IST-Africa 2012 Conference Report

Tanzania

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9 - 11 May 2012

ISTAfrica

Supported by

Hosted by

Support Organisations

European Commission

AFRICAN UNION

COSTECH

TANZICT.or.tz
Information Society and ICT Sector Development Project

NOKIA

uhuruone

Introduction

IST-Africa 2012 Conference & Exhibition took place from 09 - 11 May 2012 in Dar es Salaam, Tanzania. Part of the **IST-Africa Initiative**, which is supported by the European Commission under the ICT Theme of Framework Programme 7 (FP7), **IST-Africa 2012** was the seventh in an Annual Conference Series bringing together delegates from leading commercial, government & research organisations, to bridge the Digital Divide by sharing knowledge, experience, lessons learnt & good practice.

European research activities are structured around consecutive multi-annual programmes, or so-called Framework Programmes. FP7 sets out the priorities, including the ICT Priority, for 2007 - 2013. ICT is fully open to international co-operation with the aim to join forces for addressing major challenges where significant added value is expected to be gained from a world-wide R&D cooperation. In this context, the European Commission co-funded the **IST-Africa Initiative** in order to promote the participation of African organisations to the ICT programme and support the implementation of the 8th Africa-EU Strategic Partnership.

Hosted by the Government of Tanzania through the Tanzania National Commission for Science and Technology (COSTECH) and Technically Co-Sponsored by IEEE, **IST-Africa 2012** focused on the Role of ICT for Africa's Development and specifically on Applied ICT research in the areas of eHealth, Technology Enhanced Learning and ICT Skills, Digital Libraries, Open Source Software, ICT for eInclusion and eAccessibility, eInfrastructures, RFID and ICT for Networked Enterprise and eGovernment and eDemocracy. **IST-Africa 2012** provided a collegiate setting for presentations and discussions of national & regional developments, issues of concern & good practice models, and networking with peers. **IST-Africa 2012** also provided an opportunity to identify potential partners for future proposals under Horizon 2020, the follow on programme to FP7.

IST-Africa directly supports the goals of the 8th Africa-EU Strategic Partnership on Science, Information Society and Space, the African Ministerial Council on Science and Technology (AMCOST) and the Consolidated Plan of Action for the African Regional Action Plan on the Knowledge Economy (ARAPKE).

The goals of the **IST-Africa** Conference Series are Community Building to facilitate EU-African research cooperation and successful exploitation of research results, to stimulate take-up of RTD results by industry and the public sector, to promote knowledge sharing between commercial, government and research organisations, to exchange experiences about the current state of eAdoption at a sectoral, national or regional level, and to support International Cooperation and open up the European Research Area (ERA) to Africa.

Who attended

IST-Africa 2012 Conference & Exhibition attracted policy makers, practitioners, and researchers from leading commercial, government and research organisations around the world. Unlike many research conferences, **IST-Africa** provides an opportunity to meet with senior managers, practitioners, project managers, software engineers and researchers from industry, government and research organisations. Delegates and speakers attend to share knowledge, experience and lessons learnt, and network with their peers from around the world.

IST-Africa 2012 Conference & Exhibition also provided the unique opportunity to identify partners and opportunities to co-operate in international research projects co-funded by the European Commission under the FP7 ICT Programme. Much of the European research results presented in this year's conference were co-funded under the FP7 ICT Programme.

The Venue

IST-Africa 2012 Conference & Exhibition took place in the Kunduchi Beach Hotel, Dar es Salaam.

The Programme

The 3-day programme featured an invigorating mix of business and government case studies, technical and policy papers and interactive workshops. As well as opening and closing plenary sessions, delegates participated in 48 thematically focused parallel sessions featuring different aspects of International Cooperation, eHealth, eInfrastructures, Technology Enhanced Learning and ICT Skills, Digital LIbraries, eAccessibility and eInclusion, RFID and Networked Enterprise, eInclusion/eAccessibility and eGovernment and eDemocracy. Session Chairs ensured active discussion and facilitate delegate participation.

In the context of focusing on the Role of ICT for Africa's Development, the Opening Plenary on Wednesday 09 May featured a high level dialogue on Implementation of the 8th Africa-EU Strategic Partnership on Science, Information Society and Space. The Closing Plenary on Friday 11 May focused on Initiatives Supporting Development of Regional S&T.

Conference Proceedings

The **IST-Africa 2012** conference proceedings was published on CD-ROM and on the Conference Portal.

Networking

Networking is a key feature of the **IST-Africa** Conference Series. Paper and workshop sessions were designed to maximise knowledge sharing by providing time for interactive discussions during the conference programme itself. Coffee breaks took place in the Exhibition area to maximise exposure for technology demonstrations and posters and to facilitate informal one-on-one and small group discussions following paper or workshop sessions.

The Delegate Showcase on the Conference Portal allowed registered delegates, speakers and exhibitors to publish their own short profile and research interests to facilitate networking before, during and after the conference.

Joint Expert Group of the 8th Africa-EU Strategic Partnership

The Joint Expert Group (JEG8) for the 8th Africa-EU Strategic Partnership for Science, Information Society and Space was hosted by the Government of Tanzania through the Tanzania Commission for Science and Technology in association with IST-Africa 2012.

The JEG8 Meeting was officially opened on Tuesday, 08 May from 09:00 – 11:00am, followed by two parallel tracks focused on Information Society and Space from 11:30 – 18:00 - IST-Africa Living Labs Thematic Working Group Meeting (organised by the IST-Africa Initiative) and GMES & Africa Workshop (organised by BRAGMA).

IST-Africa Living Labs Thematic Working Group, 08 May

The IST-Africa Living Labs Thematic Working Group Meeting was participatory in nature and was very well attended.

This workshop faciliated knowledge sharing in relation to what is involved in setting up Living Labs in Africa as well as experiences and lessons learnt from running Living Labs in Africa as well as Europe.

The report can be downloaded from

www.IST-Africa.org/home/default.asp=reports

Support Organisations

The **IST-Africa Initiative (2012 - 2013)** is co-funded by the European Commission through FP7.

IST-Africa 2012 was hosted by the Government of Tanzania through the Tanzania National Commission for Science and Technology (COSTECH).

Other Support Organisations included the TANZICT Information Society and ICT Sector Development Project, NOKIA and Uhuruone.

IST-Africa Initiative

Regional Impact of Information Society Technologies in Africa ("**IST-Africa**") is a multi-stakeholder initiative focused on raising wider awareness of African research capacity, strengthening the research dimension of Information Society policy dialogues between the European Commission and African countries and key regional organisations, analysing African research priorities, Supporting the 8th Africa-EU Partnership, promoting participation of African organizations in the ICT Theme of FP7 and identifing co-operation opportunities in fields of mutual interest. The **IST-Africa Initiative** is supported by the European Commission under FP7-ICT.

IST-Africa is a collaborative initiative between IIMC International Information Management Corporation Limited (Ireland, Coordinator), Department of Science and Technology (South Africa), Ministry of Infrastructure, Science and Technology (Botswana), Ministry of Communications, Science and Technology (Lesotho), Ministry of Education (Namibia), ICT Policy Implementation Technical Unit (Mozambique), National Computer Board (Mauritius), Ministry of Information Communication Technology (Swaziland), National Commission for Science and Technology (Malawi), COSTECH - Tanzania Commission for Science and Technology, Uganda National Council for Science and Technology, Ministry of Higher Education, Science and Technology (Kenya), Ministere de l'Enseignement Superieur et de la Recherche Scientifique (Burundi), Ministry of Science and Technology (Ethiopia), Agence Nationale des Technologies de l'Information et de la Communication (Cameroon), Ministère de l'Enseignement Supérieur, des Universités et des Centres Universitaires Régionaux et de la Recherche Scientifique (Senegal), Ministry of Environment, Science and Technology (Ghana), Ministere de l'Enseignement Superieur et de la Recherche Scientifique (Tunisia) and Ministry of Communications and Information Technology (Egypt).

Plenary Session Speakers

Hon. Prof. Makame Mbarawa
Minister of Communications, Science and Technology

Dr. Florens Turuka
Permanent Secretary, Ministry of Communications, Science and Technology

Dr. Hassan Mshinda
Director General Tanzania Commission for Science and Technology

Kostas Glinos,
HoU GEANT & e-Infrastructures DG Information Society and Media, European Commission

Ambassador Sinikka Antila
Embassy of Finland

Prof Luis Magalhães
European Co-Chair of the Africa-EU 8th Partnership, Portugal

Mr Jerome Morrissey
CEO, GESCI, Kenya

Dr Jyrki Pulkkinen
Ministry for Foreign Affairs Finland

Jussi Hinkkanen
Vice President Nokia Middle East & Africa

Keynote Speakers included:

- **Hon. Prof. Makame Mbarawa,** Minister of Communications, Science and Technology
- **Dr Florens Turuka,** Permanent Secretary, Ministry of Communications, Science and Technology
- **Dr Hassan Mshinda,** Director General, Tanzania National Commission for Science and Technology
- **Mr Kostas Glinos**, Head of Unit GEANT & e-Infrastructures, DG Information Society and Media, European Commission
- **Mr Moctar Yedaly,** Head of Information Society Division, African Union Commission
- **Dr Rached Hamza,** DG, CERT & African Co-chair of the Africa-EU 8th Partnership
- **Prof Luis Magalhães,** European Co-Chair of the Africa-EU 8th Partnership, Portugal
- **Prof John S Nkoma**, Director General, Tanzania Communications Regulatory Authority
- **Mr Enrico Strampelli,** Head of Operations, European Delegation
- **Ambassador Sinikka Antila,** Embassy of Finland, Tanzania
- **Ambassador Lennarth Hjelmåker**, Embassy of Sweden, Tanzania
- **Mr Jerome Morrissey,** CEO, GESCI, Kenya
- **Dr Jyrki Pulkkinen**, Senior Adviser, Information Society & STI for Development, Ministry for Foreign Affairs of Finland
- **Prof. Samuel Wangwe**, Executive Secretary, Research on Poverty Alleviation (REPOA), Tanzania
- **Mr. Anthony Maduekwe**, Program Specialist, UNESCO, Tanzania
- **Mr Jussi Hinkkanen**, Vice President, Corporate Relations and Business Environment, Nokia Middle East and Africa
- **Catherinerose Barretto**, KINU, Tanzania
- **Ms Fadila Boughanemi,** International Relations, DG Research, European Commission
- **Mr Moses Bayingana**, ICT Expert, Information Society Division, African Union Commission
- **Kristiina Lahde**, Chief Technical Advisor, TanzICT Programme, Tanzania
- **Philippe Dongier**, World Bank, Tanzania
- **George Mulamula**, DTBi, Tanzania

International Programme Committee

A distinguished Programme Committee was formed to review and provide feedback on papers and presentations, and chair sessions.

The **IST-Africa 2012** International Programme Committee included

- **Paul Cunningham,** IIMC, Ireland (Conference Chair)
- **Prof. Jørn Braa,** Oslo University, Norway
- **Dr Bruce Becker,** Meraka Institute, CSIR / South Africa National Grid, South Africa
- **Laurens Cloete,** Meraka Institute, South Africa
- **Miriam Cunningham,** IIMC, Ireland
- **Kim Davis,** Research Council of Norway
- **Prof. Love Ekenberg,** University of Stockholm, Sweden
- **Prof. Marlien Herselman,** Living Labs of Southern Africa Network
- **Dr. Faraja Igira,** Institute of Finance Management, Tanzania
- **Dr. Mike Joy,** University of Warwick, UK
- **Prof. Bernhard Katzy,** CeTIM, The Netherlands
- **Vasilis Koulolias**, Gov2U, Greece
- **Kristiina Lahde,** TANZICT Programme, Tanzania
- **Ilari Lindy,** World Bank, United States
- **Dr. Edda Tandi Lwoga,** Muhimbili University of Health and Allied Sciences, Tanzania
- **Prof. Maurice Mars,** University of KwaZulu-Natal, South Africa
- **Dr. Raphael Mmasi,** Tanzania Commission for Science and Technology (COSTECH)
- **Prof. Nerei Mvungi,** College of Informatics and Virtual Education, The University of Dodoma, Tanzania
- **Loi Namugenyi,** Uganda National Council for Science & Technology
- **Edephonce N. Nfuka,** University of Dar es Salaam Computing Centre, Tanzania
- **Dr. Amos Nungu,** Dar es Salaam Institute of Technology, Tanzania
- **Maggy Pézeril,** Pôle Universitaire Européen, France
- **Matti Sinko,** UNECA, Ethiopia
- **Bernard Stevenot,** SpaceBel, Belgium
- **Richard Stevens,** Italy
- **Prof. Andrew B. M. Swai,** Ministry of Health and Social Welfare, Tanzania
- **Daan du Toit,** Senior Science and Technology Representative in Europe, Department of Science & Technology, South Africa
- **Darelle van Greunen,** Nelson Mandela Metropolitan University, South Africa
- **Dr. Zaipuna Yohan,** Ministry of Communications, Science and Technology, Tanzania

Organising Committee

- **Miriam Cunningham,** IIMC, Ireland
- **Paul Cunningham,** IIMC, Ireland
- **Dr Raphael Mmasi,** COSTECH, Tanzania

Conference Secretariat

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1 DAY

Wednesday, May 09, 2012

08:00 — Registration

09:00 — Opening Plenary 1a

Master of Ceremonies: Innocent Mungy, Tanzania Communications Regulatory Authority

Welcome Address
Dr. Hassan Mshinda, Director General, Tanzania Commission for Science and Technology
European Commission Address
Kostas Glinos, European Commission, Belgium
Welcome Remarks
Enrico Strampelli, Head of Operations, European Delegation
Address on behalf of Innovation and Technology Group, Tanzania
Ambassador Sinikka Antila, Embassy of Finland, Tanzania
AUC Address
Moctar Yedaly, African Union Commission, Ethiopia
Welcome
Dr Florens Turuka, Permanent Secretary, Ministry of Communications Science and Technology
Opening Speech
Honourable Prof Makame Mbarawa, Minister of Communications, Science and Technology, Tanzania

10:30 — Coffee Break

11:00 — Plenary 2a: High-level Round Table on Implementation of the 8th Africa-EU Strategic Partnership (Science, Information Society and Space)

Moderator: Paul Cunningham, IIMC, Ireland

Panellists include
Dr Florens Turuka, Permanent Secretary, Ministry of Communications Science and Technology
Dr. Hassan Mshinda, Director General, Tanzania Commission for Science and Technology
Moctar Yedaly, Head of Information Society Division, African Union Commission
Kostas Glinos, Head of Unit GEANT & e-Infrastructures, DG Information Society and Media, European Commission
Prof John S Nkoma, Director General, Tanzania Communications Regulatory Authority
Dr Rached Hamza, DG, CERT & African Co-chair of the Africa-EU 8th Partnership
Prof. Luis Magalhães, European Co-chair of JEG8, Portugal
Ambassador Lennarth Hjelmåker, Embassy of Sweden, Tanzania
Dr Jyrki Pulkkinen, Senior Adviser, Information Society & STI for Development, Ministry for Foreign Affairs of Finland
Prof. Samuel Wangwe, Executive Secretary, Research on Poverty Alleviation (REPOA), Tanzania
Mr. Anthony Maduekwe, Program Specialist, UNESCO, Tanzania
Jussi Hinkkanen, Vice President, Corporate Relations and Business Environment, Nokia Middle East and Africa
Catherinerose Barretto, KINU, Tanzania

12:30 — Lunch

14:00 — Session 3a: Cloud Computing

Chair: Laurens Cloete, Meraka Institute, South Africa

Standards, Sustainability, Security, Interoperability of Different Clouds
Nkundwe Mwasaga, Dar es Salaam Institute of Technology, Tanzania
Cloud-Based Mobile Computing: An Opportunity for the Next Billion
Tommi Mikkonen, Tampere University of Technology, Finland
Digital Forensic Framework for a Cloud Environment
George Sibiya, CSIR, South Africa
Presenting a Security Model for Protecting private and personal information in the Cloud
Tumelo Malebane, Tshwane University of Technology, South Africa

14:00 — Workshop 3b: ICT Initiatives in Tanzania

Chair: Hassan Mshinda, COSTECH, Tanzania

Initiatives being showcased will include: National ICT Backbone, eHealth Initiatives, Tanzania Beyond Tomorrow, Super Computing and ICT for Rural Development

14:00 — Session 3c: eHealth - Telemedicine & Supporting Capacity

Chair: Maxwell Otim, Uganda National Council for Science & Technology

The Opportunities of Exploiting Cloud Computing in Telemedicine: A Developing Country Perspective
Juha Puustjärvi, Aalto University, Finland
Building Sustainable Capacity for Health Research in Africa through Cloud Computing Applications
Ana Jimenez-Castellanos, Universidad Politécnica de Madrid, Spain
Critical Success Factors for the Successful Implementation of Telemedicine in the Eastern Cape, South Africa
Liezel Cilliers, Fort Hare University, South Africa
SAHEL: A Comprehensive Telemedicine Demonstration Programme to Connect Remote Health Centres in Africa
Ghislain de la Sayette, Astrium, France
eHealth Initiatives in Malawi
Yamiko Msosa, Baobab Health, Malawi

14:00 — Session 3d: Technology-Enhanced Learning

Chair: Kristiina Lahde, TanzICT Programme, Tanzania

Emerging Technologies, Innovative Teachers and Moral Cohesion
Jacqueline Batchelor, University of Pretoria, South Africa
Towards a Sustainable Model for Volunteer, Mobile, Online Tutoring in Mathematics
Laurie Butgereit, Meraka Institute, South Africa
Central Questions of ICT & Ethics: IT Ethics Course Design in Tanzania
Matti Tedre, Stockholm University, Sweden
Use of Semantic Web Technologies in IK Management Systems
Thomas Fogwill, CSIR Meraka Institute, South Africa

14:00 — Session 3e: eGovernment

Chair: Mmboneni Muofhe, Department of Science & Technology, South Africa

M-governance: Exploratory Survey on Kenyan Service Delivery and Government Interaction
Angela Crandall, iHub Research, Kenya
Towards Effective E-Government for Africa
Aneerav Sukhoo, Central Informatics Bureau, Mauritius
Archives and Digital Repositories in an eGovernment Context: When the Subsequent Bird Catches the Worm
Hannes Kulovits, Vienna University of Technology, Austria
The Information Systems Interoperability Maturity Model (ISIMM): Towards Standardizing Technical Interoperability and Assessment within Government
Jameson Mbale, University of Namibia
An Object-Oriented Data Model for Development Projects Monitoring in Mafeteng Local Government
Jean Vincent Fonou Dombeu, Vaal University of Technology, South Africa

14:00 — Workshop 3f: Accessible Mobile Phone Applications and Developers Tools for All

Chair: Maria Panou, Centre for Research and Technology Hellas, Greece

Creating Accessible Applications for Android: from the Developer Perspective to the User Needs
Maria Fernanda Cabrera-Umpierrez, Polytechnic Unversity of Madrid, Spain
Personalised Guidance on the Mobile Phone for Travellers in Emergency Situations
Maria Panou, Centre for Research and Technology Hellas, Greece
Integrating Accessibility into Mobile Devices and Connecting it to the Cloud: A Java Mobile example
Jon Azpiroz, Vodafone Spain Foundation, Spain
Evaluation of accessible mobile applications following an iterative UCD plan
Maria Gkemou, CERTH/HIT, Greece
Mobile Applications for Elderly with Disabilities
Evangelos Bekiaris, Centre for Research and Technology Hellas, Greece

15:30 — Coffee Break

16:00 — Workshop 4a: Finnish - African Cooperation Programmes

Chair: Kristiina Lahde, TanzICT Programme, Tanzania

ICT and Innovation in Finland's Development Policy in Africa
Jyrki Pulkkinen, Ministry for Foreign Affairs of Finland

Cooperation between ECA and Finland on ICT Development in Africa Programme: Insights and Lessons Learned
Matti Sinko, Technical Advisor, UNECA, Ethiopia

Southern Africa Innovation Support Programme SAIS - Progress and lessons learnt
Juha Miettinen, SAIS Programme

Programme of Cooperation in Science, Technology and Innovation between Finland and Mozambique STIFIMO - Progress and lessons learnt
Erkki Sutinen, STIFIMO, Mozambique

The Information Society and ICT Sector Development Project in Tanzania TANZICT - Progress and lessons learnt
Kristiina Lähde, TANZICT, Tanzania

Finnish Business Partnership Programme
Maija Hyypiä, Finnpartnership, Finland

16:00   Workshop 4b: IST-Africa - Linking European and African Researchers I

Chair: Paul Cunningham, IIMC Ltd, Ireland

ICT WP2013 - Overview and Opportunities
Klaus Pendl, European Commission, Belgium

ICT Initiatives and Research Capacity in Tanzania
Raphael Mmasi, COSTECH, Tanzania

ICT Initiatives and Research Capacity in Uganda
Maxwell Otim, Uganda National Council for Science & Technology

ICT Initiatives and Research Capacity in Kenya
Jacob Njagi, Ministry of Higher Education, Science and Technology, Kenya

ICT Initiatives and Research Capacity in Burundi
Augustin Nsabiyumva, Ministry of Higher Education and Scientific Research, Burundi

ICT Initiatives and Research Capacity in Ethiopia
Abdissa Yilma Tiky, Ministry of Science and Technology, Ethiopia

16:00   Session 4c: eHealth - Health Information Systems

Chair: Harry de Backer, EU Delegation to the African Union

Strengthening ICT based Health Information System (HIS) in Tanzania: The Need for HIS Policy
Honest Kimaro, University of Dar es Salaam, Tanzania

The Significance of Effective Information Systems (IS) in Health Services in Tanzania
Resty Mushi, University of KwaZulu-Natal, South Africa

National Roll out of District Health Information Software (DHIS 2) in Kenya, 2011 – Central Server and Cloud based Infrastructure
Ayub Manya, Ministry of Public Health and Sanitation, Kenya

Review of Approaches Used in the Implementations of Electronic Medical Records in Tanzania
Sunday Morabu, SoftMed Co Ltd, Tanzania

Health Informatics Education in Africa through Problem Based Learning and On-line Delivery - A Project Proposal
Mona Lisa Dahms, Aalborg University, Denmark

16:00   Session 4d: Technology-Enhanced Learning & ICT Skills

Chair: Gift Kadzamira, National Commission for Science and Technology, Malawi

An eEcosystem Driven Next Generation Life Long Learning Approach
Atis Kapenieks, Riga Technical University, Latvia

Situation Analysis of the Availability and Application of ICT Facilities and Services among Teachers' Colleges in Tanzania
Julius Tweve, Tumaini University, Tanzania

ICT Skills Development: EDUEgypt Case Study
Neveen Saied, Information Technology Institute, Egypt

16:00   Session 4e: eGovernment – Case Studies

Chair: Edephonce Nfuka, University of Dar es Salaam Computing Centre, Tanzania

Evaluation of Government Websites for Business Development Services (BDS) in Tanzania
Juma Mdimu, Ruaha University College, Tanzania

A Consumer Based Model for Adoption of E-Tax Services in Uganda
Gilbert Maiga, Makerere University, Uganda

Deterrents to Using Government Web sites in Uganda
Flavia Kyeyago, Uganda Bureau of Statistics, Uganda

16:00   Session 4f: eInfrastructure

Chair: Zaipuna Yonah, Ministry of Communications, Science and Technology, Tanzania

Opportunities created by AfricaConnect
Kostas Glinos, European Commission, Belgium

Tanzania High Speed Broadband Network for Research and Education Facilities conencted to Geant 2
Raphael Mmasi, COSTECH, Tanzania

African Great Lakes Rural Broadband Research Infrastructure
Julianne Sansa-Otim, Makerere University, Uganda

Simplified Gateway Selection in Integrated VANET-UMTS Heterogeneous Wireless Network
Rashid Saeed, Sudan University of Science and Technology, Sudan

2
DAY

Thursday,
May 10, 2012

09:00   Session 5a: Internet of Things

Chair: Richard Stevens, Italy

Positioning Internet of Things Application, and Associated Human Behavioural Changes in a Developing Context
Louis Coetzee, Meraka Institute, CSIR, South Africa

Novel IoT Services and Applications for Society, Business and People
Nkundwe Mwasaga, Dar es Salaam Institute of Technology, Tanzania

Interfacing (IoT) Technologies, XMPP and Twitter to Reduce Inventory Management Inaccuracy
Sizakele Mathaba, CSIR, South Africa

The Internet of Things in Bridging the Gap in Municipal Service Delivery in South Africa
Nomusa Dlodlo, Meraka Institute, CSIR, South Africa

09:00   Workshop 5b: IST-Africa - Linking European and African Researchers II

Chair: Paul Cunningham, IIMC Ltd, Ireland

ICT Initiatives and Research Capacity in Tunisia
Ministere de l'Enseignement Superieur et de la Recherche Scientifique, Tunisia

ICT Initiatives and Research Capacity in Egypt
Inas Fateem, Ministry of Communications & IT, Egypt

ICT Initiatives and Research Capacity in Senegal
Toumane Doumbouya, Ministère de l'Enseignement Supérieur, des Universités et des Centres Universitaires Régionaux et de la Recherche Scientifique, Senegal

ICT Initiatives and Research Capacity in Ghana
Ministry of Environment, Science and Technology, Ghana

ICT Initiatives and Research Capacity in Cameroon
Njei Check, National Agency for Information and Communication Technologies (ANTIC), Cameroon

ICT Initiatives and Research Capacity in Botswana
Oabona Monngakgotla, Ministry of Infrastructure, Science and Technology, Botswana

ICT Initiatives and Research Capacity in Mauritius
Dan Faugoo, National Computer Board, Mauritius

09:00   Session 5c: M-Health

Chair: Collins Mushe, Ministry of Education, Namibia

mHealth in Senegal: The VOICES Project
Ralph Ankri, France Telecom, France

Buzzenger: Enabling Free Messaging in Emergency Situations
Brian Omwenga, Nokia Research Center, Kenya

M-Health Initiatives in Malawi
Tiwonge Manda, University of Malawi

Collecting Integrated Disease Surveillance and Response Data through Mobile Phones
Luba Pascoe, Dar es Salaam University College of Education, Tanzania

09:00   Session 5d: Technology-Enhanced Learning - Case Studies

Chair: Love Ekenberg, Stockholm University, Sweden

Contextualising ICTs in Education for Developing Countries
Gugulethu Baduza, SAP Research, South Africa

Automated Topic Spotting Provides Added Efficiency in a Chat Based Tutoring Environment
Laurie Butgereit, Meraka Institute, South Africa

Developing a Planning and Reflection Tool to Support Learning to Learn Together
Rupert Wegerif, University of Exeter, United Kingdom

Building a Virtual Academic Library with Web 2.0 Technologies in Tanzania
Edda Tandi Lwoga, Muhimbili University of Health and Allied Sciences, Tanzania

09:00   Session 5e: eGovernment & eDemocracy

Chair: Zauria Saifodine, National Institute for ICT, Mozam

Secure e-Government Services: Protection Profile for Electronic Voting – A Case of Tanzania
Geoffrey Karokola, Stockholm University, Sweden

Evolution of eGovernment in Malawi
Hawa Ndilowe, Office of The President and Cabinet, Malawi

The ICT Policy and e-transparency in Tanzania
Edison Lubua, Mzumbe University, Tanzania

ICT for Enhanced Governance and Development in Africa: The Potential of Debt-for-Development Exchanges
Emmanuel Laryea, Monash University, Australia

09:00 Session 5f: Broadband Access and its Exploitation for Development in Africa

Chair: Iman Abdelrahman, Sudanese Research and Education Network, Sudan

Donor Interventions in sub-Sahara Africa: Who Does What and Where in ICT/eInfrastructures?
Vasilis Koulolias, Gov2u, Greece

World Bank Support for Research and Education Networks
Ilari Lindy, World Bank, United States

Local Initiatives in Healthcare and Environment
Donart Ngarambe, KIST, Rwanda, Amos Nungu, DIT, Tanzania and Julianne Sansa-Otim, Makerere University, Uganda

Research on Rational Drug Management
Lars L Gustafsson, Karolinska Institutet, Sweden

The Fiber for Peace Initiative in Somalia
Bjorn Pehrson, KTH, Sweden

| 10:30 | Coffee Break |

11:00   Session 6a: IPv6

Chair: Latif Ladid, IPv6 Forum - SnT University of Luxemboug

The "Internet of Things" based on IPv6
Latif Ladid, IPv6 Forum - SnT University of Luxemboug, Luxembourg

IPv6 Deployment steps in Africa
Hisham Ibrahim, AfriNIC, Mauritius

11:00   Workshop 6b: IST-Africa - Linking European and African Researchers II

Chair: Paul Cunningham, IIMC Ltd, Ireland

ICT Initiatives and Research Capacity in Mozambique
Zauria Saifodine, National Institute for ICT, Mozambique

ICT Initiatives and Research Capacity in Namibia
Florence Kavirindi, Ministry of Education, Namibia

ICT Initiatives and Research Capacity in Lesotho
Lieketseng Tjokotsi, Department of Science and Technology, Lesotho

ICT Initiatives and Research Capacity in South Africa
Isaac Maredi, Department of Science & Technology, South Africa

ICT Initiatives and Research Capacity in Swaziland
Moses Vusmuzi Zungu, Ministry of Information Communication Technology, Swaziland

EuroAfrica-P8 - Preliminary Results
Karine Valin, Sigma Orionis, France

South Africa - Lessons Learnt from ESASTAP 2
Mamohloding Tlhagale, Department of Science and Technology, South Africa

11:00   Session 6c: eHealth - Case Studies

Chair: Andrew B. M. Swai, Ministry of Health and Social Welfare, Tanzania

Security, Privacy and Policy in Management of Patients' Data: A Case Study from Malawi
Dickson Chinguwo, The Malawi Polytechnic, Malawi

Mobile Phone Technology: A Gateway to Address Gender Obstacles in Improving Access to Reproductive and Child Health Services by Women and their Partners
Dunstan Bishanga, EngenderHealth, Tanzania

Challenges in Implementing a Computerized Name - based Information Tracking System: Practical Experiences from Maternal Health Care
Honest Kimaro, University of Dar es Salaam, Tanzania

CAPHS: Context Aware Pervasive Healthcare System for HIV/AIDS Patients
Alemitu Mequanint, Addis Ababa University, Ethiopia

Communities of Support
Jay Barnes, Cape Peninsula University of Technology, South Africa

11:00   Session 6d: Technology-Enhanced Learning in Universities

Chair: Abdissa Yilma Tiky, Ministry of Science and Technology, Ethiopia

Four Years of IT Program Development in Tanzania
Josephat Oroma, Tumaini University (Iringa), Tanzania

A Steady Progress towards E-Learning in Tanzania; The Case of CVL-UDSM
Hashim Twaakyondo, University of Dar es Salaam, Tanzania

Towards Guaranteed Quality of Teaching and Learning:The Power of ICT
Prosper Mafole, University of Dar es Salaam, Tanzania

11:00   Session 6e: eGovernment & eDemocracy

Chairs: Hamisi Nguli, ex COSTECH, Tanzania

Assessment of Public Services eGovernment Initiatives: A Case Study of Tanzania
Grace Mbwete, Open University of Tanzania, Tanzania

An Information Sharing System: Case Study of Ministry of Finance, Planning and Economic Development, Uganda
Justine Juliet Ssempebwa, Ministry of Finance, Uganda

Legal Challenges for M-Governance in Developing Countries: A Comparison of India and South Africa
Michel Koekemoer, University of South Africa

11:00 Session 6f: Capacity Building to Enable Broadband Rollout and Operations

Chair: Bjorn Pehrson, KTH, Sweden

AfricaConnect: Progress and the Need for Human Capacity
Iman Abuel Maaly, UbuntuNet Alliance

Capacity Building Strategy and Programme under AfricaConnect
Joe Kimaili, UbuntuNet Alliance

The Global Development Learning Network – opportunities for linkages and exploitation for capacity building
Charles Y. Senkondo, Tanzania Global Learning Agency (TaGLA), Tanzania

The Global Technology Transfer Alliance for capacity building (TTA)
Ramon Wyss, KTH, Sweden

| 12:30 | Lunch |

14:00   Session 7a: ICT Entreneurship in Tanzania

Chair: Jukka Siltanen, TANZICT, Tanzania

Inspiration from Ushahidi Project
Emanuel Feruzi, Trilabs, Tanzania

ICT Start-up in Tanzania: Giving More for a Brighter Future
Rugambo Rodney, Giving Inc., Tanzania

Lessons Learned and Way Forward at Dar Teknohama Business Incubator
George Mulamula, DTBi, Tanzania

14:00   Session 7b: 8th Africa-EU Partnership - Joint Expert Group

Chairs Dr Rached Hamza, African Co-chair JEG8 & Prof. Luis Magalhães, European Co-chair of JEG8

Information Society
Topics to be discussed include

The New ICT Managerial Aspects within the AUC
Implementation Group chaired by the two Commissions
Roadmap for the Identification of New Initiatives and Projects

14:00   Session 7c: eHealth - Case Studies 2

Chair: Edda Tandi Lwoga, Muhimbili University of Health and Allied Sciences, Tanzania

Using ICT Innovation to Help Eliminate Diseases of Global Health Importance
Kseniya Khovanova-Rubicondo, Ashburn Institute, Ukraine

Experience of Implementing Malaria Sentinel Sites in Mozambique
Teotónio Fumo, Universidade Técnica de Moçambique, Mozambique

CorrectoSpecto: Remote Monitoring and Controlling a Patient's Access to Medication
Andrew Cyrus Smith, CSIR Meraka Institute, South Africa

CAALYX-MV: Ambient Assisted Living to Market
Andreu Català, UPC, Spain

A Concept for a Flexible Rehabilitation Tool for Sub-Saharan Africa
Henrik Hautop Lund, Technical University of Denmark

14:00   Session 7d: M-Learning

Chair: Love Ekenberg, Stockholm University, Sweden

Towards a Mobile Learning Curriculum Framework
Adele Botha, Meraka Institute, South Africa

Mobile Applications for a Better Education
Antonio Jose Batel Anjo, Universidade de Aveiro, Portugal

The Future of Mobile Learning in the Nigerian Education System
Olalekan Samuel Ogunleye, CSIR, South Africa

14:00   Workshop 7e: Sensors, Empowerment and Accountability (SEMA): Enhancing the Relationship between Citizens and Government Agencies through Mobile Communications and Web Technology

Chair: Benson Bana, University of Dar es Salaam, Tanzania

Citizen Reporting as Added Functionality in National Health Information Systems
Juma Lungo, University of Dar es Salaam, Tanzania

Context and Semantics for Location Based Analysis of Citizen Reports
Rob Lemmens, ITC, Netherlands

Citizen Reporting Behaviour: Contrasting Disaster Response with Public Service Needs
Jeroen Verplanke, ITC - University of Twente, Netherlands

Discussion

14:00   Workshop 7f: TV White Space Spectrum and Dynamic Spectrum Access: For Improved Rural Wireless Broadband Connectivity

Chair: Fisseha Mekuria, CSIR Pretoria, South Africa

Enabling Broadband Wireless Access Using Cognitive Radio Technology in TV Whitespace to Provide ICT Services in Rural Tanzania
John Andrew Msumba, University of Kwazulu-Natal, South Africa

Setting the Scene for TV White Spaces and Dynamic Spectrum Access in South Africa
Richard Mokgotlho, ICASA & Fisseha Mekuria, CSIR Pretoria, South Africa

TV White Spaces for Wireless Broadband in Rural Areas: The Regulator, Broadcaster and Operator Viewpoint
Luzango Pangani Mfupe, Tshwane University of Technology, South Africa

15:30	Coffee Break

16:00   Session 8a: ICT Entreneurship in Tanzania

Chair: Jukka Siltanen, TANZICT, Tanzania

This session will showcase ten intensive 3-minute pitches from young ICT companies and start-ups, demonstrating a range of business ideas ICT Entrepreneurs in Tanzania are driving forward, followed by discussion.

16:00   Session 8b: 8th Africa-EU Partnership - Joint Expert Group II

Chairs: Dr Rached Hamza, African Co-chair JEG8 & Prof. Luis Magalhães, European Co-chair of JEG8

Science
Topics to be discussed include
EU-Africa S&T High Level Policy Dialogue
Action Trails in the Field of Research
Roadmap for Encouraging African Participation in FP7 Projects

16:00   Session 8c: Living Labs

Chair: Marlien Herselman, Meraka Institute, CSIR, South Africa

Socio-Economic Impact of Growing Living Labs and Living Labs Networks in Africa
Marlien Herselman, Living Labs of Southern Africa Network, South Africa

Living Lab Methodology as an Approach to Innovation in ICT4D: The Siyakhula Living Lab Experience
Alfredo Terzoli, Rhodes University, South Africa

m-Living Labs, A Framework for Collaborative Community Advancement
Adele Botha, Meraka Institute, South Africa

Enabling Factors for Local Research and Innovation
Lucy Macharia, Nokia Research Center, Kenya

Crowdsourcing Ideas for Development
Mervi Vuori, BIT / Aalto University, Finland

16:00   Session 8d: M-Learning – Case Studies

Chair: Raphael Mmasi, COSTECH, Tanzania

Biased Expectations: User Experience of Pupils Using Mobile-Learning Applications
Darelle Van Greunen, Nelson Mandela Metropolitan University, South Africa

Smartphone application usage amongst students at a South African University.
Walter Uys, University of the Western Cape, South Africa

Disruptive e-mobile Learning Model
Gomang Seratwa Ntloedibe-Kuswani, University of Botswana

eLearning Platform for University and Secondary School Students Residing in Rural Areas
Judith Leo, NM-AIST, Tanzania

16:00   Session 8a: ICT for Environmental Risk Management

Chair: Bernard Stevenot, SPACEBEL, Belgium

Harnessing Cyber-infrastructure for Local Scale Climate Change Research in Africa
Anwar Vahed, CSIR, South Africa

E-Landfill
Jay Barnes, Cape Peninsula University of Technology, South Africa

16:00   Panel Session 8f: TV White Space Spectrum and Dynamic Spectrum Access: For Improved Rural Wireless Broadband Connectivity

Chair: Bjorn Pehrson, KTH, Sweden

Panelists include:
Prof John S Nkoma, Director General, Tanzania Communications Regulatory Authority
Andrew Kisaka, Tanzania Communications Regulatory Authority
Fisseha Mekuria, CSIR, South Africa
Amos Nungu, DIT, Tanzania
Laurens Cloete, CSIR, South Africa
Richard Mokgotlho, ICASA, South Africa
Idris Rai, State University of Zanzibar, Tanzania

Friday, May 11, 2012

3 DAY

09:00   Session 9a: Business Processes and M-Business

Chair: Dan Faugoo, National Computer Board, Mauritius

Subcontracting Software Development: A Tanzanian Case Study
Heli Jussila, Softvisio Ltd, Finland

Challenges of Mobile Money Services focusing on Vodacom M-Pesa System in Tanzania
Bukaza Chachage, Tumaini University of Iringa, Tanzania

Co Creation Shared Value Business Ecosystems With ICT
Liliane Pasape, Nelson Mandela African Institute of Science and Technology, Tanzania

Towards Adopting Business Process Analysis and Design Techniques in Business Organizations in Transitional Countries
John Paul Kasse, MUBS, Uganda

Towards A Participatory User Requirements Elicitation Approach for Information Systems Development in Developing Countries
Mkhululi Tyukala, Nelson Mandela Metropolitan University, South Africa

09:00   Session 9b: 8th Africa-EU Partnership - Joint Expert Group III

Chairs: Dr Rached Hamza, African Co-chair JEG8 & Prof. Luis Magalhães, European Co-chair of JEG8

Cross Cutting Issues (Part 1)
Topics to be discussed include
Internal Rules
Financial Aspects
Problems accrued since Last JEG8 Meeting
Interaction with the Regional Economic Communities, with AMCOST and with the African Ministerial Council on ICT (CMCIT)

09:00   Session 9c: Living Labs

Chair: Maxwell Otim, Uganda National Council for Science and Technology

A Qualitative Analysis to Determine the Readiness of Rural Communities to Adopt ICTs: Siyakhula Living Lab Case Study
Sibukele Gumbo, Siyakhula Living Lab Management Unit, South Africa

Proposing a Sustainable Financing Model for ICT4D initiatives
Sikhumbuzo Ngwenya, University of Fort Hare, South Africa

Emerging New Institutions for Innovation – Living Labs and Development Labs
Kristiina Lahde, TanzICT Programme, Tanzania

Iringa Living Lab
Martin Yesaya, Ukombozi School, Tanzania

Collaborative Relationship Practices for Living Labs, Universities and Business
Minna Takala, Aalto University, Finland

09:00   Session 9d: A User-centric Way to Change Management for Rural Community Development

Moderators: Darelle Van Greunen & Alida Veldsman, Nelson Mandela Metropolitan University, South Africa

Topics include

"How do to prepare for change in emerging communities?"
Change assessment, Change management (CM) strategy, CM Team, Sponsorship model, Change Management Plans, Change Agents/champions in the community

"How to determine the user experience?"
Determining the critical UX factors, How to know and understand the user, Developing appropriate information architecture to support user experience, Evaluation with real users, Revisit the design based on feedback

09:00   Session 9e: RFID and Networked Enterprise

Chair: Peter Mokube, Agence Nationale des Technologies de l'Information et de la Communication, Cameroon

Case Study on Livestock Identification and Traceability in Southern Africa
Chino Monyatsiwa, Ministry of Agriculture, Botswana

Using the Internet of Things to Enable Electrical Load Optimisation
Laurie Butgereit, Meraka Institute, South Africa

Towards Managing Consumer Energy Demand with the Aid of the Internet of Things
Andrew Cyrus Smith, CSIR Meraka Institute, South Africa

09:00   Workshop 9f: Public – Private Cooperation for ICT Supporting Africa's Agriculture, Forestry, Environment and Risk-management

Chair: Walter Mayer, Progis Software GmbH, Austria

Online Agriculture Information System for Uganda
Benedict Oyo, Gulu University, Uganda

ICT Adoption and Use by Emerging Farmers in the Western Cape Wine Industry to Support Decision Making
Godwishes Simbanegavi, Cape Peninsula University Of Technology, South Africa

Habitats Community Building Experiences within the framework of Living Lab Approach: A Key for Supporting Future EU-African Research Cooperation
Karel Charvat, Ceske centrum pro vedu a spolecnost, Czech Republic

Solution supporting building of Global Earth Observation Systems of Systems building (GEOSS
Premysl Vohnout, Ceske centrum pro vedu a spolecnost, Czech Republic

10:30   Coffee Break

11:00   Session 10a: Open Source Software

Chair: Eric Mwangi, Ministry of Higher Education, Science and Technology, Kenya

Free Open Source Software (FOSS) and Survey Methodologies: The case of the Ghana National System of Innovation Survey
Ritin Koria, UNIDO, Austria

The Use of Open Source Communication Platform to Deliver Access-technology Agnostic Services
Ishmael Makitla, CSIR - Meraka Institute / Nelson Mandela Metropolitan University, South Africa

An Assessment of Open Source Promotion in addressing ICT Acceptance Challenges in Tanzania
Josephat Kinyondo, Millicom, Tanzania

09:00   Session 10b: 8th Africa-EU Partnership - Joint Expert Group IV

Chairs: Dr Rached Hamza, African Co-chair JEG8 & Prof. Luis Magalhães, European Co-chair of JEG8

Cross Cutting Issues (Part 2)
Topics to be discussed include
Next JEG8 Meeting
Proposals of Actions and Recommendations

11:00   Session 10c: Living Labs - Case Studies

Chair: Ilari Lindy, World Bank, United States

From Research & Design Milieu to a Living Lab: Ukombozi School in Tanzania
Mikko Apiola, Tumaini University, Iringa University College, Tanzania

Enhancing Information and Communication Technology Solutions for Rural Communities
Nombulelo Twele, University of Fort Hare, South Africa

LOG`EL Project - EPICS Living Lab – An Emerging Solutions Platform for addressing Community wide Challenges in Uganda and Beyond
Herbert Lwanga, LOG`EL PROJECT, Uganda

Reconstructed Living Lab (RLabs) Case Study
Rene Parker, RLabs, South Africa

Micro-Entrepreneurship and Local ICT Innovation Ecosystem in Iringa, Tanzania
Hannes Toivanen, VTT Technical Research Centre of Finland, Finland

11:00   Session 10d: ICT for eInclusion

Chair: Njei Check, ANTIC, Cameroon

CARARE: Connecting Archaeology and Architecture in Europeana
Kate Fernie, MDR Partners (Consulting) Ltd, United Kingdom

Communicating in Designing an Oral Repository for Rural African Villages
Nicola Bidwell, Meraka-CSIR, South Africa

eCommerce Acceptance by Small Tourism Enterprises (STEs) in Tanzania
Mawazo Ramadhani, National Museum of Tanzania

11:00   Session 10e: Cyber Security

Chair: Richard Stevens, Italy

Improving the Security of an On-line service: the Case of an Usable Authentication System
Borka Jerman-Blažič, Institute Jožef Stefan, Slovenia

Global Cyber Trends a South African Reality
Innocentia Dlamini, CSIR, South Africa

Network Security Enhancement through Honeypot: A Case Study of the University of Dodoma
Tabu Kondo, The University of Dodoma, Tanzania

State of Information Security in Zanzibar's Public Sector
Hussein Shaaban, University of Bedfordshire, United Kingdom

11:00   Workshop 10f: Public – Private Cooperation for ICT Supporting Africa's Agriculture, Forestry, Environment and Risk-management

Chair: Karel Charvat, Wirelessinfo, Czech Republic

ICT Supporting Agriculture, Forestry, Environment incl. Smallholder Farmers
Walter Mayer, Progis Software GmbH, Austria

Alert System in Case of Excess Drawing of Ground Water
Maris Alberts, Institute of Mathematics and Computer Science of the University of Latvia

New Tools for Data Accessibility and Decision Support
Zbynek Krivanek, Ceske centrum pro vedu a spolecnost, Czech Republic

12:30   Lunch

13:30   Closing Plenary 11a

Chair: Peter Ulanga, Universal Communications Access Fund, Tanzania

International Cooperation with Africa & Horizon 2020
Fadila Boughanemi, DG Research, European Commission

African Internet Exchange System (AXIS)
Moses Bayingana, African Union Commission, Ethiopia

African Leadership in ICT (ALICT)
Jerome Morrissey, GESCI, Kenya

TANZICT Programme
Kristiina Lahde, TanzICT Programme, Tanzania

World Bank Initatiives
Philippe Dongier, Country Manager, WorldBank, Tanzania

Entrepreneurship and ICT Incubation
George Mulamula, Dar Teknohama Business Incubator, Tanzania

Awards and Formal Closing Ceremony

Opening Plenary

The Opening Plenary Session was in two parts, starting with a number of high-level presentations from the Host Government, European Commission, African Union Commission and Member States to provide an overall political context for the **IST-Africa 2012** Conference.

Welcome Remarks, Dr Hassan Mshinda, Director General, Tanzania Commission for Science and Technology (COSTECH)

Dr Hassan Mshinda welcomed the plenary speakers, distinguished guests and over 500 participants from 45 countries to **IST-Africa 2012** in Tanzania. He outlined that it is a privilege for Tanzania to be able to showcase its innovation, share experiences and research results coming from national institutions and learn from other participants working in domains related to the Information Society to see how these experiences will help us in the socio-economic development in Tanzania, and in Africa in general.

Address on behalf of European Commission, Mr Kostas Glinos, Head of Unit GEANT & e-Infrastructures, DG Information Society and Media

Mr Kostas Glinos thanked the Master of Ceremonies, Mr Innocent Mungy, Tanzania Communications Regulatory Authority and indicated his pleasure to participate once more in an IST-Africa conference and to welcome the plenary speakers, distinguished guests and participants on behalf of the European Commission. He highlighted that IST-Africa 2012 is this year held on a special day for the European Commission as 09 May is Schumann/Europe day, after one of our founding fathers.

Kostas thanked the Government of Tanzania, and in particular the Tanzanian National Commission for Science and Technology for hosting IST-Africa 2012 which he sees as a clear commitment to the Africa-EU partnership on Information, Science and Space. The IST-Africa event is an important milestone in the 8th Strategic Partnership as it faciliates networking and sharing of experiences between African and European ICT experts to support socio-economic growth in our two regions. It also provides an opportunity for specific meetings related to the 8th Africa-EU Strategic Partnership to be held in Africa.

Kostas outlined that it is important to leverage the unique potential for ICT development though concrete actions. In Europe ambitious policies for investment have brought concrete results. Europe is the world leader in broadband internet and mobile penetration and ICT accounts for at least half of European productivity growth. In Europe, continuing spread into all sections of society, an ambitious new policy was launched in 2010. It was one of seven initiatives under the Euro-2020 Study for Smart, Sustainable and Inclusive Growth.

Another important flagship is the Innovation Union, which set out a strategic approach for innovation in Europe to support growth and social development. The agenda prioritising action, with an initial market in Europe, improving inter-operability and security, faster Internet access, more investment in research and development and asking political leadership to reach conclusions on applying Information Technologies to address challenges faced by society, such as the ageing population as well as polar developments. In a time of economic crisis, national actions do not lose importance, on the contrary keeping all of these measures will be an essential contribution to Europe's recovery.

Information Communication Technology is recognised all over the world as a political driver, and a fast track for development. In the African context, this was highlighted during the African Union Summit in 2010, which focused on ICT for Development where African leaders declared ICT as a top-level priority. This paved the way for the necessary programmes and reforms to be launched in order to unleash the full potential of these technologies.

We have all witnessed a mobile boom in Africa, with unprecedented growth rates. The number of mobiles users has grown from less than 10 million in 2000 to 735 million by 2012 and mobile networks are now covering almost the entire urban population of Africa. The first wave of market harmonisation and private investments are the

results of these impressive developments. Substantial investment networks also in European companies have contributed to these developments including innovative business policies including real assistance in taxes, matching payments to income as well as infrastructure sharing, networking operators are counting on increases in masts. But these developments will not reach full benefits unless we favour a non-discriminatory, regulatory environment. This means licensing and regimes that expand investment and penetration – a lot remains to be done there. As with high levels of coverage there are significant variations among countries, particularly in proportion to the population who has access to services. We know also, unlike expanding access to mobile telephone services, access to the Internet and broadband services remains low on the continent mainly due to prohibited carriers, limited capacity inter alia infrastructures as well as insufficient computer resources. Here again we need access to regulatory environments, rewarding market harmonisation and competition as well as sound management, which is essential for the rollout of wireless broadband services. These challenges need to be tackled now in order to complete the success story of mobile services with wireless broadband services. In international aims, already bringing broadband to higher capacity, Africa was so far behind. Competition among providers is essential for substantial targets to be reached. While some essential elements are missing, broadband needs strong coordination in investment networks are needed for bridging the gaps in exploring these interests.

The cooperation relating to these objectives and the achievement of successful African Internet and broadband markets relies on partnership. The Partnership on Infrastructures and the 8th Strategic-Partnership on Science, Innovation and Space will support of complementary capacities in the field of regulation, human resources, capacity building, local competence and communications. Those partnerships are relying on our joint priorities and action plans, such as the African Regional Action Plan for Innovation, the Programme for Infrastructure Development in Africa, and the Framework for the Harmonisation of ICT Policy and Regulations In Africa which were all approved at African Union level.

We are all aware that the implementation of these partnerships by individual governments will not be easy, but if successful the benefits will more than justify the necessary efforts. The objective is to impact on a better alignment of national objective programmes and a set of priorities, avoiding fragmentation of initiatives and federating resources. This implies strong mobilisation of public and private stakeholders that reinforce cooperation in the re-engineering of the current programme awareness and the ability to become more adaptive to respond to international cooperation issues. European Union funding will be made more reactive, and adaptable in order to move with the dynamics of the ICT sector for overall capacity stakeholder cooperation for both public and private actors, as well as the financial institutions. Researchers will have to continue working together cross-border and across continents, but we should not overlook that progress has already been achieved.

Kostas highlighted two examples from ongoing special projects that underline working together with the African Union Commission and other important variables on a very concrete operational basis. The first project is based on an agreement between the European Commission and the IDU, the Internal Democrat Union, which supported the harmonisation of regional authority frameworks, supporting predictable access to regulatory frameworks for market harmonisation and competition as well as sound management, which is an essential foundation for rollout of broadband services.

The second example is the Africa Connect Project supporting the deployment of regional research and education records in sub-Saharan Africa and the connection with the European Geant Network. Africa Connect represents a major breakthrough for the African scientific community, providing researchers and students initially in 13 Southern and Eastern African countries with the affordable broadband capacity needed in order to cooperate with worldwide peers in accessing computing and scientific data resources. Since the European Commission launched this project one year ago at IST-Africa 2011 in Botswana, Africa Connect has made significant progress. We expect that the start of the network implementation phase will be announced later this year. The success of Africa Connect is of critical importance to the Science component of the Partnership with reinforcement of human capacity in Africa for sustainable development.

Kostas also outlined the considerable potential of Living Labs. These eco-systems comprising enterprises, universities and research centres, and public authorities can co-create and test new ideas for projects and services. Such projects can boost innovation at local level and benefit all parties involved. During the IST-Africa Living Labs Thematic Working Group Meeting yesterday, one of the core findings is requirement to establish regional African Living Labs network as a natural cooperation between partners active in Living Labs in Europe. It is clear that some issues need to be tackled in parallel with adapting business models, developing infrastructures and Human capacities before there will be widespread use of ICTs. These include the installation of low-cost devices, user-friendly interfaces, voice-recognition and regeneration and revision assistance. It is also necessary to look at the environment and support local adaptation, making technological development relevant and usable taking into account local Africa needs. The interest we see from European and African industry participants is

interesting, and this is a topic that we may have to revisit under our new Framework Programme for Research and Innovation, Horizon 2020. The past years have seen impressive growth in dispensation of African organisations of the programmes policies under Information Society.

Our objective over the coming days of **IST-Africa 2012** is to build on the successful participation, build business better and open opportunities for an exchange of ideas in a number of sessions. The special element to this cooperation being successful is in approaching this meeting in a feeling of mutual interest and benefit. Kostas outlined that he strongly believes that African and European ICT communities can learn a lot from each other and develop strong, endurable partnerships, on a win-win basis. Kostas concluded by thanking those who contributed to the realisation of this event and wished that participants good discussions during the event.

Welcome Remarks, Mr Enrico Strampelli, European Delegation, Tanzania

Mr Enrico Strampelli, on behalf of Delegation of the European Union in Tanzania, outlined his pleasure to see such an important gathering taking place in Tanzania, where he has been Head of Development Cooperation for the past five years. He highlighted that 09 May is the anniversary of Europe day, which is the day which commemorates a very famous speech by Robert Schumann after the second World War, in which he actually lay the ground for partnership of the European Union, so it is a special day for our communities in the European Union.

Enrico thanked the organisers for inviting the Delegation to participate in the Opening of **IST-Africa 2012,** which is the 7th annual conference, bringing together participants from government, industry, research and civil society from 45 countries, which is really impressive, and of course wholly justified by the importance of the subject under discussion. We live in times where the importance of Information Society Technology is extreme, especially for developing countries as we can see in Tanzania every day, where changes are happening under our eyes and we can see that it takes some effort to adapt to the new technologies that are implemented. These changes are positive; they are great opportunities, especially for African countries.

Enrico focused on the importance of having proper planning in the ICT sector, and in the Information Society in general, need to apply performance assessment framework with the government, not just in general but for cooperation funds and the benefits of leveraging public-private partnerships.

Address on behalf of the Innovation and Technology Group in Tanzania, Ambassador Sinikka Antila, Embassy of Finland, Tanzania

Ambassador Sinikka Antila commenced by stating that **IST-Africa 2012** is a world-class event that brings together representatives from private sector, government and research organisations across Africa and Europe. It provides an opportunity to share experiences and to look for new partnerships in bridging the digital divide in Africa. Ambassador Antila congratulated the Government of Tanzania for hosting this event and congratulated all the participants for deciding to visit the young and dynamic Tanzania of today and to contribute to the development of Africa of tomorrow.

Indeed Africa has made substantial progress in recent years in bridging the digital divide. For example, in Tanzania the mobile revolution has changed the way of life in a very short time, and this is just the beginning. Young, talented entrepreneurs are looking for unfolding the opportunities that

technology can provide in changing their lives and contributing to the society. Government services are provided in new innovative ways even to the most remote areas and tax can even be paid with mobile money.

The Government of the United Republic of Tanzania has rightfully recognised the importance of Innovation, Science and Technology in driving Tanzania towards the National Development Vision 2025. The political leadership, and dedication, is the key to success. The Government can lead the way and provide an enabling environment for the growth of the private sector. Active participation of all stakeholders, including academia and civil society is critical to move forward, and to ensure that nobody is left behind.

Ambassador Antila higlighted the need to work together, indicating that **IST-Africa 2012** is a prime example of partnership between Africa and Europe. Finland recognised and commend the efforts of European Commission in spearheading the activities of the 8th Africa-EU Strategic Partnership on Science, Information Society and Space.

Finland continues to support joint EU efforts on Science, Technology and Innovation in Africa. In addition to global partnerships and academic collaboration the current Finnish projects and regional programmes provide over €40 million in funding. In Tanzania, the bilateral program TanzICT was launched last year by Honourable Minister of Communication, Science and Technology, Professor Makame Mbarawe, to strengthen the Tanzanian Information Society and to contribute to the achievement of the Government's socio-economic development goals.

Ambassador Antila outlined her pleasure that the Living Labs Thematic Workshop Group Meeting held on Tuesday, organised by the IST-Africa Initiative in cooperation with COSTECH and TanzICT was a great success, and it is especially encouraging that among the participants there were representatives from the four emerging Tanzanian Living Labs. These are good examples of how communities can change their lives and how innovation is built from the grassroots up.

In Tanzania, Finland co-chairs with UNESCO the Innovation and Technology group, which was established in 2008 to coordinate work between development partners and the Government. Coordination is seldom an easy task, however it is important that joint action is taken to ensure the effectiveness and sustainability of our support.

For Finland, **IST-Africa 2012** provides an opportunity to bring together our dear friends and close stakeholders across Africa and Europe. Karibu Sana! Today it is a good time to visit Africa, and Tanzania in particular. While elsewhere uncertainty continues, the future looks promising for Africa.

African Union Commission Address, Mr Moctar Yedaly, Head of Information Society Division, African Union Commission

Mr Moctar Yedaly outlined his honour and privilege to speak at the opening of **IST-Africa 2012**. On behalf of the African Union and on behalf of the African Union Commission he expressed their gratitude to the Government and to the people of the Republic of Tanzania for the warm welcome, and for making this possible. He also thanked Paul Cunningham, founder and coordination of the IST Africa Initiative for the invitation to participate, and for the efforts to advance the Information Society, Science and Technology agenda in Africa.

The African Union, as Africa's principal organisation for the promotion of accelerated socio-economic integration, and create the unity of Africa, could not afford to miss this important event. Our presence here today is an expression of the growing importance given to Information Society, Science and Technology, as one of the most economically productive activities for the promotion of development and richer cooperation.

It is indeed well-known that the establishment of efficient ICT systems, science and technology services for Africa would be an essential lever for achieving the Millennial Development Goals. This conference will be a way for

us to exchange views and experiences as well as to learn of the new developments of the Information Society, Science and Technology – specifically within the framework of the Partnership with Europe and Africa.

Moctar provided some highlights of the activities from the African Union Commission's perspective. African public policy-makers are keenly aware of the critical role of ICT, Science and Technology in their economies. However, we have not achieved the full objective of maximising the economic value derived from these sectors.

In the Information Society area, Africa is facing three major challenges that we need to solve as soon as possible. One of them is the immediate transition from the aerial TV to the digital TV before 2015. This transition should allow us to have more spectrum for the introduction of the end-development of new wireless services. Mobile TV, mobile internet – that could be leverage for other applications.

The second challenge is related to the introduction of regulations for new e-applications, non-voice applications, transformative applications, i.e. applications for health, education, governance, agriculture, and so on. In particular, we need to build on the success of mobile technologies.

A third challenge is related to the installation of the right infrastructure, specifically at the regional and national levels. Those backbones will really allow us to use the potential of science and technology.

Tanzania is a country of Pan-Africanism, a country of peace and hospitality, a country of beach and landscape, the country of the best Swahili in the world. We are here because we are convinced, committed to Africa and convinced of the power of science and technology to transform the lives of the people in Africa. Africa needs you, and we need Science, Technology and ICT.

The mission of the AUC is to initiate and promote strategies and means that will contribute to the integration of the development of Africa. For Science, Technology and Information Technology our objective amongst others, is the promotion and development of policies, strategies and the coordination and harmonisation of those policies. In this endeavour the European partners have provided a lot and have always been a key provider of support.

For instance, the €55 million programme that supports the African Union Commission in all areas and the funding of the HIPSA project from the EC is one of the examples. The funding of access projects from Luxembourg and Finland are leading examples. Moctar took this opportunity to thank the European Union Commission and the Governments of Luxembourg and Finland for your commitment to Africa, outlining that they have done a lot, but there is more still to be done.

In order to meet the challenges that Moctar mentioned above, an average of one million USD per country for the analogue to digital transition is needed as soon as possible. We need around 500 million USD for the development of infrastructure and internet exchange points interconnecting all the African capital cities. It is worth mentioning that the Head of States have adopted the programme for the infrastructure development in Africa, which actually will be implemented soon. These are just a few examples. The African Union Commission will spare no effort in supporting the good and useful recommendations that will emanate from this conference.

Moctar concluded in wishing all participants very fruitful discussions.

Welcome, Dr Florens Turuka, Permanent Secretary, Ministry of Communications, Science and Technology, Tanzania

Dr Florens Turuka took the opportunity to welcome all participants to Tanzania. The objective of **IST-Africa 2012** is to bridge the digital divide by sharing knowledge, experience lessons learnt and good practices as well as discussing policy issues related to the information society, science and ICT. **IST-Africa 2012** features over 150 presenters from the government, commercial and research organisations from 45 countries.

Governments have traditionally played an important role in promoting technology, sometimes directly supporting the development of technologies in space for example, in defence and the likes, or more indirectly by creating a climate favourable to innovations through incentives or laws. Every society has to find the ways and means to innovate that corresponds to its needs and capabilities. Dr Turuka believes that this is the right forum for sharing knowledge, experience and lessons that will suit our circumstances.

It is well known that Research and Development creates the Knowledge and Technology that can be put to work. However, for many developing countries the key question should be, where it should direct and concentrate efforts, how the government should share the burden of investment and risk with the private sector, and what should be the scale and the range of incentives that should be offered. It is Dr Turuka's expectation that this conference will shed some light on these challenging issues.

Dr Turuka was glad to note that Tanzania, through the Commission for Science and Technology is a founding partner of the **IST-Africa Initiative** that is supported by the European Union and the African Union

Commission and co-founded under the European Framework Programme. **IST-Africa** has evolved over the decade into a strategic partnership between the **IST-Africa** coordinator, IIMC of Ireland, and 18 African countries. **IST-Africa** successfully focuses on the socio-economic impact of ICT in Information Society adoption of policy and collaborative research and also looked at the impact of sharing experiences between African Member States, as well as adoption of experiences and research results from both Europe and Africa.

IST-Africa 2012 is the 7th annual conference, which rotates around **IST-Africa** partner member countries. Previous conferences have been hosted by South Africa, Mozambique, Namibia, Uganda and Botswana, so to all of these countries Dr Turuka thanked them so much for supporting **IST-Africa**.

Dr Turuka thanked the European Commission, the African Union Commission, and all the other IST-Africa partner Governments for their continued support. Dr Turuka outlined his honour and the privilege to invite the Guest of Honour, Professor Makame Mbarawa, Member of Parliament, the Minister of Communications, Science and Technology to to officially open **IST-Africa 2012**.

Opening Speech, Honourable Prof Makame Mbarawa, Minister of Communications, Science and Technology, Tanzania

On behalf of the Government of the United Republic of Tanzania, Honourable Prof Makame Mbarawa confirmed his honour and privilege to welcome the plenary speakers, distinguished guests and over 500 participants from 45 countries to **IST-Africa 2012**, hoping that they will enjoy the warm hospitality of the Tanzanian people and leave Tanzania with unforgettable and rich memories of nature, wildlife, history and culture.

Honourable Prof Mbarawa acknowledged the importance of Tanzania though COSTECH, Commission for Science and Technology being a founding partner in the **IST-Africa Initiative** which is supported by the European Commission and African Union Commission and co-founded since 2005, by the European Framework Programme. Honourable Prof Mbarawa thanked the **IST-Africa** partners, in particular IIMC and COSTECH for the opportunity to host this prestigious conference, which showcases national and pan-African innovation, and looks forward to the future.

The Government of the United Republic of Tanzania attaches the highest priority to the significant potential of the sustainable societal impact of research and development in the areas of Science, Information Society and Space. Hosting **IST-Africa 2012** is very timely, as the Government has started a strategic review of the national ICT Policy of 2003 and development and implementation plan with the support of the Government of Finland through the TanzICT programme. A participatory approach has been taken involving local expertise in reviewing and drafting the new ICT policy, which will take a new technology and services view. The result of the strategic review of the national ICT policy will also contribute to a better understanding on how to maximise the impact of the investment made by the Government in constructing the national ICT broadband backbone infrastructure.

A strategic investment in Research and Development is important for sustaining economic development of any country. It is for these reasons that during the last financial year the United Republic of Tanzania allocated 30 billion Tanzanian shillings to COSTECH to find competitive grounds for collaborative Research and Development. The primary objective of this research fund is to improve national competitiveness through better service delivery and acquiring high-level skills. Over the past ten years, Tanzania has acheived considerable successes toward making the Information Society and Knowledge Economy a national reality. Honourable Prof Mbarawa is confident that during this important conference his fellow Tanzanians will showcase how the application of Science and

Technology and Innovation has contributed to achieving the Millennium Development Goals. In particular they will showcase how the Government has adopted ICT as a horizontal enabler to increase the impact across all key economic sectors, including e-health, e-education, e-agriculture, e-commerce and so on.

During the past ten-year period Tanzania has put into place enabling infrastructure, mobile adoption and effective system for service deliver. In under twenty years mobile adoption has grown from less than a hundred thousand users to more than 26 million users by March 2012. The mobile sector is the fastest-growing sector of the economy, growing at 19% in 2010, 2011. One of the main challenges in developing a dynamic ICT sector was to put in place a regulatory framework that can take place in a rapidly changing telecommunications, technology and e-business environment. To date the Tanzanian Communications Regularity Environment is non-restrictive and based on the licensing framework. This has significantly increased the level of competition thus facilitating the enormous growth of mobile telephoning.

Another notable achievement has been the effort in building the national ICT broadband backbone. All regions and districts are being connected through a 10,000 kilometre national and regional broadband infrastructure with an international broadband capacity for landing submarine fibre cables, with SEACOM in 2010 and EASSY in 2009 and in the last few days, SCS in May 2012. Tanzania is now connecting Burundi, Malawi, Rwanda, Kenya, Uganda and Zambia to submarine cables. In order for the Government to realise its objective of connecting inaccessible and remote located communities, the Government established its Universal Communication Access Fund, with a mandate to facilitate operators to extend their services to commercial and attractive areas of our country.

UCAF draws its funding from the Government budget, development partners and other service and telecommunication operators and service providers. It is worth mentioning that to date the UCAF has access to 30 million USD from RCIP Tanza project, resources to deliver services to remote rural and under serviced areas, including access to community information centres or tele-centres and villages, to ensure that there is communication for all. The Government continues to strive to attract both nationally and foreign direct investment in the ICT sector. Public-private partnerships are seen as valuable instruments in facilitating implementation of the national ICT policy. The government continues to forecast enabling growth through the expansion of the national ICT broadband backbone infrastructure, more landing points for submarine fibre-optical cables and implementing human-resource development and pro-ICT policies.

Despite the achievement in the ICT sector there are still some challenges that require attention which include data access rights, privacy protection, cyber-security and cyber-crime, privacy of e-transactions, establishing rules governing the e-transactions and universal service delivery.

The implementation of the 8th EU-Africa Strategic Partnership on Science, Information Society and Space agreed in December 2007, at the Africa-EU summit in Lisbon, is the high-level focus of the Roundtable discussion, which follows this morning. The 8th Strategic Partnership flagship projects provide a long-term framework for structural cooperation between Africa and the European Union in the field of Science, Information Society and Space. The 8th Strategic Partnership also introduced a wide-policy dimension opening up new opportunities for cooperation between Africa and the European Union. This will help bridge the scientific and digital divide, strengthening Africa's base in the area of STI and the use of ICTs and Space as the enabler for growth and socio-economic development.

Honourable Prof Mbarawa took this opportunity to encourage African Union participants to **IST-Africa 2012** to find concrete areas for international research collaboration and opportunities for adaptation of research results and cross-border implantation projects during the conference. He outlined his confident that the dynamic **IST-Africa** community, of which Tanzania is proud to be a founding partner, will make a very big contribution to the development of new flagship projects and implementing existing flagship projects of the 8th Africa-EU Strategic Partnership.

In conclusion Honourable Prof Mbarawa thanked the IST-Africa Coordinator, IIMC International Information Management Corporation from Ireland and COSTECH for co-organising this conference. He joined with Dr Turuka, the Permanent Secretary of his Ministry in thanking the European Commission and the African Union Commission for their continued support.

Honourable Prof Mbarawa declared the **IST-Africa 2012** conference and exhibition officially open and wished the participants fruitful deliberation over the coming days. Thank you very much now.

High-Level Roundtable on the Implementation of the Information Society Track of the 8th Africa-EU Strategic Partnership

Paul Cunningham, IST-Africa Coordinator welcomed the panelists and participants to the High Level Roundtable on the Implementation of the Information Society Track of the 8th Africa-EU Partnership. Paul introduced the distinguished panel and provided an overview of the format that would be followed. As in previous years the Roundtable will focus on a number of strategic topics, each of the panellists will have an opportunity to respond to those issues that they feel they would like to make a contribution to, then if a colleague makes a contribution they would like to comment on or clarify, they'll have an opportunity to do that as well. The panellists included

Dr Florens Turuka, Permanent Secretary, Ministry of Communications Science and Technology, Tanzania; Professor John Nkomo, Director General of the Tanzania Communications Regulatory Authority; Mr Moctar Yedaly, Head of Information Society Division, African Union Commission; Mr Kostas Glinos, Head of the GEANT & e-Infrastructures Unit, DG Information Society and Media, European Commission; Dr Rached Hamza, DG, CERT & African Co-chair JEG8; Prof. Luis Magalhães, European Co-chair of JEG8, Portugal; Ambassador Lennarth Hjelmåker, Embassy of Sweden, Tanzania; Dr Jyrki Pulkkinen, Senior Adviser, Information Society & STI for Development, Ministry for Foreign Affairs of Finland; Prof. Samuel Wangwe, Executive Secretary, Research on Poverty Alleviation (REPOA), Tanzania; Jussi Hinkkanen, Vice President, Corporate Relations and Business Environment, Nokia Middle East and Africa and Ms Catherinerose Barretto, an entrepreneur from KINU, Tanzania.

The Roundtable commenced with an overview of the progress acheived to date from the perspective of the Arican Union Commission, European Commission and African and European Co-chairs of the Joint Expert Group of the 8th Africa-EU Strategic Partnership.

Progress on implementing the Information Society Priority of Africa-EU 8th Strategic Partnership

Paul invited **Moctar Yedaly, Head of Information Society Division, African Union Commission** to provide the first intervention.

Moctar provided a background outlining that with regard to the implementation of the Information Society priorities, during the December 2007 Africa-EU Summit in Lisbon, the 8th Partnership on Science, Information Society and Space was adopted. Flagship projects were identified by the African Union that would be complimentary to ongoing projects and initiatives and harmonisation of policy and regulation in Africa. Most of them were more oriented on sustainable and accessible infrastructure for the African citizens and the progress toward the actualisation of an equitable, knowledge-based society. Projects selected for funding under the 1st Action Plan 2008-2010 included the Africa Connect Project, the Africa Internet Exchange Access, the Africa Virtual Campus, the African Leadership in ICT and AYIN - harnessing of information for youth development.

Two major Information Society projects are already being implemented. The AXIS Project - with the Government of Luxembourg and Luxembourg Development Agency as the lead financial institution providing funding of 5.1 million euro, is being implemented by the African Union Commission, and the first committee was held on Monday. The AUC is now in the process of selecting the service provider that will actually be providing support to all national Internet Exchange Points and from there build a toolkit for the regulation of the appearing traffic among those Internet Exchange Points and therefore build a regional Internet Exchange Point system.

With regard to the ALICT project Gesci has been selected as the implementing agency and they have already started building the curricula and training that aims at mobilising African leaders in issues related to the ICT in general. The training has commenced with a mixture of physical training and online training. It is planned that there will be a training for all Ministers in September and then for all Ambassadors in Ethiopia, to make sure we

are all leaders and are understanding the issues of ICT.

Paul thanked Moctar for providing this context and then invited **Kostas Glinos, Head of GEANT & e-Infrastructures Unit, DG Information Society and Media** to provide the perspective from the European Commission.

Kostas provided some background in relation to the current status of the implementation of the Africa Connect project. At IST-Africa 2011 in Botswana, the European Commission handed over the contract to commence the implementation of the project. The period from May 2011 to October 2012 is the preparatory phase, including the tendering and collection of prices, the planning phase and then the actual deployment is expected to start in November 2012 so that the actual connectivity to the 1st African Campus via Africa Connect, will be as of November this year.

There has been good progress in terms of increased participation of African institutions from c 30 participations in FP6 to over 100 participations during the last few years. The Commission Services hopes that this will increased during WP 2013 and into Horizon 2020.

The Commission Services also sees the potential of Living Labs being used to strengthen the partnership in the future.

Paul thanked Kostas for providing an update on Africa Connect. It was clear during the Living Labs working group meeting on Tuesday that there is an enormous amount of enthusiasm and interest from the African Member States and it is good that there is buy-in from the African Union Commission and the European Commission in terms of what the impact is that Living Labs can have

Paul then invited **Dr Rached Hamza, DG, CERT, Tunisia & African Co-chair JEG8** to make some opening remarks.

Rached confirmed that progress is being made in terms of the projects selected under the first Action Plan, and naturally the projects are moving at different speeds. One of the challenges during the implementation related to identifying funding instruments that could be easily mobilised.

Paul then invited **Prof. Luis Magalhães, European Co-chair of JEG8, Portugal** to make some opening remarks.

Luis focused on progress relating to the 2nd Action Plan. Africa Connect will support national reserach and education networks by providing access to services that suport scientific collaboration. Living Labs are included as an area of interest as a means to co-creatie new knowledge in cooperation with different stakeholders and at the same time localising its effects according to the special needs of local communities. In this sense they can impact on many areas of application as both an organisational and technical enabler.

The African Virtual Campus is an important initiative that is supporting eLearning and cooperation between universities.

These initiatives are collectively supporting a strong transformation on ICT and society that comes from the use of cloud computing, smart devices and applications that support smart cities, smart transport and smart health. Given the opportunities in terms of improvements, quality of life, business and scientific cooperation and challenges associated with cross-border exchanges, privacy and security it is important that a good framework is put in place.

Paul thanked the panellists for their interventions. Coordination is obviously very important, not just the left hand knowing what the right hand is doing but also to ensure that there is strong complementarity between existing initiatives and new initiatives as they are introduced.

How does the 8th Africa-EU Strategic Partnership support existing Action Plans in Africa?

Paul invited **Moctar Yedaly, Head of Information Society Division, African Union Commission** to provide the first intervention in relation to how the EU-Africa 8th Strategic Partnership supports existing Action Plans in Africa.

Moctar outlined how a Joint Expert Group (JEG8) has been created composed of the EU Member States and the African Member States, to assist in the implementation of the Partnership through the provision of technical expertise and input. The JEG8 met on Tuesday, which was very useful as it provides a platform for African and European experts to discuss issues and ongoing projects and will meet again on Thursday and Friday. It is important going forward that the African JEG8 builds a roadmap to assist better coordination.

Paul then invited **Dr Florens Turuka, Permanent Secretary, Ministry of Communications Science and Technology, Tanzania** to share an African Member-State perspective.

Florens focused on the Tanzanian experience where there has been significant progress in terms of policy, legislation, infrastructure developments and also in terms of human resources and development.

In terms of policy, the reforms started way back in the early 1990s, with the liberalisation of the telecom sector, removal of the the monopoly of the former Tanzania Telecommunications Corporation being removed, and the entrance of new telecom operators. A number of policies were developed to faciliate a good policy environment for a liberalised telecom sector. Some things that happened at that time as well included the provision of certain incentives for ICT equipment and related peripherals. The legal framework was also changed and Tanzania saw the fastest growth in the telecom sector, growing at about 19% in the last year with tremendous growth in terms of mobile phone subscribers. The number of SIM cards that are in use was more than 25 million at the end of 2011. Following improvements in terms of policy, regulatory framework and other legislations, there are now about 8 licensed operators and 7 of which are operational. Over time tariffs have gone down - 73 cents before 2011 and about 18 cents at the end of 2011.

Tanzania has seen growth in the number of radio stations and television stations and they provide a framework where you have some kind of interaction between the society and these stations. Services leveraging ICT and mobile phone have expanded to include financial services (which is very useful particularly in rural areas), health services and educational services.

With respect to infrastructure, again as a commitment to the 8th Africa-EU Strategic Partnership, the Government has commited to put in a broadband infrastructure 10,000 kilometres long. This project is now approximately 73% completed (7,300 kilometres long in terms of infrastructure) so it is now possible to connect almost the whole country and the regional quarters are now connected the submarine cable, as outlined by the Minister in his Opening Speech.

So, in terms of connectivity again, it goes beyond the Tanzanian borders linking with the neighbouring countries of Zambia, Malawi, Rwanda and Burundi through that infrastructure.

In the spirit of sharing, of involving the private sector, the private sector is actively involved in these processes as the Government of Tanzania has engaged with them in terms of the processes of policy-making, legislation-making and their participation is provides insight from the operators and people working in the field from an operational perspective. The private sector is also interested in engaging in partnerships with the Government. In terms of construction of infrastructure, metro networks are being built in and around Dar es Salaam, and in other places. Tanzania sees the involvement of the private sector including the telecom companies as a good way of sharing experience and trying to achieve what we expect under the 8th EU-Africa Strategic Partnership. Bandwidth is no longer a problem in Tanzania, now there is a requirement for local applications and users.

Paul thanked Florens for providing this insight into the infrastructure that now exists in Tanzania. With the cables coming onshore, price competition in the market should also have an impact in terms of ICT take-up.

Paul invited **Dr Jyrki Pulkkinen, Senior Adviser, Information Society & STI for Development, Ministry for Foreign Affairs of Finland** to provide insight from a European Member State perspective.

Jyrki shared his experience in relation to the challenges getting the 8th Partnership included and drafting the first Action Plan. It is a constant learning experience. Looking at the focus of the first Action Plan and the second Action Plan, the actions and progammes that have been launched are taking a step forward. However, it is necessary to continue supporting the programmes that commenced as part of the first Action Plan, which are now at the half-way point in terms of implementation. It is also important that new activities are based on the learning curve from existing projects. Since there are a lot of activities being undertaken by Member States, private sector and civil society in terms of the development of inclusive knowledge societies in Africa, it is important to be aware of what already exists and define the role of Member States, role of other stakeholders and how the commitment in the European Union and African Union can be developed.

Paul thanked Jyrki for his intervention and highlighted that the IST-Africa Initiative has published a comprehensive report of existing initiatives whether funded as bi-lateral or multi-lateral for 13 of the IST-Africa partner countries. Paul invited the Member States and other stakeholders to download this report from the IST-Africa portal and share information on initiatives that are not included to date. Coordination of activities is critical to ensure there is no wastage of limited resources (financial and human).

Paul invited the panellists to move on to discuss expected impact. While theory and policy is great, it is all about impact in the end. So, what's the expected impact of recent concrete developments? We have mentioning briefly Africa Connect, AXIS, NRENs, connection to GEANT and those are all very important, but what are the expectations of some of the key stakeholders?

What is the Expected Impact of recent concrete developments, such as Africa Connect, African Internet Exchange System (AXIS), Progress on developing African national and regional research & education networks (NRENs) and their interconnection to European GÉANT2 network?

Paul invited **Mr Kostas Glinos, Head of GEANT & e-Infrastructures Unit, DG Information Society and Media**, to provide the perspective from the European Commission.

Kostas referenced the intervention from Dr Florens Turuka, Permanent Secretary, Ministry of Communications Science and Technology in relation to how connectivity in Tanzania and, more broadly in Africa, is progressing very rapidly. In relation to the Information Society and Science aspect of it, Kostas believes that the impact of it will be much broader through better collaboration of researchers and educators in Africa with their colleagues in the same country, in other universities, in the same university, but also overseas in the United States, in Europe and elsewhere. The European Commission has seen this in the past in other areas - a much broader and closer collaboration, with access being provided to services and access to facilities - access for instance, to a telescope for images or accessing a database to download data. This will happen more and more.

Kostas outlined that the emphasis will shift in the future to connectivity of services and this is already happening to some extent, it depends on which country we are talking about. There is also a kind of opportunity dilemma in the area of Science and Information Society and academic connectivity and services, the choice is whether the countries will use these high-speed networks, for example like the ones deployed by Africa Connect or others, only for the universities and education and research communities, or also more broadly, for public services. This is something that we have seen, for instance in India five years ago with a complete reform of the national network where they have established a national Knowledge Network that now covers six areas of need in the public sector connecting hospitals and public libraries to information on real-time agriculture or of course research and education in other services.

To the extent that these decisions are taken in common by the African Members States, these services can be interoperable, this could be a great benefit to everybody. Within Africa it would take specific regions of Africa that have closer affinities.

Paul thanked Kostas for providing this insight. This issue of how we use the infrastructure and first of all what is purposed for and what it should be re-purposed for, is critically important. A simple example from Europe, in the UK, the academic network is called JANET and until relatively recently it was just a fast network to connect to GEANT that was only available if you were involved in a university in the UK. Now the Government has launched an initiative whereby JANET is now going to support incubators, regional incubators all around the UK. It is hoped that that will become a proof of concept that could be brought across all of Europe and, indeed, could be introduced into an African context too because there is an example of repurposing infrastructure to something that benefits society as a whole.

Paul invited **Mr Moctar Yedaly, Head of Information Society Division, African Union Commission** to share an African perspective on this topic.

Moctar agreed with the insight provided by Kostas. In terms of the AXIS project for instance, it is proposed for every country to have its Internet Exchange Point connected to the Regional Exchange Point. The first direct impact will be that the cost of Internet access will be lowered substantially. The latency, which is the quality, will be dropped very substantially and Africa will be saving 400 to 600 million dollars per year that we are paying to connect and to communicate between us.

On top of that, we will be putting Africa on top of that to make sure that you have the identity here, in adding the root service and the cash service here and therefore the internet access of Africa will be really, really low and accessible to everyone. This is in short an example of impact.

Paul thanked Moctar for this practical example of direct impact. If we look at what happened with mobile phone adoption, when most countries introduced competition, price dropped through the floor and, you know, as the Minister and Florens said earlier take up went from a couple of hundred thousand users to 6 million users in only a short number of years. So we are hoping exactly the same thing will happen, which brings us back then to Kostas' point, in terms of whether we can then use this infrastructure to develop public services and if everyone is connected because it is affordable to everyone it is a win-win for society as a whole.

Paul invited the panellists to move on to the talk about the issues of infrastructure in Tanzania and in East Africa. Florens has given us a very good overview of some of the enhancements that have happened there, but what are some of the new demands from that regulatory environment perspective, including challenges such as cyber-security, which are now so sensitive to so many people. How can deregulation and increased competition drive innovation at a national and regional level across Africa?

Based on steadily improving infrastructure in Tanzania and East Africa in general, what are the new demands on the Regulatory Environment (including challenges such as CyberSecurity) and how can deregulation and increased competition drive Innovation?

Paul invited **Prof John S Nkoma, Director General, Tanzania Communications Regulatory Authority** to share his insight from the perspective of a Regulator.

John outlined that from the Tanzania point of view the regulatory environment has been really dynamic as far back as six or seven years ago. In 2005, TCRA introduced the concept of the convergency framework, and this is deliberate, because if you look at the vast level right now where people have a mobile phone, or a computer, or a television. Well, quite frankly, each of these devices can do all of those things. So right at the device level you have the convergence. A phone can used to call, use the internet, you can watch televison of your phone. Television has been moved to digital broadcasting that will also be possible. If you look at the level of your computer, you can use your computer as a phone, use it as a television – so, there is convergence at the device level.

There is also convergence at a network level, in other words, you cannot really say this is telecoms, this is internet, this is broadcasting, there has already been convergence at network level. If we move to the institutional level, the TCRA is a converged regulator. We regulate any electronic communications, that includes telephoning, internet, broadcasting etc.

So, as a regulator managing competition is very important and Tanzania is a very competitive market. In terms of licensing they are very well structured and there are only 4 types of license. Whether you build a wireless network or a fibre network, any network quite frankly, you just get an infrastructure license. Then you have the services, whether it is voice, video or data you get a services license. Then you have applications, which is very open-ended, you have all the internet services, financial services, medical services, education - all these are served by the applications license. Finally we have the content service license, which is basically broadcasting, radio, and television, and now the big challenge is to migrate towards digital broadcasting.

In terms of new challenges, such as cyber-security, this is where we are covered at the legislation level in there Electronic Impostor Communications Act, where there is a provision in the layout for how to manage cyber security. We also at the regulation level, already sat with the regulation's response team, would be a way of managing cyber threats and obviously because cyber-security obviously does not know any borders, Tanzania is part of the global community, Tanzania within East Africa and within Africa globally would be part of the international cyber security monitoring.

John expressed pleasure to hear about the AXIS project with the Internet Exchange Points. Although TCRA is a regulatory body in Tanzania, we already funded the establishment of exchange points in La Rocha in the North and so on, Dodoma, in the South and in Dar es Salaam itself, of course. We are also funding another one in Mombeo for the Southern highlands region, and then in Zanzibar. The purpose of our Internet Exchange Points is basically to keep the traffic local, we did this again maybe three or four years ago but is something that we will continue to manage.

John discussed the issue of the domain name. Particiapants from Tanzania will know TzNIC - the Tanzanian Network Information centre. The purpose of this project is a local domain name and in fact TSRA has already put some money aside for a server which obviously puts the capacity and the capability of TzNIC at a very high level. There are some new challenges, in terms of connectivity, we've seen three submarine landing points - SEACOM, which is close to the conference location, EEaSY at Sakiera and the Seychelles is on the system which is linked with Dar es Salaam.

The communication sector and the regulator has been very dynamic, we see new challenges but we feel well-prepared in terms of capacity, we are very active participants in the ITU study group, because this way you really develop your capacity for regulation at many levels and for managing competition and things like that.

In conclusion, John outlined that he sees local content as being a major issue now that we have this huge capabilities in terms of fibre optical cables, but what do you use them for, what do you see? He indicated that Tanzania will have a problem in terms of local content for the internet. There is also the issue of the last mile, where the cable has landed in Dar es Salaam and we are joining with our 8 neighbours, and the regional headquarters but there is still work to do at the last-mile level which brings the issue of spectrum management in disarray.

Paul thanked John for providing this comprehensive insight. It is clear that there has been a lot of enhancements and a lot of responsibility taken at national level, in terms of taking responsibility for the Internet Action Points

and things like that, and that can only be good new for regional projects. So perhaps one of the things that the different African Member States can do is to make sure that the Regulator keeps everyone informed of what connection point exist already so there is not duplication of effort. Now that we know there are the national connection points, maybe Tanzania should be higher on the priority level because obviously the impact will be so much greater, given the investment the Member State already has made - perhaps that could be considered.

Paul invited **Dr Florens Turuka, Permanent Secretary, Ministry of Communications Science and Technology,** to add to this dialogue.

Florens picked up from what Professor Nkoma just pointed out in terms of last-mile connectivity as this is really a new challenge because we have already reached the original quotas but we wish to get more to the people, to the communities, to the villages. It is for this reason that as a country Tanzania has established the Universal Communications Services Access Fund which is supposed to help reach these remotely located and profitable areas for telecom operators to reach. So far the fund has already established about 2,175 villages which are not easily accessible, which have some problems in terms of communication services, and we are soon going to pilot some of the activities to get to these villages. The Ministry is grateful to the World Bank for collaborating on this.

As Tanzania is moving from analogue to digital and casting, content becomes an important element and this is why Tanzania has 3 licenses for multiplex operators. What we expect is that there should be a differentiation now between those who are developing the programmes and those who are broadcasting. Florens outined that trying to build the capacity of the people and at the same time the local capacity in terms of contact development is very important because it will be useful to reflect the needs of society in Tanzania, rather than borrowing some of the problems. The Ministry still thinks that building capacity of the locals would be very, very important and would distil something that we needed to do a little bit more.

Again, utilising the broadband capacity that is already available, Tanzania sees the innovations that will bring more applications in terms of what is demanded by society becoming more critical in the future. This is where we see that if we have some initiatives that are happening in this are they will very important so you can get more people using this infrastructure.

In addition to human resource capacity, in terms of developing the content we still see that we really need to work hard to make sure that we get the requisite human resources that will be able to drive the ICT sector to the level that we would wish it to be. There needs to be the necessary expertise to run and manage the infrastructure.

In terms of other challenges, as most of us would know, ICT and IT in general, has many, many security issues and always has new challenges coming up in terms of security, so this is something that we really need to look at. As the numbers of users or subscribers growm it is necessary to make sure that the operators are delivering to the expectations of their customers.

Paul invited **Prof. Samuel Wangwe, Executive Secretary, Research on Poverty Alleviation (REPOA), Tanzania,** to share his perspectives.

Samuel outlined that he is focused on fighting poverty through research. There is currently a widening digital divide and it is a challenge to address this on a global level. There have been very positive lessons from telecoms, in terms of how important it is to build the capacity to regulate, to be able to be ahead of the actors, to be able to create an environment for promoting actors, even in a way putting in place incentives to steer them in the direction in which they are likely to develop.

There is a challenge in creating the capacity in relation in the way other types of ICTs, internet, tele-centres operate and the capacity to influence market development and capacity to influence other aspects of the system: financing, policies, governance. It is necessary to define regulation that can cope with all elements of the system so that inclusivity is addressed, to ensure that those who are already marginalised are included in the growth process, are included in the governance process in respect to the politics and the policy formulation, and this Samuel also sees ICT auto-regulated becoming a tool for inclusiveness, a tool for inclusive growth and a tool for inclusive participation.

It is necessary for internet content to be relevant to the lives of people to improve their ability to learn and find out relevant information.

Paul thanked Samuel for his contribution. The issue of inclusiveness obviously having a universal access policy, in a converged environment, as John has already mentioned is critically important. And also there is a trade-off, as there are always going to be trade-offs. Tanzania is a huge country, so there are challenges in trying to make sure the people who are physically marginalised, have access to the same level and choice as people living in Dar es Salaam, or people living in other large urban centres.

The issue of local content is also critically important. It is necessary to consider responsibilities and policies

towards content aimed at specific applications such as e-Agriculture. In some countries this is driven by almost a commercial industry model, where there are commercial players providing the data as a service - you pay for that service, you access the data. In other countries agricultural government institutions provide such data and share such data on a free basis.

Paul proposed that it is necessary to look at what is the appropriate combination of public and private sector involvement. In terms of public-private partnerships, it is relatively straightfroward in terms of infrastructure, but looking at the true nature of the strength of public-private partnerships in terms of service deliver is an issue that has not got enough attention. We hope that some of the issues raised by the panellists today will get people thinking over the coming days.

Paul asked **Catherinerose Barretto, KINU, Tanzania** to share an entrepreneur's perspective.

Catherinerose focused on sharing examples of things that have worked, despite the current framework and current infrastructure. In terms of agricultural applications, KINU recently hosted apps for East Africa. This was the climate change challenge and it was done worldwide. This was the first time that Tanzania took part, Kenya won it last year with their "moo cow" app. This is at the grassroots level, developers and programmers comeinto the office, worked off their laptop and a Tanzanian won the competition. He developed an application called "Grainy Bunch", which he is actually rolling out currently with his 15,000-dollar prize.

Just to touch on a few more to showcase, with regard to infrastructure training – it's important. There are not currently enough Tanzanians or East-African managing networks. There is an organisation called IPV6 run by a Ugandan, a Kenyan and a Tanzanian, and what they do is they work across Africa giving free training. They provide basic theory but are more focused on hands-on bootcamp-style training to build skills in Africa. It is extremely important that if Africans take hold of this innovation and all this IT and have to be ability to manage it.

Paul thanked Catherinerose for highlighting these sucess stories. Paul continued that the issues of telecoms training that Catherinerose raised is not unique to Tanzania. So, for example, last November, IST-Africa did a Living Lab and validation workshop in Burundi as a two-day event where we brought together different stakeholders from Government and industry research and there were a number of players there from the telecoms sector. One of the interesting things was that one of the first proposed Lvinig Labs for Burundi would be cooperation between the Government, universities and the telecoms industry to do specifically that. To work together to provide hands-on training for young graduates who do not have those skills. So, even though they are trained engineers, to give them the practicalities of what they need to be able to do in terms of services and we were looking then at replication and using technology loaned by one of the medical schools to then be able to broadcast the training remotely to other groups of people and perhaps podcast it, because people do not necessarily have to be there online to participate.

Catherinerose higlighted that in Africa there are currently not many apprenticeships or skills-based training as it is expected that a graduate will walk in and have the skills but they do not. Generally at university they are not doing anything with the hard wiring or the hardware. They are learning the theory for a book perspective. It is therefore very important to build apprenticeship and mentorship programmes. KINU has just established an Innovation Hub for Tanzania and is working at a community level predominantly to build skills. It is necessary to provide more training on good governance, entrepreneurship skills and skills necessary to develop local content.

Paul then invited **Prof. Luis Magalhães, European Co-chair of JEG8, Portugal** to contribute to this dialogue.

In relation to regulation, Luis highlighted the need to adopt regulatory frameworks that preserve the openness and the end-to-end character of the internet. This is very important when there is a kind of a silent war of big players, of telecommunications worldwide, to capture the service part of the internet. Actually openness and end-to-end principals of the internet are absolutely central for innovation and for new business' to develop, expand and to be distributed locally.

A related point addressed by Luis is the preservation and deepening of multi-stakeholder involvement in internet governance issues such as business, civil society, academic, technical community participating in the true internet governance problems. It should not be taken for granted as it is necessary have open opportunities and to avoid reducing the number and diversity of players, especially at the end-points and from the nature of the players themselves.

Paul thanked Luis for highlighting these points and agreed that having a shared perspective and an understanding of all the stakeholders provides you with a 300 ° perspective on the issues, because of course every stakeholder thinks that what they are doing is for good and proper reasons. There is always a danger of unintended consequences. As a result there is a very strong argument to be made in terms of making sure that the lines of

communication between government, industry, research and civil society remain actively open and that people remain to have a voice to talk about those issues.

Paul invited the panellists to move on to a related topic, which is, the critical importance and the success story that mobile has become. Hopefully now that these infrastructures have been put in place thanks to the commitment and investment of Member States and the potential of AXIS, Africa Connect and other projects have to offer, we could celebrate some of those successes being made in relation to mobile access.

We are all aware of the critical importance of Mobile access in Africa to Information Society related services including banking, agricultural pricing and education. We will now briefly discuss the mobile Infrastructure that currently exists in Tanzania and East Africa, describe some of the commercial applications leveraging this infrastructure, the need for local content and applications and how an Entrepreneurial spirit around Mobile Application Development is being fostered in Tanzania and East Africa in general.

Paul outlined that he is going to ask Prof John S Nkoma, Director General, Tanzania Communications Regulatory Authority to provide the regulator's point of view, Jussi Hinkkanen, Vice President, Corporate Relations and Business Environment, Nokia Middle East and Africa to provide an Industry perspective and Catherinerose Barretto, KINU, Tanzania, an Entrepreneurial perspective.

John started from the the lasting framework that sets out infrastructure and we have seen how infrastructure is developing in terms of optical fibre networks, wireless networks, satellite networks and all that. Once the infrastructure is in place it is necessary to decide what services to provide - voice, video data and then applications. When TCRA set up the applications license seven years ago they did not dictate the applications - this really depends on the imagination of the operator.

So between 2004 - 2006 Tanzania saw a boom of internet service provision on mobile phones. Later financial services were added as the BOT as the central bank had a memorandum of understanding on regulating financial services through the mobile phone system. The government itself is now using the mobile phones itself for agriculture applications, medical applications, e-health applications and so on. So it is very open-ended and it really depends on the imagination of all of Tanzanians, and the fees have been deliberately kept are very low to encourage young people to become entrepreneurs.

As far as local content is concerned the efficiency of utilisation of spectrum becomes very high. What are you really going to put on your television networks? We will need the local people to produce programmes, which will be able to feed into the content service licensees. As it was said earlier, the signal distribution, there are 3 of those, then those 3 depend on input from the television stations. The television stations in turn depend on input from the content producers. So, there is a lot of opportunity in terms of content production: that is the broadcasting level.

On the internet level, where are the government applications, education applications, health applications? John provide an example of a professor or teacher in Dar es Salaam having students all over Tanzania and having electronic books. So, the whole problem of teachers and books can just disappear if we are properly organised.

John then focused on the post which he believes is going to be rejuvenated through using ICTs. In Tanzania people do not currenly have addresses - they use post office boxes of which there are 173,000. Given that Tanzania is a country with about 43-44 million people, it is necessary to change the mode of addressing a physical address. A postcode system has been developed where actually, each village in this country will have its own postcode. The database has been designed and it ready to be rolled out. The system is very simple, based on a 5-digit system, Tanzania is divided into 7 zones. You have Dar es Salaam is 1… The first digit and the second digit describe a region, then the first, second and the third describe the district, then the first, second, third and fourth describe a ward. So, practically from only 173,000 post office boxes, each Tanzanian can now have an address. The impact of that in terms of education, tax collection and services is enormous. There are curently 25 million SIM cards registered for mobiles, but only 5 million internet subscriptions. It will be interesting to see in the near future how internet usage increased, what people use it for and the overall growth in socio-economic development of the country.

Paul thanked John and then invited **Jussi Hinkkanen, Vice President, Corporate Relations and Business Environment, Nokia Middle East and Africa** to contribute to this dialogue.

Jussi initially focused on mobile penetration growth and the question of marginalisation raise earlier. In neighbouring Kenya while initially mobile penetration appears to be 67-68%, when one looks a bit deeper the subscriber penetration is only at the level of about 30-35%, which basically means that there is a maximum of 35%

of the population who actually have access to technology and to a device that has a means of communication as well as data.

There is huge potential for growth especially when you look at value-added services to the rural population and to the entire population of Tanzania. Policy-makers are also now realising that the contribution the mobile technology has on the national economy is huge, roughly 10% of the GDP.

It is necessary to understand the opportunity - while we all talk about banking, health solutions and so forth, unfortunately the reality is that most of those initiatives are just projects: they are not sustainable initiatives, they are not sustainable businesses and we have to focus a lot on developing them into such a format.

The global value-added service business and mobile value-added service business is projected to be at the level of about 205 billion USD in 2014, this is a figure that developers from Tanzania, Kenya, Mozambique and Uganda can all tap into. For the first time in human history we have a vehicle that brings the innovators to the global arena without any barriers there.

If you look at the same figure then for the African continent the figure for 2014-2015 is going to about 3 billion USD. So, 3 billion USD worth of applications and content will be sold in 2015. It is extremely rapid growth and Jussi outlined that there is a massive opportunity for Tanzanian developers in all of the East African region. East Africa really is the dynamo when it comes to development on the continent.

Based on Jussi's background working in African for past eight years, mostly inside government, he belives that it is necessary to come up with creative new models for bringing relevant content-based solutions to people, especially the sustainability models. There is a need to undertake research in Africa to develop 'base-of-the-pyramid' business models that are suitable to the environment in terms of sustainability and ease of finance for local consumers. It is necessary for Africa to mobilise a critical mass of developers and innovators. To achieve this it is necessary for the government, developers and the private sectors to work together.

Paul thanked Jussi for his insight and invited **Catherinerose Barretto, KINU, Tanzania** to contribute to this dialogue.

Catherinerose focused on some examples of local activities in Tanzania. Push Mobile (Seychelle-Tanzania fibre optic network) has developed local content and applications by Tanzanian and East Africa developers. For example, Push Mobile developed, for the Electoral Commission an SMS voter information query system, that was developed by East African developers locally and was run during the campaign. Cellcom developed a mobile purchase development system with locally developed content for Tenesco, the electrical company Tenesco.

Through KINU and Trial Labs, another Tanzanian initiative, young Tanzanians that worked in the telecom sector are branching out. The Trial Labs project is called 'Shileni', which in Swahili means schools, an online system and online portal that parents in villages with mobile phones can talk to the teacher and see what their children are up to.

Paul thanked Catherinerose, Jussi and John for their contributions to this discussion. He then invited the panellists to discuss public-private partnerships.

How can Public Private Partnerships [PPP] be better leveraged, using funds from European and African Member States, International Funding Agencies and the Private Sector?

Paul invited **Moctar Yedaly, Head of Information Society Division, African Union Commission** to provide his perspective.

Initially in relation to cyber-security Moctar highlighted that the African Union Commission Recommendations on cyber-security, e-transactions and personal data protection is about to be finalised, and the last validation workshop will take place in June and will be submitted to the Heads of State.

In relation to public-private partnerships (PPPs), Moctar indicated that while there is a lot of discussion in relation to defining PPPs and reinforcing their importance, there are limited examples of these being actualised in the ICT sector.

The African Union approach is to make sure that the project has been initiated, that the funds are in place and then we transfer the implementation to the public sector.

Paul thanked Moctar for his contribution and invited **Kostas Glinos, Head of Unit GEANT & e-Infrastructures, DG Information Society and Media, European Commission t**o provide his perspective.

Kostas outlined that normally the public private partnerships (PPPs) start with an objective and a decision that a PPP is the the best vehicle for that purpose - for example a railroad or a road. It could be a research project

which you have several public-private partnerships with research objectives in Europe, you want to develop a competitive industry in a certain area and therefore public sector partners to achieve this objective. You want to send a spacecraft to the moon and instead of paying the entire cost by the public sector developing the spacecraft, you choose to partner upfront with industry and develop it together.

Kostas indicated that it is necessary to first choose the objective. This can come from the private sector, but most often in the research case of the PPPs it comes from the public sector. Secondly it needs to be something that is really big and ambitious, because if we are talking for instance of local content development for mobile applications, which I think, is very interesting and the domain which has the biggest potential for development. But is it worth doing a PPP? No, because there you want to promote innovation, to have serendipity, you do not want to exclude anybody, even the smallest company, because anybody should be able to come in and to their own thing. You don't want to close it off by selecting some players through which you partner in the PPP.

Having in mind that in a PPP everyone benefits, but everyone also contributes and contributes upfront, so that every partner that comes in puts something on the table. Then if you talk about combination of public funding from various sources, then it becomes quite complicated.

Paul thanked Kostas and invited **Prof. Luis Magalhães, European Co-chair of JEG8, Portugal** to provide his perspective.

Luis agreed with Kostas that it is necessary to first define the objectives and then determine if a PPP is the correct vehicle to reach the shared goals through a participatory dialogue with the correct players.

In terms of financing, the instruments that the public sector has for this are matching funds and fiscal incentive schemes with the public support leveraging the private and this, of course, involves different shares of the two sides depending on the particular project being attempted.

Regarding management regulation, most of the difficulties are actually in execution. So the execution phase should be actually planned with detail and the way it is run and the kind of rules that oversee it and how it is monitored is extremely important and requires special competencies that are actually not so easy to develop. These skills are also very important.

Paul thanked Luis and invited Ambassador Lennarth Hjelmåker, Embassy of Sweden, Tanzania to share a European Member State perspective.

Ambassador Hjelmåker outlined his pleasure to participate as it is clearly aligned with Sweden's policy to support Science, Technology and ICT. It is also important that there is a cooperation between Europe and Africa in this domain to support the role of Information Society and ICT to drive economic and social reform in society. Information Society Technologies are clearly changing the way of life for people and as outlined by the Minister and Permanent Secretary levering this innovation is high in priority in Tanzania. It is clear that all actors are needed, that we work together and find ways to achieve innovation in an efficient manner. From a Tanzanian perspective PPPs are important vehicles to draw investment into the country. Ambassador Hjelmåker agreed that it is important to be clear on the objectives of the financing and the management of the implementation as outlined by Kostas and Luis. It is necessary to have a good, open dialgue with the private sector.

That being said, there is also a need to have a good framework for the work. In Tanzania we have seen and we see that there is a PPP policy from December 2009 and there is the PPP Act from June 2010 and these are being continued and being developed into rules and regulations. Transparency in this process is critical, not least when we come to procurement processes and this is where a key competition and a value for money for all parties is also clear. Here, of course, ICT can make this happen, can make knowledge and information available to everybody, so ICT as an instrument here is very critical.

In relation to instrruments, Ambassador Hjelmåker outlined that there are many instruments, and in terms of Sweden, it can proivde strategic funding that can leverage funding from the private sector and that goes for ICT as well of course. SIDA has also established a special private-public partnership programme as a component of SIDA's Business for Development Programme.

Paul thanked Ambassador Hjelmåker for his contribution. Bilateral Programmes are highly relevant and both Sweden and Finland have programmes that support engagement with the private sector to provide investment in developing country environments and things like that. Paul also higlighted the important issue raised by Luis when he was talking about the transaction cost, to put something in place it has to bare some sort of relationship with the skill of what you are trying to do. While Paul agreed with the 3 cores discussed: the objectives, the financing and the management as all being important, he also agreed with Lennarth's premise that if there are sufficient discussions beforehand about shared common objectives, then any hidden agendas, unintended consequences that might arise that could give one party a strategic advantage and therefore causes both political and social problems later, before PPPs are signed could be of great value.

Paul invited **Jussi Hinkkanen, Vice President, Corporate Relations and Business Environment, Nokia Middle East and Africa** to provide his perspective.

Jussi stared by reflecting a little bit on the role of PPPs and the aim of IST-Africa to support Information Society Technologies to become a pervasive source for international development. In this context it is necessary for the public sector and private sector to work together as neither can achieve as much impact separately. Jussi focused on the 'shared value-creation' concept which is also in the spirit of the triple helix concept, which is also very much in the background of the information Society discussion.

Jussi outlined that in PPPs there is a natural role for everyone so each have their core strengths and competencies. It is critical to understand what the government is responsible for and what the private sector partners bring to the table. In an African context, Jussi outlined two areas where PPPs work well - the enabling environment itself and capacity building such as the initiative that NOKIA is launching with the Government of Tanzania for skills development, mobile application labatories and incubators and value added services. In terms of enabling environment NOKIA has implemented this is Egypt to support the Government in terms of evolving a mobile business incuabator and local eco-system. The Government provided the space, funded the manager and there was some finanical support and in kind support. NOKIA set up the laboratory and is now operating it. In terms of value added services, NOKIA has a service called NOKIA LIve which is running in 5 countries including Nigeria. There are currently one million active users in Nigeria using this service. The Government uses the service as a distribution channel for content it wishes to distribute nationally. There are very creative ways for combining and adding value to each other. It is necessary to cultivate a spirit of trust, because trust is at the foundation of any public-private partnership and to cultivate an understanding of what open innovation collaboration means in practice, because that is not something that is a natural mode of working for many of us. In conclusion Jussi proposed that it is necessary for the pubic and private sector to start collaborating, sharing information better and be very transparent in the way each operates.

Paul thanked Jussi for providing these practical examples and invited the panellists to move onto discuss the next topic.

How can we best address some of the challenges around capacity building and supporting sustainable socio-economic development by linking skills development and entrepreneurship, Living Labs, incubators and Science Parks and ICT for Rural Development?

Paul invited **Dr Florens Turuka, Permanent Secretary, Ministry of Communications Science and Technology, Tanzania** to provide his perspective.

Florens outlined that if we are to really to support socio-economic development by linking skills development and entrepreneurship, then we can start by finding the real problems that are facing the people and society in general so then focus on what we can do in terms of developing their skills around these areas.

Some of the requirements to develop capacities would require a lot of support for both the public and the private so, Florens believes, that a proper PPP arrangement will be very important and it has been clearly explained by Jussi, that it requires a full of definition of who does what and for the private sector, their roles have to be clearly defined.

In terms of skills-development and capacity-building, Florens proposed that it may be more efficient to focus on competence-based training. He believes that Incubators and Living Labs are ways of addressing this but they are focused on real problems that are facing the communities and trying to find how best we can go around in terms of finding solutions but at the same time trying to see how best we can build capacities. It is important that both the public sector and private sector commit resources to capacity building in a consistent way as some elements may not generate immediate benefits but they are necessary stepping stones to the long term goal.

Paul thanked Florens and invited **Ambassador Lennarth Hjälmåker, Embassy of Sweden, Tanzania** to provide his perspective.

Ambassador Hjälmåker outlined five main points. Firstly the education systems and capacity building programmes should be more aligned to the labour market. Secondly problem-solving exercises should be emphasised rather than just theoretical education and we know that ICT can help a lot through interactive exercises and simulations, so, the problem-solving approach. Thirdly, leverage lessons learnt from other stakeholders. Sweden has been Involved in capacity-building at school level for over 35 years with significant results and a lot of lessons have been learned and they can be utilised instead of re-inventing the wheel. We know, for example, that capacity building should focus on indigenous problems. Fourthly, moat of the population of Tanzania is rural and lives in rural areas, so best efforts should be put on ICT for rural development and many mobile applications can easily

be used in rural settings using the mobile phones, for example. Fiftly, mobile money is currently being used for private money transfers. It could now focus on untapped potential for usage, usage in business and other areas.

Paul thanked Lennarth and invited **Dr Jyrki Pulkkinen, Senior Adviser, Information Society & STI for Development, Ministry for Foreign Affairs of Finland** to provide his perspective.

Jyrki highlighted that it is the nature of the business in a knowledge-society that there are many different views to see things, sometimes we want to coordinate, sometimes we want to facilitate and outcomes are quite different depending what we are doing. In terms of local content, it is necessary to define what we mean by content - is it media, what is the role of media in the development of information society, what are the conditions of the media industry in African countries that they can survive sustain and produce good content for people? It is very important to look at that aspect of capacity building and availability of information and content in various sectors.

Paul thanked Jyrki and invited **Prof. Samuel Wangwe, Executive Secretary, Research on Poverty Alleviation (REPOA), Tanzania** to provide his perspective.

Samuel focused on four main points. FIrstly it is necessary to agree the agenda and programme to achieve the joint objectives of the stakeholders. In setting the agenda, it is necessary to agree what the capacity-building is focused on. Secondly, it is necessary to identify the real needs, which may vary from one community to another and from one region to another, Thirdly, local content and infrastructure required to address the problem need to be identified. in terms of skills based capacity building, this may need to be addressed from the demand side and supply side. The power of ICT requires certain skills literacy but it is also a very important enabler in supporting skills develpment, even from a distance if it is properly used. In terms of infrastructure it is surprising that in terms of reaching out to rural areas, solar energies have not further developed. Finally, entrepreneurship in terms of capacity and information flow to develop necessary skills and new market opportunities. It is necessary to address current skills gaps but also to look at potential future areas that need capacity development.

Paul thanked Samuel and invited **Catherinerose Barretto, KINU, Tanzania** to share her perspective.

Catherinerose outlined that there has been an increase in needs, supply and demand. In East Africa, communitieis have launed a series of innovation hubs - Our Lab in Rwanda, Hive Up in Kampala, iHub in Nairobi and KINU in Dar es Salaam, Catherinerose belives in skill-based training but feels that providing this at a graduate level is like putting a band-aid on the problem, because eventually East Africa will not have enough network engineers or enough developers. It is necessary to nurture and support skills development, creativity, questioning, innovation at a younger age. It is necessary to foster creativity and innovation in primary schools.

Paul thanked Catherinerose and invited **Jussi Hinkkanen, Vice President, Corporate Relations and Business Environment, Nokia Middle East and Africa** to share his perspective.

Jussi agreed with Catherinerose and focused on two main points. Firstly, how do we build capacity and education policies? In many countries there is a focused on sectoral policies, while we need to implement innovation policies or strategies that are all-encompassing. It needs to be a holistic activity with all players working together, througout the entire education system. Secondly as Catherinerose has higlighted innovation hubs are now poping up across Africa and are creating a movement of change. But how do we scale them up? How can we get to a point where innovation hubs are in every major town in Africa? Once again it is necessary to understand what is the role of the public sector, what is the role of the corporate and private sectors and then to respect that. One of the worries that Jussi verbalised is that we have a lot of focus on science hubs and a lot focus on incubators, which are brilliant structures, but very often they become only structures – infrastructure without the spirit inside and that does not stimulate innovation. We all have to come together, to collaborate and we have to let the innovators really drive this game.

Paul thanked Jussi for his contribution. He then invited the panel to be creative in relation to ideas for launching new joint projects under the 2nd Action Plan. This may then stimulate further dialogue during the thematic workshops.

Ideas for launching new joint projects under 2nd Action Plan (eApplications in the health and education sectors, eSkills, Cooperation on Living Labs, Innovation and entrepreneurship)

Paul invited **Mr Kostas Glinos, DG Information Society and Media, European Commission** to provide his initial ideas.

Kostas focused on two main areas. Firstly, what is the landscape now for the Information Society? The potential of the GSM is not fully tapped, when we think of GSM we think of voice and that's it. If we exclude what is happening

in East Africa with M-PESA then nothing exists. The potential of the broadcasting is not used because TV is just for entertainment, it is not for used for education or health. The potential of the postal sector is not used, this sector is always forgotten but it is part of the communication and information technology and without post there is no e-commerce, there is no e-transactions.

In order to be innovative, Kostas proposed to work on three major axes. One is to have the countries building their own e-strategies in introducing the new e-applications be it e-health, e-education, e-governance and so on and have the regulators now, not only regulating the voice but regulating anything to do with that and that comes with data protection, e-transactions and so on. The second axes is the most important one - migration from analogue to digital TV, and therefore we would have more frequencies to be used for applications and would be able to have more channels to be distributed and used for something else. The last one is the development of the postal sector so that everyone has an address which will help society to have everybody located for all applications. The post could play a role in e-commerc and e-signature specifically and having the post office move from selling stamps to selling plastic cards that are actually Visa and Mastercards. Having the post playing a role in financial transactions and using these things to attract the domestic funds and maybe have the post as the centre for e-governance services. The post has a wide network, has a presence everywhere and the rural section can be able to be users of the postal service as the centre for e-governance services, as the centre for e-transactions and for e-applications and therefore help them to really be the ICT centre in Africa.

Paul thanked Kostas for his concrete suggestions and invited **Moctar Yedaly, Head of Information Society Division, African Union Commission** to share his vision.

Moctar focused on three main ideas. Firstly to build on the HIPSA framework, on the regional harmonisation of regulatory frameworks to follow up with a kind of setting up on a board of regulators to have a forum on the regulatory authorities of different countries to coordinate among themselves and maybe go the further step in a few years. Secondly to have a feasbility study on how we could put together this Living Lab network on a pan-African scale as has been pointed out by several people and thirdly, a feasibility study on how to extend Africa Connect to more countries in Africa. As you know, this service is now in 13 countries in East and South-East Africa, how can we extend it elsewhere?

Paul thanked Moctar for his suggestions and invited **Prof. Luis Magalhães, European Co-chair of JEG8, Portugal** to share his vision.

Luis concurred with these ideas previously discussed by Kostas and Moctar in relation to Living Labs and Africa Connect and the kind of collaborative services that can be placed on top. In terms of Living Labs, they can be tuned to particular services because they involve communities and stakeholders and adapt innovation to local environments and of course they can be directed to many different things: health, government, education, business and to inclusion. Luis believes that we have the right ingredients, it is just a matter of working together more and shaping them up to serve the interests of communities.

Paul thanked Luis for his contribution and invited **Ambassador Lennarth Hjelmåker, Embassy of Sweden, Tanzania** to share his vision.

Lennarth outlined that one area that he finds most interesting and believes should continue to be supported is the area of health and in particular in a country like Tanzania, where it is necessary to reach the rural poor iwith health, doctors, facilities and so on. Secondly this is not only about health of course, this is about teaching and education in a broad sense but also medical information. We don not just need the doctor when something happens but how do we provide medical information and how could we move further than that. The third area, quite different, is about trade and the movement of people and goods - in East Africa, we developed one-stop border posts in between countries. How can we use Inofrmation Society Technologies fully in doing that? In conclusion Lennarth focused on universities. As he mentioned earlier Sweden has provided a lot of ICT infrastructure to many organisations in Tanzania, including 3 of the prominent universities including UDSM, MUM and MUHAS and based on the development of proper e-learning platforms, how can we increase the efficiency of universities?

Paul thanked Lennarth for his intervention and invited **Dr Jyrki Pulkkinen, Senior Adviser, Information Society & STI for Development, Ministry for Foreign Affairs of Finland** to share his vision.

Jyrki focused on three main points, Given that the partnership concerns complex sectoral, mildly cross-sectoral issues, Jyrki believes that we need to continue with cross-sectoral leadership programmes, more capacity building and continue building the leadership capacity as the big picture is cross-sectoral, multi-sectoral development of information and knowledge society in Africa. Secondly, we have been saying that regulations are very important and enabling regulations rather than de-regulation is a big issue in telecommunications. Then if we look at the whole society, the same applies to other sectors, Jyrki thinks that we really need to look at all

the sectors of society and how we can develop enabling strategies and policies to further develop the knowledge society in Africa. So, enabling policies, supporting policies not directive or top-down policies but those that are enabling and should include medias and other key sectors and others producing content. Thirdly, based on having enabling policies in place, we could create a driven funding mechanism and let the crowd deliver the solution. Jyrki proposed considering have the whole of Africa as a Living Lab instead of establishing small Living Labs here and there and have down-to-top development that is taking place in all the societies and all the sectors of society providing possibilities through challenge funding, incentive funding mechanisms that we might already have in some places.

Paul thanked Jyrki for sharing his vision. Paul proposed that the Regional Economic Communities could be better enabled. One of the key challenges for East Africa, for example, is that there is still no ICT or Science and Technology Innovation desk officer for the East African community and this causes enormous difficulties for all the Member States in this region. They can go to the meetings with the Ministers of Education, but they cannot speak, they cannot contribute, there is no formal platform for cross-border collaboration and that has been one of the fruits of IST-Africa is that we have all of the East African countries involved and informally we can facilitate that. So Paul proposed that it should be considered to put the resources in place to get an ICT desk officer and an STI desk officer in place as Tanzania has already offered to provide an appropriate resource in the short term to help get that started.

Paul thanked all the panellists for their insightful contributions and handed back to Dr Florens Turuka, Permanent Secretary, Ministry of Communications Science and Technology, Tanzania to wrap up the session.

Wrap-up

Dr Florens Turuka, Permanent Secretary, Ministry of Communications Science and Technology thanked Paul for preparing and moderating the RoundTable, he thanked each ofthe panellists for their active contribution sharing ideas and experiences.

In summary, the panel has reviewed progress on the implementing of the 8th Africa-EU Strategic Partnership, the importance of the Partnership in supporting Action Plans in Africa and shared experiences in relation to the impact of recent developments on various programmes and initiatives when developing the African national and regional research and education networks and their interconnection to the GEANT2 network. The panel then discussed new demands on the Regulatory Environment, how deregulation and competition can speed up innovation and the potential and various applications that are available in mobile access services and applications.

The panel touched on how best we can leverage the PPP using the funds from the European Union and the Member States, we again looked at the capacity building and the skills development, entrepreneurship, how that can be done and how we can optimise these. Lastly we were listening to some proposals for new projects under the 2nd Action Plan.

Dr Turuka thanked the audience for paying attention to what has been discussed by these panellists and closed the RoundTable discussion.

Closing Plenary

The Closing Plenary Session focused on sharing experiences and lessons learnt from Initiatives supporting Development of Regional ICT and STI with presenters from the European Commission (Fadila Boughanemi), African Union Commission (Moses Bayingana), GESCI (Jerome Morrissey), TANZICT (Kristiina Lahde), World Bank (Edward Anderson) and DTBi (George Mulamula).

International Cooperation with Africa & Horizon 2020, Fadila Boughanemi, DG Research, European Commission

Fadila provided an overview of Horizon 2020, which is the Programme currently being prepared to run from 2014 to 2020 focused on Innovation and addressing social challenges with a proposed budget of 80 million euros to co-fund collaborative research. Three priorities have been identified - Scientific Excellence, Industrial Leadership and public-private partnerships and addressing Social Challenges.

Within Scientific Excellence there are four sub-pillars proposed - establishment of a European Research Council and frontier research by individuals; Future and Emerging Technologies (Collaborative Research to open up new fields of Innovation); Marie Curie (mobility for young researchers) and Research Infrastructures.

Within Industrial Leadership, there are three pillars proposed - Ensure leadership and enabling industrial technologies (CT, nano technology, materials technology, manufacturing, space etc.); Access to Risk Finance (private and venture capital financing for research and innovation) and Public-Private partnerships.

Within Societal Challenges, areas proposed include health research, demographic change and well-being; food security, sustainable agriculture; renewable energy; secure societies, inclusive and innovative.

It is proposed that the rules of participation and evaluation of proposals will be simplified.

In relation to International Cooperation, Horizon 2020 will focus on the Mediterranean partner countries, Industrialised Emerging Countries (BRICS) and Developing countries. There will be an increased focus on regional cooperation. By the end of 2013, it is expected that there will be specific communication on the International dimension of Horizon 2020.

Fadila thanked Miriam and Paul Cunningham for inviting her to present and thanked the audience for their attention.

African Internet Exchange System (AXIS), Moses Bayingana, African Union Commission

Moses provided an overview of the African Internet Exchange System project, which was launched as one of the flagship projects under the first Action Plan of the 8th Africa-EU Strategic Partnership.

The Internet in Africa has been growing steadily for the past several years and is beginning to play a significant role in Africa's development, creating employment, providing opportunities for innovation and entrepreneurship as well as acting as an enabler in the digital delivery of government services, education and health care among others. Unfortunately the overall impact of the internet as an enabler in Africa has been curtailed by a number of issues including a lack of an efficient path to carry growing local and regional traffic between internet service providers. This causes problems on a national as well as on a regional or inter-country scale. Increasing efficiency of national and regional traffic in Africa is an area which, thus far, has not really been addressed or has just started being addressed resulting in a slow and expensive exchange of African intra- and inter-country traffic via overseas hubs. Independent analysis put the costs even to an estimated 800 million dollars, due to transit costs, which is both costly as well as an inefficient way of handling this traffic.

It is within this context that the African Union Member States approved this project, the African Internet Exchange System through its Ministerial Conference on ICT. Having done it, it mandated the African Union Commission to mobilise resources to help implement this project, so we partnered with the European Commission under the 8th Africa-EU Strategic Partnership to seek funding to move forwards. Moses outlined that the Government of Luxembourg generously provided funding through the Trust Fund to implement this project. The project has received a grant to 5.1 million euro.

There are about 30 Member States that do not have national internet exchange points, others have. So, the AXIS project will start by supporting those that do not currently have them to establish them and to address the issue of

keeping local traffic local on a regional level. In about 2 months time, the project will focus on the Member States that do not have internet exchange points and then from January the regional aspect of the project.

African Leadership in ICT (ALICT), Jerome Morrissey, GESCI, Kenya

Jermome provided an overview of the ALICT project, which is a three year flagship project launched under the 1st Action Plan of the 8th Africa-EU Strategic Partnership supported by the AUC and funded by Finland focused on African Leadership in ICT.

GESCI, an international organisation based in Nairobi has spent most of the last year putting the project together, developing content and curricula etc etc as it is a professional, blended learning course which started off in 5 countries building leadership capacity for knowledge society development in Eastern and Southern African countries The second objective of the project is to pilot, or pioneer, or develop a blended learning building model that can be used in the future for other eLearning Programmes. The third objective is to create an alumni of future leaders for the knowledge society, bringing together a cross-section on the profile of people who are completed the programme to share experiences, to discuss and to be active in a community of practice, focused on the real exploitation of technology for the knowledge society, for planning, implementing and strategising.

All the learning materials were formed following a 5-country research study which was completed prior to commencing the project and currently we are doing research on the next 7 countries who will take part in the programme from October onwards.

The underpinning topic is about informed leadership, using modern tools of leadership, assisted and augmented by looking at new strategies for science, technology and innovation. Other modules focus on Communications and Infrastructure (telecommunications, media and distribution etc), applications that government can engage in for e-government, e-learning, e-health but also corporate governance, internet governance, all the different issues that come into play on which you must have operational strategies to guide and manage these activities subsequently, Learning and Education, and Contextualisation of the Knowledge Society and Development in the African Context.

It is a 7 month programme, which stated in 5 countries in January. During May tutors will travel to the 5 countries to see how course participants are getting on. On the online communication platform there are 7 key assignments, all inter-related in the project and, of course the an international assignment looking at knowledge society mapping for individual participant countries but also as a horizontal activity among countries themselves. The initial participants were targeted as a cross-section of Ministries and relevant state organisations, the gender breakdown was 66% male, 33% female, middle management to upper management, Heads of Units and Departments, Assistant Secretaries of departments, and occasional PS here and there. Initially it was planed that there would be 50 participants (10 per country) but the first part had 110 participants, with only 5 people dropping out to date.

The second cohort will begin in October in 7 countries. Jerome believes that the ALICT value-added dimension is bringing the public and private sector together to think and plan policy roadmaps, policy advancement at a national level one of the key objectives. The advancement of Africa in the context of a global knowledge society and, again, the creation of a model for leadership development in the knowledge society. The ALICT final outputs, the knowledge society roadmap, will cover the 5 countries that the programme commenced with and 7 additional countries for the second phase.

The anticipated impact of the project is the creation of a network of leaders of knowledge society advancement in Africa, enhance collaboration between countries internationally and, as I said, one of the participative features of the project itself is the active collaboration and international cooperation in the development of assignments etc. The creation of alumni of knowledge society experts for Africa is a particularly important feature of the project.

On the level of the modules that currently exist, it is well advanced towards the crediting of a post-graduate diploma and masters, so the content of the modules has already been approved and judged internationally as level 9, which is the equivalent of a higher level required for a graduate diploma. The programme can be added to by participation in an extra module with thesis and will attract the award of a master's degree and we are speaking to a few universities on that particular aspect of the project.

Four modules have already been completed and delivered online, 94 participants continue from cohort one, 360° leadership assessment and feedback has been completed. The research on the status of the knowledge society and the need for capacity building has been carried out in 12 countries. The programme content for the 7 modules has been completed.

TANZICT Programme, Kristiina Lahde, TanzICT Programme, Tanzania

Kristiina provided an overview of the Information Society and ICT Development Project in Tanzania, which is a a four year bilateral programme between Tanzania and Finland. The project is structured in three components - firstly the revision of the national ICT policy revision, which has commenced in cooperation with the United Nations Economic Commission for Africa (UNECA), secondly assisting corporate ICT capacity building in the Ministry of Communications, Science and Technology and thirdly, the Tanzania Innovation Programme which is at the planning phase and aims to assist Tanzania to build the pipeline and the necessary structures for Tanzanian ideas, innovations and innovators to be able to go forward, get the ideas to markets and make sure that there is Tanzanian content in the Tanzanian information society.

In practice, most things that TANZICT does is in collaboration with local champions, association, universities, companies, SMEs, start-ups, future organisations, different kinds of folk who are interested in ICT and entrepreneurship and to assist this community to grow bigger. Some specific events for women have been undertaken. The project is also looking at Living Labs and dealing with pre-incubation in terms of collaborating with a business incubator. The TANZICT Innovation Space is hosted by COSTECH, the Tanzania Commission for Science and Technology and has two sides - an open, collaboration, training workshop, meeting place where anyone can come in and use the wifi and work and meet people and a quieter space where the pre-incubation teams work. To date there are 250 registered users.

Kristiina invited the participants to engage in the policy process to provide stakeholder advice, inputs and comments. In terms of Living Labs, TANZICT is providing support to local communities who wish to develop a Living Lab around their ideas. There is a small fund for Tanzania start-ups in the demo phase which will be promoted during June and there are opportunities for academic exchanges to Finland for Tanzanian universities researchers for up to a semester and the also to bring a Finnish teacher to provide assistance in Tanzania for a period between one to six months. Kristiina invited interested parties to follow up with her in relation to these opportunities.

World Bank Initiatives, Edward Anderson, World Bank, US

On behalf of the country director, Edward provided an overview of activities currently being supported by the World Bank.

The ICT section of the World Bank has been supporting for the connectivity agenda to assist the governments with the infrastructure to connecting broadband networks, submarine cables, fibre optic networks, and the regulation reforms needed to bring the price down. This has been done as they are convinced of a strong correlation and evidence of a causal relationship between the broadband penetration rates and the GDP growth. However, in the last few years there has really been a transformation and reflection moving from connectivity to the use of ICT in transforming other sectors. There has been a renewed appetite to use ICT for public service delivery, to leverage the reach of this new platform of mobile devices which are ubiquitous, and connectivity to the internet via the mobile for services.

The Open Development Technology Alliance was created with a Secrariat in Washington as a partnership with a number of players interested in the use of ICTs to facilitate a more open and collaborative development process. Examples include Check My Score, which is an education sector example from the Philippines originally with citizens, parents, interested stakeholders being able to look up open data through interactive web-mapping, the facilities and conditions of the local schools, and to be able to provide some feedback, some comments, so very much a Web 2.0 notion of citizens interacting with their local service providers and from Tanzania a small demonstration was run last September in partnership with Twaweza to map Map Tandaleh. This project was an experiment in multiple areas, to teach skills using low-cost and free tools, such as GPS, the mobile phone in your pocket, online databases such as Open Street Maps which are free to host data. It was a partnership between students of Ardhi University and planning and community members who cooperated to map most of Tandale, which is an unplanned community in central Dar es Salaam. It targeted a community where there is an infrastructure grant being prepared such that this network of local citizens is now able to give us feedback when the road has been paved, when the drains have been lined, if it's still flooding, if the streetlights are working, if trash is being collected, and so forth. The focus of Open Development Technology Alliance is the delivery and quality of public services and enhanced accountability using ITC citizen-enabled enabled engagement. Ut leverages this potential for, not just feedback, but for participation and collaboration, these citizen-listening tools that have grown up everywhere are a huge opportunity but also really a tremendous challenge.

The Open Development Technology Alliance focused on three pillars of which the knowledge pillar is led by the World Bank Institute in partnership with the Transparency and Accountability Initiative, looking at the analytical

work, the research work in this space. The Open Data Kenya case study was published within three months of the initiative being launched and a number of sources for crowd-sourcing and open data for developing countries and so on. There is a community of about 1500 people so far on these Linked-in groups, and this is a really good way to find out what's going on if you're interested in events, in up-coming publications in getting involved in a workshop or just finding access to a consultant or someone at the Bank who's knowledgeable and you have a question, please join the Linked-in groups first, it's a more manageable roster of who's interested. There are sub-groups within this, including an invitation-only network of government CIOs that are available to support developing countries in their policy-making.

Entrepreneurship and ICT Incubation, George Mulamula, DTBi, Tanzania

George provided an overview of the Dar Teknohama which is an ICT incubator hosted by COSTECH which supports emerging businesses to think outside the box and support Entrepreneurship.

The eco-system for ICT entrepreneurship in Tanzania is currently weak and entrepreneurs need a lot of support to find and sustain market opportunities, to be able to fulfil customers expectations while building an organisational culture and to secure financing. DTBi provides mentoring and support to incubatees as they grow their ideas into fully fledged business plans.

National ICT Backbone, Adjinem Ghendi

Adjinem provided an overview of the National ICT Backbone Project, which is run by the Government of Tanzania and was put in place as a result of the ICT Policy of 2003.The backbone has now established 26 points all over the country and has 88 stations through which services can be provided. It also provides access to international submarine cables for the nation and the bordering landlocked countries and already offered its services in Rwanda, Burundi, Malawi and Zambia. For the landlocked countries they are connected to the national backbone, so that they can be linked to the 2 undersea cables (SEACOM and EASSY), which are already landed under Tanzania.

The benefits that have been identified so far is the significant reduction in the lease lines in the coming of the national ICT Backbone, which has helped to reduce the lease line prices up to 84%. eLearning, e-government, e-medicine is now working because of the presence of the National ICT Backbone.

The Backbone is a highway so there is no way at a utility level that customers can benefit directly from the National Backbone. It provide services to the operators that are the service providers and from whom the customers can get their services at application level. So the challenges that are facing is the Last Mile Connectivity. There are places that the backbone has reached but because there is no last mile it is difficult to connect to the customers and there are problems where people have the cut the fibre thinking that they would find copper to sell.

One of the objectives of the Backbone is to provide a link to the submarine, undersea cables which are landing in Dar es Salaam. Readiness of other countries to connect to the Backbone is a challenge. There is a challenge of country to country connectivity, public awareness, tariffs and law enforcement is a challenge.

In Tanzania the National ICT Backbone is in place with national operators, customers and neighbouring countries benefitting from it.

Following the presentations there was an interactive discussion with a lot of questions from the floor.

Closing Remarks, Dr Florens Turuka, Permanent Secretary, Ministry of Communications Science and Technology, Tanzania

Dr Florens Turuka thanked the presenters and provided a summary of the achievements of the four days of the event.

On Tuesday the Joint Expert Group for the 8th strategic EU-Africa Partnership in Science, Information Society and Space hosted, in association with the 7th annual IST-Africa Conference and Exhibition its formal opening. This was followed by a full day of BRAGMA workshop on GMS and Africa and a full day IST-Africa Living Labs group meeting. The Space and Information Society tracks provided important opportunities for key stakeholders from Tanzania and the rest of Africa and Europe, to bring themselves up to speed with the latest developments with these key thematic priorities. Equally important, they provided important public platforms to contribute insight and experience and a different yet complementary perspectives and expertise and additional key stakeholders whose active engagement is necessary to the continuing implementation and achievement to these two 8th

Strategic Partnership priorities.

On Wednesday, the High-Level Roundtable discussion in the Opening Plenary provided an opportunity to hear a wide range of perspectives from the African Union Commission, the European Commission, African and European Member States and other stakeholders including industry and the national stakeholders on the issues related to progress to date with the Information Society track of the 8th European Union-Africa Strategic Partnership. This was a very rich and stimulating dialogue which challenged all IST-Africa committee members to actively engage with their peers from Africa and Europe to collaborate in leveraging information society and ICTs to achieve sustainable socio-economic development across the continent of Africa.

From Wednesday afternoon until lunchtime on Friday this year's scientific programme featured 6 parallel tracks and over 180 papers in the presentations showcasing innovations, lessons learnt, applications and case studies from 38 countries around the world. Key thematic areas addressed included ICTs of societal impact across Africa, including infrastructures, e-government, e-health, e-skills and technology enhanced learning.

The Joint Expert Group 8 continued their discussions on Thursday afternoon and Friday morning, with active engagement from all stakeholders in these sessions. Dr Turuka indicated that he was particularly proud that the national researchers from Tanzania have taken full advantage of the opportunity from the government to host IST- Africa 2012 to showcase innovation, entrepreneurship and lessons learnt to date.

He expressed his appreciation for the generosity of IST-Africa 2012 support organisations including TanzICT and Nokia, which has facilitated the participation of so many stakeholders across Tanzania to share insights into success stories and challenges in Tanzania and learn from the experiences of their peers from around the world.

He reiterated the challenges presented by the Minister for Communications, Science and Technology on Tuesday 08 May to actively contribute to the continuing socio-economic development of Tanzania and Africa in general. Having had the opportunity to build relationships with our national research communities face to face he encouraged the participants to actively involve Tanzanians and other researchers across Africa in multilateral and bilateral research.

He acknowledged the enormous growth of participation from African and European funded research programmed in recent years and the invaluable contribution IST-Africa has made in this regard. This has been achieved through showcasing African research capacity in Africa and Europe in supporting the development of trusts and relationships with government and stakeholders responsible for nurturing national research capacities, forging relationships with European research institutions and creating awareness among African stakeholders of national research opportunities provided by European finance programmes through co-founding the transformation of primarily academic institutions into engines of research, innovation and socio-economic development.

Dr Turuka outlined thatThe Government of Tanzania would like to challenge the European Commission and EU Member States to take a proactive approach to facilitate an even greater level of participation of institutions of developing countries in national research programmes, which some governments have already facilitated, as well as the Horizon 2020 programme which is currently under development. This requires a willingness to commit higher levels of funding under international goals, particularly for collaborative research projects.

Strategic forecasts, investments in the research and development, particularly in ICT, is important to the sustainable economic development of any country. The Government of Tanzania would also like to challenge the African Union Commission, ACP group as well as all regional economic committees of member states, to request during the imminent European Development Fund preparation phase, that a meaningful percentage of regional and national funding envelopes be dedicated towards national funding of a cross-border ICT, Information Society, Science, Technology and Innovation and space related initiatives in addition to forecasts on supporting innovation and entrepreneurial culture and achieving sustainable socio-economic development in high-impact areas. This will definitely accelerate the achieving of the goals of the 8th Africa-EU strategic partnership.

Finally, he thanked the IST-Africa coordinator from Ireland, IIMC International Information Management Corporation, who organised this excellent IST-Africa 2012 conference in collaboration with COSTECH and acknowledged the support they received from the local organising committee. He took the opportunity to thank all IST-Africa 2012 delegates for actively engaging in this successful conference and to all delegates I wish safe journeys back home and offices.

Awards

The Awards were presented to the Best Paper and Runner-up Paper:

The runner-up paper award this year has been awarded to Juha Puustjärvi, University of Helsinki and Leena Puustjärvi of the Pharmacy of Kaivopuisto for "Opportunities of Exploiting Cloud Computing in Tele-Medicine and

Developing Country Perspectives".

The Best Paper award was awarded to Peter KAHIIGI, the National IT Authority of Uganda, Eunice KARIUKI & Victor KYALO, Kenya ICT Board, Muthoni MASINDE, University of Nairobi, Donart NGARAMBE, KIST in Rwanda, Amos NUNGU, DIT Tanzania, Julianne SANSA-OTIM, Makerere University and Björn PEHRSON, KTH Sweden for "African Great Lakes Rural Broadband Research Infrastructure".

The Iringa Living Lab was awarded the Best Exhibition Award.

In closing Paul thanked the Minister, the Deputy Minister, Florens the PS, the Deputy Director, Mshinda from COSTECH, his friend Raphael Mmasi from COSTECH, Kristiina and Jukke from the TanzICT for their commitment to the success of the event. He also thanked the volunteers who assisted in making things run so smoothly. Hamees Teekabodeh, Frank Malaki, Joel Tbodeh, Phillip O'Steven, Rachel Mamabeesi, Luka Kagragwe, and Cilia Beta Kaswage. He presented a momento to the Permanent Secretary and Raphael. He wished the delegates a safe trip home. Slán go fóill.

Participants

There were over 480 participants at **IST-Africa 2012** from Europe, Africa, Australia, Canada and US.

European Organisations

Organisational Name	Country
Progis Software GmbH	Austria
Secure Business Austria	Austria
UNIDO	Austria
Vienna University of Technology	Austria
European Commission	Belgium
Ministère de la Communauté française de Belgique	Belgium
MRAC	Belgium
SPACEBEL	Belgium
Czech Centre for Science and Society	Czech Republic
Help service remote sensing s.r.o.	Czech Republic
Wirelessinfo	Czech Republic
Aalborg University	Denmark
Technical University of Denmark	Denmark
Aalto University	Finland
Finnpartnership	Finland
Ministry for Foreign Affairs	Finland
NOKIA	Finland
Softvisio Ltd	Finland
Tampere University of Technology	Finland
University of Helsinki	Finland
VTT Technical Research Centre of Finland	Finland
Astrium	France
France Telecom	France
IRD	France
Orange	France
Sigma Orionis	France
EUMETSAT	Germany
Ministry of Education and Research	Germany
Centre for Research and Technology Hellas	Greece
CERTH/HIT	Greece
Gov2u	Greece
IIMC International Information Management Corporation Ltd IMC Ltd	Ireland
Richard Stevens	Italy
Sogei S.p.A.	Italy
Institute of Mathematics and Computer Science of the University of Latvia	Latvia
Riga Technical University	Latvia
IPv6 Forum - SnT University of Luxemboug	Luxembourg
Lux-Development	Luxembourg
Malta Council for Science and Technology	Malta

Delft University of Technology	Netherlands
ITC - University of Twente	Netherlands
KIT	Netherlands
The Royal Tropical Institute	Netherlands
University of Oslo	Norway
University of Oslo	Norway
AAVANZ	Portugal
Alfamicro, Lda	Portugal
Co-chair 8th Africa-EU Strategic Partnership	Portugal
Cullen International	Portugal
Ministry of Science, Technology and Higher Education	Portugal
Tropical Research Institute (IICT)	Portugal
ABR	Slovenia
Institute Jožef Stefan	Slovenia
Polytechnic Unversity of Madrid	Spain
Universidad Politécnica de Madrid	Spain
Universitat Politècnica de Catalunya	Spain
UPC	Spain
Vodafone Spain Foundation	Spain
Karolinska Institutet	Sweden
KTH Royal Institute of Technology Stockholm	Sweden
SPIDER / Stockholm University	Sweden
Stockholm University	Sweden
Ashburn Institute	Ukraine
MDR Partners (Consulting) Ltd	United Kingdom
University of Exeter	United Kingdom
University of Wolverhampton	United Kingdom

African Organisations

Organisational Name	Country
BGCIS	Botswana
Consult IT (Pty) Ltd	Botswana
Department of Research Science and Technology	Botswana
Ministry of Agriculture	Botswana
Ministry of Transport and Communications	Botswana
MIST	Botswana
University of Botswana	Botswana
Ministry of Higher Education and Scientific Research	Burundi
ANTIC	Cameroon
IGAD	Djibouti
Information Technology Institute	Egypt
Ministry of Communications & IT	Egypt
NARSS	Egypt
Addis Ababa University	Ethiopia
African Union Commission	Ethiopia

Ethio Telecom (Telecommunication)	Ethiopia
EU Delegation to the African Union	Ethiopia
Ministry of Science and Technology	Ethiopia
Technical Advisor, UNECA	Ethiopia
World Food Programme	Ethiopia
Ministry of Environment, Science and Technology	Ghana
Centre for Research and Technology Hellas	Greece
GESCI	Kenya
iHub Research	Kenya
IRD	Kenya
Jomo Kenyatta University of Agriculture and Technology	Kenya
Ministry for Higher Education, Science and Technology	Kenya
Ministry of Public Health and Sanitation	Kenya
Nokia Research Center	Kenya
Department of Science and Technology	Lesotho
Baobab Health	Malawi
National Commission for Science and Technology	Malawi
The Malawi Polytechnic	Malawi
University of Malawi	Malawi
Central Informatics Bureau	Mauritius
IOC	Mauritius
National Computer Board	Mauritius
National Institute for ICT	Mozambique
Universidade Técnica de Moçambique	Mozambique
Ministry of Education	Namibia
SAIS Programme	Namibia
University of Namibia	Namibia
NARSDA	Nigeria
KIST	Rwanda
ARCT	Senegal
MESSUCURRS	Senegal
Cape Peninsula University of Technology	South Africa
CPUT	South Africa
CSIR Meraka ICT Institute	South Africa
Department of Science and Technology	South Africa
eThekwini Municipality	South Africa
IRD	South Africa
Nelson Mandela Metropolitan University	South Africa
Nokia Middle East and Africa	South Africa
Rhodes University	South Africa
RLabs	South Africa
SAP Research	South Africa
Tshwane University of Technology	South Africa
Ukhozi Business Incubator	South Africa
Ulwazi Programme	South Africa
University of Fort Hare	South Africa

University of Johannesburg	South Africa
University of KwaZulu Natal	South Africa
University of South Africa	South Africa
University of the Western Cape	South Africa
Vaal University of Technology	South Africa
Sudan University of Science and Technology	Sudan
Sudanese Research and Education Network	Sudan
Ministry of Information and Communications Technology	Swaziland
Actic	Tanzania
Advancement for Small and Microenterprises Development in Tanzania (ASMET)	Tanzania
AIM Group	Tanzania
BBC World Service	Tanzania
Blackmark Corporation Limited	Tanzania
BongoLive	Tanzania
Business Weekly	Tanzania
CAMARA	Tanzania
CCO TZ	Tanzania
CHANGAMO	Tanzania
Commission for Human Rights and Good Governance (CHRAGG)	Tanzania
Computing and Infoprmationj Association (CIA)	Tanzania
COSTECH	Tanzania
Dar es Salaam Institute of Technology	Tanzania
Dar es salaam University College of Education	Tanzania
Digital Brain	Tanzania
Digital Opportunity Trust (DOT)	Tanzania
DIRA	Tanzania
DIRA YAM	Tanzania
DTBi	Tanzania
D-tree International	Tanzania
Dunia Duara	Tanzania
E-Fulusi & AIM Group	Tanzania
Emal Compu Limited	Tanzania
Embassy of Finland	Tanzania
Embassy of Sweden	Tanzania
Embassy to the Kingdom of the Netherlands	Tanzania
European Delegation	Tanzania
Geo-Social Informatics	Tanzania
Giving Inc.	Tanzania
Go Finance	Tanzania
greentech technologies	Tanzania
GSE	Tanzania
ICT4TD Learning Centre	Tanzania
IFM	Tanzania
ILO	Tanzania
Institute of Marine Sciences (IMS),University of Dar es Salaam	Tanzania
Iringa Living Lab	Tanzania

Iringa Municipality	Tanzania
Italian Development Cooperation Office	Tanzania
ITIDO	Tanzania
Jhpiego	Tanzania
JIBU LA MAISHA	Tanzania
Kigamboni Community Centre	Tanzania
KINU	Tanzania
Kivuko Online Company Limited	Tanzania
LIFE-BUSINESS& CO	Tanzania
Marine Parks and Reserve Unit	Tanzania
Millicom Tanzania	Tanzania
Mininstry of Communications Science and Technology	Tanzania
Ministry of Education and Vocational Training	Tanzania
Ministry of Health and Social Welfare	Tanzania
Ministry of Industry & Trade	Tanzania
Ministry of Livestock and Fisheries	Tanzania
MIPASHE	Tanzania
Mpakasi Limited	Tanzania
Muhas Library	Tanzania
Muhimbili University of Health and Allied Sciences	Tanzania
Muhunda Resources Limited	Tanzania
Muslim University of Morogoro	Tanzania
MWANANCHI	Tanzania
Mzumbe University	Tanzania
National Museum of Tanzania	Tanzania
Nelson Mandela African Institute of Science and Technology	Tanzania
NICTBB	Tanzania
Open University of Tanzania	Tanzania
Pamoja Initiatives	Tanzania
Planet Digital Limited	Tanzania
Popote Media	Tanzania
Radio Five	Tanzania
Radio Imaani	Tanzania
Radio Uhuru	Tanzania
Research on Poverty Alleviation (REPOA)	Tanzania
RTI International	Tanzania
Ruaha University College	Tanzania
RuralNetCo	Tanzania
Safari Yetu	Tanzania
Sahara Media Group	Tanzania
SOFTMED CO.LTD	Tanzania
Sokoine University of agriculture	Tanzania
STAR TV	Tanzania
SwahiliStores	Tanzania
TAFIRI	Tanzania
Tai Mobile Solutions	Tanzania

Tanzania Communications Regulatory Authority	Tanzania
Tanzania Gadsby Trust	Tanzania
Tanzania Global Learning Agency	Tanzania
Tanzania Police Force	Tanzania
Tanzania Tourism Board	Tanzania
TanzICT Programme	Tanzania
TASTA	Tanzania
TCV	Tanzania
The Citizen	Tanzania
The East Africa	Tanzania
The Express	Tanzania
The Guardian	Tanzania
The Guardian on Sunday	Tanzania
The State University of Zanzibar	Tanzania
The University of Dodoma	Tanzania
Times FM	Tanzania
TIRDO	Tanzania
Trilabs	Tanzania
Tristar Africa	Tanzania
Tumaini University	Tanzania
Tumaini University, Iringa University College	Tanzania
TV SIBUKA	Tanzania
Ukombozi School	Tanzania
UNESCO	Tanzania
United Nations Industrial Development Organization	Tanzania
Universal Communications Access Fund	Tanzania
University Computing Centre	Tanzania
University of Bedfordshire	Tanzania
University of Dar es Salaam	Tanzania
University of Dar Es Salaam computing Centre (UCC) Limited	Tanzania
University of Dodoma	Tanzania
Ushindi Radio FM	Tanzania
Victor TechnoSolve Empresa Ltd	Tanzania
WAPO RADIO FM	Tanzania
World Bank	Tanzania
Young Scientists Tanzania	Tanzania
ZANZIBAR UNIVERSITY	Tanzania
ZENJ FM	Tanzania
CERT	Tunisia
Buzzibwera Secondary School	Uganda
Gulu University	Uganda
Kampala International University	Uganda
LOG`EL PROJECT	Uganda
Makerere University	Uganda
Ministry of Finance	Uganda
MUBS	Uganda
UbuntuNet Alliance	Uganda

Uganda Bureau of Statistics	Uganda
Uganda National Council for Science and Technology	Uganda

Other Organisations

Organisational Name	Country
Monash University	Australia
ESG UQAM	Canada
Kepler Space Institute and Asburn Institute	United States
World Bank	United States

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Exhibition

IST-Africa 2012 Exhibition showcases applied ICT research results and applications through technology demonstrations and posters.

Demonstration Stands

Stand Name	Organisation	Country
COSTECH/ Ministry of Communications, Science and Technology	COSTECH & Ministry of Communications, Science and Technology	Tanzania
IST-Africa Initiative	IST-Africa Consortium	
TANZICT	TANZICT	Tanzania
NOKIA	NOKIA	Kenya
DHIS2 Project	Department of Computer Science and Engineering, University of Dar es Salaam	Tanzania
Centre of Virtual Learning	Centre of Virtual Learning, University of Dar es Salaam	Tanzania
University of Dodoma	College of Informatics and Virtual Education (CIVE), University of Dodoma	Tanzania
Dar es Salaam Institute of Technology	Dar es Salaam Institute of Technology	Tanzania
Mzume University	Directorate of ICT, Mzumbe University	Tanzania
Technology Transfer Alliance	KTH	Sweden
Young Scientist Tanzania	Young Scientist Tanzania	Tanzania
Dar Teknohama Business Incubator	Dar Teknohama Business Incubator	Tanzania
OpenXdata	Tanzanian developers as part of OpenxData mHealth open Source Project	Tanzania
KINU Innovation & Co-creation Hub	KINU	Tanzania
UHURUONE	UHURUONE	Tanzania

Conference Portal & Delegate Showcase
www.IST-Africa.org/Conference2012

IST-Africa 2012 Additional Supporting Organisations