

IST-Africa Initiative

Building Research Partnerships addressing African Societal Challenges Networking Session, ICT 2018, 05 December 2018

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Founded in 2002 as a not-for-profit Strategic Partnership between IIMC (Ireland) and Ministries and National Councils responsible for Innovation, Science and Technology

Supported by European Commission and African Union Commission, with current participation by 18 African Member States – open to all African MS

Objectives

Foster a cross-border, multi-stakeholder and interdisciplinary approach to policy, research and innovation collaboration

Strengthen capacity by sharing good practices and lessons learnt, promoting linkages and cooperation opportunities, and increase awareness of research & innovation related outcomes

Monitor ICT-related research and innovation activities in IST-Africa Partner Countries to identify and provide input on common R&D priorities and future cooperation opportunities

Promote participation in international funded research

Impact

Helped African universities secure >€185 million research funding in last 10 years to build research groups & postgraduate programs addressing national and regional societal challenges

Comprehensive reference reports on ICT Initiatives, research capacity, Innovation Spaces to support policy development

Significant increase in research publications from Africa and about Africa (IST-Africa Week, published in IEEE Xplore)

Showcases African research and Innovation capacity and facilitates capacity building, partnerships & knowledge sharing



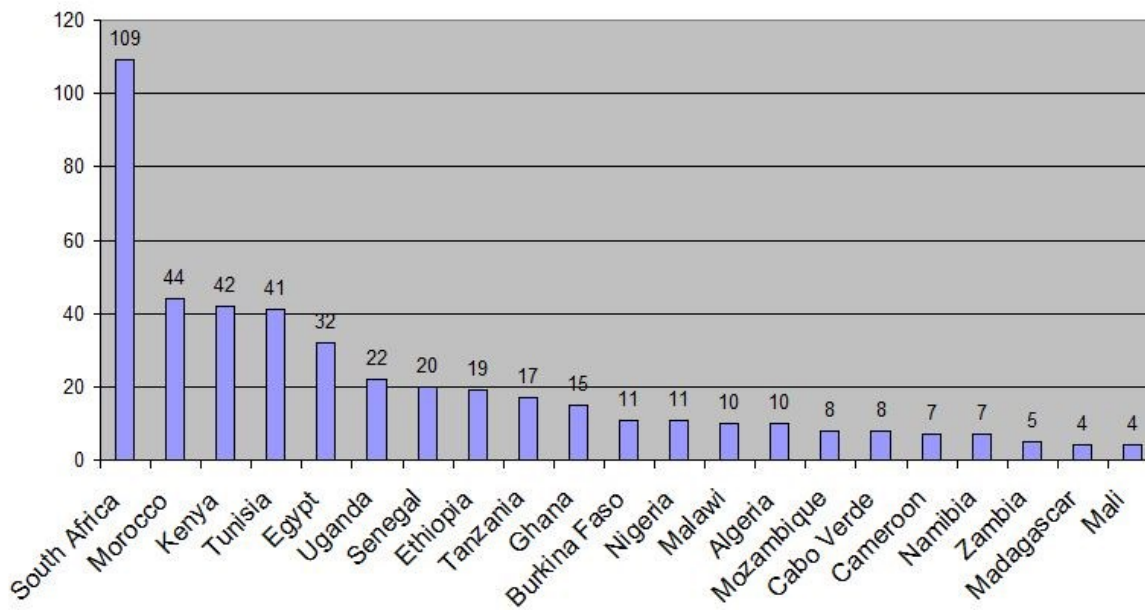
IST-Africa Consortium (2016 - 2018)

- IIMC International Information Management Corporation Limited (“IIMC”, Ireland)
- 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)
- Information Technology Industry Development Agency (“ITIDA”, 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)
- Uganda National Council for Science and Technology (“UNCST”, Uganda)

- Coordination of national Innovation ecosystem stakeholders to formulate research and innovation priorities and activities addressing socio-economic challenges
 - Raise awareness of research and innovation cooperation opportunities between Africa and Europe under Horizon 2020 (ICT-39-2017 and other relevant Calls)
 - Identify common R&D priorities and map research and innovation capacity across IST-Africa partner countries to assist well focused proposals to be submitted under relevant calls and inform future Horizon 2020 and FP9 Calls
- Monitor ICT-related research and innovation activities across IST-Africa partner countries to Inform policy and identify cross-border collaboration opportunities
 - Analysis of African adoption, implementation, policy and research priorities
 - Analysis of African Innovation Spaces and HEI Research Capacity
- H2020 Workshops facilitating training, consortia building & NCP capacity building
- Organisation of annual IST-Africa Week hosted by IST-Africa Partner Countries to
 - Showcase high-level policy discussion, European and African research and innovation capacity and Africa-EU collaboration success stories
 - Provide a platform for African and European researchers to build relationships
 - Increase the number of international ICT-related scientific publications sharing African related research and innovation results (publication in IEEE Xplore)
 - **IST-Africa Week 2019, Nairobi, Kenya, May**

- Horizon 2020 is fully open to international cooperation
 - Up to August 2018, 336 Horizon 2020, 574 participations from 31 African countries
 - >€81.6 million in research funding secured by African research centres and universities (€62.5 million to IST-Africa partner countries)
 - ICT should be considered as a horizontal enabler across all thematic areas and work programmes
- IST-Africa provided European Commission evidence to include two dedicated H2020 calls focused on addressing African ICT & Innovation-related research challenges (€26m) based on end user requirements
 - ICT-39-2015 - 45 proposals submitted with 194 participations from Africa (439 participants in total), 23 proposals over threshold, 4 projects funded
 - mHealth4Afrika** (Ethiopia, Kenya, Malawi, South Africa); **DMC-MALVEC** (Cameroon, Ethiopia, Zambia); **Its4land** (Ethiopia, Kenya, Rwanda); **WAZIUP** (Burkina Faso, Ghana, Togo)
 - ICT-39-2017 – 71 proposals submitted with participation from 29 African countries, 33 proposals over threshold, 7 projects funded (CyberSecurity, IoT, eAgriculture, eLearning)
 - Projects started in Jan 2018 - **Go-GA** (Nigeria, Kenya, Benin); **WAZIHUB** (Ghana, Kenya, South Africa, Tanzania, Uganda); **EPICA** (Kenya, Tanzania, Uganda), **SAMS** (Ethiopia), **ISOOKO** (Kenya, Uganda, Rwanda), **FANFAR** (Niger, Nigeria)

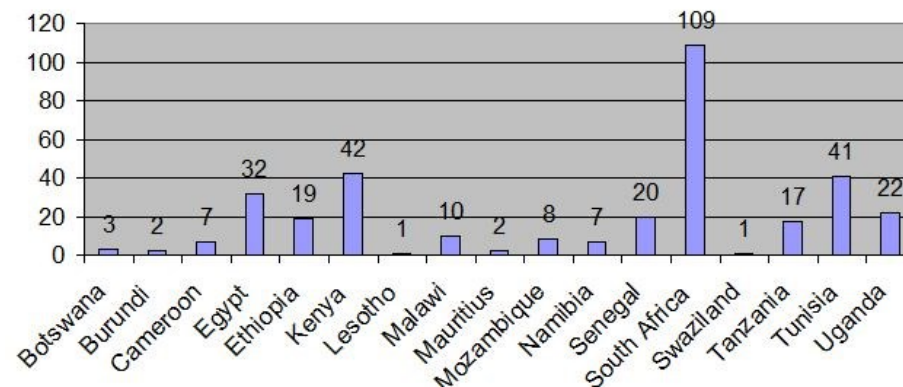
Horizon 2020 Projects - Top 20 African Beneficiary Countries
(data compiled by IST-Africa from Cordis data sets August 2018)



>€81.6 million in research funding awarded to African participants in total as at August 2018

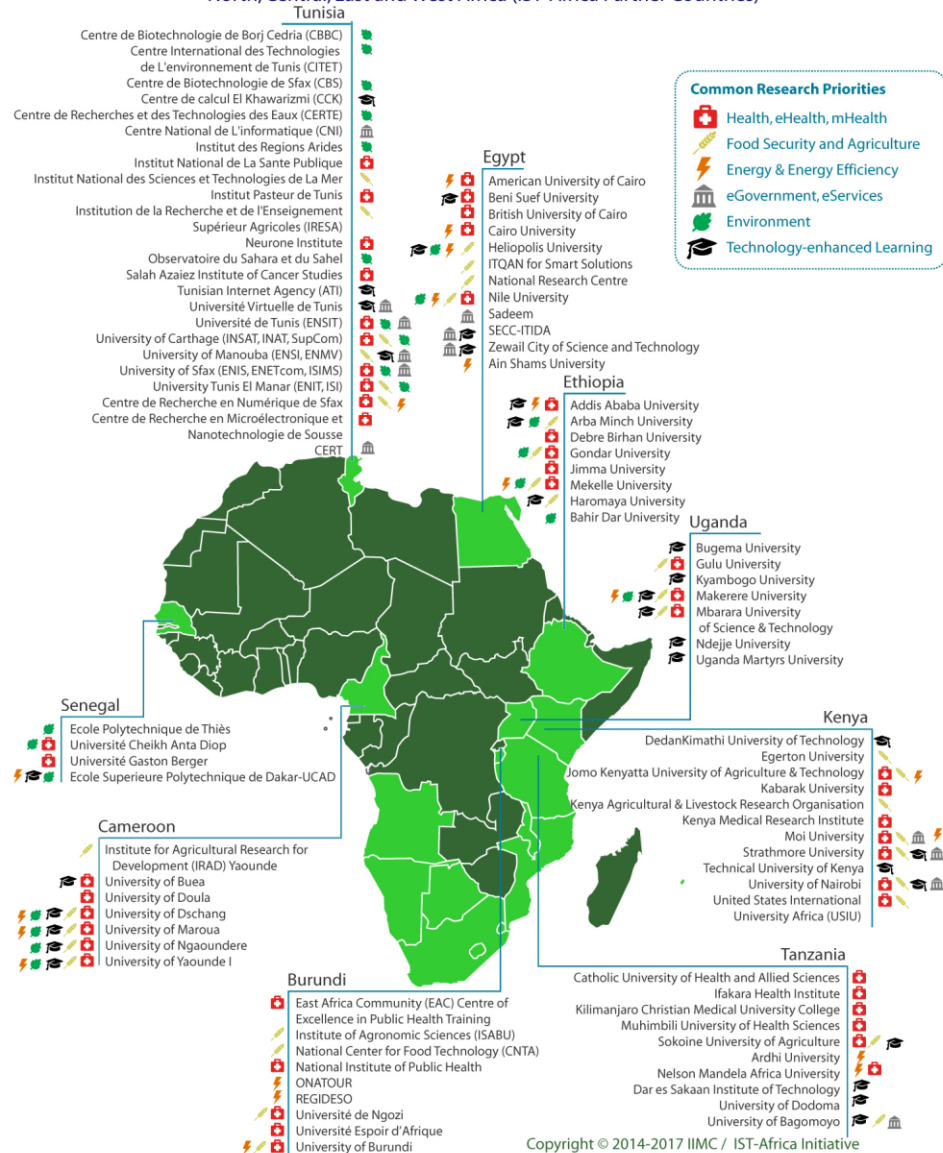
€62.5 million in research funding awarded to IST-Africa partner countries

H2020 Projects in IST-Africa Partner Countries as at August 2018
(data compiled by IST-Africa from Cordis data sets as at August 2018)

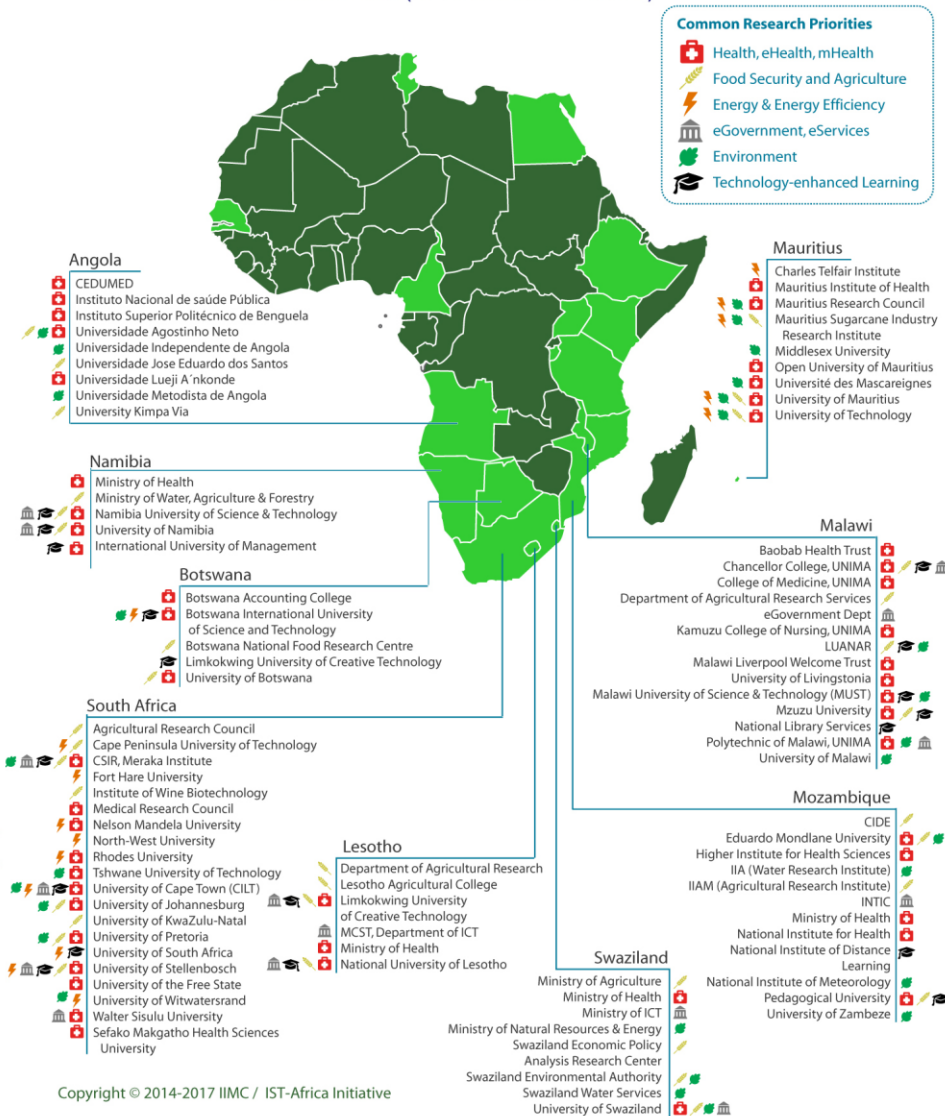


ISTAfrica Mapping of Research Capacity to Horizon 2020

Mapping of Institutions to Common Research Priorities
North, Central, East and West Africa (IST-Africa Partner Countries)

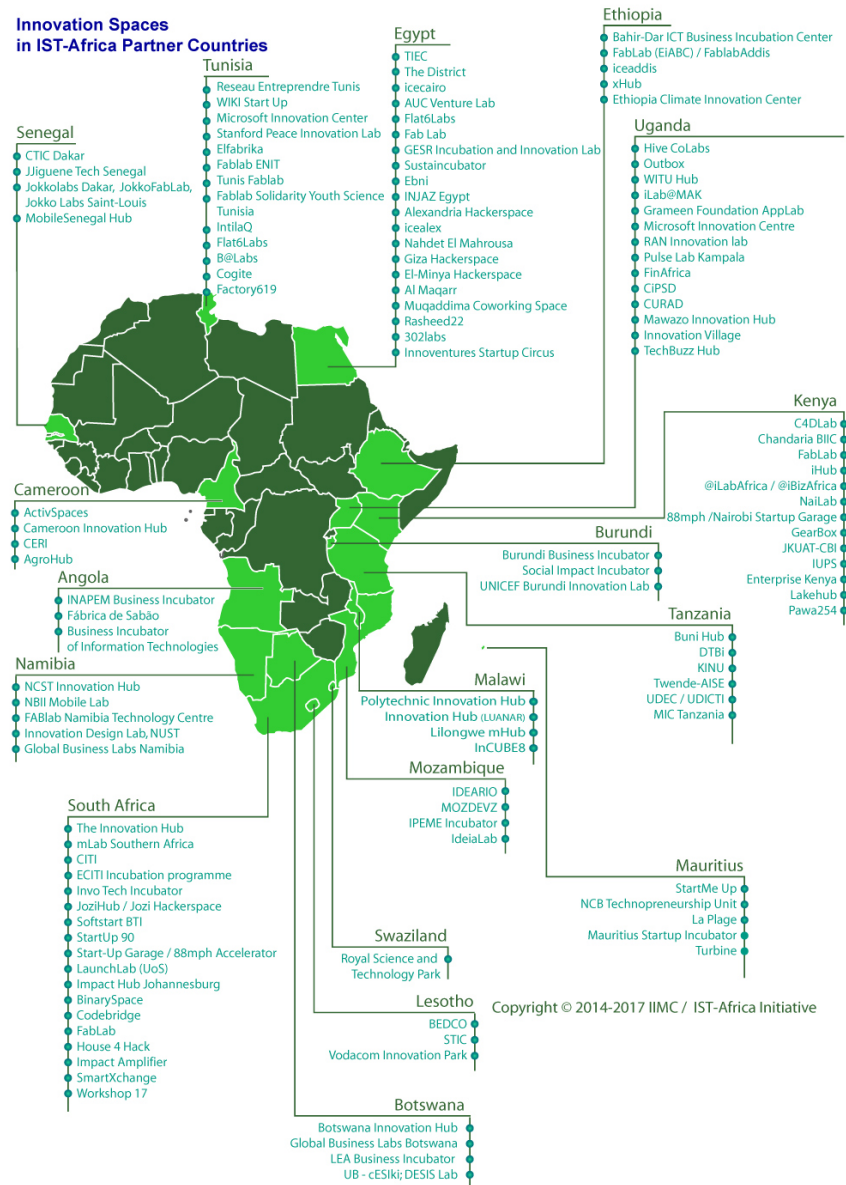


Mapping of Institutions to Common Research Priorities
Southern Africa (IST-Africa Partner Countries)



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- IST-Africa Report on ICT Initiatives, Research and Innovation Priorities and Capacity
 - Current enabling environment
 - ICT Initiatives
 - Common research priorities
 - Mapping of Research Capacity by thematic area and mapping of Innovation Spaces
 - Participation in FP7 and Horizon 2020

in Botswana, Burundi, Cameroon, Egypt, Ethiopia, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Senegal, South Africa, Swaziland, Tanzania and Uganda as at October 2017 ISBN No: 978-1-905824-58-8, Updated version available Jan 2019

- Valuable reference document to valuable resource to identify partners and learn more about ongoing activities in IST-Africa partner countries
- IST-Africa Guide to 2019 Calls for Proposals in Horizon 2020
 - Overview of Calls, themes and deadlines during 2019 within the Marie Curie, eInfrastructures, Leadership in Enabling and Industrial Technologies (LEIT) and each of the Societal Challenges (Health, Food Security and Agriculture, Energy, Transport, Environment, Inclusive and Reflective Societies, Secure Societies) Work Programmes
- IST-Africa Introduction to Horizon 2020

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

www.IST-Africa.org/home/default.asp?page=horizon2020

- Participate in IST-Africa 2019 Week, Nairobi, Kenya, May

www.IST-Africa.org/Conference2019

ISTAfrica IST-Africa 2019 Call for Papers

IST-Africa 2019, Nairobi, Kenya, May 2019

14th Annual Technology, Research and Innovation Conference

- Senior representatives from leading public, private, education and research, societal and funding organisations around the work to share knowledge and experience of ICT-enabled Innovation, STI adoption, policy and research
- Call for full papers – Deadline **21 December 2018**
 - Thematic areas include; e(m)Health; Technology-enhanced Learning and eSkills; e(m)Agriculture; Energy; eInfrastructures; Internet of Things; eGovernment; CyberSecurity; ICT4D; Societal Implications of Technology
 - Full papers (8 pages) presenting Innovative interim or final results

www.IST-Africa.org/Conference2019



HORIZON 2020

Overview of H2020 projects funded under ICT-39-2015 and ICT-39-2017 focused on African Research Challenges

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- Two dedicated H2020 calls focused on addressing African ICT & Innovation-related research challenges based on end user requirements
- ICT-39-2015 Projects - **Research and Innovation Actions**

mHealth4Afrika (Ethiopia, Kenya, Malawi, South Africa) – Integrated Electronic Health Records for Resource Constrained Environments

DMC-MALVEC (Cameroon, Ethiopia, Zambia) - Automated diagnostic platform, data management system and innovative communication tool, for improving the impact of malaria vector control interventions

Its4land (Ethiopia, Kenya, Rwanda) - land tenure recording tools

WAZIUP (Burkina Faso, Ghana, Togo) – IoT for Agriculture

- ICT-39-2017 Projects – **Innovation Actions**

Go-GA (Nigeria, Kenya, Benin) - adaptation of Go-Lab Learning ecosystem (STEM)

EPICA (Kenya, Tanzania, Uganda) – ePortfolio, Skills

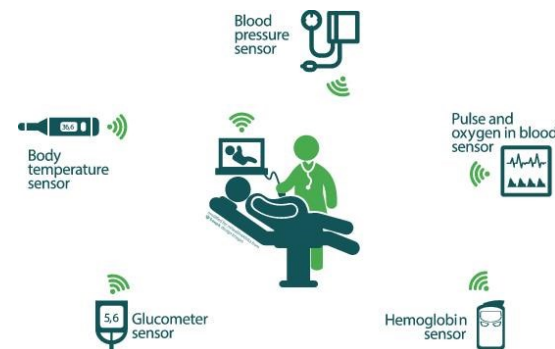
SAMS (Ethiopia) – Remote sensing technology to support beekeepers

FANFAR (Niger, Nigeria) – Flood forecasting and alerts in West Africa

WAZIHUB (Ghana, Kenya, South Africa, Tanzania, Uganda) – IoT Innovation Program

ISOOKO (Kenya, Uganda, Rwanda) - digital technologies to support peace education

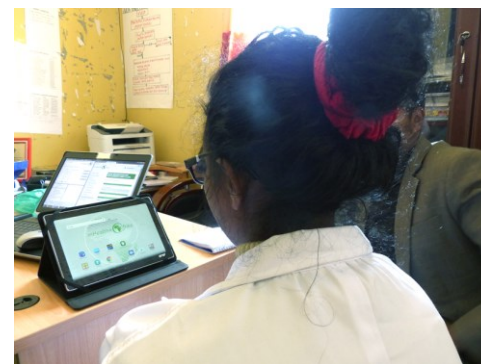
- Sustainable Development Goal 3 – Ensure healthy lives and promote well-being for all at all ages
 - Aims to assist primary healthcare facilities to increase
 - Quality and impact of care through better follow up
 - Frequency of contact (focus on prevention)
 - Accuracy and quality of monthly aggregate program indicators
 - Access to educational materials for clinic staff and patients
 - Co-funded by the European Commission (Horizon 2020, RIA, Grant Agreement No. 688015), mHealth4Afrika is co-designing a modular, adaptable and extensible multilingual framework that integrates
 - Electronic health records to store patient history, data collected at clinic visits and associated test results
 - Medical sensors to capture the results of a range of readings (blood pressure, pulse and oxygen in blood, glucose, temperature, haemoglobin)
 - Analytical and visualisation tools to facilitate interpretation and monitoring of patient results and support triage and referrals
 - Automatic generation of monthly program indicators
- SMS Appointment Reminders



- Focused on addressing the needs of end-user communities



- Agile development process
- Qualitative data collection, ethnographic observation



- Clinic related Functionality
 - Patient List
 - Clinic Appointment List
 - Healthcare Workers as system users with associated access rights by Program
 - Monthly Program Indicators
 - SMS Appointment Reminders
- Patient related Functionality
 - Patient Profile
 - Programs (Including Summary Pages)
 - Medical History (Adult, Child, Obstetric History)
 - Maternal Health (Antenatal, Delivery, PostNatal)
 - Family Planning
 - Cervical Cancer Screening
 - Child Under 5 (Growth & Nutrition, Childhood Illnesses, Immunisation, Vitamin A, Deworming)
 - Tuberculosis
 - ART
 - General OPD
 - Patient Reports by Program



Objectives

Co-design a modular, open-source health information system, designed to improve primary healthcare delivery in resource constrained environments

Assist primary healthcare facilities to increase

- Quality and impact of care
- Frequency of contact (focus on prevention)
- Accuracy and quality of monthly aggregate program indicators
- Access to educational materials for clinic staff and patients

Current Pilot Environments

Resource constrained health clinics and health centers in Northern Ethiopia, Western Kenya, Southern Malawi & Eastern Cape, South Africa

High Level Features

Modular, adaptable and extensible multilingual framework co-designed with Ministries of Health, district health officers and nurses in primary healthcare facilities

- Integrates EMR & EHR functionality, medical sensors, data visualisation tools
- Supports adoption of technology and telemedicine at the point of care

Clinic related functionality

- Patient List, Clinic Appointment List
- Access Rights by Program, Program Indicators, SMS Reminders

Patient related functionality

- Patient Profile, Medical History, Obstetric History
- Clinic Appointments
- Maternal Program: Antenatal Care, Delivery, Postnatal Care, Family Planning
- Child Under 5 Program: Growth & Nutrition, Childhood Illnesses, Immunisation
- Communicable Diseases: Tuberculosis, ART
- Non-communicable Diseases

Reporting

- Program Reporting for individual patients
- Aggregate monthly indicators by program and facility



mHealth4Afrika is a Research and Innovation Action, co-funded under Horizon 2020 (Grant No. 688015)

www.mHealth4Afrika.eu

- IIMC, Ireland (Coordinator)
- University of Gondar (Institute of Public Health), Ethiopia
- Strathmore University (@iLabAfrica), Kenya
- University of Malawi (Chancellor College), Malawi
- Nelson Mandela University (Centre for Community Technologies), South Africa
- University of Oslo (Department of Informatics), Norway
- Software Research, Development and Consultation (SRDC) Ltd, Turkey

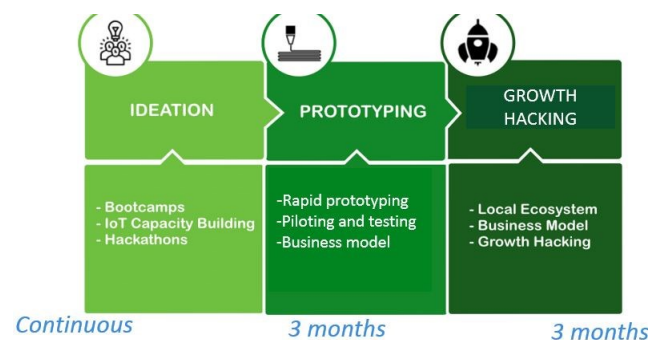
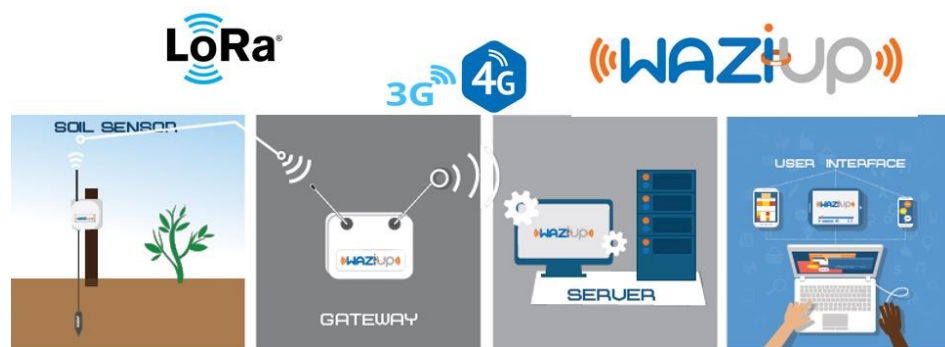
Consortium brings together multidisciplinary research and innovation expertise including human-computer interaction (HCI), cross-platform mobile technologies, sensors for healthcare, health informatics, end-user driven needs assessment & evaluation, program specific expertise.

www.mHealth4Afrika.org

For further information please contact

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- Focused on IoT (based on Arduino and Raspberry-pi, Open API)
 - WAZIUP – IoT LoRA Development Kit
 - WAZIHUB Innovation Program



- IoT for Agriculture**
 - Soil moisture solutions
 - Fish farming solutions
 - Cattle rustling and location monitoring
 - WAZIFARM – Tool to support development of farming applications
- WAZIHUB (IA, 05/18 – 04/21) – Leveraging technologies developed in WAZIUP (RIA, 02/16 – 01/19) and FIWARE**
 - Technology and training deployed through existing Innovation Spaces

- WAZIUP (RIA, 02/16 – 01/19) – Fondazione Bruno Kessler, Italy; Easy Global Market SAS, France; Universite de Pau et des Pays de l'Adour, France; Unparallel Innovation, LDA, Portugal; Innotec21 GmbH, Germany; Universite Gaston Berger de Saint Louis, **Senegal**; Coders4SN, Senegal; Croissace TIC Dakar CTIC Dakar, Senegal; University Polytechnique de Bobo-Dioulasso, **Burkino Faso**; iSpace Foundation, **Ghana**; Farmerline Ltd, Ghana; L'Africaine D'Architecture, France
- WAZIHUB (Innovation Action, 05/18 – 04/21) - Fondazione Bruno Kessler, Italy; Universite de Pau et des Pays de l'Adour, France; Innotec21 GmbH, Germany; Orange SA, France; Sonatel SA, **Senegal**; Universite Gaston Berger de Saint Louis, Senegal; iSpace Foundation, **Ghana**; Kumasi Hive, Ghana; Dar Teknohama Business Incubator Ltd, **Tanzania**; Strathmore University, **Kenya**; Makers Be Like, **South Africa**; Hive CoLab, **Uganda**; Women in Technology Uganda

www.waziup.eu

<https://wazihub.com>

For further information please contact

Abdur Rahim (arahimr@fbk.eu)

- Strategic partnership for the co-design of an innovative and scalable ePortfolio ecosystem to improve the quality and visibility of skills (2018 – 2021, Innovation Action, Grant No. 780435)

Activities during first 12 months

- Organization of three Open Days in Maseno University, Kenya, Open University, Tanzania, Makerere University, Uganda to engage with local stakeholders
- The **ePortfolio Maturity and needs report** describing the needs and the maturity level in the implementation of the ePortfolio ecosystem has been Finalized.
- **Pedagogical and Users' requirements** being collected through the EPICA pilots (M3 - M12)
- **Legal and Business Requirements** being collected (M12). Analysis of the Pedagogical, Users', Legal and business requirement is underway and is supporting the definition of **technical requirements**.
- The Development of a **Roadmap for technological development** and the design of the **ePortfolio user interface** are being developed in accordance to the previous requirements' analysis and both are nearing to finalization (M12)



Consortium

- ICDE – International Council for Open and Distance Education - Norway
- MYD – MyDocumenta - Spain
- UOC – Open University of Catalunya - Spain
- ICWE – Integrated Communications Worldwide Events - Germany
- OUT - Open University of Tanzania - Tanzania
- MAK - Makerere University - Uganda
- MU - Maseno University - Kenya
- AVU - African Virtual University – Kenya

www.epica-initiative.com

For further information please contact

Jean-Baptiste Milon (milon@icde.org)



- Develop and refine an open source remote sensing technology and user interaction interface to support small-hold beekeepers in Ethiopia and Indonesia to manage and monitor their bee colonies using an integrated consulting service, adapted to local conditions (SAMS, 2018 – 2020, Innovation Action, Grant No. 780755)

Objectives

- Strengthen international cooperation leveraging ICT between EU and developing countries
- Promote and advance forms of existing beekeeping
- Monitor bee colonies in Germany, Ethiopia and Indonesia through an open source technology
- Evaluate gained information and convert them into recommendations for beekeepers
- Overcome country-specific challenges of beekeeping and simplify the management of bee colonies
- Gain information on bee mortality

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Stefanie Schaedlich (stefanie.schaedlich@giz.de)



<https://sams-project.eu/>

Activities to date

- Advisory Board meetings in Ethiopia and Indonesia
- Tests on swarming (05.-06.18) by the University of Kassel
- Manual on Beehive Construction and Operation has been published on the SAMS website
- Based on literatures and conversations with local experts Bee-Management and Bee-Health indicators have been identified and published on the SAMS Website
- User Centered Design (UCD) Workshops to assess user needs and requirements have been conducted in Indonesia (06.18) and Ethiopia (07.18) with partner beekeepers and important stakeholders
- Partners carried out individual workshops in their countries - Business Model Canvas
- First quarterly SAMS newsletter published
- SAMS @ conferences such as Asia Pacific Week, re:publica 2018, EurBee 8, International Mugla Beekeeping & Pine Honey Congress, 15, Apimondia Symposium and more

Ongoing Activities

- Bee-Management and Bee-Health database will be published in December
- System gets adapted to the individual local and environmental contexts to avoid error-prone
- Development of the advisory support tool by our partner in Latvia
- Further UCD Workshops are planned for mid 2019

ISOOKO: project overview

Overall objective: to support peace education through digital technologies

- ISOOKO project has three interrelated strands:
 - ISOOKO as a Repository: How can (currently available or potential) digital technologies support and/or complement peace education?
 - ISOOKO as a Platform: How can we develop and trial a platform to support peace education, focusing on programmes and activities in Rwanda and Kenya
 - ISOOKO as a Process: How can we devise a methodology for developing and trialling such digital technologies more broadly?
- Additional education and training strand, developing higher education curricula and materials relating to digital archives and related digital technologies.
- Project timeline: Jan. 2018 – Dec. 2020
- Partners: King's College London (UK, coordinator); Aegis Trust (Rwanda); Ushahidi (Kenya); Makerere University (Uganda); Kigali Collaborative Research Center (Rwanda); University of Leiden (Netherlands); DotSoft (Greece)

For further information please contact
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David Jordan (david.j.jordan@kcl.ac.uk)

- Carried out baseline survey of digital technologies used in peace education in Rwanda
- Drafted the participatory development methodology for ISOOKO
- Organised two weeks of in-country knowledge exchange workshops in Rwanda, with schools and youth organisations
- Developed initial wireframes for the ISOOKO platform
- Drafting evaluation methodology for ISOOKO
- Planning for next round of in-country workshops, in Rwanda and Kenya

<http://isooko.eu/>