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D3.2 Joint IST-Africa CAAST-Net Plus Horizon 2020 Workshop, Nairobi, 21 January 2014

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1. Workshop Context

Horizon 2020 commenced in January 2014 as the new Framework Programme to implement research and innovation with funds of €80 billion from 2014 - 2020.

Horizon 2020 addresses all research and innovation funding that was previously provided through the Framework Programmes for Research and Technical Development (e.g. FP7), Competitiveness and Innovation Programme (CIP) and European Institute of Innovation and Technology.

Three main priorities:

- **Excellence Science** – Research Infrastructures, Marie Curie (Mobility Grants)
- **Leadership in Enabling and Industrial Technologies (LEIT)** – Components & Systems, Advanced Computing, Future Internet, Content Technologies and Information Management, Robotics, Micro and Nano-electronics and photonics
- **Societal Challenges** – Health, Food Security & Agriculture, Energy, Transport, Climate action and Environment, Innovation and reflective Societies and Secure Societies

The Ministry of Education, Science and Technology as the IST-Africa partner in Kenya organised the Joint IST-Africa CAAST-Net Plus Horizon 2020 Workshop in Nairobi on 21 January 2014. All relevant stakeholders were invited to participate to raise awareness of the opportunity for research cooperation at international level.

The workshop was very well attended with over 150 participants from Montpellier 2 University, France; IT University Copenhagen, Denmark; Technical University of Kenya; Africa Agricultural Technology Foundation; African Conservation Centre; Chuka University; CUEA; Development Finance International; East Africa Institute of Certified Studies; Egerton University; Embu University College; Focus Publishers; Garissa University; ICIPE; iHub Research; International Institute of Tropical Agriculture; International Leadership University (ILU); Jaramogi Oginga Odinga University of Science and Technology; Jomo Kenyatta University of Agriculture and Technology (JKUAT); Kabarak University; KCA University; KEMRI; Kenya Agricultural Research Institute (KARI); Kenya Education Network ; Kenya Industrial Research and Development Institute (KIRDI); Kenya Institute of Curriculum Development (KICD); Kenya Marine and Fisheries Research Institute ; Kenya Medical Research Institute; Kenya Methodist University (KeMU); Kenya School of Monetary Studies; Kenya Wildlife Services; Kenyatta University ; Kibabii University College ; Kisii University; KMFRI; KMTTC; Maasai Mara University; Machakos University College; MEWNR; Ministry of Education, Science and Technology (MoEST); Moi University; MoiCT; Mount Kenya University; M-shamba; Multimedia University of Kenya; Murang'a University College; National Communications Secretariat; National Museums of Kenya; NMK – Institute of Primate Research; Pan Africa Christian University; Rongo University College; Scott Christian University; St. Paul's University, Limuru; Strathmore

University; Taita Taveta University College; Tangaza University College; Technical University of Kenya; Technical University of Mombasa; Technology and Care for Improved Livelihoods(TECAFILI); The Catholic University of Eastern Africa; Umma University; UMPEA; United States International University; University of Eldoret; University of Nairobi.

IST-Africa and CAAST-Net Plus collaborated with Dr Stéphane Hogan, Counsellor for Research & Innovation, Delegation of the European Union to the African Union in relation to this Horizon 2020 workshop in a context of four joint H2020 Workshops organised in East Africa during the week of 20 January 2014.

2. Workshop Report

2.1 Introduction



The workshop was officially opened by Dr. George Ombakho, Director, DRMD, State Department for Science and Technology, Ministry of Education, Science and Technology (MoEST), Kenya on behalf of Prof. Collette Suda, Principal Secretary, State Department of Science and Technology, MoEST.

Dr. Ombakho welcomed Dr Stéphane Hogan, Counsellor for Research & Innovation, Delegation of the European Union to the African Union, colleagues from IST-Africa Initiative (Paul Cunningham, Miriam Cunningham, IIMC, Ireland) and CAAST-Net Plus (Melissa Plath, UniPID, University of Jyväskylä, Finland; George Essegbey, CSIR, Science and Technology Policy Research Institute, Ghana and Constantine Vaitsas, FORTH, Greece) and the participants from Kenyan Universities, Research organisations and Government Ministries. Dr. Ombakho acknowledged the active support provided by Prof. Meoli Kashoda, Kenya Education Network (KENET) to mobilise participation.

Dr. Ombakho outlined the Ministry's delight at the significant level of participation at this Horizon 2020 Workshop and acknowledged the support provided by the European Commission to Kenya through the IST-Africa Initiative, CAAST-Net Plus and a range of FP7 projects being undertaken by national Universities and research organisations.

It is globally recognised that Science, Technology and Innovation cooperation is vital to meet the globalisation challenge by boosting innovation, creativity and competitiveness throughout the economy; delivering cutting-edge science in all scientific and technological areas; making the public sector more efficient, and modernising sectors ranging from education to energy; as well as tackling social challenges, improving quality of life and meeting the challenge of an ageing society. Dr. Ombakho provided some background to the 8th Strategic Partnership on Science, Information Society and Space.

Dr. Ombakho outlined that he hopes that the outcomes of this workshop will be an instrument to accelerate implementation of the international cooperation aspects of Horizon 2020 and that Kenyan researchers will actively grasp this opportunity. He reiterated that the Ministry of Education Science and Technology is ready to provide support to national institutions in the follow up of this workshop to ensure the maximum benefit. He wished the participants a successful training session as behalf of Prof Collette Suda, Principal Secretary, State Department of Science and Technology, Ministry of Education Science and Technology.

Paul Cunningham, IIMC / IST-Africa Initiative, Ireland thanked Dr George for opening the Horizon 2020 workshop and MoEST for hosting the workshop and mobilising the national research community.

Paul then provided an overview of the **IST-Africa Initiative**, which was founded in 2002 by IIMC, Ireland and has now grown to a partnership with Ministries and National Councils responsible for Information Society, ICT and/or Innovation in 18 African Member States¹. The IST-Africa is supported by the European Commission and African Union Commission with co-funding under FP7.

The IST-Africa Initiative facilitates and supports:

- International Innovation, Policy and Research Cooperation;
- Knowledge sharing and Skills Transfer between IST-Africa partners;
- Collaborative Innovation, Entrepreneurship and Adoption of Living Labs Methodologies;
- Information Society, ICT and Innovation Aspects of the Africa-EU Strategic Partnership;
- Awareness of African Research Capacity, cross-border cooperation and participation in Horizon 2020
- Establishment of National Contact Points in IST-Africa partner countries

MoEST leverages the IST-Africa Initiative to actively promote the national research community through

- Presentations at International events

¹ IST-Africa partners: IIMC International Information Management Corporation Limited ("IIMC", Ireland); Ministerio da Ciencia e Tecnologia ("MINCT", Angola); Ministry of Transport and Communications ("MTC", Botswana); Ministère de l'Enseignement Supérieur et de la Recherche Scientifique ("MESRS", Burundi); Agence Nationale des Technologies de l'Information et de la Communication ("ANTIC", Cameroon); Ministry of Communications and Information Technology ("MCIT", Egypt); Ministry of Communication and Information Technology ("MCIT", Ethiopia); Ministry of Education, Science and Technology ("MOEST", Kenya); Ministry of Communications, Science and Technology ("MCST-L", Lesotho); National Commission for Science and Technology ("NCST", Malawi); National Computer Board ("NCB", Mauritius); Instituto Nacional de Tecnologias de Informacao e Comunicacao ("INTIC", Mozambique); National Commission on Research, Science and Technology ("NCRST", Namibia); Ministère de l'Enseignement Supérieur et de la Recherche ("MESR", Senegal); Department of Science and Technology ("DST", South Africa); Ministry of Information Communication Technology ("MICT-S", Swaziland); Tanzania Commission for Science and Technology ("COSTECH", Tanzania); Ministère de l'Enseignement Supérieur et de la Recherche Scientifique ("MHESR", Tunisia) and Uganda National Council for Science and Technology ("UNCST", Uganda).

- Compiling a chapter on Kenya as part of the overall IST-Africa Study on ICT Initiatives and Research capacity
- Publishing articles on ongoing and emerging ICT and Innovation activities in Kenya on the IST-Africa portal and in the Newsletter
- Raising awareness of upcoming Calls for Proposals and international funding opportunities
- Assists institutions in preparing for new opportunities such as Horizon 2020
- Raises awareness of activities being undertaken in other African countries
- Supporting the publishing of Organisational profiles on IST-Africa portal to raise awareness of activities in wider community
- Having access to IST-Africa Network including Ministries and National Councils in 17 African Countries to share knowledge, experiences and success stories
- Having a first-hand experience of what is involved in being part of International funded activities under the European Framework Programme.

Participants were encouraged to visit the IST-Africa portal² and download relevant papers and reports.



Dr Eric Mwangi, Ministry of Education Science and Technology provided an introduction to **CAAST-Net Plus**, a Coordination Action supported by the European Commission under FP7 with 25 partners. CN+ has a focus on Advancing Sub-Saharan Africa-European Union research and Innovation Cooperation. It is focused on supporting cooperation in Research and Innovation between Africa and Europe in particular on Health, Food Security and Climate change, which are multidisciplinary areas with good potential. CN+ objectives including:

- To encourage new and diverse multi-stakeholder partnerships that through research and innovation tackle global challenges in health, food security and climate change that affect African and Europe
- To enable better understanding between the public and private sector in Africa and Europe of the link between research and innovation and to identify and share opportunities for cooperation through networking and communication
- To facilitate exchanges that result in learning that support formal policy dialogues

To date CN+ has undertaken a number of meetings including a Expert workshop on Climate Change, Food SEcurity and Research Insfrastructures

² <http://www.ist-africa.org/home/default.asp?page=reports>

Planned activities include: Strengthening bi-regional research and Innovation cooperation in three societal challenges - Health, Food Security and Climate Change; Supporting Informal and formal policy dialogues processes to support bi-regional research partnerships, disseminating key results effectively among European and African research and Innovation and Supporting capacity building.

Melissa Plath, UniPID, University of Jyväskylä, Finland provided more detail in relation to CN+ activities including organising Information Sessions to raise awareness of opportunities under H2020 in the Sciences area, undertakes mapping of activities, setting up researchers platform and policy dialogue to support EU/Africa cooperation. Objectives include encouraging new and diverse multi-stakeholders partnerships through research and innovation.

2.2 Kenyan Success Stories in FP7



Constantine Vaitsas, FORTH, Greece provided an overview of Kenyan participation in FP7. 68 participations in 67 EU-funded projects (excluding Marie Curie actions) with €12.3 million in research funding, making Kenya the 5th most successful African country in FP7 in terms of participation. Kenya has a 17% success rate, which is an excellent outcome, given that the average success rate for European countries is 15%. Kenyan

participation has evolved during the life of FP7 - 2007 (1 participation), 2008 (6 participations), 2009 (12 participations), 2010 (15 participations), 2011 (17 participations), 2012 (9 participations) and 2013 (8 participations). The most prominent themes with Kenyan participation are in the areas of Environment including Climate Change (17 projects, funding of c€4.5 million), Food Security and Agriculture (13 projects, funding over €2 million), Health (12 projects, funding of over €3 million), ICT (7 projects, funding of c€0.5 million) and International Cooperation (3 projects, funding of c€0.5 million).

The most prominent participants from Kenya include: Ministry of Education Science and Technology (8 projects), University of Nairobi (6 projects), International Livestock Research Institute (5 projects) and International Centre for Research in Agroforestry (5 projects).

European Coordinators with most projects including Kenyan organisations include Vlaamse Instelling Voor (Belgium), IIMC (Ireland), University of Gent (Belgium), Liverpool School of Tropical Medicine (UK), Consiglio Nazionale delle Ricerche (Italy), Centre de Cooperation International (France), Association of Commonwealth Universities (UK). Wuppertal Institut fur Kuma (Germany). There are 15 projects with Kenyan participation coordinated by UK partners, 9 projects by Belgian partners, 7 projects by Dutch partners (Netherlands), 5 projects by Dutch partners (Netherlands), 4 projects by Italian partners and 4 projects coordinated by Irish partners.

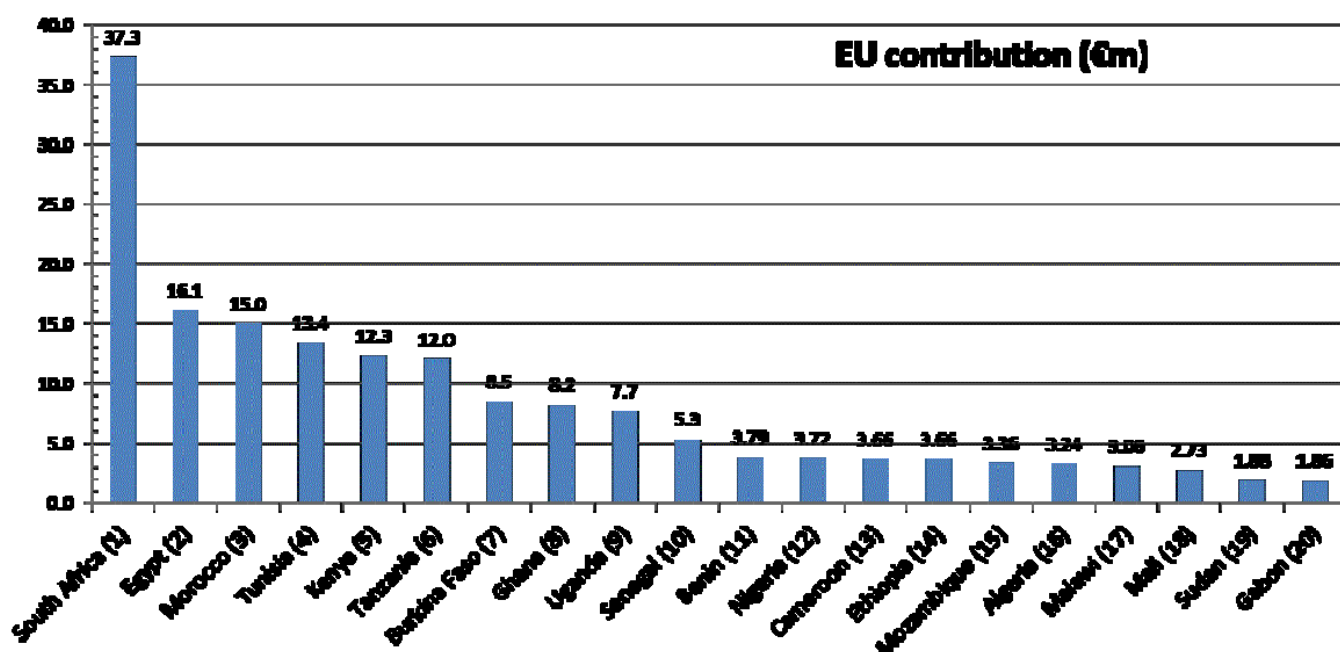
Constantine briefly presented two FP7 projects with Kenyan participation: AGRICAB and INSTAPA.

A Kenyan institution presenting an Agricultural project funded under ACP focused on vegetables (trips management) to reduce crop damage which was funded through African Union Grant with a partnership including Martin Luther and Hannover University Germany, Plants international Research Netherlands, University of Nairobi and Makerere University Uganda. This project built on existing collaboration with these partners and built on a previous project.

2.3 African Participation in FP7

Stéphane Hogan, Counsellor for Research & Innovation, Delegation of the European Union to the African Union presented African participation in FP7, which has grown steadily over the past seven years. The European dimension is additional to the types of projects that can be funded at national level. Topics addressed are based on global research challenges. Europe has continued to invest in Higher Education and Research and Innovation.

European Programmes are open to International Cooperation and this remains a feature in Horizon 2020. Africa as a region has been very successful in FP7. As at September 2013 there were 1315 participations from 45 African countries in 565 projects with a total grant funding of 178 million euro from the European Commission going into African institutions. 82% of the projects funded were mainly in the Cooperation Programme with a lot of activity in the areas of Health, Agro-Food and Environment.



Stephane presented the countries with the highest level of funding under FP7 as at September 2013. This demonstrated that Kenya has been very successful participating in FP7. It is important to leverage this track record during Horizon 2020.

Stephane highlighted a number of funded projects with Kenyan participation including AGRICAB, e-AGRI, AvecNet, ICONZ and IST-Africa. Institutions involved in a number of projects include University of Nairobi, Kenya Medical Research Institute, International Livestock Research Institute and Ministry of Education Science and Technology. Stéphane outlined the importance to delivery tangible results during participation in a running project to maintain a good reputation.

The table below provides an overview of the number of projects³ secured in each IST-Africa partner country as at November 2013:

Country	Thematic areas
Botswana	9 FP7 projects - ICT (4), INCO (1), Environment (1), Health (2) and Food, Agriculture and Biotechnology KBBE (1)
Burundi	3 FP7-ICT projects
Cameroon	23 FP7 projects - ICT (4), INCO (1), Environment (4), Health (7), Infrastructures (1), Food Agriculture and Biotechnology KBBE (1), NMP (1), Science in Society (1), Space (1), SSH (2)
Egypt	96 FP7 projects - ICT (9), INCO (19), Environment (12), Health (6), Space (3), Social Sciences (7), Energy (4), INFRA (4), NMP (1), People (7), Science in Society (2), Food Agriculture and Biotechnology (KBBE) (17), Regpot (2), SEC (1), Transport (2)
Ethiopia	23 FP7 projects - ICT- (2), Environment (8), Health (5), Food Agriculture and Biotechnology KBBE (3), Space (2), Social Sciences (3)
Ghana	43 FP7 projects - ICT (3), Environment (6), Health (17), IDEAS (1), INCO (2), Food Agriculture and Biotechnology KBBE (6), NMP (1), People (1), Space (2), SSH (4).
Kenya	67 FP7 projects - ICT (4), INCO (4), Environment (18), IDEAS - ERC (2), Health (14), Food, Agriculture and Biotechnology KBBE (13), INFRA (3), People (3), Science in Society (2), Space (2), Social Sciences (1).
Lesotho	4 FP7-ICT projects
Malawi	20 FP7 projects - ICT (2); INCO (1), Infrastructure (5), Environment (2), Health (8), Food, Agriculture and Biotechnology KBBE (1), Science in Society (1).
Mauritius	6 FP7 projects - ICT (3), Infrastructure (2), Health (1).
Mozambique	20 FP7 projects - ICT (4), Environment (3), Health (6), Food, Agriculture and Biotechnology KBBE (2), Space (4).
Namibia	11 FP7 projects - ICT (4), INCO (1); Health (1), Infrastructure (1), Food, Agriculture and Biotechnology KBBE (2), Science in Society (1).
Senegal	40 FP7 projects - ICT (6), INCO (3) Environment (9), Health (5), Food, Agriculture and Biotechnology KBBE (9), IDEAS (1), People (1), Space (1), Social Sciences (4).
South Africa	189 FP7 projects - ICT (19), INCO (11), Energy (5), Environment (28), Health (30), Infrastructure (11), Food, Agriculture and Biotechnology KBBE (32), NMP (3), People (8), Security (2), Science in Society (5), SME (3), Space (9), Social Sciences (12), SSH (12), Transport (7).

³ Guide to ICT Initiatives and Research Capacity in IST-Africa Partner Countries, January 2014, ISBN: 978-1-905824-41-0. Download from <http://www.ist-africa.org/home/default.asp?page=reports>

Swaziland	3 FP7 projects – 2 ICT, 1 Space
Tanzania	39 FP7 projects - ICT (5), Environment (4), Health (19), Infrastructure (1), Food, Agriculture and Biotechnology KBBE (5), SME (1), Space (1), Social Sciences (2), Transport (1)
Tunisia	88 FP7 projects - ICT (5), INCO (17), Environment (13), Energy (2), Health (10), Infrastructure (1), Food, Agriculture and Biotechnology KBBE (19), NMP (3), People (2), REGPOT (6), Science in Society (2), SME (1), Space (1), Transport (2), Social Sciences (3), Security (1)
Uganda	41 FP7 projects - ICT (6), INCO (2), Environment (6), Health (16), Infrastructure (1), Food, Agriculture and Biotechnology KBBE (6), People (3), Social Sciences (1)

2.4 Introduction to Horizon 2020



Stéphane Hogan, Counsellor for Research & Innovation, Delegation of the European Union to the African Union presented Horizon 2020⁴, which is the new European Framework Programme for Research and Innovation for 2014 – 2020, with funding of €79 billion. It is one of the largest research programmes and is open to participation from legal entities involved in research around the world.

Horizon 2020 will address all research and innovation funding previously provided by FP7 Framework Programme, Competitiveness and Innovation Programme (CIP) and European Institute of Innovation and Technology. There is a stronger focus on societal challenges and Innovation.

Horizon 2020 is not a development or a bilateral cooperation programme. It is a programme focused on global challenges open to International cooperation. African research institutions can participate as part of International Consortia with partners from Europe to apply for funding as part of an international project addressing the challenges published in the Work Programme. There are some targeted regional calls but there is also an opportunity to be involved in main stream thematically focused projects. While the primary focus is on Research and Innovation, capacity building related to the research focus can be included as one of the project activities (training, networking).

Work Programmes for 2014 – 2015 was published on 11 December 2013 for a two year period.

Horizon 2020 Structure

➤ **Excellent science (Total Budget of €24.4 billion, ICT Budget c €4 billion)**

Focus on World class Science as the foundation of tomorrow's technologies, jobs and wellbeing, need to develop, attract and retain research talent

⁴ Visit <http://www.ist-africa.org/home/default.asp?page=horizon2020> and <http://ec.europa.eu/research/horizon2020/>

1. The European Research Council (€13.1 billion)
2. Future and Emerging Technologies (€2.7 billion)
3. Marie Skłodowska-Curie actions on training and career development (€6.2 billion)
4. European research infrastructures (including eInfrastructures) (€2.5 billion)

➤ **II Industrial leadership (Total Budget of €17 billion, ICT Budget c €8 billion)**

Focus on strategic investments in key technologies underpin innovation across existing and emerging sectors and support innovative SMEs to create growth and jobs

1. Leadership in enabling and industrial technologies (€13.6 billion)
2. Access to risk finance (€2.8 billion)
3. Innovation in SMEs (€6.2 billion)

➤ **III Societal challenges (Total Budget of 29.7 billion, ICT Budget c €4 billion)**

Focused on Innovation addressing societal challenges, breakthrough solutions coming from multi-disciplinary collaborations including social sciences and humanities, promising solutions that can be tested, demonstrated and scaled up

1. Health, demographic change and wellbeing (€7.47 billion)
2. Food security, sustainable agriculture, marine research & the bio-economy (€3.85 billion)
3. Secure, clean and efficient energy (€5.93 billion)
4. Smart, green and integrated transport (€6.33 billion)
5. Climate action, resource efficiency and raw materials (€3.08 billion)
6. Inclusive and reflective societies (€1.3 billion)
7. Secure Societies (€1.69 billion)

Horizon 2020 aims to have a simpler reimbursement scheme and faster time to grant.

Stéphane highlighted the importance to build long-term strategic partnerships and to be actively involved. There is a need to be aware of what is required both on the thematic work and the administrative requirements to ensure that work is done in a timely fashion.

Stéphane summarise the next steps are being to: Study the work programmes, get involved if you see an opportunity that fits your strategy, find partners quickly but choose them carefully, create/develop your profile (capacities, achievements). Participation in a Framework Programme including Horizon 2020 involves some reporting duties - these need to be properly planned and resourced, Use support structures including National Contact Points.

First calls for proposals were published on 11 December 2013 with total funding of €15 billion over two years (2014 - 2015). First deadlines for submission from March 2014 onwards.

Sources of information include:

Horizon 2020 website <http://ec.europa.eu/research/horizon2020>

Participants portal <http://ec.europa.eu/research/participants/portal>

Horizon 2020 section on IST-Africa

<http://www.ist-africa.org/home/default.asp?page=horizon2020>

IST-Africa Guide to 2014 Calls for Proposals in Horizon 2020

http://www.ist-africa.org/home/files/IST-Africa_Guide_2014Calls_Horizon2020.pdf

2.5 Snap Shot of Societal Challenges and LEIT in Horizon 2020

Miriam Cunningham, IIMC / IST-Africa Initiative provided a brief snap shot of research areas for cooperation under Societal Challenges Work Programmes and Leadership in Enabling Technologies and Industrial Technologies (LEIT) Work Programme. Each area has a separate Work Programme that provides the details for each specific call, deadline, instruments open for submission.

Due to the high number of Work Programmes and the short timeframe for Calls in some thematic areas, IST-Africa has prepared a Guide to 2014 Calls for Proposals in Horizon 2020. This guide lists each thematic area, deadlines and links to the Participants portal⁵ for more detailed information. It can be downloaded from

http://www.ist-africa.org/home/files/IST-Africa_Guide_2014Calls_Horizon2020.pdf

IST-Africa has a specific section focused on Horizon 2020, which provides links to all the Work Programme - Marie Curie, Infrastructures, Societal Challenges (Health, Food Security and Agriculture, Energy, Transport, Climate action and Environment, Inclusive and Reflective Societies; Secure Societies) and LEIT.

Leadership in Enabling Technologies and Industrial Technologies (LEIT) incorporates six main areas:

1. Components and systems (Smart embedded components and systems, micro-nano-bio systems, organic electronics, large area integration, technologies for IoT, smart integrated systems, systems of systems and complex system engineering)
2. Advanced Computing (Processor and system architecture, interconnect and data localization technologies, parallel computing and simulation software)
3. Future Internet (Networks, software and services, cloud computing, cyber security, privacy and trust, wireless communication and all optical networks, immersive interactive multimedia and connected enterprise)
4. Content technologies and information management (Technologies for language, learning, interaction, digital preservation, content access and analytics; advanced data mining, machine learning, statistical analysis and visual computing, big data technologies)

⁵ <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/index.html>

5. Robotics (Service robotics, cognitive systems, advanced interfaces, smart spaces and sentient machines)
6. Key Enabling Technologies: Micro-nano-electronics and photonics (Design, advanced processes, pilot lines for fabrication, production technologies and demonstration actions to validate technology developments and innovative business models)

Societal Challenges fits under seven areas:

1. Health, demographic change and wellbeing (e-health, self management of health, improved diagnostics, improved surveillance, health data collection, active ageing, assisted living;)
2. Food security, sustainable agriculture, marine research & the bio-economy
3. Secure, clean and efficient energy (Smart cities; Energy efficient buildings; smart electricity grids; smart metering)
4. Smart, green and integrated transport (Smart transport equipment, infrastructures and services; innovative transport management systems; safety aspects)
5. Climate action, Environment, resource efficiency and raw materials (ICT for increased resource efficiency; earth observation and monitoring)
6. Inclusive, innovative and reflective societies (Digital inclusion; social innovation platforms; e-government services; e-skills and e-learning; e-culture) and
7. Secure societies (Cyber security; ensuring privacy and protection of human rights on-line)

ICT is involved in all three pillars as outlined in the diagram below:

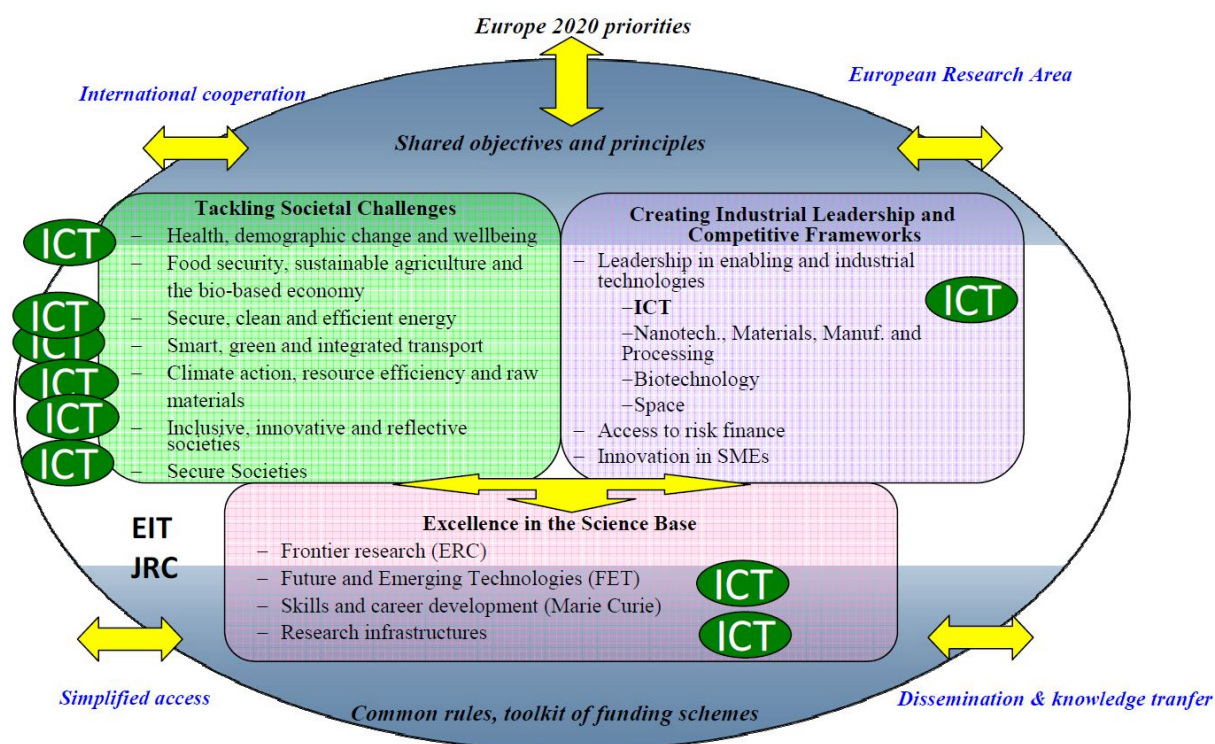


Image provided by DG CONNECT, European Commission

2.6 Societal Challenges



George Essegbey, CSIR, Science and Technology Policy Research Institute, Ghana presented ***Societal Challenge 1: Health, demographic change and wellbeing***. There are 32 topics in personalising health and care focus area with a total budget of €1.06 billion.

As highlighted during Constantine's and Stéphane's presentations, Health was a very successful area for research cooperation between Kenya and European peers in FP7 and brought in the highest level of funding. As a result it is particularly important for Kenyan research organisations involved in Health research to look in detail at Calls open during 2014 and 2015. There was a good representation from organisations and individuals involved in Healthcare and Health research at the workshop. George encouraged them to take the time after the workshop to look at the specific action lines open under the Health Work Programme⁶.

George focused on presenting action lines of particular African Interest including PHC 3 - 2015) Health promotion and disease prevention: improved inter-sector co-operation for environment and health based interventions; PHC 4 - 2014) Health promotion and disease prevention: translating 'omics' into stratified approaches; PHC 7 - 2014) Vaccine development for poverty-related and neglected infectious diseases: Tuberculosis; PHC 12 - 2014) New therapies for chronic non-communicable diseases; PHC 14 – 2014/15) Clinical research on regenerative medicine; PHC 20 – 2015) Promoting mental wellbeing: in the ageing population; PHC 20 – 2015) Promoting mental wellbeing: in the ageing population; PHC 15 – 2015) Tools and technologies for advanced therapies; PHC 17 – 2015) Establishing effectiveness of health care interventions in the paediatric population; PHC 18 – 2014) Advancing active and healthy ageing with ICT: Service robotics within assisted living; PHC 21 - 2014) Developing and comparing new models for safe and efficient, prevention oriented, health and care systems; PHC 29 - 2014) Foresight for health policy development and regulation; PHC 30 – 2014) Advancing bioinformatics to meet biomedical and clinical needs; HCO 4 – 2014) Support for international infectious disease preparedness research and HCO 5 -201x) Global Alliance for Chronic Diseases: prevention and treatment of type 2 diabetes.

Melissa Plath, UniPID, University of Jyväskylä, Finland presented ***Societal Challenge 2: Food Security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy***. Calls in 2014 and 2015 focus on finding solutions leveraging the innovation aspect and integrating end-users. All activities are open to third countries, with

⁶ Health, Demographic Change and Wellbeing Work Programme
http://www.ist-africa.org/home/files/1587763-08_health_wp2014-2015_en.pdf

specific topics stemming from ongoing international dialogues including the EU-Africa dialogue on Research and Innovation. There was a good representation from organisations involved in Agriculture and Food Security at the workshop. Melissa advised the participants to go through the Food Security, Sustainable Agriculture, Marine and Maritime Research, and the Bio-Economy Work Programme⁷ in more detail as soon as possible to identify areas of most relevance for cooperation.

Sustainable Food Security focuses on Sustainable food productions system, safe food and healthy diets and global drivers of food security. Melissa focused on presenting action lines African interest that included: SFS-6-2014/2015: Sustainable intensification pathways of agro-food systems in Africa (deadline of 26 June 2014) and SFS-18-2015: Small farms but global markets: the role of small and family farms in food and nutrition security (deadline 24 February 2015).

2014 - 2015 Calls under **Blue Growth (Unlocking the Potential of Seas and Oceans)** are focused on Sustainable exploitation of the diversity of marine life; New offshore challenges; Ocean observation systems/technologies and Horizontal activities.

Bioeconomy focuses on support for sustainable agriculture and forestry management processes providing public goods and innovative products for sustainable growth; foster innovation (including social innovation) in rural areas for inclusive growth; and enhance innovation in the bio-based industry for smart growth.



Melissa Plath presented Societal Challenge 5: **Climate action, environment, resource efficiency and raw materials**⁸. Specific Calls of African interest presented included WASTE-4-2014/2015, Towards near-zero waste at European and global level, WATER-1-2014/2015. Bridging the gap: from innovative water solutions to market replication, WATER-5-2014/2015. Strengthening international R&I cooperation in the field of water, SC5-5-

2014/2015. Coordinating and supporting research and innovation for climate action and SC5-14-2014. Consolidating global knowledge on the green economy in support of sustainable development objectives in the EU and internationally. It is important to look carefully at the deadline for upcoming Calls to ensure that opportunities are not missed.

⁷ Food Security, Sustainable Agriculture, Marine and Maritime Research, and the Bio-Economy Work Programme http://www.ist-africa.org/home/files/1587800-09_food_sc2_wp_2014-2015_en.pdf

⁸ Climate Action, Resource Efficiency and Raw Materials Work Programme http://www.ist-africa.org/home/files/1587803-12_climate_wp2014-2015_en.pdf

Melissa highlighted that since ICT is a horizontal enabler, there are Calls under Health, Agriculture, Climate Action and Environment within the relevant Work Programmes.

2.7 Participation Rules and Instruments under Horizon 2020

Miriam Cunningham, IIMC / IST-Africa, Ireland presented the participation rules and instruments under Horizon 2020. Horizon 2020 has a single set of rules covering all funding programmes to simplify the procedure for applicants. Grant Agreements and Reimbursement of actual costs will remain the main funding mechanism.

Participants in Horizon 2020 can be legal entities from EU-27 Member States, Associated Candidate Countries, Associated States and International Cooperation Partner Countries. Legal entities from all African States except South Africa are funded on the same basis as their European colleagues – reimbursement of costs.

The types of organisations that are normally involved in research include Research Organisations, Universities, SMEs, Industry and public administration.

It is necessary for grant applications to be made by consortia that have a minimum of three independent legal entities from three different EU Member States or Associated countries. African participants can then be added to this consortium. It is necessary to justify the participation of each legal entity regardless of what country they are established in as part of proving operational capacity.

Instruments in Horizon 2020 include:

- Grants for Research and Innovation – 100% funding of all activities and participants
- Grants for Innovation – 70% funding of all activities and participants –except non-profit (100%)
- Support and Coordination Actions - 100% funding of all activities and participants
- Programme Co-funding Actions
- SME-Instrument – Instrument to support specific SME activities in three phases
- Pre-Commercial Procurement (PCP) – Steer development to public sector needs
- Public Procurement of Innovative Solutions (PPI) – First buyer for innovative solutions
- Prizes – Support for two key categories of prizes (recognition and inducement) – still under discussion

Research and Innovation Actions are primarily consisting of activities aiming to establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution. May include basic and applied research, technology development and integration, testing and validation on a small-scale prototype in a laboratory or simulated environment. Projects may contain closely connected but limited demonstration or pilot activities aiming to show technical feasibility in a near to operational environment.

Innovation Actions primarily consist of activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services. For this purpose they may include prototyping, testing, demonstrating, piloting, large-scale product validation and market replication. A 'demonstration or pilot' aims to validate the technical and economic viability of a new or improved technology, product, process, service or solution in an operational (or near to operational) environment, whether industrial or otherwise, involving where appropriate a larger scale prototype or demonstrator. A 'market replication' aims to support the first application/deployment in the market of an innovation that has already been demonstrated but not yet applied/deployed in the market due to market failures/barriers to uptake. 'Market replication' does not cover multiple applications in the market of an innovation that has already been applied successfully once in the market.

Support and Coordination Actions undertake studies, analysis, development of research and Innovation strategies, raising awareness of European Commission Programmes, setting up thematic working groups to address Challenges in specific thematic areas.

All instruments have an application template that must be used which can be downloaded from the Participants Portal.

The evaluation criteria for proposals include Excellence, Impact and Quality and Efficiency of the Implementation.

Eligible costs for reimbursement include:

- Personnel Costs (Salary and social security costs based on payroll costs, Reimbursement of costs based on timesheet outlining actual work undertaken)
- Subcontracting (e.g. printing of materials, non-core work)
- Other direct costs
 - Travel and subsistence allowances
 - Depreciation of equipment
 - Other necessary goods and services

Miriam presented mechanisms to identify European Partners, the different types of roles that partners can have within a research proposal, how to co-design a proposal as a team activity, intellectual property rights and consortium agreements, and how proposals are evaluated.

2.8 KENET

Prof. Meoli Kashorda, Executive Director, Kenya Education Network (KENET) presented KENET activities. KENET is a National Research and Education Network (NREN), operator, membership organisation,



grantee and promoter of research collaboration. KENET supports research collaboration through travel grants. Emerging Research Services with Support of EU research projects include KENET as an Identity Provider and Africa Science Gateway.

KENET is constituted as a not-for-profit Trust with seven registered Trustees (five Vice Chancellors, PS Education, DG CCK). It is governed by a Board of Trustees assisted by a Management Board. Member institutions and the academic community are the beneficiaries. KENET is a membership organisation with 86 full Members and is the largest NREN in Africa after TENET in South Africa. KENET is an implementation agent of the Government of Kenya and other donors (KTCIP, Google, Foundations etc) with partnerships for research and infrastructure expansion.

KENET as a NREN

- aggregates Internet traffic from Higher Education and Institutions - KENET generates up to 4Gn/s of traffic, provides affordable broadband Internet for institutions and assists in extension of campus networks
- develops high-end ICT talent - technical and project management - capacity building for KENET and member institutions
- Builds advanced research infrastructures and community in different areas - hosts one of 2 Internet Measurement Lab nodes in Africa, Africa Science Gateway and federated services (KENET CA, iDP, EDUROAM)
- Builds Research Community and Promotes research collaboration in Kenya - KENET is a grantee for collaborative research projects or conferences, KENET provides mini-grants for research travel and pilot projects, Call for Mini-Grants proposals in STEM areas in February 2014

KENET promotes collaboration in STEM research (Health, Agriculture, Education, ICT, Engineering and ICT-based Research Collaboration opportunities. KENET supports research and innovation champions through sponsorships to participate in international conferences and workshops and collaboration research through mini-grants.

KENET has set up a Shibboleth Identity provider with the support of the ei4Africa FP7 eInfrastructures research team. Shibboleth is a standard based, open source software package for web single sign-on across or within organisational boundaries. The Shibboleth Identify provider integrates with an LDAP. The Identity Provider will be used for Access to the Africa Science gateway by users in KENET network - KENET will be the Registration Authority (RA) for the research community in Kenya.

KENET has benefited from the ei4Africa FP7 project's arrangement with CoMoDo (a provider of globally recognised certificates) with fee access to one certificate for KENET and KENET member institutions as part of the project. KENET is using this free CoMoDo wildcard certificate

for all of its other applications (Websites, monitoring tools and email). KENET will now promote the use of official certificates by connected member institutions, not only for research but for their ERPs and Cloud-based applications.

2.9 Leadership in Enabling and Industrial Technology

Paul Cunningham, IIMC / IST-Africa, Ireland provided an overview of ICT within Horizon 2020.

LEIT Call 2014 – Opened 11 December 2013, Closes 23 April 2014

➤ *Components and Systems*

- ICT1 – 2014 Smart Cyber Physical Systems (Research & Innovation Actions; Innovation Actions)
- ICT2 – 2014 Smart System Integration (Research & Innovation Actions; Innovation Actions, CSA)
- ICT3 – 2014 Advanced Thin, Organic and Large Area Electronics Technologies

➤ *Future Internet*

- ICT4 – 2014 Smart Networks and Novel Internet Architectures (Research & Innovation Actions)
- ICT6 – 2014 Smart Optical and Wireless Network Technologies (Research & Innovation Actions, SA)
- ICT7 – 2014 Advanced Cloud Infrastructures and Services (Research & Innovation Actions; Innovation Actions, CSA)
- ICT9 – 2014 Tools and Methods for Software Development (Research & Innovation Actions)
- ICT13 – 2014 Web Entrepreneurship (Innovation Actions, CSA)
- ICT14 – 2014 Advanced 5G Network Infrastructures for the Future Internet (Research & Innovation Actions; Innovation Actions, CSA)

➤ *Content Technologies and Information Management*

- ICT15 – 2014 Big data and Open Data Innovation and Take-up (Innovation Actions, CSA)
- ICT17 – 2014 Cracking the Language Barrier (Research & Innovation Actions; Innovation Actions, CSA)
- ICT18 – 2014 Support the Growth of ICT Innovative Creative Industries SMEs (Innovation Actions, CSA)
- ICT21 – 2014 Advanced Digital Gaming (Research & Innovation Actions; Innovation Actions)

- ICT22 – 2014 Multimodal and Natural Computer Interaction (Research & Innovation Actions; Innovation Actions)
- *Robotics*
 - ICT23 – 2014 Robotics (Research & Innovation Actions; Innovation Actions)
- *Cross cutting areas*
 - ICT31 – 2014 Human-centric Digital Age (Research & Innovation Actions, CSA)
 - ICT32 – 2014 Cybersecurity, Trustworthy ICT

Each area was presented, followed by discussion with the participants. Where participants expressed specific interest in a topic (for example ICT7 Cloud Computing, ICT9 Tools and Methods for Software Development, ICT14 Advanced 5G Network Infrastructures, ICT15 Big Data), more information was provided.

2.10 ICT in Societal Challenges

Paul Cunningham, IIMC / IST-Africa, Ireland provided an overview of ICT components in Societal Challenges within Horizon 2020 in the areas of Health, Energy, Transport, Climate Changes and Environment, Inclusive, Innovative and Reflective Societies and Secure Societies. Specific ICT calls highlighted include:

Health

- PHC 19 – 2014) Advancing active and healthy ageing with ICT: Service robotics within assisted living environments; and ICT solutions for independent living with cognitive impairment
- PHC 20 – 2014) Advancing active and healthy ageing with ICT: ICT solutions for independent living with cognitive impairment
- PHC 23 - 2014) Developing and comparing new models for safe and efficient, prevention oriented, health and care systems
- PHC 26 - 2014 Self-management of health and disease: citizen engagement and mHealth

Energy - Smart Cities

- SCC 1 – 2014/2015: Smart Cities and Communities solutions integrating energy, transport, ICT sectors through lighthouse projects
- SCC 2 – 2014: Developing a framework for common, transparent data collection and performance measurement to allow comparability and replication between solutions and best-practice identification
- SCC 3 – 2015: Development of system standards for smart cities and communities solutions

Transport

Road transport:

- MG.3.5-2014 Cooperative ITS for safe, congestion-free and sustainable mobility
- MG.3.6-2015 Safe and connected automation in road transport
- *Urban mobility* - MG.5.3-2014 Tackling urban road congestion
- *Logistics* - MG.6.3-2015 Common communication and navigation platforms for pan-European logistics applications
- *Intelligent Transport Systems* - MG.7.1-2014 Connectivity and information sharing for intelligent mobility

Climate Action and Environment

ICT solutions for waste traceability, waste material flow management

- WASTE-1-2014: Moving towards a circular economy through industrial symbiosis
- WASTE-2-2014: A systems approach for the reduction, recycling and reuse of food waste
- WASTE-3-2014: Recycling of raw materials from products and buildings
- WASTE-4-2014/2015: Towards near-zero waste at European and global level

Water management - Development and deployment of advanced ICT solutions for water resources management in agriculture and urban areas

- WATER-1-2014/2015: Bridging the gap: from innovative water solutions to market replication

Inclusive, Innovation and Reflective Societies

Reflective Societies

- REFLECTIVE 6 – 2015: Innovation ecosystems of digital cultural assets
- REFLECTIVE 7 – 2014: Advanced 3D modelling for accessing and understanding European cultural assets

New forms of innovation - Innovation in the public sector by using emerging ICT technologies

- EURO-6-2015: Meeting new societal needs by using emerging technologies in the public sector
- YOUNG-5–2014: Societal and political engagement of young people and their perspectives on Europe

ICT-enabled open government - Personalised public services, M-government, Open participation, Transparency

- INSO-1–2014, 2015: ICT-enabled open government
- INSO-9–2014: Innovative mobile e-government applications by SMEs

ICT for learning and inclusion - INSO-6-2014: Platform for ICT for Learning and Inclusion

Secure Societies

- DS 1 – 2014: Privacy
- DS 2 – 2014: Access Control
- DS 3 – 2015: The role of ICT in Critical Infrastructure Protection
- DS 4 – 2015: Secure Information Sharing
- DS 5 – 2015: Trust eServices
- DS 6 – 2014: Risk management and assurance models

2.11 Discussions and Conclusion

The workshop was very interactive in style with participants asking questions and seeking clarification as required. There was quite a lot of discussion in relation to reasons why some projects were unsuccessful, different roles for partners, how to find results from past projects, the number of partners in projects, funding limits for projects, reimbursement of costs and overheads and maximum number of grants per organisation.

All projects are developed in response to specific thematic areas under Open Calls for Proposals. The proposals are developed as part of an international consortia with a mix of European partners and partners from other countries including African organisations. The project must address the Call published and address an international research challenge. Some Calls may focus on a specific region but all Calls are open to International cooperation.

It is important to understand that not all projects under each Call that reach the threshold can be funded due to limitations in available funding. Some projects do not fully address the requirements of the Call and the instrument selected for submission or there may be limitations in relation to consortia skills or articulation of expected impact. All projects are evaluated by independent thematic experts and all projects receive an Evaluation Summary Report.

Within a project there are a range of different roles, including Administrative coordinator, Scientific coordinator, Work Package leader, Task Leader, Development Partner, Dissemination Partner and Demonstration Partner. A specific organisation can have multiple roles depending on their skill base and experience.

All funded projects have a public website where they disseminate public deliverables in addition to scientific papers published at conferences and journals.

In terms of the number of partners in a project, after the minimum criteria of 3 independent partners in three EU Member States, there is no limit. Depending on the specific call focus, it may be advantageous to have a number of African partners from different countries.

Each call has a specific budget available. Each action line outlines the type of proposal to be submitted - Small contribution (€2 - €4 million), Large contribution (€5 - 10 million). Ultimately

the project budget depends on the amount of work required, the personnel rate of the different partners and the total budget available under specific Calls. Some Calls have specific budget envelopes available.

The European Commission provides funds to the coordinator and the funding is then transferred as pre-financing to the individual partner organisations based on the agreement reached in the Consortium Agreement. Reimbursement of costs is based on actual costs incurred by the institution (personnel based on payroll costs, travel costs and depreciation of necessary equipment). A flat rate of 25% of direct costs is provided as a contribution towards overheads. Subcontracting of core project work is not allowed.

The number of grants that an individual organisation can fulfil depends on the human resources availability and other commitments on the available resources.

In relation to next steps, the participants were encouraged to download the IST-Africa Guide to 2014 Calls under H2020⁹, the individual Work Programmes¹⁰ and identify relevant core areas for research collaboration under 2014 and 2015. Institutions were encouraged to prepare an organisational profile for publication and to identify key European partners based on existing relationships and bilateral projects.

The National Contact points (NCP) for Kenya were introduced – Dr Eric Mwangi, NCP Coordinator, Jacob Njagih, ICT NCP and Dr Gatama Gichini, Environment NCP.

Dr Eric Mwangi closed the workshop thanking the participants for their very active participation and thanking IST-Africa and CAAST-Net Plus for providing the training workshop, which was very informative. He requested that the participants share the knowledge learnt at departmental level within their institutions.

Participants



⁹ http://www.ist-africa.org/home/files/IST-Africa_Guide_2014Calls_Horizon2020.pdf

¹⁰ <http://www.ist-africa.org/home/default.asp?page=horizon2020>



Name	Institution	Department
Dr. Alex Muumbo	Moi University	ICT
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Zipporah Wanjiku Muthui	Chuka University	Physical Sciences - Physics
Richard Mulwa	Egerton University	Crop Management Research Training
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Dr. Gerald Chege	United States International University	Information Systems & Technology
Dr. Peter Githaiga Mwitari	Kenya Medical Research Institute	Centre for Traditional Medicine and Drug Research
Dr. Sebastian Buettrich	IT University Copenhagen	IT
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Prof. Elizabeth W. Mburu	International Leadership University	Bisheal & Theological Studies
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Dr. Benson Katulwa	Pan Africa Christian University	Business Leadership
Mr Alex Kiragu	Mount Kenya University	Research And Development Division
Prof. Tonny Omwansa	University of Nairobi	School of computing and Informatics
Prof. Isabel Wagara	Egerton University	Research and Extension

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Prof. Meoli Kashorda	Kenya Education Network	
Prof. Solomon Shibairo	Kibabii University College	Academic, Research And Extension
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Prof. Edwin Ataro	Moi University	Electrical & Communications Engineering
Dr. Margaret Nyambura Ndung'u	KENET	Research
Dr. Jimmy Macharia	USIU	School of Science and Technology
Prof. Mumo kisau	Scott Christian University	Administration
Mr. Jeketule Soko	Tangaza University College	Academic Research
Mr. Alex Kang'ethe	Embu University College	
Prof. Linus Gitonga Muthuri	Karatina University	Research and Academic Affairs
Mr. Abdirizaq Kadir	Umma University	IT Department
Prof. Joseph Kavulya	The Catholic University of Eastern Africa	University Library
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Dr. David Mwangi	Kenya Agricultural Research Institute (KARI)	Research and Technology
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Prof. Shitandi Anakalo	Kisii University	Research
Mr. Emilio Bunge	Development Finance International	
Dr. James Okeno	Africa Agricultural Technology Foundation	Product Stewardship
Ms. Jennifer Singer	Development Finance International	
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Dr. Vincent Omwenga	Strathmore University	Faculty of Information Technology
Prof. Peter Kisinyo	Rongo University College	School Of Agriculture, Natural Resources And Environmental Studies
Ms. Lina Owino	Jomo Kenyatta University of Agriculture and Technology	Mechatronic Engineering
Mr. Evan Murimi	Jomo Kenyatta University of Agriculture and Technology	Mechatronic Engineering
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Dr. Peter Njogu	University of Nairobi	Pharmaceutical chemistry
Mr. David Chiawo	Strathmore University	Centre for tourism
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Titus Ndiwa	Montpellier 2 University, France	Genetics and Evolution
Joseph Misati	Maasai Mara University	Sociology
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Dr. Victor Mose	African Conservation Centre	Bio statistical services
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Dr. Muhavini Cleophas Wawire	CUEA	Chemistry
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Dr. Judith Nyunja	Kenya Wildlife Services	Biodiversity Research & Monitoring
Ms Ednar Osoro	National Museums of Kenya	Institute of Primate Research
Lydia Muthuma	Technical University of Kenya	School of Architecture
Hilary Muthuma	Focus Publishers	Editorial
Peter Makachia	(Technical University of Kenya	Architecture & Environmental Design
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Ms. Dorcas Wachira	Kenya Medical Research Institute	Centre for Biotechnology Research and Development
Dr. Evans Amukoye	Kenya Medical Research Institute	Centre For Respiratory Diseases Research
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Ms. Christine Kariuki	Ministry of Education, Science and Technology (MoEST)	DRMD
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Calvince Okello	M-shamba	ICT
Dr. Damaris Mbui	University of Nairobi	Chemistry
Dr. Tsuma Jembe	KMFRI	Research
Rispah Nyangweso	KEMRI	Grantsmanship
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Mr. David Githonga	Chuka University	Computer Sciences
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Dr. Everlyn Wesangula	KMTC	Pharmacy
Dr. Linnet Gohole	University of Eldoret	Research & Innovation
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