event represented a unique opportunity for all parties involved in e-Infrastructures (from strategy to management), to increase the visibility and the impact of their activities, to network, and expand their

knowledge. The conference attendees have been able to:

- Find out how to increase the visibility and impact of their respective projects/programmes
- Meet with their worldwide peers and debate/discuss best practices
- Understand what is important when implementing NREs or RRENS
- Hear about success stories and case studies presenting innovative approaches and strategies
- Benefit from valuable opinions and long experience of acknowledged experts in the field
- Stay up to date with latest developments and trends in the e-Infrastructures field
- Examine key components of effective e-Infrastructures developments and applications
- Discuss with high-level policymakers

## 7.5 - Audience

About 200 key stakeholders in the field coming from all over Europe and Africa attended the event:

- Policymakers | Senior representatives from Governments | Representatives from international development cooperation agencies | ICT project managers | Programme managers | Heads of research labs | Researchers | IT engineers | Deans, directors, lecturers and researchers from universities and the higher education sector | Managers of NGOs, professional associations, centres of excellence, trade unions, chambers of commerce, etc. | Industry stakeholders | Etc.
- Institutions | National and international

companies | SMEs | Academia | Research institutes | Etc.

## 7.6 - Format

The “2010 Euro-Africa e-Infrastructures Conference” featured various session types:

- Plenary sessions (featuring officials from the European Commission, the African Union Commission, Governments, and internationally acknowledged e-Infrastructures experts)
- Presentation sessions (organised around the six main conference themes)
- Discussions and debates sessions (offering participants the opportunity to actively contribute to the Conference outputs)
- Networking sessions (aiming at facilitating additional and informal networking opportunities)

## 7.7 - Mobility grants

To ensure a higher participation of African stakeholders in the event a budget was planned by the organisers to contribute to travel and subsistence expenses for some of the delegates. In addition, donor organisations sponsored the event: collected sponsorship fees have been used to invite more African delegates to join the event.



## 7.8 - Partners

The Conference's partners were organised in three main committees:

- **Honorary Committee** (European Commission and African Union Commission officials / International, regional, and local authorities)
- **Advisory and programme Committee** (e-Infrastructures experts in charge of the Conference programme)
- **Organising Committee** (representatives from the European Commission, the African Union Commission, the eI-Africa project, the EuroAfrica-ICT project, the ERINA4Africa project, and VTT Finland)

Additional partners have been associated to the event:

- Sponsors supporting African participation in the event:



- Associated Partners (multipliers such as: associations, NGOs, European Technology Platforms, Chambers of Commerce, etc. They helped in widely promoting the event to their members and throughout Africa and Europe) and Media Partners:



## 7.9 - Statistics

- ▶ Number of delegates: 196
- ▶ Countries represented: 40
- ▶ Regional breakdown :
  - AFRICA: 42%
  - EUROPE: 56%
  - OTHERS: 2%



## 8. THE CONFERENCE: REPORT



### 8.1 - Introduction

The “2010 Euro-Africa e-Infrastructures Conference” was organised in order to facilitate the exchange of information between a wide variety of stakeholders from the e-Infrastructures domains of Europe and Africa. The event took place at the Scandic Marina Congress Centre in Helsinki, Finland on December 9-10, 2010, within the framework of the “2010 Euro-Africa Week on ICT Research & e-Infrastructures” (December 7-10, 2010) and was co-located with the “3rd Euro-Africa Cooperation Forum on ICT Research” (December 7-8, 2010), held in Helsinki at the same venue.

The timeliness of this conference was confirmed by some of the recent occurrences that support the cooperation between Europe and Africa in the e-Infrastructures field:

- The signature in October 2007 in Addis Ababa, Ethiopia, of the “EU-Africa Partnership on Infrastructure” (“creating and sustaining regional infrastructure networks and services”) aiming at interconnecting the African continent (in transport, water, energy, and ICT)
- The EASSy (Eastern Africa Submarine Cable System) supported by the creation of the EU-Africa Infrastructure Trust Fund

- The quick development of African National Research and Education Networks (NRENs) and of their interconnection, a momentum supported by the African UbuntuNet Alliance
- The launch of the EU-funded FEAST study, coordinated by the Swedish Royal Institute of Technology (KTH), supported by Dante and the TERENA forum and aiming at providing the EC with recommendations concerning the implementation of a NREN backbone in sub-Saharan Africa
- The AfricaConnect project supporting the development of NRENs in sub-Saharan Africa and their interconnection with Europe’s GÉANT network

Despite the strike by Finnair and some of the worst weather ever experienced at this time of year in the region, the conference attracted an impressive 196 delegates (82 of which were from Africa). In total, 40 countries were represented.

The format of the conference comprised several types of sessions as described in the next page.



## 8.2 - Conference Sessions

Plenary sessions featured officials from the European Commission (EC), the African Union Commission (AUC), the Finnish Government, and internationally acknowledged e-Infrastructures experts. Plenary sessions addressed topics:

- Opening Session & Welcome Addresses
- Setting the Scene... Part I  
Research Infrastructures & e-Infrastructures for Science
- Setting the Scene... Part II  
From Research Networking to Global Virtual Research Collaboration
- Interconnecting Africa  
Creating & Sustaining Regional Infrastructure Networks & Services in Africa
- Interconnecting the African NRENs to each other & to Global Research and Education resources via GÉANT
- Cables - Status & Perspectives
- Linking Policies to Applications - Overview & Existing Synergies
- Shaping the NRENs landscape in Africa: Harnessing on European National Research and Education Networks (NRENs) - Best Practices



Presentation sessions were organised around the six main conference themes (e-GOVERNMENT, e-SECURITY, e-LEARNING, e-HEALTH, EARTH OBSERVATIONS, and e-AGRICULTURE):

- Exploiting e-Infrastructures Potential for Boosting Research and Innovation in Africa and for Fostering Euro-Africa Cooperation: Investigating Best Practices for e-Infrastructure
- Application Development (specific focus on e-GOVERNMENT, e-SECURITY, e-LEARNING, e-HEALTH, EARTH OBSERVATIONS, and e-AGRICULTURE)

Each session was made up of several presentations (4 to 6 presentations of about 10-15 minutes in length), where key stakeholders in the field presented their visions, experiences and findings. Some of these sessions featured case studies and others had specific focus sessions (sessions including a mix of presentations and panel discussions and featuring a very single topic).





Discussions and debates sessions offered participants the opportunity to actively contribute to the conference outputs through open discussions on many of the e-Infrastructures related topics.



Those sessions were very lively and highly interactive. They encouraged open discussions on many of the e-Infrastructures related topics.



Discussions and debates sessions addressed topics were as follows:

- Roundtable Discussion: International Cooperation (Donor Partners)
- Roundtable Discussion: Linking Policies to Applications (Recommendations & Action Plan)



Networking Sessions aimed at facilitating additional and informal networking opportunities (coffee breaks, buffet lunches, networking dinners, lab visits, brokerage sessions, etc.).

Networking opportunities:

- Networking dinner, Dec. 8
- Networking cocktail, Dec. 9 (offered by the ERINA4Africa project)
- Coffee breaks, Dec. 9-10
- Buffet lunches, Dec. 9-10
- Lab visits, Dec. 10

Note: since approximately 90% of the conference attendees (excluding Finnish) were staying at the Scandic Hotel (next door to the Conference venue), networking opportunities were even facilitated during breakfasts and after-dinner drinks. This proximity has been very much appreciated by the event attendees who had additional opportunities to strengthen synergies and/or initiate cooperation projects.



### 8.3 - Overall Summary

The conference keynote speakers: Juhapekka Ristola (Director-General, Communications Policy Department, Ministry of Transport and Communications, Finland), Vera Brenda Ngosi (Director, Department of Human Resources, Science & Technology, African Union Commission), and Zoran Stančić (Deputy Director-General in the Directorate-General Information Society and Media, European Commission) stressed the importance of good communications and e-Infrastructures, and the fact that ICT is an enabler for different types of projects on health, transport, education, energy, telecommunications, water, etc.

Similarities were identified between the provision of e-Infrastructures in rural areas of Europe and in Africa. However, whereas European governments give ICT generally - and broadband Internet access, specifically - a high political importance and consider it imperative for economic growth, in many African countries there are other vital issues to address and ICT does not enjoy the same priority. For example, Finland has the goal to provide 1 Mbit/s to everyone by 2015, in a scheme costing EUR 200M, whereas in Africa half of the countries do not have an Internet exchange point. The new AfricaConnect project to interconnect the regional and national backbone networks, and the new submarine cables, were

recognised as significant steps in the right direction.

The EU document describing the Digital Agenda for Europe is an illustration of the prominence given to ICT in Europe. This report represents one of the 7 so-called flagship areas of the EC's "Europe 2020" vision. It confirms the EC's opinion that research is vital to a country's development and growth, which is why it continues to fund e-Infrastructures as key enablers of collaboration between researchers in virtual research communities. However, this collaboration requires high-speed connectivity with the rest of the world. The European GÉANT e-Infrastructure is interconnected with Internet2 (USA), CANARIE (Canada), CERNET (China), CLARA (Latin America), CAREN (Southeast Asia), etc. It is now time to bring Africa into this network through initiatives such as AfricaConnect and the UbuntuNet Alliance.



Speakers for ESFRI (Eeva Ikonen, Senior Science Advisor, International Relations Unit, Academy of Finland) and e-IRG

(Leif Laaksonen, Chair, e-Infrastructure Reflection Group) highlighted the need for collaboration and the role played by open e-Infrastructures in their respective areas.

The need for collaboration was also highlighted by Kimmo Koski, Director of the CSC-IT Center for Science and Vice Chairman of the Partnership for Advanced

Computing in Europe (PRACE), Finland. He remarked that specific scientific facilities (eg. for weather, climatology, Earth Science, Astrophysics, Elementary Particle Physics, etc.), the associated expertise and the necessary computing resources, are distributed throughout the world. e-Infrastructures are therefore needed to enable the collaboration between researchers, but high-quality e-Infrastructures are expensive and therefore must be shared between disciplines.



The same reasoning was presented by Jens Vigen, Scientific Information Officer, European Organisation for Nuclear Research (CERN), Switzerland, who gave the example of CERN as being too expensive for one country to build alone.





It was explained that the NREN scene in Africa is evolving in Eastern and Southern Africa, under the auspices of the UbuntuNet Alliance, and in Western and Central Africa where NREs, spearheaded by the Association of Africa Universities (AAU), are now forming and joining WACREN. As presented by Frederik Tusubira, CEO of UbuntuNet, Board Member of TENET, Member of the Advisory Panel to the Research and Education Networking Unit of the AAU, Ghana, UbuntuNet has been working closely with DANTE to prepare the AfricaConnect contract. A frequent discussion point, particularly emphasised by the WACREN presenter, Mumuni Dakubu, Director of the University ICT Centre and Dean of the Faculty of Science, University of Ghana, was on how to provide the "last mile" access - which covered both campus networks and wireless technologies. As guidelines for how African NREs could operate, different ways that European NREs are funded and the services that they provide were presented in the session "Shaping the NREs landscape in Africa: Harnessing on European NREs Best Practices", chaired by Karel Vietsch, Secretary General of Terena, The Netherlands.

A broad assessment was made that sub-Saharan Africa is lagging Europe in

e-Infrastructure by 10-15 years. Most universities in Africa have less bandwidth than a typical household in Europe, and as a result students do not have access to the Internet. The Mediterranean region is more advanced; EUMEDConnect allows 2 million users in 700 institutions in North Africa and the Middle East to be linked to 4000 research institutions in Europe and provides a gateway to world research. ASREN (the Arab States Research and Education Network) is aiming to connect the countries currently not in EUMEDConnect (Egypt, Algeria, Morocco, Syria, etc) and could get inspiration from what UbuntuNet has already accomplished.

The integration of SE Europe into the GÉANT/NREN/Grid community in the rest of Europe was offered by Ognjen Prnjat, Regional and European Grid Management, Greek Research and Technology Network, Greece, as a good example to follow. It was considered that, 10 years ago, SE Europe had similar issues to Africa, in terms of high human potential, but minimal e-Infrastructure.

Another experience from Europe that was considered by Dai Davies, General Manager, Dante (GÉANT), UK, to be useful for Africa's e-Infrastructure construction concerned procurement. Cost effective access to the

infrastructure is needed, and there can be enormous differences in prices, depending on whether or not there is any competition. This aspect was also addressed in the session regarding the undersea cables (EASSy, SEACOM, WACable, ACE, LION, SEAS, etc.) that are being installed and the different funding and revenue models that they are employing. Noting that most of the cables to Latin America go to North America, the need for a connection between Latin America and Africa was raised - both to encourage collaboration and partnership and also as a means of achieving redundancy.

The donor panel session revealed that there are a number of related projects running in Africa, but that there are instances where there is duplication of efforts as donor partners work on the same topic. There is also no co-ordination between governments, donor organisations and the projects. It is also difficult to discover who is doing what in the region.





The meeting therefore recommended to consider developing a portal, showcasing who is doing what and where. Ahmed Hamdy, Head of the S&T/ICT Division, Department of Human Resources, Science and Technology, at the African Union Commission, concluded that there is need for the donor community and the implementing agencies to sit together and share notes.

Simon Taylor, Coordinator of the ERINA4Africa EU-funded Project, Brunel University, UK, explained that they had collected many examples of successful ICT projects in Africa in areas such as e-government, e-security, education, health, Earth observation and agriculture that utilised available e-Infrastructures. Some were presented in the conference, including:

- Nodumo Dhlamini, Program Manager (ICT), presented the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) in Uganda. This is a regional network of 25 African universities in Eastern, Central and Southern Africa for dissemination information about the weather, markets (both local and global), best practices, etc. and which is also used for agricultural research and supporting the human networking

- Hannu Saarenmaa, Finnish Museum of Natural History & Francis Oguya, National Museums of Kenya explained how e-Infrastructures were being used in the Global Biodiversity Information Facility (GBIF). GBIF is a global science/informatics research infrastructure linking up a global network of participants; enabling online publishing and sharing of biodiversity data; promoting the development of data capture and exchange standards; building an informatics infrastructure; building capacity; catalysing the development of analytical tools

- Cheikh Tidiane Toure, Head of the Surgery Department of the Faculty of Medicine, Odonto-Stomatology at the Cheikh Anta Dioop University, Senegal presented some examples of telemedicine for remote diagnosis, training and support during surgical operations

Many questions from the audience related to the process of getting involved in the Europe-Africa collaboration. In general, it was recommended to:

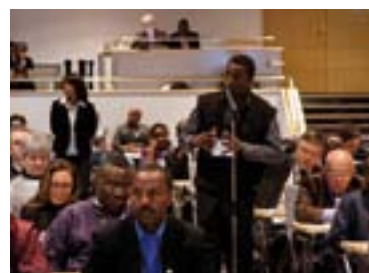
- Start the dialogue with the Member States
- Make a priority list of where Europe can use unique facilities only available in African countries

- Start building up activities between research groups and use human contacts, attend the appropriate meetings. Having a "champion" is often beneficial

- Conferences can also be very useful for bringing people together

- Look for the Call for Proposals in 2011 that will invite Support Actions (SA) for international collaboration

The session Chairs concluded by stating the need for coordination in implementation of projects in Africa. They observed that Africa is now offering huge opportunities for business and cooperation in research. They encouraged the participants to keep the momentum going after the conference.



The conference was closed with thanks expressed to the AUC for its support and friendship, the European Commission for its support and help and to the Finnish Ministry of Foreign Affairs and Ministry for Employment and Economy.

Thanks were also given to Karine Valin - Sigma-Orionis - and her team.



PART IV  
LAB VISITS  
(DEC. 10)





Following the final session of the “1st Euro-Africa e-Infrastructures Conference”, a group of 60 delegates, most of them from Africa, climbed aboard a coach headed off through the Helsinki snow to visit two local ICT institutions based at the nearby Otaniemi Research Campus.



The first stop was Aalto University and, more specifically, the Faculty of Electronics, Communication and Automation, Department of Communications and Networking (COMNET). The visitors were introduced to the work of the faculty by Raimo Kantola, the Department Head, and Anita Bisi, International Affairs Coordinator. COMNET, they confirmed, is by far the largest unit of research and higher education in communications and networking in Finland - and probably the largest in Europe. It caters for almost 4,000 students, of which some 17% are PhD students and 12% are from outside Finland. Courses are taught in six core areas, including: communications engineering, communications theory,

network engineering and traffic theory, internetworking, network economics, and human factors in network design. COMNET has also launched a series of ‘Grand Challenges’ in areas it sees as require concerted effort to solve. These include: carbon-neutral networking to connect the remaining 2 billion to the mobile network and 5 billion to the Internet; instant wireless Internet, with delays below the level of human perception; and scaling the Internet so that each user can have up to a thousand devices. A tour of the laboratory spaces also gave visitors an idea of the research being carried out by COMNET staff. Research at COMNET focuses on both theoretical and experimental methodologies in the areas mentioned above, including economic perspectives in communication networks. The labs are equipped with modern equipment to support research in various wired and wireless networking. For instance, the lab has a WiMAX base station and relay nodes specifically for experimental purposes. These help students to gain practical hands-on skills and help researchers to experiment new ideas in practical systems.

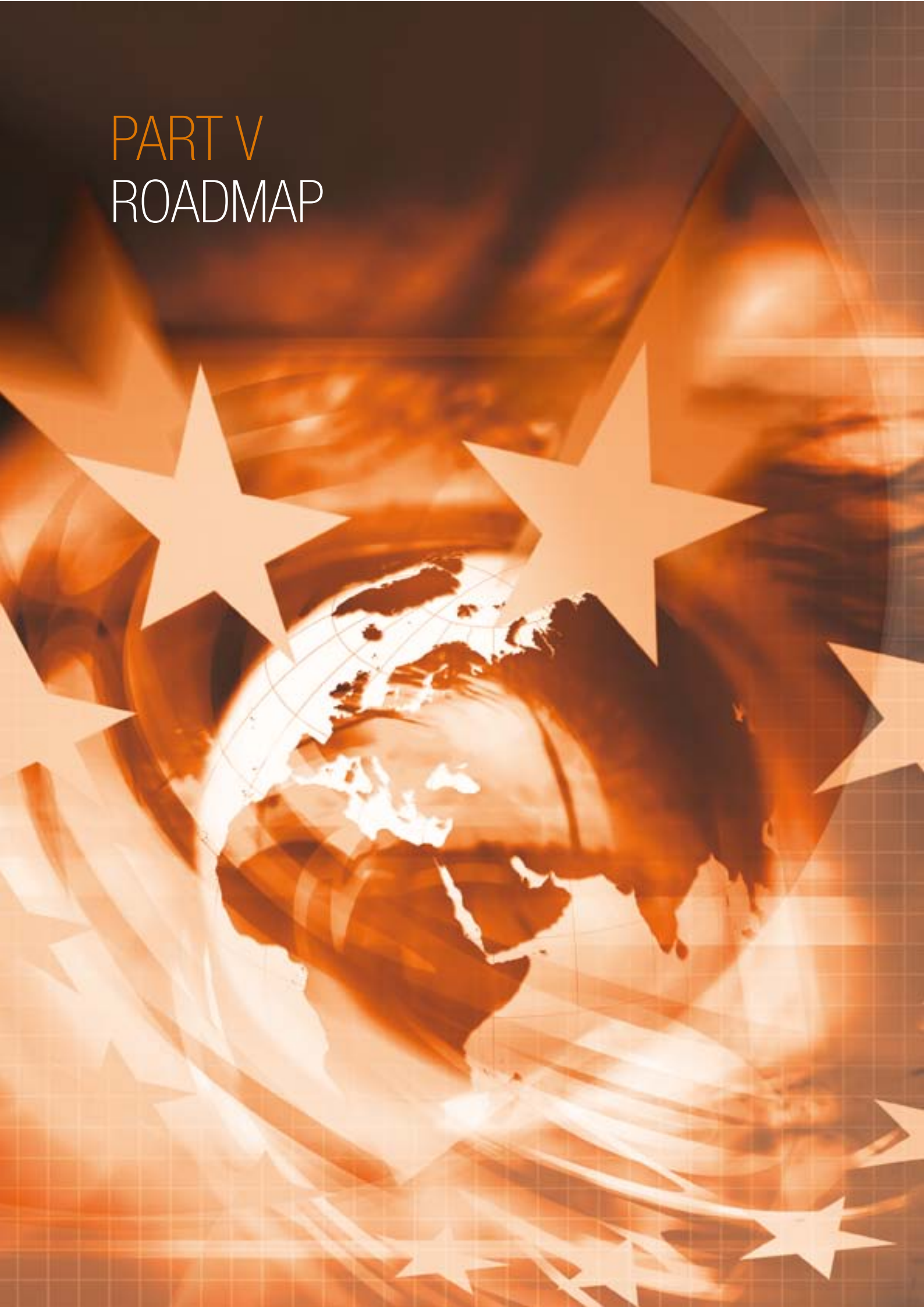


Moving on to the VTT Technical Research Centre of Finland, the group were introduced to the work of the institute by Caj Sodergard, of the Media Technologies section. VTT, he explained, operates between the universities and industry, taking the most promising results from basic research and fast-tracking their development for industry. “In Finland, a country with few natural resources, this process has worked well,” confirmed Sodergard. “We have 1,100 patents, 364 notifications

of inventions in 2009 alone, and some 20 spin-off companies». VTT’s research portfolio is necessarily diverse, and it also operates with subsidiary laboratories in such places as Belgium, California, China, Japan, Russia, South Korea and, most recently, Brazil. Concerning the Media Technologies section, Sodergard noted that the aim was not necessarily to develop products, but concepts and prototypes. One of the inventions he was involved in, for example, is the ‘up-code’ - a sort of two-dimensional barcode that can direct ICT equipment with built-in cameras directly to a website. The Media Technologies section is also working on projects such as converged networks for emerging regions, such as mesh networks to reduce the costs of communication, and ‘augmented reality’. As example of augmented reality, Sodergard showed an actual landscape viewed through an i-phone with a simulated image of a proposed factory in the same image. He also wowed the audience with a new kind of children’s book. By combining an upcodes on various with downloadable software, children can manipulate the book in front of a webcam, in a laptop, for example, and a three-dimensional image will emerge from the page. Better still, the image can be rotated or even programmed to speak. As well as offering a new form of entertainment, the technology has great potential in e-learning.



PART V  
ROADMAP



# 1. BACKGROUND INFORMATION

## 1.1 - The Context

African countries are more and more convinced that:

- Both S&T (Science & Technology) innovation and ICT (Information and Communication Technologies) are key drivers of their economic and social development,
- e-Infrastructures, namely interconnected NRENs (National Research and Education Networks), are core enablers of the development of ICT applications and services and of leading-edge research.

More and more African and European stakeholders are considering that S&T cooperation between the two regions, particularly in ICT, is highly strategic and of mutual interest, and has therefore to be strengthened.

The overall context in which these perspectives can develop is more and more propitious and a lot has already been done so far:

- The Africa S&T Consolidated Plan of Action (CPA) formulated by the New Partnership for Africa's Development (NEPAD) and the African Union (AU), the creation of the African Ministerial Council on Science and Technology (AMCOST), and the African Regional Action Plan on the Knowledge

Economy (ARAPKE), are only some of the recent examples of the determination of Africa to rely on S&T and ICT to achieve its development objectives,

- The European Union (EU) and the African Union (AU) have agreed, on the occasion of their 2nd Summit held in Lisbon end of 2007, on a "Africa-EU Joint Strategy and Action Plan", paving the way for a partnership of equals based on mutual interest, including a "Partnership for Science, Information Society and Space", known as the "8th Partnership" (P8). This thematic partnership focuses on 19 lighthouse projects. Among its early deliverables: the AfricaConnect project (supporting the development of regional RENs in sub-Saharan Africa and their interconnection with the European GEANT network), and the African Internet Exchange System (AXIS) project (supporting the establishment of a continental African Internet infrastructures through national and regional Internet exchange points),

- The involvement of African research organisations in FP7 projects has been encouraged these last years, in particular through the insertion of focused Specific International Cooperation Actions (SICAs) which has contributed reinforcing contacts between key stakeholders from both regions, sharing knowledge and experience, leveraging skills, leading to promising applications and services, identifying market business opportunities, etc.

## 1.2 - The present situation

In the current booming period when important projects have not yet been completed and some others are to be launched, many remarks and suggestions were expressed during the "2010 Euro-Africa e-Infrastructures Conference" of December 2010 in Helsinki, Finland and through the recent eI-Africa survey (see § 2.1).

The present situation can be summarised as follows:

- A need to accelerate the present efforts aiming at deploying NRENs in sub-Saharan Africa, supporting their regional integration, moving towards a pan-African network, and ensuring a strong interconnection to GEANT:

- The availability (and sustainability) of networks - a pre-condition to develop applications and services - is logically considered as the top-priority by the African stakeholders. It is particularly the case for NRENs because of the opportunity they offer to access high-speed connection, to share resources and to develop collaborative research. The situation has been evolving quite rapidly in the past years: an increasing number of African countries have been deploying NRENs, the "UbuntuNet Alliance for Research and Education



Networking” has led the regional integration in Eastern and Southern Africa, while WACREN has recently initiated such process in Western and Central Africa. But the road is still long until a pan-African network (also interconnecting EUMEDConnect and ASREN; the Arab States REN) can exist. The AfricaConnect project has not been launched yet, there are still open issues (funding and operational models, last mile access, etc.) and the interconnection with GEANT is, in this context, still incomplete.

However, it is only when the African RENs will have reached their full deployment and also when their interconnection at the African level and to GEANT will be realised, that Africa will have the true capability of relying on a key asset to support its economic and social development, and that S&T cooperation of mutual interest/benefit between the two continents will significantly expand.

- Support activities and applications (particularly on e-Learning, e-Health, and e-Governance) have to be encouraged in the short term:

- It is essential not to wait for the full deployment of NRENs and their integration at the regional level (and to GEANT), before encouraging the development of support activities and of applications based on these networks, which will allow taking full advantage of them when they have reached this ultimate stage. Among support activities, the following can be listed: information and training of researchers,

user involvement in current projects, capacity building, etc. Convincing applications are necessary as well in the short term, not only to start taking advantage of available facilities, but also to promote (through “success stories”) the use of e-Infrastructures, collaborative practices, etc. Such applications should logically focus on African priorities: e-Learning (from higher education to rural areas), e-Health, and e-Governance. Many other applications are also mentioned by key African stakeholders in the field: e.g. e-Agriculture, e-Commerce, e-Environment, etc.

- Cooperation in ICT research between the two continents should be strengthened to support the momentum of cooperation on e-Infrastructures:

- The involvement of African research organisations in FP7 projects (particularly in ICT projects including, but not only, targeted SICAs) should be encouraged, even if these projects are not based on the use of e-Infrastructures. Such projects will indeed allow reinforcing connections between research organisations from both regions (they will then more easily take advantage of the interconnection of GEANT with Africa), identifying promising applications or developing specific expertise that e-Infrastructures-based projects will be able to use in a second phase. They may support as well the development of centres of excellence in Africa (related to computer resources, specialised databases, etc.)

who will play a core role in the future use of e-Infrastructures.

- Opportunities to facilitate exchanges and foster synergies between initiatives from governments, implementing agencies, funding agencies, projects, industries, etc. from both continents should be developed:

- In the present booming period, the necessity to provide stakeholders from the two continents (and from other parts of the world) with opportunities to meet, exchange information, avoid duplication of efforts and find possible synergies should not be minimised. This can be done through the development of web-based portals where up-to-date and reliable information can be found, professional dedicated “social networks” enabling contacts and discussions, and of course through cooperation forums or workshops, involving stakeholders from the two continents (focusing on the e-Infrastructures theme at large or on more focused themes).



## 2. ROADMAP FOR THE YEARS 2011-2016

### 2.1 - Methodology

In order to keep the momentum going after the el-Africa Conference (December 9-10, Helsinki, Finland) and to support the European Commission in planning its future activities with the African continent in the field of e-Infrastructures, a roadmap has been prepared by the el-Africa Coordinator, consisting of a list of EU-African priorities of cooperation on e-Infrastructures, together with their expected timeframes/deadlines.

A phenomenological approach was considered appropriate for preparing this roadmap, as it allows the identification of a list of priorities of cooperation between Europe and Africa through the experiences of involved stakeholders.

Hence the process followed was mainly a qualitative methodology based on the views expressed at the el-Africa Conference in Helsinki and on an e-Consultation administered to a group of experts selected by the el-Africa coordinator on the basis of their experience/expertise in the e-Infrastructures domain.

### 2.2 - e-Consultation

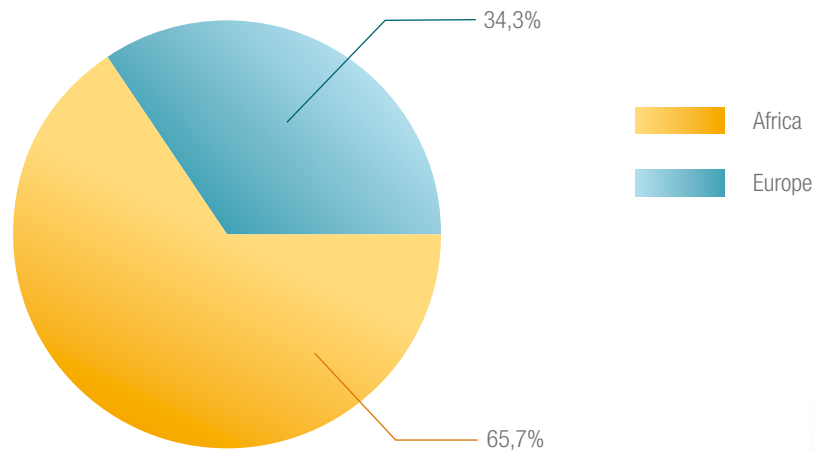
The online open consultation (e-Consultation) was developed to gather data and opinions from a selected group of 60 key stakeholders in the e-Infrastructures field including academia, researchers, civil society, international organisations, policy makers and NGOs implementing ICT research, development and innovation

programmes and projects both in Europe and Africa. The questionnaire was submitted directly by email to the members of this Ad-Hoc Advisory Group (see Annex #3).

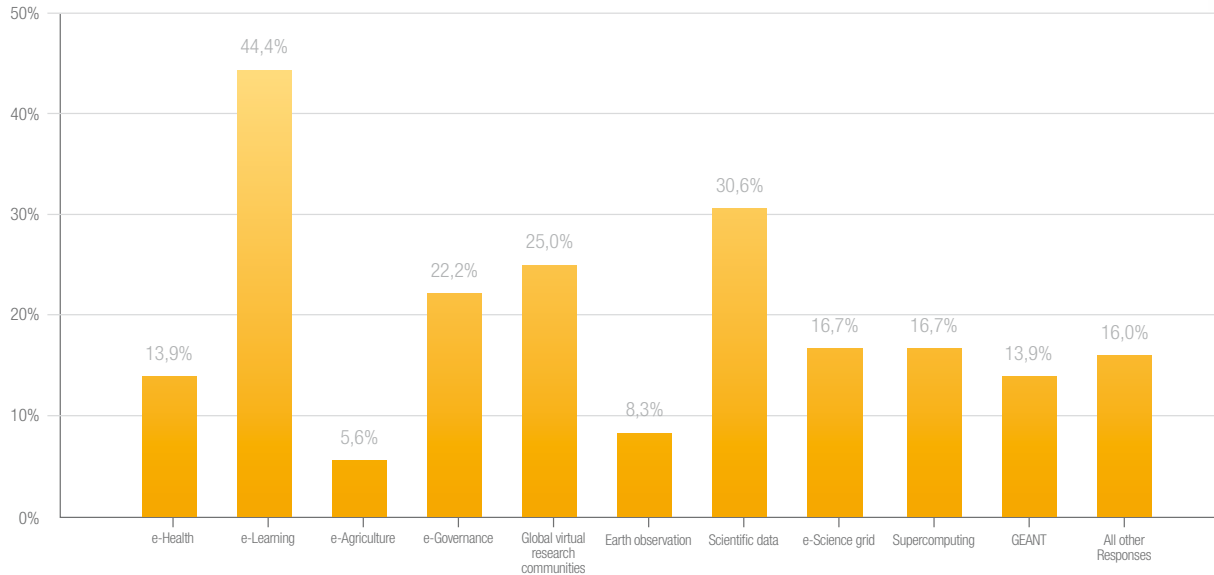
The e-Consultation consisted of only four questions in order to encourage respondents to dedicate limited time (5 to 10 minutes) of their busy schedules to express their opinions. Questions can be grouped into two categories: two personal questions and two open ended questions relating to the objectives of the study.

The analysis presented in this report is based on data collected in February-March 2011, with a total sample of 35 completed surveys. About 66% of the respondents are from Africa, and the remaining 34% from Europe.

Respondents by region:



The area of expertise of the respondents includes several domains, as indicated in the graph below:



The two most important questions of the e-Consultation process, feeding the final list of priorities that constitutes the core of this roadmap, were the following:

- A question related to the EU-Africa cooperation framework on e-Infrastructures: "According to you, what are the main overall priorities to consider? In which timeframe?"
- A question related to specific aspects of this cooperation, based on participant's expertise in certain thematic areas or application fields such as e-Health, e-Learning, e-Government, etc: "What are the main specific priorities to consider? In which timeframe?"

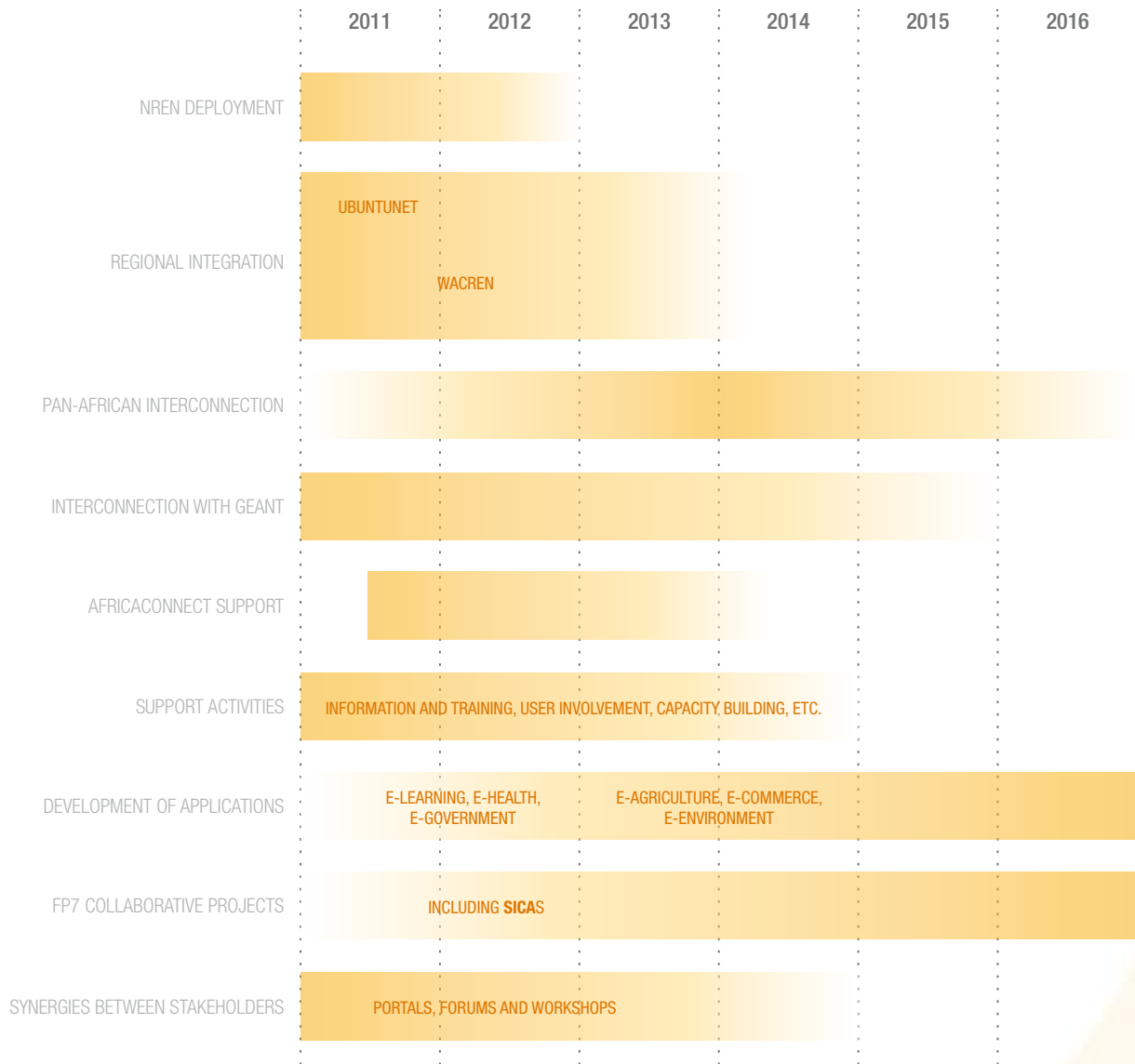
Answers to these questions are summarised in the paragraph below.

### 2.3 - Results and key findings

The next page's illustration can be considered as quite consensual when considering the views expressed at the Helsinki conference of December 2010 and by experts surveyed in February-March 2011. However, opinions about the timing of what can (or has to be) done, logically differ between stakeholders, both because of their own priorities and experience and because it is difficult to find the right way between a determined, optimistic, or realistic attitude.

The illustration next page reflects an overall feeling of urgency ("the sooner the better"), many stakeholders underlining the fact that if Africa could be considered as facing today, in the e-Infrastructures domain, the same gap (when compared to the EU) that Southeast Europe was facing 15 years ago (when compared to the rest of Europe at that time), Africa cannot afford waiting for additional 15 years in the present period of accelerating political and economic context, and of urgent need to strengthen Africa's economic and social development.





### 3. RECOMMENDATIONS

In this context and to summarise, it is recommended that the European Commission can:

- Increase its efforts aiming at supporting the deployment of NRENs in sub-Saharan Africa, their regional integration, their evolution towards a pan-African network, and their strong interconnection with GEANT,
- Encourage the short term development of support activities (information and training, user involvement, capacity building) and of applications based on e-Infrastructures (namely on e-Learning, e-Health, and e-Government),
- Foster cooperation on ICT research between the two regions which will directly support the significant already existing momentum of cooperation on e-Infrastructures (including through the emergence of African centres of excellence),
- Support opportunities to facilitate exchanges and foster synergies between initiatives from stakeholders from both continents (and from other parts of the world): web portal, social networks, cooperation/information forums and workshops.

### 4. ACKNOWLEDGEMENTS

The el-Africa Coordinator would like to acknowledge and express its gratitude to the Ad-hoc Advisory Group members who dedicated some time of their busy schedules to complete the survey: their contributions are obviously of high value and they have been essential in preparing the list of recommendations addressed to the European Commission.

Special thanks go to Frederick Tsubira, Bjorn Pehrson, Boubakar Barry, and Margaret Ngwira, who contributed to:

- Identify potential members for the Ad-hoc Advisory Group
- Shape the online questionnaire
- Review the el-Africa conclusions (recommendations and roadmap)

Thanks also to the participants in el-Africa Conference in Helsinki for their valuable contributions to the object of this study.





e-INFRASTRUCTURE:

# GÉANT

Linking the **ideas** at  
the **speed of light**



# CONCLUSIONS



A clear conclusion from the conference was that e-Infrastructures are crucial for enabling virtual global research communities, which are drivers for social and economic well-being. Furthermore, the combination of ICT-based resources and associated tools and services allow new ways of collaborating and sharing resources independently of the researcher's geographical location.

As Kostantinos Glinos, Head of Unit for GÉANT and e-Infrastructures in the Directorate-General Information Society and Media (DG INFSO) of the European Commission wrote in the conference Foreword: "e-Infrastructures are definitely changing the way that science is carried out!".

These messages - and the benefits of sharing the costs of providing broadband infrastructures, rather than everyone building their own - were recurring themes throughout the conference.

Issues that were identified by many of the presenters as causes of severe constraint to economic growth and human and social development on the African continent were the insufficiency of infrastructure and the low priority given to ICT aspects in general.

Nevertheless, throughout the conference, the conference participants were exposed to exciting examples of how - with the support of e-Infrastructures - research organisations were provided with opportunities to share access to (regional or global) scientific facilities and support the development of their collaborative projects.

The European Commission, the African Union Commission, the el-Africa Coordinators were strongly encouraged by the audience to keep the momentum going after the conference.



# ANNEXES

## ANNEX #1 - EVENT COMMITTEE MEMBERS

### 1 - Honorary Committee

This committee was composed of officials from the European Commission (EC), officials from the African Union Commission (AUC), and high-level representatives from international, regional, and local authorities.

- **Sami Al Basheer Al Morshid** – Director, ITU Telecommunication Development Bureau, Switzerland
- **Mohamed Ben Amor** – Director General, Centre d'Etudes et de Recherche des Télécommunications (CERT), Tunisia
- **Mario Campolargo** – Director, Emerging Technologies and Infrastructures (DG INFSO), European Commission
- **Khaled Fourati** – Senior Program Officer ICT4D Acacia Program, International Development Research Centre, South Africa
- **Ilari Lindy** – Adviser, Information Society for Development, Ministry for Foreign Affairs, Finland
- **Eric Mwangi** – Directorate of Research Development, Ministry of Higher Education, Science & Technology, Kenya
- **Juma Shabani** – Director, UNESCO Bamako Cluster Office, Mali
- **Afzal Sher** – The Swedish International Development Cooperation Agency (Sida), Sweden

### 2 - Advisory & Programme Committee

Members of this Committee were e-Infrastructures experts and/or representatives of the European Commission. This Committee was in charge of assisting the el-Africa Coordinator in putting together an excellent Conference programme.

- **Esam M. Abulkhirat** – Senior ICT Policy Officer, Department of Human Resources, Science and Technology (HRST), African Union Commission (AUC), Ethiopia
- **Francesco Affinito** – S&T Coordinator, Economic Development Unit, DG Development (DG DEV) & Relations with ACP States, European Commission (EC)
- **Mbangwana Moses Atezah** – Research Program Manager, Educational Research Network for West and Central Africa (ERNWCA), Mali
- **Boubakar Barry** – Coordinator, Research and Education Networking Unit, Association of African Universities (AAU), Networking Unit
- **Sandro Bazzanella** – Project Manager, ITU-EC, Switzerland
- **Emamgholi Behdad** – Chief, Projects and Initiatives Department, ITU, Switzerland
- **Stephen Benians** – Coordinator, BELIEF-II Project, Italy
- **Fadila Boughanemi** – Policy Officer

in charge of S&T Cooperation with ACP Countries (DG Research), European Commission (EC)

- **Andrew Cherry** – Science & Technology Advisor, The Association of Commonwealth Universities (ACU), the Africa Unit (CAAST-Net Coordinator & EuroAfrica-ICT Partner), UK
- **Alessandro Damiani** – Head of Unit D.1 (International dimension of the Framework programme), Directorate D (International Cooperation), DG Research, European Commission (EC)
- **Dai Davies** – General Manager, Dante (GEANT), UK
- **Harry de Backer** – Policy Officer, EU delegation to the African Union in Ethiopia (DG RELEX), European Commission (EC)
- **Thierry Devars** – Policy Officer, International Relations Unit (DG INFSO), European Commission
- **Leonardo Flores** – Scientific Officer, GEANT & e-Infrastructures (DG INFSO), European Commission
- **Gerti Foest** – Project Manager, DFN, Germany
- **Konstantinos Glinos** – Head of Unit, GEANT & e-Infrastructures (DG INFSO), European Commission
- **Mohamed Hassan** – Executive Director of TWAS, the Academy of Sciences for the Developing World



- **Pascal Andoh Hoba** – Head, Communications & Services Coordinator, Association of African Universities (AAU), Kenya
- **John F. Kakule** – Expert in charge of Education, Science and Technology, Information Society, Health and Employment, ACP Secretariat, Brussels
- **Victor Kyalo** – Deputy CEO, TCIP Program Manager, Kenya ICT Board (and TEAMS Coordinator), Kenya
- **Leif Laaksonen** – Chairman, e-IRG (e-Infrastructure Reflexion Group) (CSC), Finland
- **Jérôme Lebouc** – Programme Manager, EuropeAid Cooperation Office, Centralised Operations for ACP Countries, DG AIDCO, European Commission (EC)
- **Christine Leurquin** – Vice-Chairperson, the Integral Satcom Initiative (ISI) ETP, Belgium
- **Iman Maaly** – CEO of SUIN and Board Member of the UbuntuNet Alliance, Sudan
- **Moustapha Mamy Diaby** – Senior Telecommunications Development Policy Officer, Department for Infrastructure & Energy, African Union Commission (AUC)
- **Eduardo Sorribes Manzana** – Policy Adviser, Economic Development, Infrastructure & Communication Networks, Trade & Regional Integration (DG DEV), European Commission
- **Ousmane Moussa Tessa** – West and Central African Research Education Network (WACREN) Task Force, Niger
- **Margaret Engwira** – Director, UbuntuNet Alliance, Malawi
- **Nnenna Nwakanma** – Director of NNENNA.org and Chair of FOSSFA Council
- **Omo Oaiya** – Datasphir Solutions Limited, Nigeria
- **Eric M.K. Osiakwan** – Director, Internet Research, GISPA, Ghana
- **Jean-Louis Parmentier** – COO, SEACOM, Mauritius
- **Björn Pehrson** – Professor, Royal Institute of Technology (KTH) (Coordinator, FEAST Project), Sweden
- **Antti Peltomaki** – Deputy Director General (DG INFSO), European Commission
- **Nii Narku Quaynor** – Executive Director, The African Network Operators Group (AFNOG), Ghana
- **Cathrin Stover** – International Relations Manager, Dante (GEANT), UK
- **Simon Taylor** – Researcher, Brunel University (Coordinator, ERINA4Africa Project), UK
- **Hannes Toivanen** – Senior Research Scientist, VTT Organisations, Networks and Innovation Systems, Finland
- **Francis F. Tusbira** – CEO, the UbuntuNet Alliance, Uganda
- **Moctar Yedaly** – Head of Telecommunications & Post, Department for Infrastructure & Energy, African Union Commission (AUC)

### 3 - Organising Committee

This committee was composed of representatives from the European Commission (EC), the African Union Commission (AUC), VTT Finland, the el-Africa project, the EuroAfrica-ICT project, and the ERINA4Africa project.

- **Esam M. Abulkhirat** – Senior ICT Policy Officer, Department of Human Resources, Science and Technology (HRST), African Union Commission (AUC), Ethiopia
- **Thierry Devars** – Policy Officer, International Relations Unit (DG INFSO), European Commission
- **Leonardo Flores** – Scientific Officer, GEANT & e-Infrastructures (DG INFSO), European Commission
- **Moustapha Mamy Diaby** – Senior Telecommunications Development Policy Officer, Department for Infrastructure & Energy, African Union Commission (AUC)
- **Peter McGrath** – Acting Programme Officer, TWAS, the Academy of Sciences for the Developing World (EuroAfrica-ICT Partner), Italy
- **Simon Taylor** – Researcher, Brunel University and Coordinator of the ERINA4Africa EU-funded Project, UK
- **Hannes Toivanen** – Senior Research Scientist, VTT Organisations, Networks and Innovation Systems, Finland
- **Karine Valin** – Managing Director of Sigma Orionis and Coordinator of the el-Africa and EuroAfrica-ICT initiatives, France



## ANNEX #2 - CONFERENCE AGENDA

DAY 1 - December 9, 2010 Setting the Scene...	
07:30+ am	Registrations & welcome of participants
09:00 - 10:00 am	Opening session & welcome addresses
	<b>Session Chair</b> Karine Valin - Managing Director of Sigma Orionis & Coordinator of the eI-Africa EU-funded Project, France
	Rapporteur Peter Mc Grath - Programme officer at TWAS, Italy
	<b>Juhapekka Ristola</b> Director-General, Communications Policy Department, Ministry of Transport and Communications, Finland (host country)  <b>Vera Brenda Ngosi</b> Director, Department of Human Resources, Science & Technology (HRST), African Union Commission (AUC)  <b>Zoran Stančić</b> Deputy Director-General, Directorate-General Information Society & Media (DG INFSO), European Commission (EC)
10:00 - 10:45 am	Setting the Scene... Part I Research Infrastructures & e-Infrastructures for Science
	<b>Session Chair</b> Colin J Wright - Acting Manager: Cyberinfrastructure, Meraka Institute, CSIR & Head: Research Center for High Performance Computing (CHPC), South Africa
	Rapporteur Tatu Lyytinen - VTT Team & Researcher, Aalto University School of Economics, Finland
	<b>Ikonen Eeva</b> - Senior Science Advisor, International Relations Unit, Academy of Finland, Finland <i>Research Infrastructures - Tools for the Construction of an Innovative Europe</i>  <b>Leif Laaksonen</b> - Chair, e-Infrastructure Reflection Group (e-IRG), Finland <i>An open e-Infrastructure enabling flexible cooperation and optimal use of all electronically available resources</i>  <b>Q&amp;A Session</b>
10:45 - 11:15 am	Coffee & tea break offered by Google 
11:15 am - 12:00 pm	Setting the Scene... Part II From Research Networking to Global Virtual Research Collaboration...
	<b>Session Chairs</b> Kostas Glinos - Head of Unit, GÉANT and e-Infrastructures, DG INFSO (Information Society & Media), European Commission (EC) Ahmed Hamdy - Head of the S&T/ICT Division, Department of Human Resources, Science and Technology (HRST), African Union Commission (AUC)
	Rapporteur Peter Mc Grath - Programme officer at TWAS, Italy
	<b>Ognjen Prnjat</b> - Regional and European Grid Management, Greek Research and Technology Network, Greece <i>Sustainable Regional Development for e-Infrastructures: a Case Study</i>  <b>Colin J Wright</b> - Acting Manager: Cyberinfrastructure, Meraka Institute, CSIR & Head: Research, Center for High Performance Computing (CHPC), South Africa <i>Sharing the best computational resources - a South African perspective</i>  <b>Jens Vigen</b> - Scientific Information Officer, European Organization for Nuclear Research (CERN), Switzerland <i>Accessing knowledge (scientific data)</i>



12:00 - 12:30 pm	<b>Interconnecting Africa</b> Creating and sustaining regional infrastructure networks and services in Africa
	<b>Session Chairs</b> <b>Bjorn Pehrson</b> - Research Leader, School of Information and Communication Technology, KTH (Royal Institute of Technology), Sweden <b>Boubakar Barry</b> - Coordinator, Research & Education Networking Unit, Association of African Universities (AAU), Ghana
	Rapporteur Tatu Lyytinen - VTT Team & Researcher, Aalto University School of Economics, Finland
	<b>Esam Abulkhirat</b> - ICT Senior Policy Officer, African Union Commission (AUC) <i>The EU-Africa Partnership on Infrastructures</i> <b>Speranza Ndege</b> - Commissioner, ICT/e-Learning Specialist, The Broadband Commission, Switzerland & Director, Institute of Open, Distance & e-Learning, Kenyatta University, Kenya <i>e-Learning &amp; e-Infrastructure: building virtual communities for sharing research results</i> <b>Dai Davies</b> - General Manager, Dante (GEANT), UK <i>AfricaConnect - Implementation Roadmap &amp; Achievements</i>
12:30 - 01:30 pm	<b>Networking buffet lunch</b>
01:30 - 02:30 pm	<b>Interconnecting the African NRENs to each other &amp; to global research and education resources via GEANT</b>
	<b>Session Chairs</b> <b>Bjorn Pehrson</b> - Research Leader, School of ICT, KTH (Royal Institute of Technology), Sweden <b>Bayingana Moses</b> - ICT Expert, African Union Commission (AUC)
	Rapporteur Margaret Ngwira - Board Member, the UbuntuNet Alliance, Malawi
	<b>Frederick F. Tusubira</b> - CEO of UbuntuNet, Board Member of TENET, Member of the Advisory Panel to the Research and Education Networking Unit of the AAU, Ghana <i>Shaping the NRENs landscape in Africa - The UbuntuNet Alliance</i> <b>Mumuni Dakubu</b> - Director of the University ICT Centre & Dean of the Faculty of Science, University of Ghana, Ghana <i>Shaping the NRENs landscape in Africa - The West and Central African Research Education Network (WACREN)</i> <b>Dai Davies</b> - General Manager, Dante (GEANT), UK <i>GEANT - Bringing cultures together across continents through global research and education cooperation</i> <b>Florencio Utreras</b> - Executive Director, CLARA, Chile <i>Harnessing on ALICE2: Latin America focuses on consolidation of RedCLARA</i> <b>Q&amp;A Session</b>
02:30 - 04:00 pm	<b>Roundtable Discussion</b> <b>International Cooperation - Donor Partners</b>
	<b>Session Chairs</b> <b>Kostas Glinos</b> - Head of Unit, GEANT and e-Infrastructures, DG INFSO (Information Society & Media), European Commission (EC) <b>Ahmed Hamdy</b> - Head of the S&T/ICT Division, Department of Human Resources, Science and Technology (HRST), African Union Commission (AUC)
	Rapporteur Banda Tiwonge Msulira - Project Officer, the UbuntuNet Alliance, Malawi
	<b>Eduardo Sorribes Manzana</b> Policy Adviser, Directorate-General Development (DG DEV), European Commission (EC) <b>Americo Muchanga</b> Regulator, Instituto Nacional das Comunicações de Moçambique (INCM), Mozambique <b>Jane Butler</b> President, the NetworkTheWorld.org Foundation, US <b>Euan Cuttridge</b> Technical Programme Manager, Google, Switzerland



02:30 - 04:00 pm	<p><b>Marc Bellon</b> Project Manager, UNESCO-HP Brain Gain Initiative, France</p> <p><b>Dai Davies</b> General Manager, Dante, UK</p> <p><b>Laurent Besançon</b> ICT Sector Coordinator for the Africa region at the World Bank, World Bank, US <i>Map of missing Infrastructures</i></p> <p><b>Q&amp;A Session</b></p>
04:00 - 04:30 pm	<b>Coffee &amp; Tea break</b>
04:30 - 05:15 pm	<p><b>Cables - Status &amp; Perspectives</b></p> <p><b>Session Chair</b> <b>Anders Comstedt</b> - Senior Advisor and Researcher, School of ICT, KTH (Royal Institute of Technology), Sweden</p> <p style="text-align: right;">Rapporteur Andy Cherry - African Unit, Association of Commonwealth Universities, UK &amp; EuroAfrica-ICT Project Partner</p> <p><b>Mike Last</b> - Director, Business Development &amp; International Marketing, the West Indian Ocean Cable Company (WIOCC), Kenya <i>EASSY (the East African Submarine Cable System) - Eastern Africa's Future is Digital</i></p> <p><b>Jean-Louis Parmentier</b> - COO Seacom Ltd, Mauritius <i>SEACOM - East Africa Submarine Cable</i></p> <p><b>Gary Waterworth</b> - EMAI Regional Director, Alcatel-Lucent's Submarine Network Activity, UK <i>Submarine Cable Networks: an Accelerator for Social &amp; Economical Development of African Countries</i></p> <p><b>Sandro Bazzanella</b> - Director ITU-EC Project, International Telecommunication Union (ITU), Switzerland <i>Guidelines on access to submarine cables in West Africa: an input to pan-African definition and implementation of Open Access principle</i></p>
05:15 - 06:15 pm	<p><b>Shaping the NRENs landscape in Africa</b> <b>Harnessing on European National Research &amp; Education Networks (NRENs) Best Practices</b></p> <p><b>Session Chairs &amp; Rapporteurs</b> <b>Karel Vietsch</b> - Secretary General, Terena, The Netherlands <b>Banda Tiwonge Msulira</b> - Project Officer, UbuntuNet Alliance, Malawi</p> <p><b>Gerti Foest</b> - Project Manager, DFN, Germany <i>The German NREN - DFN</i></p> <p><b>Joao Nuno Ferreira</b> - Director, FCCN, Portugal <i>The Portuguese NREN - FCCN</i></p> <p><b>Lars Fischer</b> - CTO, NORDUnet, Denmark <i>The Nordic Backbone Network - NORDUnet</i></p> <p><b>Sabine Jaume</b> - Director, External Relations, RENATER, France <i>The French NREN - RENATER</i></p> <p><b>Martin Potts</b> - Director at Martel GmbH and Owner, Martel GmbH, Switzerland <i>The 6DEPLOY 2 Initiative</i></p> <p><b>Q&amp;A Session</b></p>
06:15 - 08:30 pm	<p>Networking cocktail sponsored by the ERINA4Africa EU-funded project &amp; end of Day 1 (Scandic Marina Congress Center)</p> <p style="text-align: right;"></p>



DAY 2 - December 10, 2010 Linking Policies to Applications	
08:00+ am	Welcome of participants
08:30 - 08:45 am	<b>Björn Pehrson</b> - Research Leader, School of ICT, KTH (Royal Institute of Technology), Sweden <b>Linking Policies to Applications - Overview &amp; Existing Synergies</b>
	Rapporteur Margaret Ngwira - Board Member, the UbuntuNet Alliance, Malawi
08:45 - 10:45 am	Exploiting e-Infrastructures Potential for Boosting Research and Innovation in Africa and for Fostering Euro-Africa Cooperation Investigating Best Practices for e-Infrastructure Application Development - Part I (Organised by the ERINA4Africa EU-funded Project)
	SPECIFIC FOCUS on e-GOVERNMENT, e-SECURITY, e-LEARNING and e-HEALTH 
	<b>Session Chairs</b> <b>Simon J.E. Taylor</b> - Coordinator of the ERINA4Africa EU-funded Project, Brunel University, United Kingdom <b>Boubakar Barry</b> - Coordinator, Research & Education Networking Unit, Association of African Universities (AAU), Ghana
	Rapporteur Margaret Ngwira - Board Member, the UbuntuNet Alliance, Malawi
	<b>Simon J.E. Taylor</b> - Coordinator of the ERINA4Africa EU-funded Project, Brunel University, United Kingdom <i>Investigating African e-Infrastructure Applications of the Future: Results of the ERINA4Africa Workshops 2010</i>
	<b>Americo Muchanga</b> - Regulator, Instituto Nacional das Comunicações de Moçambique (INCM), Mozambique <i>Local and Global - the role of the Regulator in facilitating Research and Education Networking</i>
<b>Vasilis Koulolias</b> - Executive Director of Gov2U and Coordinator of the Africa4ALL EU-funded Project, Greece <i>Africa4all - The Parliamentary Initiative</i>	
<b>Dibungi T. Kalenda</b> - Coordinator Eb@le and Professor, Centre d'Etudes des Substances Naturelles d'Origine Végétale (CESNOV), Faculty of Pharmaceutical Sciences, University of Kinshasa, Democratic Republic of Congo <i>In Silico search for Phytomedicines</i>	
<b>Louise Karamage</b> - Rwanda Education Commons, Rwanda <i>Digital Education Revolution in Rwanda: the Case of Rwanda Education Common</i>	
<b>Cheikh Tidiane Touré</b> - Head of the Surgery Department of the Faculty of Medicine, Odonto-Stomatology at the Cheikh Anta Diop University, Senegal <i>Telemedecine in Africa - Status &amp; Perspectives</i>	
<b>Q&amp;A Session</b>	
10:45 - 11:15 am	Coffee & tea brea
11:15 am - 12:15 pm	Exploiting e-Infrastructures Potential for Boosting Research and Innovation in Africa and for Fostering Euro-Africa Cooperation Investigating Best Practices for e-Infrastructure Application Development - Part II
	SPECIFIC FOCUS on EARTH OBSERVATIONS & e-AGRICULTURE
	<b>Session Chairs</b> <b>Bjorn Pehrson</b> - Research Leader, School of ICT, KTH (Royal Institute of Technology), Sweden <b>Margaret Ngwira</b> - Board Member, the UbuntuNet Alliance, Malawi
	Rapporteur Tiziana Lombardo - CEO, Zephyr srl, Italy



11:15 am - 12:15 pm	<p><b>Robert Klapisch</b> - President, Sharing Knowledge Foundation, Switzerland <i>Pioneering the Future Internet through addressing geographic issues</i></p> <p><b>Nodumo Dhlamini</b> - Program Manager (ICT), Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), Uganda <i>RUFORUM - The regional Universities Forum for Capacity Building in Agriculture</i></p> <p><b>Antonio Parodi</b> - Project Leader of CIMA Research Foundation, Italy <i>ICT-based hydrometeorology science and natural disasters prediction and mitigation in Africa</i></p> <p><b>Hannu Saarenmaa</b> - Finnish Museum of Natural History &amp; Francis Oguya - National Museums of Kenya <i>North-south data sharing using the e-infrastructure of the Global Biodiversity Information Facility (GBIF)</i></p> <p><b>Q&amp;A Session</b></p>
12:15 - 01:15 pm	<p><b>Roundtable Discussion</b> <b>Linking Policies to Applications - Recommendations &amp; Action Plan</b></p> <p><b>Session Chair</b> <b>Simon J.E. Taylor</b> - Coordinator of the ERINA4Africa EU-funded Project, Brunel University, United Kingdom</p> <p style="text-align: right;">Rapporteur Bjorn Pehrson - Research Leader, School of ICT, KTH (Royal Institute of Technology), Sweden</p>
	<p><b>Margaret Ngwira</b> Board Member, the UbuntuNet Alliance, Malawi</p> <p><b>Boubakar Barry</b> Coordinator, Research &amp; Education Networking Unit, Association of African Universities (AAU), Ghana</p> <p><b>Americo Muchanga</b> Regulator, Instituto Nacional das Comunicações de Moçambique (INCM), Mozambique</p> <p><b>Bjorn Pehrson</b> Research Leader, School of ICT, KTH (Royal Institute of Technology), Sweden</p> <p><b>Q&amp;A Session</b></p>
01:15 - 01:45 pm	<p><b>Closing Session &amp; Concluding Addresses</b></p> <p><b>Session Chair</b> <b>Karine Valin</b> - Managing Director of Sigma Orionis &amp; Coordinator of the el-Africa EU-funded Project, France</p> <p style="text-align: right;">Rapporteur Peter Mc Grath - Programme officer at TWAS, Italy</p>
	<p><b>Ahmed Hamdy</b> Head of the S&amp;T/ICT Division, Department of Human Resources, Science and Technology (HRST), African Union Commission (AUC)</p> <p><b>Kostas Glinos</b> Head of Unit, GÉANT and e-Infrastructures, DG INFSO (Information Society &amp; Media), European Commission (EC)</p> <p><b>Hannes Toivanen</b> Senior Research Scientist, VTT Organisations, Networks and Innovation Systems, Finland (host country)</p>
01:45 - 02:30 pm	<b>Networking buffet lunch</b>
02:30 pm	<b>End of the 2010 Euro-Africa e-Infrastructures Conference</b>
02:00 - 04:30 pm	<p><b>Lab Visits to the Otaniemi Research Campus (organised by VTT)</b></p> <p>ICT laboratories of the <b>Aalto University Telecommunications</b></p> <p>ICT laboratories of the <b>Technical Research Centre of Finland (VTT)</b></p>



## ANNEX #3 - AD-HOC ADVISORY GROUP (E-CONSULTATION RESPONDENTS)

- **Lishan Adam** - International Consultant specialized in ICT & Knowledge for Development in Africa, Ethiopia
- **Boubakar Barry** - Coordinator, Research and Education Networking Unit, Association of African Universities (AAU), Networking Unit, Senegal
- **Bruce Becker** - Senior Researcher, Meraka Institute, CSIR, South Africa
- **Mohamed Ben Amor** - Director General, Centre d'Etudes et de Recherche des Télécommunications (CERT), Tunisia
- **Nodumo Dhlamini** - Program Manager (ICT), Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), Uganda
- **Martin Duncan** - CEO TENET, South Africa
- **Luigi Fusco** - Senior Advisor for Earth Observation Applications, EO Science and Application Department, ESA (European Space Agency), Italy
- **Pascal Andoh Hoba** - Head, Communications & Services Coordinator, Association of African Universities (AAU), Kenya
- **Steve Hogger** - Head of International Relations, Janet(UK), UK
- **Gudmund Host** - Chairman, e-IRG (e-Infrastructure Reflexion Group), Finland
- **Zimani Kadzamira** - Chair, UbuntuNet Alliance, Malawi
- **Dibungi T. Kalenda** - Coordinator Eb@le and Professor, Centre d'Etudes des Substances Naturelles d'Origine Végétale (CESNOV), Faculty of Pharmaceutical Sciences, University of Kinshasa, Democratic Republic of Congo
- **Louise Karamage** - Expert in Content Development and delivery, Rwanda Education Commons, Rwanda
- **John Kondoro** - UbuntuNet Alliance Board / Associate Professor, Department of Physics, University of Dar es Salaam / Principal of the Dar es Salaam Institute of Technology, Tanzania
- **Robert Koopman** - Expert, the Group on Earth Observations (GEO), Switzerland
- **Kimmo Koski** - Director of the CSC-IT Centre for Science and Vice Chairman of the Partnership for Advanced Computing in Europe (PRACE), Finland
- **Leif Laaksonen** - Director, CSC-IT, Centre for Science, e-IRG Delegate, Finland
- **Mike Last** - Director, Business Development & International Marketing, the West Indian Ocean Cable Company (WIOCC), Kenya
- **Ilari Lindy** - Senior ICT Policy Specialist (Innovation), Global Information & Communication Technologies, The World Bank Group, US
- **Iman Maaly** - CEO of SUIN and Board Member of the UbuntuNet Alliance, Sudan
- **Karel Matthee** - Research Group Leader: Trusted Network Infrastructures & Platforms, Meraka Institute, CSIR, South Africa
- **Alinafe Mbendera** - Director ICT/E-Learning Centre, University of Malawi, Malawi
- **Mbangwana Moses Atezah** - Research Program Manager, Educational Research Network for West and Central Africa (ERNWCA), Mali
- **Ousmane Moussa Tessa** - West and Central African Research Education Network (WACREN) Task Force, Niger
- **Eric Mwangi** - Directorate of Research Development, Ministry of Higher Education, Science & Technology, Kenya
- **Margaret Ngwira** - Board Member, the UbuntuNet Alliance, Malawi
- **Omo Oaiya** - CEO, Datasphir Solutions Limited, Nigeria
- **Eric M.K. Osiakwan** - Director, Internet Research, GISPA, Ghana
- **Jean-Louis Parmentier** - COO, SEACOM, Mauritius
- **Björn Pehrson** - Professor, Royal Institute of Technology (KTH) (Coordinator, FEAST Project), Sweden
- **Hannes Toivanen** - Senior Research Scientist, VTT Organisations, Networks and Innovation Systems, Finland
- **Frederick F. Tusubira** - CEO of UbuntuNet, Board Member of TENET, Member of the Advisory Panel to the Research and Education Networking Unit of the AAU, Ghana
- **Karel Vietsch** - Secretary General, Terena, The Netherlands
- **Jens Vigen** - Scientific Information Officer, European Organization for Nuclear Research (CERN), Switzerland
- **Colin J Wright** - Acting Manager: Cyberinfrastructure, Meraka Institute, CSIR & Head: Research, Centre for High Performance Computing (CHPC), South Africa



# USEFUL LINKS

- Conference agenda  
[http://ei-africa.eu/files/2011/01/2010\\_EuroAfrica\\_eInfra\\_Conference\\_Agenda.pdf](http://ei-africa.eu/files/2011/01/2010_EuroAfrica_eInfra_Conference_Agenda.pdf)
- Photo gallery  
<http://ei-africa.eu/photo-gallery/>
- Survey analysis  
[http://ei-africa.eu/files/2011/02/EuroAfrica\\_Week\\_Survey\\_Results.pdf](http://ei-africa.eu/files/2011/02/EuroAfrica_Week_Survey_Results.pdf)
- Delegate information package  
<http://ei-africa.eu/files/2010/09/Delegate-Information-Package.pdf>
- Online attendee list  
<http://ei-africa.eu/attendees/>



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