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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

IST-Africa organised a series of Horizon 2020 Workshops in Malawi, Kenya, Ethiopia, Uganda and Burundi during November 2014, specifically focused on raising awareness of opportunities under the ICT-39 Call.

Ministry of Education Science and Technology as the IST-Africa partner in Kenya organised the IST-Africa Horizon 2020 Workshop in Nairobi on 14 November 2014. All relevant stakeholders were invited to participate to raise awareness of the opportunity for research cooperation at international level.

This workshop was specifically focused on **ICT-39 International partnership building in low and middle-income countries** with a deadline of 14 April 2015. The aim was to launch a set of targeted collaborative research projects addressing the requirements of end-user communities in developing countries. Specific technological targets could include for example co-design, adaptation, demonstration and validation (e.g. pilots) of ICT related research and innovation in relevant thematic areas addressed by Horizon 2020 including Content Technologies and Societal Challenges.

Activities under this objective should be led by a clearly defined **user need/market opportunity** for the technology being adapted; they should in particular include requirements of developing countries, and where possible, have the potential for wider impact by involving a number of countries from the same region. Proposals should be submitted by a complementary partnership with a particular focus on the participation of relevant developing country innovation stakeholders and end-user community representatives (e.g. relevant public, private, education and research, and societal sector organisations, Innovation Spaces and Living Labs).

The workshop was well attended with 40 participants from Dedan Kimathi University of Technology; Egerton University; Jomo Kenyatta University of Agriculture and Technology; Kabarak University; KENET; Kenya Medical Research Institute (KEMRI); Kenya Methodist University; Ministry of Education Science and Technology; Moi University; Mount Kenya University; National Commission for Science Technology and Innovation (NACOSTI); Strathmore University; Technical University of Kenya; United States International University and University of Nairobi.

Each organisation presented their current research capacity and areas of most interest for International Cooperation. This was a very interesting exercise at national level as the participants learnt more about research that is ongoing in both different institutions and other departments within the same institution. As a result the participants identified clusters of activity around specific themes where there could be more collaboration. Areas of thematic interest included Agribusiness, eAgriculture, Business Process Outsourcing, Cyber Security, Digital Repositories, Disaster Management, eInfrastructure, Entrepreneurship, eHealth (Health Information Systems, Image recognition, bioinformatics, health diagnosis, early warning systems for malaria, diagnosis of TB, research on traditional medicines, platform for screening and managing non-communicable diseases) mHealth, Mobile Computing, Sensors and Technology-enhanced Learning

2. Workshop Report

2.1 Introduction

Dr Eric Mwangi, Ministry of Education, Science and Technology as Master of Ceremonies, welcomed Paul Cunningham & Miriam Cunningham, IIMC International Information Management Corporation Ltd, Ireland / IST-Africa Initiative; Dr. John Ayisi, Ministry of Education Science and Technology; representatives from Kenyans Higher Education Institutions and research centres, distinguished guests and participants to the IST-Africa Horizon 2020 Workshop.

The Opening Remarks from Prof Collette Suda, Principal Secretary was read by Dr. John Ayisi. On behalf of Prof Suda Dr. Ayisi thanked that IST-Africa coordinators from Ireland, workshop participants from Kenya and distinguished guests for participating in this interactive training workshop. Prof. Suda acknowledged the support

provided by the European Commission to Kenya since the Ministry of Education Science and Technology initiated a robust relationship with the European Commission since 2007.

It is globally recognised that Science, Technology and Innovation is vital in the current environment to support innovation, creativity and competitiveness throughout the economy; deliver cutting edge science in all scientific and technological areas; to support efficiency in the public sector and modernisation in education and energy; and to address societal challenges and support quality of life and an aging society. It is clear from recent developments that there is an ongoing requirement for policy dialogue and for international partnerships. EU-Africa Science and Technology platforms take place in different forums including FP7 (which finished in 2013) and Horizon 2020 from 2014 - 2020,

H2020 incorporates three main pillars - Excellence Science, Leadership in Enabling and Industrial Technologies (LEIT) and Societal Challenges. The purpose of the IST-Africa workshop today is focused primarily on ICT-39 Call - engagement with Africa. MoEST takes this opportunity to thank the IST-Africa coordinators for supporting them in delivering this training workshop. MoEST hopes that through this event Kenyan researchers will fully participate in projects submitted to ICT-39, which closes in April 2015. The previous IST-Africa workshop in Kenya in January 2014 trained over 150 Kenyan researchers. MoEST will continue to provide support to researchers following this training workshop. In his closing remarks, Dr. Ayisi highlighted that we live in competitiveness society, Kenyan researchers need to take this opportunity seriously and come to the fore front.

Dr Eric Mwangi highlighted that the workshop participants were carefully selected based on areas of research that are relevant to ICT-39 opportunities. Eric invited Paul Cunningham to present the IST-Africa Initiative.

Overview of IST-Africa Initiative

Paul thanked MoEST for hosting this knowledge exchange workshop and encouraged the participants to ask questions, share knowledge and showcase research capacity in Kenya during this interactive workshop.

Paul highlighted the importance to leverage the opportunity of ICT-39 as a dedicated Call focused on Africa to address relevant issues on the ground in Kenya. Areas of importance include

- eHealth
- eAgriculture
- Technology-enhanced Learning
- Government - service delivery.

Paul provided a brief overview of the **IST-Africa Initiative** which was founded in 2002 by IIMC, Ireland and has now grown into a strategic partnership with Ministries and National Councils responsible for Information Society, ICT and/or Innovation in18 African Member States[1]. 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 is gathering intelligence in relation to the state of Research and Innovation in Kenya. MoEST leverages the IST-Africa Initiative to actively promote the national research community through

- Presentations at International events
- 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

[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); Ministere de l’Enseignement Superieur 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); Ministere de l'Enseignement Superieur et de la Recherche Scientifique ("MHESR", Tunisia) and Uganda National Council for Science and Technology (“UNCST”, Uganda).

- 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.

Paul provided an overview of knowledge resources on the IST-Africa portal including access to up to date information on Horizon 2020[2] (Work Programmes, Guides to Calls for Proposals); Project Repository[3] to identify previously funded projects as contributions to the state of the art in specific domains; Organisational repository[4] to identify potential partners and previous projects that they have been involved; Country profile section to highlight ongoing activities at national level and Paper Repository[5] with access to papers published through the IST-Africa conference from 2006 which is one of the largest African focused paper repositories.

Participants were encouraged to visit the IST-Africa portal[6] and download relevant papers and reports. Paul also encouraged the participants to complete and return their organisational profile to MoEST for publication on the IST-Africa portal.

Paul took the opportunity to encourage participants to leverage the opportunity that IST-Africa 2015[7] (Malawi) offers in May to raise awareness of research and innovation being undertaken at national level. Paul highlighted that there are three opportunities to make presentations during IST-Africa 2015 - a) publish research results from ongoing and completed projects; b) write a case study on ongoing activities within a specific domain and c) make an oral presentation if the project results are not sufficiently developed for paper publication at this stage. Participants were requested to raise awareness among their networks and institutions to take advantage of this opportunity.

Paul summarised the impact that has been achieved through IST-Africa as including an increase in African participation under FP7; increase in publications through IST-Africa proceedings; knowledge sharing between Europe and Africa; actively supporting policy dialogue between European Commission, African Union Commission and other key stakeholders; providing evidence to support African-focused Calls for Proposals under Horizon 2020 including ICT-39 Call; access to knowledge repositories and reports.

Kenya organisations secured over **€ 12.3 million** in research funding under FP7 through participation in more than **68** projects: ICT (5 projects), INCO (4 projects), Environment (18 projects), ERC (2 project), Health (14 projects), Food, Agriculture and Biotechnology KBBE (13 projects), INFRA (3 projects), People (3 projects), Science in Society (2 projects), Space (2 projects), Social Sciences (1 project) and Transport (1 project).

[2] http://www.ist-africa.org/home/default.asp?page=horizon2020
[3] http://www.ist-africa.org/home/default.asp?page=project-search
[4] http://www.ist-africa.org/home/default.asp?page=org-search
[5] http://www.ist-africa.org/home/default.asp?page=paper-repository
[6] http://www.ist-africa.org/home/default.asp?page=reports
[7] http://www.ist-africa.org/Conference2015

Participating national organisations included: Ministry of Education, Science and Technology (8 projects); University of Nairobi (7 projects); Kenya Medical Research Institute (7 projects); International Centre for Research in Agroforestry (7 projects); International Livestock Research Institute (5 projects); IGAD Centre for Climate Prediction and Application (4 projects); International Centre of Insect Physiology and Ecology (3 projects); Regional Centre for Mapping of Resources for Development (3 projects); United Nations Environment Programme (3 projects); International Centre for Reproductive Health Association (2 projects); Ministry of Environment and Mineral Resources (2 projects); and with ***one project each***: Ministry of Fisheries Development; Kenya Agricultural Research Institute; Kenya Forestry Research Institute; Kenya Marine and Fisheries Research Institute; Kenya Sea Turtle Conservation Committee; Kenyatta University; Liverpool VCT, Care and Treatment Association; Mayfair Holdings Ltd; Intermedia NCG Limited; Pharmacy and Poisons Board, Ministry of Health; Pwani University College; National Museums of Kenya; National Museums of Kenya*Institute of Primate Research; The Christian Missionary Fellowship; The East Africa Natural History Society Association; Institut Francais de Recherche en Afrique; Egerton University; Afrepren/Fwd Energy, Environment and Development Network for Africa; African Conservation Tillage Network; African Institute for Capacity Development; African Technology Policy Studies Network; United Nations Human Settlements Programme; Tropical Institute of Community Health and Development Trust; The Kenya Information and Communications Technology Board and University of Nairobi, Enterprises and Services Limited.

The most prominent European Coordinators with multiple projects included: Universiteit Gent, Belgium (3 projects); Vlaamse Instelling Voor Technologisch Onderzoek N.V., Belgium (3 projects); IIMC International Information Management Corporation Limited, Ireland (3 projects); Centre de Cooperation International en Recherche Agronomique pour le Developpement, France (2 projects); Association of Commonwealth Universities, United Kingdom (2 projects); Liverpool School of Tropical Medicine, United Kingdom (2 projects).

Four hundred and seventeen **(417)** European and Associated Country organisations partnered with Kenyan organisations in successful FP7 projects. This provides a very significant network for future collaboration under Horizon 2020. The full list of all European partner organisations is available in the IST-Africa study entitled “Guide to Bilateral & Multilateral Cooperation Agreements Supporting ICT/STI-related Activities in IST-Africa Partner Countries, January 2014, ISBN: 978-1-905824-42-7[8].

This provides an important baseline for cooperation under Horizon 2020.

[8] http://www.ist-africa.org/home/default.asp?page=reports

2.2 Introduction to Horizon 2020

Dr Eric Mwangi, Ministry of Education, Science and Technology presented an overview of Horizon 2020[9], which is the new European Framework Programme for Research and Innovation for 2014 – 2020, with funding of €80 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 addresses 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.

Eric highlighted that Horizon 2020 is 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 (with partners from 3 European Countries) addressing the challenges published in the Work Programme. ICT-39 is a specific call focused on collaboration between Africa and Europe. There are a lot of resources available to support institutions to prepare proposals on the IST-Africa portal[10] - access to Work Programmes, Guides to proposals under 2014 and 2015 as well as the European Commission Participants Portal[11] and Horizon 2020[12]

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

  1. The European Research Council (€13.1 billion)
  2. Future and Emerging Technologies (€2.7 billion)
  3. Marie Sklodowska-Curie actions on training and career development (€6.2 billion)

[9] Visit http://www.ist-africa.org/home/default.asp?page=horizon2020 and http://ec.europa.eu/research/horizon2020/
[10] http://www.ist-africa.org/
[11] http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/index.html
[12] Horizon 2020 website http://ec.europa.eu/research/horizon2020

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)

Eric summarised differences between FP7 (which finished in 2013) and H2020 (which runs from 2014 - 2020)

- H2020 is more holistic in focus addressing all research and innovation funding with a stronger focus on Societal Challenges and Innovation
- Work Programme Structure - Under H2020 Work Programmes (WP) are published for a two year duration to allow stakeholders to plan proposal design sufficiently in advance. Each thematic areas has its own Work Programme but ICT is a horizontal component within Societal Challenges, LEIT and Excellent Science The WP 2014 - 2015 was published on 11 December 2013 and updated for 2015 in July 2014.
- Funding Levels - under H2020 organisations receive up to 100% reimbursement of costs for research activities (Research and Innovation Grants) and up to 70% reimbursement of costs for Grants for Innovation (large scale pilots to prepare for commercialisation).
- H2020 Funding Instruments: ***Grants for Research and Innovation*** (new knowledge, applied research, technology development and integration, testing and validation on a small scale prototype); ***Grants for Innovation*** (closer to market, prototyping, testing, demonstrating, piloting, large-scale product validation and market replication); ***Grants for***

coordination and support action (do not undertake research, support coordination of research and activities to the Programme)

- Indirect Costs (Overheads) - Under FP7 there were different levels of reimbursement of overheads depending on the instrument and organisational type. Under H2020, there is now a flat rate of 25% reimbursement of direct costs as a contribution towards overheads.
- **No Negotiation phase** in H2020: proposals are now judged as submitted (no timeframe for improvements, changes in partners or budget). As a result if there are inconsistencies, budgetary problems or insufficient justification of the approach, the proposal will receive a lower score and unlikely to be funded. It is critical that all partners are sure that they can undertake the project work and have the necessary internal support when submitting the proposal as part of a consortia.
- Proposal Structure & Page Length: Each funding instrument has specific proposal template that needs to be followed. Part B is now divided into 2 sections for upload via the Participants portal - Section 1 - 3 (Excellence, Impact, Implementation) and Section 4 & 5 (Members of the Consortium, Ethics and Security). There is a **fixed number of pages** for each instrument - Research and Innovation (Part B Section 1 - 3) max of 70 pages, CSA - max of 50 pages. If the proposal is longer than the allowed pages, the extra pages are marked in red and are not considered in the evaluation process.

2.3 Snap Shot of Societal Challenges and LEIT in Horizon 2020

Dr Eric Mwangi 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 and Guide for 2015 Calls for Proposals in Horizon 2020. This guide lists each thematic area, deadlines and links to the Participants portal[13] for more detailed information. It can be downloaded from

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

http://www.ist-africa.org/home/files/IST-Africa_Guide_2015Calls_Horizon2020.pdf

IST-Africa has a specific section focused on Horizon 2020[14], 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. Marie Curie offers an important opportunity to support capacity building.

[13] *http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/index.html*
[14] http://www.ist-africa.org/home/default.asp?page=horizon2020

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. 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 eight 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)
7. Inclusive, innovative and reflective societies (Digital inclusion; social innovation platforms; e-government services; e-skills and e-learning; e-culture) and
8. Secure societies (Cyber security; ensuring privacy and protection of human rights on-line)

ICT will be incorporated across the three main pillars

- Excellent Science
- Industrial Leadership
- Societal Challenges

2.4 ICT-39

Paul Cunningham, IIMC/IST-Africa presented the **ICT-39** Call, which closes on **14 April 2015**. The aim of ICT-39 is to launch a set of targeted collaborative research projects addressing the requirements of end-user communities in developing countries. Specific technological targets could include for example co-design, adaptation, demonstration and validation (e.g. pilots) of ICT related research and innovation in relevant thematic areas addressed by Horizon 2020 including Content Technologies and Societal Challenges.

Activities under this objective should be led by a clearly defined ***user need/market opportunity*** for the technology being adapted; they should in particular include ***requirements of developing countries***, and where possible, have the ***potential for wider impact by involving a number of countries from the same region***. Proposals should be submitted by a complementary partnership with a particular focus on the participation of relevant ***developing country innovation stakeholders and end-user community representatives*** (e.g. relevant public, private, education and research, and societal sector organisations, Innovation Spaces and Living Labs)

The expected impacts outlined in the Work Programme include:

- Development of relevant technology responding to specific needs and conditions of the target country.
- Reinforced international dimension of the ICT and Innovation aspects of Horizon 2020 and a higher level of international cooperation with low and middle income countries in ICT R&D and Innovation, focusing on areas that are beneficial to the target countries/region

Discussion re opportunities under ICT-39 for Kenya

Following an interactive discussion among the stakeholders the following thematic areas were considered to be important in the context of ICT-39:

eHealth / mHealth

- Health Information Systems / Electronic medical records - user interface issues, interoperability
- Local Healthcare delivery
- Early warning system for malaria (transmittable diseases)
- Collate information from distributed places
- Integrated surveillance system
- Maternal healthcare

Data collection and dissemination of data needs to address cultural issues

eAgriculture

- Agri-business

- Sensors & RFID to monitor livestock and wildlife
- Land management
- Food Security (sensors, tracking)
- Disaster risk

Technology-enhanced Learning

- eLearning for disaster management and peace/conflict
- TEL for self study, training, capacity - shortage of health professionals,
- Enhanced methods of learning for people with disability, physiological assessment
- Entrepreneurship

ICT for Transport

Clean energy

The participants found this brainstorming and moderated group work to be very interesting in visualising how to start to prepare a proposal. It also reinforced clusters of activities around specific thematic areas. It was agreed that capacity building is a necessary component to be included in future projects and there needs to be consideration of sustainability models.

2.5 Participation Rules and Instruments under Horizon 2020

Jacob Njagih, Ministry of Education Science and Technology presented the participation rules and instruments under Horizon 2020. Horizon 2020 has a single set of rules covering all funding programmes to simply 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-28 Member States, Associated Candidate Countries, Associated States and International Cooperation Partner Countries. Legal entities from all African States 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.

H2020 is designed to be cross-border in focus 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.

2.6 Preparing a Proposal

Miriam Cunningham, IIMC/IST-Africa presented an overview of steps to consider when preparing a Horizon 2020 Proposal.

It is necessary to read the **Work Programme**[15] very carefully and identify areas of interest within the 2015 Calls for Proposals. As Eric has highlighted earlier, IST-Africa has prepared a guide to 2014 and 2015 Calls listing each thematic area, deadlines and links to the Participants portal[16] for more detailed information. It can be downloaded from

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

http://www.ist-africa.org/home/files/IST-Africa_Guide_2015Calls_Horizon2020.pdf

Based on the available information, prepare a departmental roadmap, identify relevant partners to cooperate with, identify research areas of interest to your organisation and be open to how this fits within a global research project.

It is both expensive and time consuming to write a proposal. It is necessary to identify previous projects funded within a specific area both at national and European level to write up a comprehensive section on the current state-of-the-art. It is then necessary to show how the proposal being submitted for funding goes beyond the current state-of-the-art. Proposals should be co-designed by the partners who are going to work together in the research project.

As Jacob has outlined, in the case of ICT-39 it is necessary for the consortium to have legal entities from different EU or Associated Country Member States as well as a number of African partners. It is always better to start with organisations that you have already met (through participation at international conferences, workshops, external supervisors for PhD students) if possible or have formal or informal cooperation agreements in place. As part of general research, it is necessary to look at projects previously funded in a thematic area and identify organisations that have previously participated. It is necessary to prepare an organisational profile that outlined track record, research areas and expertise outlining thematic areas of interest.

The role of each partner must be clearly articulated and illustrate how their expertise is relevant and complementary. As part of the project planning, each organisation should clearly identify the role most appropriate based on human resources, expertise and project focus

- Technical partner - Development role - clearly identify focus and level of cooperation with other technical partners
- Demonstration partner - participation in pilots and user requirements
- Dissemination partner - mechanisms to share results outside the consortium

[15] Visit http://www.ist-africa.org/home/default.asp?page=horizon2020 and http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/index.html
[16] *http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/index.html*

Having identified the relevant Call and deadline, it is then necessary to carefully identify the ***funding instrument*** that is open (Grant for Research and Innovation; Grant for Innovation or Support and Coordination Actions) and download the correct ***proposal template*** from the Participants portal. Jacob has outlined the specific activities that can be funded under each instrument.

As outlined in the Guide for Participants each instrument has two parts:

- Part **A** - Administrative Details related to partners (beneficiaries and proposed budget)
- Part **B** - Technical Annex

In the case of **ICT-39** the funding instrument is **Research and Innovation Actions**. Miriam outlined the five main sections for this instrument and the content required:

- Section 1: **Excellence** - Objectives, Relation to the Work Programme, Concept & Approach; Ambition
- Section 2: **Impact** - Expected Impacts, Measures to maximise impact - a. Dissemination & Exploitation of Results; b. Communication activities
- Section 3: **Implementation** - Work Plan (Work Packages, deliverables & milestones), Management structure and procedures, Consortium as a whole, Resources to be committed
- Section 4: **Members of the Consortium** - each partner to provide profile using template provided to facilitate judgement of operational capacity
- Section 5: **Ethics & Security**

As Eric has already highlighted **Part B Section 1 - 3** must be a **maximum of 70 pages in length** and the Part B is now uploaded as two separate files by the Coordinator in the Participants portal - File 1 - Part B Sections 1 - 3 and File 2 - Part B Section 4 & 5.

Having identified the relevant Call and instrument, the Consortium partners will then split the grant proposal writing among the partners. It is advisable to agree the Work plan structure (Section 3) first. This will then facilitate each Work Package Leader to outline the proposed tasks, agree them with the partners and co-design a detailed description outlining the work to be undertaken with each task. With the work plan structure in place, it is then possible to starting writing the objectives, relevance to the work Programme, concept and approach (Section 1). Based on agreeing the work plan structure and objectives, partners can then start writing the Impact section (Section 2). Each individual partner should prepare an organisational profile using the template provided for inclusion in Section 4.

Miriam then presented an overview of steps to consider when preparing the budget.

All funding under Horizon 2020 for research proposals are ***grants***, which is based on reimbursement of actual costs based on the budget submitted and actual eligible costs incurred with no profit element.

Eligible Cost Categories

- **Personnel Costs** - reimbursement of costs based on salary from payroll - actual cost to the institution based on normal salary cost plus social security charges prior to the grant. Calculation of personnel costs are based on calculating person time required for each task in the Work Programme. It is necessary to keep timesheets for actual work undertaken that are signed by the Head of Department each month and put on file.
- **Subcontracting** (work undertaken by third parties outside project partners) - under a Grant agreement it is not allowed to subcontract project management or core project work. Eligible activities include printing of dissemination materials, room hire and catering for meetings and workshops, design of website if partners cannot do this themselves.
- **Other direct costs** include Travel costs and subsistence allowance (based on normal practises for the institution) - need to calculate the number of meetings / dissemination at conferences and work out the budget based on costs of flights and normal per diem rate for accommodation and subsistence. The European Commission has a maximum amount that can be reimbursed as per diem in each city - it is necessary to check this.
- Essential equipment is reimbursed based on depreciation of time when used for project requirements. Any equipment requests need to be carefully considered and well justified. It is also necessary to consider that the partner organisation will be paying for the equipment up front from the supplier and receiving back reimbursement on a yearly basis through the cost claim using the depreciation model based on actual time the equipment was used for project activities.

The partners in the consortia will agree the administrative coordinator (who interacts with the European Commission on behalf of the partners in relation to submitting the proposal, finalising the grant agreement, distributing the funding and general project management) and the technical coordinator (responsible for technical quality of the project deliverables) based on the skills, track record and expertise of the partners. It is advisable that the administrative coordinator has an existing track record managing Framework Programme projects.

Each partner must provide the administrative coordinator with their organisational Participants Identification Code (PIC), which is a unique number for each legal entity who has a profile on the Participants portal. If your organisation does not have a PIC[17], it is necessary to set this up in order to be a beneficiary of a grant. The PIC application process must be undertaken by the authorised representative in your organisation so this needs to be planned in advance in sufficient time.

It is good practise to provide the co-ordinator with a signed letter from a senior representative from your organisation confirming that your department has approval to participate in this

[17] http://ec.europa.eu/research/participants/portal/desktop/en/organisations/register.html

submission and has the necessary resources to undertake the project work if selected for funding.

Miriam provided a brief overview of basic Intellectual Property Rights as this needs to be considered when preparing a proposal. It is necessary to outline an initial strategy for IPR, access right to pre-existing knowledge necessary for the project work and exploitation of results with the proposal.

2.7 Evaluation of Proposals

Miriam provided an overview of the evaluation process.

When preparing for the evaluation of a Call, the European Commission puts together a panel of independent thematic experts to evaluate the proposals submitted.

Each proposal is provided to a number of experts who individually evaluate the proposals based on the agreed criteria and submit their individual report via an online Evaluation system.

The evaluation criteria for proposals are closely aligned with the proposal structure:

1. Excellence (Threshold 3/5)

- Clarify and pertinence of the objectives
- Credibility of the proposed approach
- Soundness of the concept
- Extent that the proposed work is ambitious, has innovation potential and is beyond the state-of-the-art (e.g. ground breaking objectives, novel concepts and approaches)

2. Impact (Threshold 3/5)

- Aligned with expected impact listed in the Work Programme
- Enhancing Innovation Capacity and Integration of new knowledge
- Strengthening competitiveness and growth of companies by developing innovations meeting needs of global markets
- Effectiveness of the proposed measures to exploit and disseminate the project results (Including management of IPR), to communicate the project and manage research data where relevant

3. Quality and Efficiency of the Implementation (Threshold 3/5)

- Coherence and effectiveness of the work plan including appropriateness of the allocation of tasks and resources
- Complementarity of the consortium partners
- Appropriateness of the management structure and procedures (communication flows, assignment of responsibilities, quality controls, conflict resolution strategy etc) including risk and innovation management

After submission of the individual Evaluation Reports, there is then a discussion among the experts who evaluated the proposal and a combined Evaluation Summary report is prepared. This Evaluation Summary Report is sent to the administrative coordinator following the evaluation process outlining the feedback provided on each criterion and the associated score.

2.8 Next Steps

The participants found the workshop very stimulating. They learn a lot about what research each institution is undertaking as well as learning about H2020 and specifically ICT-39. The brainstorming and group work outlined a path to follow when preparing concepts for proposals.

Each participant was requested to share the materials provided during the workshops with their colleagues and hold a departmental meeting to agree next steps in relation to preparing concepts for proposals.

Having identified thematic areas of most relevance, each department should then engage with European partners that they have links with (either as a result of external PhD supervisors, meetings during conferences or personal contacts) and discuss how they can cooperate to co-design a proposal for submission under ICT-2015.

The participants were requested to keep MEST up to date in relation to their progress and any additional support that they require from IST-Africa.

Eric thanked the participants for coming to the workshop and thanked IIMC for preparing the materials and supporting the Ministry to deliver the workshop. MoEST looks forward to supporting the community in the coming weeks and months in relation to proposal preparation.

Participants

Name	Institution
Dr. Ciira Maina	DedanKimathi University of Technology
Mr. John Wandeto	DedanKimathi University of Technology
Dr. Wilfred Gikaru	Egerton University
Miriam Cunningham	IIMC / IST-Africa
Paul Cunningham	IIMC / IST-Africa
Prof. Waweru Mwangi	Jomo Kenyatta University of Agriculture and Technology
Dr. Christopher Maghanga	Kabarak University
Dr. Moses Thiga	Kabarak University
Mr Peter Muia	KENET
Dr. Peter Mwitari	KEMRI
Mr. Amose Ndombi	KEMRI
Dr. Evans Amukoye	KEMRI
Mr. Charles Karue Kibaara	KEMRI-FACES
Dr. Robert Karanja	Kenya Medical Research Institute
Ms. Dorcas Wachira	Kenya Medical Research Institute (KEMRI)
Dr. Salesio Kiura	Kenya Methodist University
Dr. John Ayisi	Ministry of Education Science and Technology
Susan K. Njagi	Ministry of Education Science and Technology
Tom Olango	Ministry of Education Science and Technology
Acquillyne Mbaka	Ministry of Education Science and Technology
Zipporah Njoroge	Ministry of Education Science and Technology
Gatama Gichini	Ministry of Education Science and Technology

Jacob k. Njagi	Ministry of Education Science and Technology
Dr. Eric Mwangi	Ministry of Education Science and Technology
Dr. Beth Wambugu	Moi University
Mr. Bernard Chogi	Mount Kenya University
Rosalida Owour	National Commision for Science Technology and Innovation (NACOSTI)
Mr. Emmanuel Kweyu	Strathmore University
Dr. Elizabeth Muli	Technical University of Kenya
Dr. Alex Muumbo	Technical University of Kenya
Prof. Gikiri Thuo	United States International University
Ms. Juliana Namada	United States International University
Dr. Silvester Namuye	United States International University (USIU)
Dr. Patrick Kanyi Wamuyu	United States International University (USIU)
Ms. Ambiyo Sarah	United States International University- Africa
Dr. Bernard Omboi	United States International University-Africa
Bonn Jonyo	United States International University-Africa
Dan Noel Odaba	United States International University-Africa
Dr. Joshua Rumo	United States International University-Africa
Mrs. Paula Musuva-Kigen	United States International University-Africa
Prof. Sammy Mulei Musyoka	University of Nairobi / MoEST