African Standardization Strategy and Roadmap for the 4th Industrial Revolution
Industry Connections Activity Initiation Document (ICAID)

Version: 3.0, 1 November 2022

<mark>IC18-005-03 Approved by the CAG 16 December 2022</mark>

Instructions

- Instructions on how to fill out this form are shown in red. Please leave the instructions in the final document and simply add the requested information where indicated.
- <mark>Spell out each acronym the first time it is used. For example, "United Nations (UN)."</mark>
- Shaded Text indicates a placeholder that should be replaced with information specific to this ICAID, and the shading removed.
- Completed forms, in Word format, or any questions should be sent to the IEEE Standards Association (IEEE SA) Industry Connections Committee (ICCom) Administrator at the following address: industryconnections@ieee.org.
- The version number above, along with the date, may be used by the submitter to distinguish successive updates of this document. A separate, unique Industry Connections (IC) Activity Number will be assigned when the document is submitted to the ICCom Administrator.

1. Contact

Provide the name and contact information of the primary contact person for this IC activity. Affiliation is any entity that provides the person financial or other substantive support, for which the person may feel an obligation. If necessary, a second/alternate contact person's information may also be provided.

Name: Prof. Alex Dodoo
Email Address: alex.dodoo@gsa.gov.gh
Employer: Ghana Standards Authority (GSA)
Affiliation: Ghana Standards Authority

IEEE collects personal data on this form, which is made publicly available, to allow communication by materially interested parties and with Activity Oversight Committee and Activity officers who are responsible for IEEE work items.

2. Participation and Voting Model

Specify whether this activity will be entity-based (participants are entities, which may have multiple representatives, one-entity-one-vote), or individual-based (participants represent themselves, one-person-one-vote).

Entity-Based

3. Purpose

3.1 Motivation and Goal
Briefly explain the context and motivation for starting this IC activity, and the overall purpose or goal to be accomplished.

Africa is moving towards increased regional integration through the African Continental Free Trade Agreement (AfCFTA) and Digital Single Market, which necessitate a strong implementation strategy supported by interoperable technology. This is enabled by standards and related activities, such as certification. This also highlights the need for a robust strategy to understand the implications of current and future technologies and the benefits standards bring to society at large, including in achieving the Sustainable Development Goals (SDGs) in the social, economic, and environmental spheres. Africa as a continent has recognized the importance of standards and the broader need for quality infrastructure. Given the size and diversity of Africa, and in particular, the multiplicity of approaches utilized by different players and stakeholders, a more focused and coordinated approach is required to bring the various stakeholders together to identify the priorities and short- and long-term plans, and to create concrete and actionable plans to achieve those priorities.

The African Union's Agenda 2063 outlines Africa's Seven Aspirations, and our strategy and roadmap will directly contribute to several of the aspirations:
- A prosperous Africa, based on inclusive growth and sustainable development
- An integrated continent, politically united, based on the ideals of Pan Africanism and the vision of Africa's Renaissance
- An Africa of good governance, democracy, respect for human rights, justice and the rule of law
- A Peaceful and Secure Africa
- Africa with a strong cultural identity, common heritage, values and ethics
- An Africa whose development is people driven, relying on the potential offered by people, especially its women and youth, and caring for children
- An Africa as a strong, united, resilient, and influential global player and partner

The Africa Standardization Strategy and Roadmap for the 4th Industrial Revolution will provide a prioritization and very specific implementation plan focusing on standardization aspects and related training needs to help deliver the broader objectives set out by the Agenda 2063. It brings institutions to engage and provide inputs into a shared vision that enables deployment of future platforms in a more seamless manner.

This proposal is an outcome of the ARSO-IEEE Standards Summit held on 2 October 2018 in Kigali, Rwanda, and the African Standardisation Organisation (ARSO), the African Telecommunications Union (ATU), and Smart Africa have agreed on the need for this strategy and roadmap. These organizations will take the initial lead and seek participation from other key continental institutions to develop the strategy and roadmap under the aegis of the IEEE Industry Connections program, which provides a platform for government institutions, researchers, companies, and regulators, as well as specific experts, to come together to develop this specific plan for Africa. Coordination with the broader IEEE community across the continent, through the IEEE Africa Council, is another resource.

Through this coordination program among stakeholders, we aim to facilitate standardization structures and related capacity building activities to address issues around markets adopting technologies and the severe shortage of resources in this space. Through a coordinated action, more ground can be covered.

3.2 Related Work
Provide a brief comparison of this activity to existing, related efforts or standards of which you are aware (industry associations, consortia, standardization activities, etc.).

Some key elements of the strategy will cover topics relating to standardization, conformity assessment, and capacity building for standardization that will address Africa's yet unmet demand for energy, communications, and technology services. It will include energy availability that is the foundation for the next step, as well as the new and emerging technology areas that are relevant to the developmental needs and aspirations of the continent (e.g. renewable energy and other sustainable options).

3.3 Previously Published Material
Provide a list of any known previously published material intended for inclusion in the proposed deliverables of this activity.

Reference materials include:
Programme for Infrastructure Development in Africa (PIDA);
Accelerated Industrial Development of Africa;
ARSO Strategic Plan 2022-2027;
A4IR Landscape Study
A4IR Standardization Strategy (of 2021)
Etc.

3.4 Potential Markets Served
Indicate the main beneficiaries of this work, and what the potential impact might be.

The standardization and technology communities, including related policy communities, in Africa will benefit from this strategy and roadmap in the context of the AfCFTA that came into effect in 2022. These documents aim to enable the community to address the needs and challenges in a more coordinated and efficient manner.

3.5 How will the activity benefit the IEEE, society, or humanity?
Describe how this activity will benefit the IEEE, society, or humanity.

This activity is being undertaken in collaboration with various leading standardization and technology innovation institutions that are looking to advance technology development in Africa. IEEE being a global organization in the ICT and energy standardization space, and with a significant African presence, is a suitable partner for collaborating on the standardization strategy. IEEE expects future collaboration and coordination on relevant standardization areas, future engagement for local IEEE communities to be able to contribute to and connect with related capacity-building efforts, in line with IEEE's broader mission of advancing technology for humanity. The IEEE Africa Council is also supporting this activity.

4. Estimated Timeframe

Indicate approximately how long you expect this activity to operate to achieve its proposed results (e.g., time to completion of all deliverables).

Expected Completion Date: 12/2024

IC activities are chartered for two years at a time. Activities are eligible for extension upon request and review by ICCom and the responsible committee of the IEEE SA Board of Governors. Should an extension be required, please notify the ICCom Administrator prior to the two-year mark.

5. Proposed Deliverables

Outline the anticipated deliverables and output from this IC activity, such as documents (e.g., white papers, reports), proposals for standards, conferences and workshops, databases, computer code, etc., and indicate the expected timeframe for each.

- A strategy and roadmap document - DONE
- Implementation plan.
- Pilot projects.
- Related capacity building programs.

To achieve the deliverables, the following work plan is proposed:

1) Focus on implementation plan based on strategy document and identify appropriate goals and specific implementation programs, Q1 2023, to be completed by mid-2023
   i) Pilot programs and Proofs-of-Concept programs to be identified and planned in specific countries
   ii) Drones have been identified as a likely first pilot
2) Education and capacity building engagements, leveraging programs such as IEEE Blended Learning
   Program (BLP) [ongoing], educational activities through standards education [ongoing] and other capacity building and awareness raising activities (webinars, etc) to be implemented on continual basis
[Delete because completed]

5.1 Open Source Software Development

Indicate whether this IC Activity will develop or incorporate open source software in the deliverables. All contributions of open source software for use in Industry Connections activities shall be accompanied by an approved IEEE Contributor License Agreement (CLA) appropriate for the open source license under which the Work Product will be made available. CLAs, once accepted, are irrevocable. Industry Connections Activities shall comply with the IEEE SA open source policies and procedures and use the IEEE SA open source platform for development of open source software. Information on IEEE SA Open can be found at https://saopen.ieee.org/.

Will the activity develop or incorporate open source software (either normatively or informatively) in the deliverables?
Not anticipated at this time.

6. Funding Requirements

To be determined. The implementation plan will address if there are funding requests for the pilot, for example.

7. Management and Procedures

7.1 Activity Oversight Committee

Has an IEEE Standards Committee or Standards Development Working Group agreed to oversee this activity? No
The activity is coordinating with the IEEE Africa Council, which has been supportive of the work.

N/A

IEEE Committee Name: Committee Name
Chair's Name: Full Name
Chair's Email Address: who@where

IEEE collects personal data on this form, which is made publicly available, to allow communication by materially interested parties and with Activity Oversight Committee and Activity officers who are responsible for IEEE work items.

7.2 Activity Management

The activity will have an executive committee, with the Chair being Ghana Standards Authority (GSA), Vice Chair being Smart Africa, Secretariat being ARSO, and C4IR South Africa being a member.

7.3 Procedures

the Working Group's Standards Committee. If option (a) is chosen, then ICCom review and approval of the P&P is required. If option (c) or (d) is chosen, then ICCom approval of the use of the P&P is required.

The Industry Connections entity policies and procedures document will be used.

8. Participants

8.1 Stakeholder Communities
Indicate the stakeholder communities (the types of companies or other entities, or the different groups of individuals) that are expected to be interested in this IC activity and will be invited to participate.

In Phase 1, African institution active in the standardization and technology arenas.

In Phase 2, actively broaden the community to engage national-level institutions and also companies.

IEEE's Government Engagement Program on Standards (GEPS) participants from Africa will all be invited to join.

8.2 Expected Number of Participants
Indicate the approximate number of entities (if entity-based) or individuals (if individual-based) expected to be actively involved in this activity.

10-15 entities

8.3 Initial Participants
Provide a few of the entities or individuals that will be participating from the outset. It is recommended there be at least three initial participants for an entity-based activity, or five initial participants (each with a different affiliation) for an individual-based activity.

Use the following table for an entity-based activity:

Entity	Primary Contact	Additional Representatives
Ghana Standards Authority (GSA)	Prof. Alex Dodoo	
African Organisation for Standardisation (ARSO)	Dr. Hermogène Nsengimana Secretary General	Reuben Gisore Technical Director
Smart Africa	Didier Nkurikiyimfura	
Centre for Scientific and Industrial Research (CSIR) - Centre Centre for the Fourth Industrial Revolution-South Africa (C4IR – South Africa)	Dr Ntsibane Ntlatlapa	

African Electrotechnical Standardization Commission (AFSEC)	Eng. Omneya Sabry	Ms. Marwa El Beshri
African Telecommunications Union (ATU)	Meriem Slimani	Alice Koech
AUDA-NEPAD	Towela Nyirenda-Jere	
Dedan Kimathi University of Technology (DeKUT) SIEMENS Mechatronics Certification Center	Prof. Eng. Jean B. BYIRINGIRO	
Centre Centre for the Fourth Industrial Revolution-Rwanda (C4IR – Rwanda)	Ms. Crystal Rugege	Mr. Alain Ndayishimiye
African E-Commerce Development International (AeTrade)	Dr. Mulualem Syoum	

8.4 Activity Supporter/Partner
Indicate whether an IEEE committee (including IEEE Societies and Technical Councils), other than the Oversight Committee, has agreed to participate or support this activity. Support may include, but is not limited to, financial support, marketing support and other ways to help the Activity complete its deliverables.

Has an IEEE Committee, other than the Oversight Committee, agreed to support this activity? No

If yes, indicate the IEEE committee's name and its chair's contact information.

IEEE Committee Name: Committee Name
Chair's Name: Full Name
Chair's Email Address: who@where

Please indicate if you are including a letter of support from the IEEE Committee.