

Activity Plan associated with the
Manifesto of the GO-FAIR Implementation Network - Africa
To establish the Africa connection of the Internet of Data and Services

GO-FAIR IN-Africa

2019-2020

15 March 2019

Introduction

The GO-FAIR Implementation Network Africa (IN Africa) is an open network and any suggestions for expansion will be welcome.

There is enormous potential of this global development in building an internet of data and services: (i) the possibility for African universities and service providers to be connected to this; (ii) the benefit of the FAIR-principles to help solve the problem of the current extraction of data from the continent without returning benefits; (iii) the possibility of a governance of data that will benefit the African continent; (iv) the emerging possibility through FAIR to root digital data within a philosophy that data are owned by the data-subject; (v) the exploration of the contribution that Africa philosophy can make to the global internet of data and services due to its epistemology of united and collective existence expressed within local realities; (vi) the engagement with the FAIR-initiative to strengthen an African connection, perspective and orientation in a globally connected world.

Central to the Implementation Network is the African expression of an Internet of Data and Services.

The network considers the opportunities of data science for economic potential, especially for Africa's youth and the need for education and training in this area. It was further considered that the application in the context of digital health and other areas of digital development are vast and that the internet of data and services may provide a good foundation for its sustainable development.

A team of African experts is available to carry this endeavor and that adequate political support could be garnished to help bring this initiative to life.

The network seeks to bring together African expertise, from within the African continent in all its diversity, and in the diaspora, in collaboration with colleagues from other parts of the world, with the explicit objective to strengthen the lead African scholars, decision-makers and practitioners in the global network of implementation for an internet of FAIR data and services on the African continent.

Development feeds on data and the goal of the IN Africa will facilitate data access and ensuring fair and appropriate sharing in outcomes, costs and benefits of exchanged research data from research collaborations between institutions and researchers in Africa and all parts of the world, in concordance with principles of equitable research collaboration.

The following principles are at the core of the IN Africa:

Control over data: The IN Africa empowers African citizens, governments, public and private organizations to manage, safeguard, and share their data for use in scientific research and services.

Reusable data: The IN Africa is a shared digital infrastructure based on standards and protocols adhering to the FAIR principles (i.e., digital resources are Findable, Accessible, Interoperable, and Reusable).

Distributed and federated solutions: The IN Africa architecture relies on distributed learning in context. Data stay where they are and are processed at their location of origin, unless distributed solutions are not (yet) available or do not suffice.

Responsible use of personal data: We will act to enable and ensure the responsible use of personal data by adopting international principles and regulations, including the [FACT principles \(Fairness, Accuracy, Confidentiality, Transparency\)](#), privacy-by-design, privacy-by-default, and the Data Protection Regulatory frameworks.

Ethics-by-design: The IN Africa network has at its heart compliance of data science with the promotion of equitable well-being in Africa, fully embedded and coherent with African governance, data-sovereignty, culture of inclusion and philosophy of wholeness. We commit to optimize the facilities to judge the ethical aspects of research questions and enable blocking and reporting of studies that abuse personal data, extract personal data, and/or data analytics that are not compliant with an African ethical framework.

An open ecosystem for innovation in health and well-being: Everyone subscribing to these guiding principles can contribute to the development of the IN-Africa. We will adopt and develop open standards and protocols. We will strive to avoid single-vendor solutions that create single points of failure for any critical component of the shared infrastructure. The core infrastructure will be a common and public good.

Registration at the source: Data should be captured only once, promoting efficiency by avoiding repetitive work. Copying or moving source data by authorised individuals should be made explicit in the data provenance and limited as much as possible and in full transparency of the use and meaning of the work carried out on data if utilized.

Data stewardship: This is a key factor in ensuring the creation and provision of user-friendly data products, which are tailored to the scientific needs of specific disciplines or subjects and are not limited to quantitative data but may also comprise digital object types like text, audio, and film and library depositories.

Machine-readability at the core: We focus on creating machine-readable and interpretable data, metadata, workflows, and services, aiming for maximal interoperability between diverse systems including electronic patient records. Machine-readable data will be accompanied by human-readable versions in different languages for different audiences (professionals, citizens).

Purpose of the Implementation Network:

The IN Africa will aim to learn from the Global Implementation Networks and align with the [FAIR principles](#) but will equally seek to enrich the global Network with its exploration, findings and conclusions.

Overarching Principle of Operation

The Africa GO FAIR Implementation Network commits to comply with the Rules of Engagement of GO FAIR Implementation Networks

Targeted Objectives of the IN-Africa

Establishing an open, overarching network for implementation of the FAIR-principles of a machine and human readable internet of data and services, based within the principles of African philosophy and inclusiveness, serving African science, supported by African governance of data, data ownership, protection and security, and linking African science to the global FAIR community based on practices and experience.

The objective of the Implementation Network Africa will be to generate the support for the above endeavor, identify challenges, explore the development of the internet of data and services within African epistemology, develop technical capacities for its establishment and seek the application in various fields, notably, life sciences and digital health, libraries and sharing of open data and the social sciences.

The Implementation Network is established with representation of institutions from eight countries in Africa (Zimbabwe, South Africa, Uganda, Kenya, Ethiopia, Burkina Fasso, Nigeria and Liberia), representing the various geographic areas and diversity of the continent, but the IN Africa is naturally open to partners in all other countries in Africa and other partners committing to its aims.

The following data-science aspects will be the focus of the network in 2019 and 2020:

To improve Findability:

- Identification of African based data and services as well as underpinning infrastructures
- Metadata enrichment, with data publications cross-linking. It will promote dialogue within specific sub disciplines around minimal meta data structures and content. Laying the groundwork towards interoperability
- A data and services discovery tool, which addresses also the multilingualism issue matching the metadata against controlled vocabularies in different languages

To ensure Access:

- Searching for consensus on minimal metadata content in different communities that could eventually lead to optimal interoperability
- Metadata integration into a virtual single point of access/research, even though outputs and data are preserved in different repositories/platforms

Interoperability can be assured through:

- Common adoption of standards
- Metadata enrichment managing multilingualism
- Improve the use of Open Annotation tools
- Boost the use of Text and Data Mining, to facilitate the transformation of texts into machine readable data
- “activate research”, capacity development and data stewardship training

The objectives will be realized through the establishment of ten sub-areas, which are the following:

1. Establishing and supporting IN Africa
2. African Foundation of FAIR (potentially a regional office)
3. Local FAIR Services for Digital Health
4. Data ownership and Security
5. Technical Design and Standards

6. Open Data science and data management
7. Governance and regulatory frameworks in African countries
8. Connecting African Library services to FAIR
9. Linking African social science networks to Implementation Networks of FAIR in Social Sciences
10. Expanding understanding and communication and media attention on FAIR in Africa

The topics will be handled by ten working groups based on the topics described above, and it may lead to new implementation networks within this range of sub-areas or outside this range into new areas.

The Primary Tasks

Task 1: Complete the execution plan & roadmap as part of the process becoming a GO FAIR Implementation Network (within in 3 months), which includes the establishment of the working groups, their leadership and membership and agreement on a time-line;

Task 2: Further exploration and expansion of the working groups, linking with the Global FAIR Implementation Networks where relevant and establishing of practical deliverables and timelines;

Task 3: Implementation and mutual consultation, adaptation of time-lines and deliverables if required and sharing of products.

Realisation

- Meetings in Zimbabwe, Uganda, Kenya, Ethiopia, The Netherlands
- Research programme with PhD candidates from KIU and GZU, master students and bachelor students.
- Joint Publications:
 - Mirjam van Reisen, Mia Stokmans, Mariam Basajja, Antony Otieno Ong'ayo, Christine Kirkpatrick, Barend Mons (2019) Towards the Tipping Point of FAIR Implementation. In: *Data Intelligence: FAIR best practices 2019* (eds. Mons, B., Jacobsen, A. & Schultes, E.). Forthcoming 2019, article under review.
 - Mirjam van Reisen, Mia Stokmans, Antony Otieno Ong'ayo, Mariam Basajja, Primrose Nakazibwe, Munyaradzi Mawere, Christine Kirkpatrick, Kudakwashe Chindoza, Venansius Baryamureeba (2019) FAIR practices in Africa. In: *Data Intelligence: FAIR best practices 2019* (eds. Mons, B., Jacobsen, A. & Schultes, E.). Forthcoming 2019, article under review.
 - Mirjam van Reisen (2019) Data Science in Digital health in Uganda, feb 2019. <https://www.universiteitleiden.nl/en/news/2019/03/data-science-in-digital-health-in-uganda>

- Hargurjit Singh (2018) FAIR Data Point for LIACS. Bachelor Project. Poster Presentation
- Van Reisen, M. (2018). *Open on-line Science: Promoting the FAIR framework for Science*. 23 November 2018, DiggIt Blog
- EAC Digital Road Map (2017) (contributed to) <https://www.k4health.org/sites/default/files/digital-reach-initiative-roadmap.pdf>
- The following are links to the network: <http://kiu.ac.ug/go-fair-data-management-initiative/> and <http://www.gzu.ac.zw/data-science-through-go-fair-in-africa-a-new-generation-internet-of-data-and-services/>

Membership list

We consider this Manifesto of the IN-Africa to be one way by which the undersigned stakeholders can speak with one voice on a number of critical issues that are of generic importance to the objectives of FAIR, and on which we feel we have reached consensus.

Title	Name	Organisation/University	Country	location	Area of Expertise
	Edward Chindaya	Great Zimbabwe University	Zimbabwe	Masvingo	DVC
Prof Dr	Munyaradzi Mawere	Great Zimbabwe University	Zimbabwe	Masvingo	Ethnography and Africa Studies
	Kudakwasi Chindoza	PhD Candidate, Great Zimbabwe University	Zimbabwe	Masvingo	ICT and Computer Science
Prof Dr	Venansius Baryamureeba	Former VC Makerere University	Uganda	Kampala	Computer Science
Dr	Mouhamed Mpeza	Kampala International University	Uganda	Kampala	VC
Prof Dr	Kimutai Some	Kampala International University	Uganda	Kampala	Chancellor
Prof Dr	Stephen G Agong'	Jaramogi Oginga Odinga University of Science and Technology	Kenya	Bondo	VV and Professor of Horticulture
Dr	Prisca Tibenderana	Kampala International University	Uganda	Kampala	Librarian

Title	Name	Organisation/University	Country	location	Area of Expertise
Dr	Mike Barongo	Makerere University	Uganda	Kampala	Registrar/Data Science/Computer Science
Dr	Primrose Nakazibwe	Mbarara University/Ndejje University	Uganda	Mbarara/Kampala	Value Chain, development and gender studies
Dr	Tegawendé Bissyandé	Université de Luxembourg	Burkina Fasso/Luxembourg	Luxembourg	Data security and protection/computer science
Dr	Muok	Jaramogi Oginga Odinga University of Science and Technology		Bondo	Agriculture
Mme	Zamina Malole	Uganda/Tilburg University	Uganda	Kampala	Equal Opportunities governance
	Mariam Basajja	Kampala International University/Leiden University	Uganda	Kampala	Computer Science
	Moses Emuze	Consultant Digital Insight	Netherlands/Nigeria	The Hague	Data Governance
Prof Dr	Prof Muliaro Wafula	Jomo Kenyatta University of Agriculture and Technology	Kenya	Juja	ICT Centre of Excellence & Open Data -iCEOD
Dr	Reginald Nalugala	Tangaza University	Kenya	Nairobi	Social Science and Arts
Mme	Julia Duncan-Cassell	Liberia	Liberia	Monrovia	Gender, social protection and governance
	Rita Mazocchi	Tangaza University - PhD School	Kenya	Nairobi	Social Science and Arts
Dr	Antony Ong'Ayo	Institute of Social Studies	Netherlands/Kenya	The Hague	Diaspora Studies and Migration

Title	Name	Organisation/University	Country	location	Area of Expertise
	Annastacia Mangoma	Leiden University	Netherlands/ Kenya	Eldoret	ICT and Business
Dr	Kinfe	Mekelle University	Ethiopia	Mekelle	Population Studies
	Kirsty Kaiser	COHRED	South Africa/Nether lands		Health
Prof Dr	Carel IJselmuiden	COHRED	Netherlands		Health
	Harry van Schooten	COHRED	Netherlands		Health
Prof Dr	Jan Nouwen	Rotterdam University	Netherlands	Rotterdam	Global Health Programme
	Caroline Williams	Do Good Only Company	Netherlands	Amsterdam	Inclusive Data Science
Dr	Bertha Vallejo	Maastricht University	Netherlands	Maastricht	Economy
Prof Dr	Jaap van den Herik	Leiden University	Netherlands	Leiden	Director Leiden Centre of Data Science
Dr	Mark Wilkinson	CBGP UPM-INIA	Spain		Computer Science
	Klara Smits	Europe External Programme with Africa	Belgium	Brussels	Research collaboration and communication
Dr	Mia Stokmans	Tilburg University	The Netherlands	Tilburg	Humanities
	Hagurjit Singh	Leiden University	The Netherlands	Leiden	Computer Science
Prof Dr	Mirjam van Reisen	Leiden University/Tilburg University	Netherlands	Leiden/Tilb urg	Leiden Centre of Data Science, Go-FAIR Globalisation, Accessibility, innovation and Care Research Network

The following working group are established under the IN-Africa.

Working-groups IN-Africa 2019-2020

Time-line IN-Africa

	Proposed/Agreed lead	Support
1. Establishing and supporting IN-Africa	Prof Dr Venansius Baryamureeba, Prof Dr Munyaradzi Mawere	Dr Mouhamed Mpeza (VC), Prof Dr van Reisen, Prof Dr Kimutai Some, Go-FAIR Team
Overall IN-Africa Coordination and IN-Africa Communication		
Feeding IN Working Groups and creating feed-back loops		
Investigating Africa participation in FAIR		
Organising IN meetings		
Publishing 2 article Tipping Points and Africa participation in FAIR		
2. African Foundation of FAIR	Prof Dr Mawere, Dr Antony Ong'ayo	Dr Kinfe, Dr Primrose Nakazibwe, Dr Mia Stokmans
Seminar Leiden		
Seminar Uganda		
Article Africa IM - posing the 'problem'		
Dialogue and exploration		

Time-line IN-Africa

	Proposed/Agreed lead	Support
3. Local FAIR Services for Digital Health	Mariam Basajja, Kudakwasi Chindoza	Prof Jan Nouwen, Annastacia Magoma, Harry van Schooten, Carel Ijselmuiden, Kirsty Caizer, Dr Wolstencroft, Hargurjit Singh
4. Data ownership and Security	Prof Dr Kimutai Some, Dr Tegawendé Bissyandé	Dr Mark Wilkinson, Dr Erik Schultes, Moses Emuze, Caroline Williams

Time-line IN-Africa

	Proposed/Agreed lead	Support
5. Technical Design and Standards	Dr Mike Barongo, Prof Dr Mirjam van Reisen,	Dr Mia Stokmans, Kudakwasi Chindoza, Mariam Bassajja
6. Open Data science and data management	Prof Dr Muliaro Wafula (Co-Data)	Prof Dr Barend Mons

Time-line IN-Africa

	Proposed/Agreed lead	Support
	Establishing collaboration with other teams around the world and global FAIR	
	Consultation on Design Plan with all other working groups	
	Preparing Test Plan	
	Setting up Feability study	
7. Governance	Prof Dr Kimutai Some	Dr Mouhamed Mpeza (VC), Julia Duncan-Cassell, Zamina Malole, Dr Kinfe, Dr Reginald Nalugala, Moses Emuze,
	Exploring Internet of FAIR Data and Services - Governance	
	Preparation of consultation meetings, seminars	
	Identifying governance issues to be addressed	
	Plan to address governance issues	
8. Library, archives	Dr Prisca Tibenderana	
	Exploring Internet of FAIR Data and Services - Governance	

Time-line IN-Africa

	Proposed/Agreed lead	Support
9. FAIR and Social Sciences	Dr Reginald Nulagala	Dr Primrose Nakazibwe, Dr Kinfe, Rita Mazocchi
10. Communication		
Media and communication	Golden Maunganidze (media)	Dr Reginald Nulagala, Prof Dr Jaap van den Herik
Exploration and establishing/expansion members of team		
Establishing communication objectives and communication plan		
Implementation		

Time-line IN-Africa

Proposed/Agreed lead

Support

Summary of
communication and
Assessment

Timeline 2019-2020

Time-line Implementation Node Africa FAIR				2019				2020			
	Proposed/Agreed lead	Support	Jan-Mar	Apr-Jun	Jul-Sept	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sept	Oct-Dec	
1. Establishing IN Africa	Prof Venansius Baryamureeba	Prof van Reisen									
	Investigating Africa participation in FAIR		█								
	Participation in IN meeting		█								
	Article Tipping Points										
2. African Foundation of FAIR	Dr Antony Ong'ayo	Dr Kinfe, Dr Primrose Nakzibwe, Dr Mia Stokmans									
	Seminar Leiden		█								
	Seminar Uganda		█								
	Article Africa IM - posing the 'problem'		█								
	Dialogue and exploration			█							
	First draft conclusions				█						
	Article Africa FAIR					█					
	Assessment of praxis						█				
	Article on FAIR praxis in African Humanities							█			
3. Local FAIR Services for Digital Health	Mariam Bassaja	Prof Jan Nouwen, Dr Gertjan van Stam, Mariam Bassaja, Annastacia Magoma, Harry van Schooten, Kirsty Kaiser, Carel Ijselmuiden, Dr Wolstencroft									
	Eldorot FDP Findability		█								
	Uganda/EAC Views on Data in Digital Health			█							
	Uganda FDP Findability (definition)				█						
	Uganda FDP Accessibility (definition)					█					
	Uganda FDP Interoperability						█				
	Masvingo FDP foundational research			█							
	Exploration of other local services for digital health				█						
	Potential expansion of the Network					█					
4. Data ownership and Security	Dr Tegawendé Bissyandé	Dr Mark Wilkinson, Dr Erik Schultes, Caroline Williams, ...									
	Exploration of the problem		█								
	Exploration of approach in other FAIR IN			█							
	Proposing solutions				█						
	Article on Data ownership and security in African context based on FAIR							█			
	Sharing and further discussions for application								█		
5. Technical Design and Standards	Dr Mike Barongo	Mariam Bassaja									
	Establishing collaboration with other teams around the world and global FAIR		█								
	Establishing Design Plan			█							
	Consultation on Design Plan with all other working groups				█						
	Preparing Test Plan					█					
	Setting up Feability study						█				
6. Open Data science and data management	Prof Muliaro Wafula (Co-Data)	Prof Barend Mons									
	Exploration of Data-for-Science		█								
	Establishing collaboration with other teams around the world and global FAIR			█							
	Consultation on Design Plan with all other working groups				█						
	Preparing Test Plan					█					
	Setting up Feability study						█				
7. Governance	Prof Venansius Baryamureeba	Dr Mouhamed Mpeza (VC), H.E. Julia Duncan-Cassell, Mme Zamina Malole, Dr Kinfe, Dr Reginald Nulagala, Moses Emuze									
	Exploring Internet of FAIR Data and Services - Governance		█								
	Preparation of consultation meetings, seminars			█							
	Identifying governance issues to be addressed				█						
	Plan to address governance issues					█					
8. Library	Dr Prisca Tibenderana										
	Exploring Internet of FAIR Data and Services - Governance		█								
	Linking to Global Library Implementation Network			█							
	Identifying technical issues to be addressed				█						
	Plan to address implementation issues					█					
9. FAIR and Social Sciences	Dr Reginald Nulagala	Dr Primrose Nakazibwe, Dr Kinfe, Rita Mazocchi, Stella Maranga									
	Exploring Internet of FAIR Data and Services - Governance		█								
	Linking to Global Library Implementation Network			█							
	Identifying technical issues to be addressed				█						
	Plan to address implementation issues					█					
10. Communication	Golden Maunganidze	Dr Reginald Nulagala, Prof Dr Jaap van den Herik									
	Media and communication										
	Exploration and establishing/expansion members of team			█							
	Establishing communication objectives and communication plan				█						
	Implementation					█					
	Summary of communication and Assessment						█				

Date:

July 2019