The AU-EU Innovation Agenda

Final Version

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A strategic partnership supported by Global Gateway

1. POLICY CONTEXT

Strengthening Research and Innovation (R&I) cooperation between the African Union (AU) and the European Union (EU) is a key priority, as R&I contributes to sustainable and inclusive development, economic growth and job generation, thereby reducing poverty and inequalities. This is set out in important policy decisions, such as the Sustainable Development Goals (SDGs) included in the United Nations (UN) Agenda 2030[1], the AU Agenda 2063[2], the Science, Technology and Innovation Strategy for Africa (STISA 2024)[3], the AUC Digital Transformation Strategy for Africa 2020-2030[4] and the EU communications on the 'Comprehensive Strategy with Africa[5], the 'Global Approach to Research and Innovation (R&I)[6]'and the Global Gateway[7].

The first R&I Ministerial Meeting of the AU-EU High-Level Policy Dialogue on Science, Technology and Innovation[8] (HLPD on STI) in July 2020, agreed to focus cooperation efforts on four priority areas, namely: **Public Health, Green transition, Innovation & Technology,** and **Capacities for Science.** Ministers also agreed to start developing a **joint AU-EU Innovation Agenda**, with the aim to foster the translation of R&I into tangible positive impact on the ground, namely products, services, businesses and jobs, in both Africa and Europe. AU and EU Member States' Ministers referred to the enormous **growth potential** of the innovation ecosystems[9] in both the AU and EU, which currently expand at a rapid pace. At the same time, they also acknowledged that more could be done to improve innovation performance and capacities, capabilities and competences across both continents. Strategic efforts should therefore be directed jointly towards creating or strengthening key components of more efficient and more targeted innovation ecosystems. The new paradigm of AU-EU R&I cooperation is that of creating tangible socio-economic development where joint R&I investments are made.

This AU-EU Innovation Agenda therefore proposes **specific objectives with short-, medium- to long-term actions** for all four HLPD priority areas agreed by the Ministers in July 2020. A first Working Document of the Agenda was presented and saluted in a meeting of senior officials of the AU-EU HLPD held on 27 January 2022, before being published online on 14 February 2022, ahead of the **6th EU-AU Summit 2022** of Heads of State and Governments "A Joint Vision for 2030" of 17-18 February.
The AU-EU Innovation Agenda was acknowledged in the final declaration of the Summit, as a means to support "scientific cooperation between researchers to develop knowledge together, as well as sharing technology and expertise".

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[1] United Nations (UN) Transforming our world: the 2030 agenda for sustainable development. Sustainabledevelopment.un.org (A/RES/70/1). https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf

[2] African Union Commission (AUC). Agenda 2063: The Africa we want (Popular version). https://au.int/Agenda2063/popular_version

[3] AUC. Science, Technology and Innovation Strategy for Africa-2024 (STISA-2024). https://au.int/web/sites/default/files/documents/29957-doc-stisa-published_book.pdf

[4] https://au.int/en/documents/20200518/digital-transformation-strategy-africa-2020-2030

[5] European Commission (EC). Joint Communication to the European Parliament and the Council. Towards a comprehensive Strategy with Africa. High Representative of the Union for Foreign Affairs and Security Policy. Brussels, 9.3.2020. JOIN(2020) 4 final. https://ec.europa.eu/international-partnerships/system/files/communication-eu-africa-strategyjoin-2020-4-final_en.pdf

[6] EC. Europe's strategy for international cooperation in a changing world. Communication from the Commission to the European Parliament, the Council, the European Economic and Social. Committee and the Committee of the Regions on the Global Approach to Research and Innovation. Brussels, 18.5.2021. COM(2021) 252 final.

[7] https://commission.europa.eu/system/files/2021-12/joint_communication_global_gateway.pdf

[8] EU-Africa cooperation in research and innovation | European Commission (europa.eu). https://ec.europa.eu/info/researchand-innovation/strategy/strategy-2020-2024/europe-world/international-cooperation/eu-africa-cooperation_en

[9] "Innovation ecosystem" in this document refers to the combination of innovation actors, value chains and resources as well as their networks.

At EU level, the AU-EU Innovation Agenda is, inter alia, supported by a flagship under the Global Gateway Africa – Europe Investment Package, also announced at the 6th EU-AU Summit. The Global Gateway Africa – Europe Investment Package provides an outline of actions to be taken in partnership with Africa in order to "boost smart, clean and secure links in digital, energy and transport and strengthen health, education and research systems across the world"[10].

Implementation of the joint Agenda will be built on the experience and networks of previous and ongoing R&I activities, and proposed additional actions and related financing needs. Some of these could be covered by the biennial work programmes of Horizon Europe[11], the regional and national multi-annual indicative programmes of the Neighbourhood, Development and International Cooperation Instrument - Global Europe, the European Fund for Sustainable Development Plus (EFSD+), and other relevant AU-EU programmes and financial instruments. Furthermore, several EU Member States[12,13] have shown an interest to increase their support to AU-EU STI cooperation in Africa and/or contribute to the implementation of this AU-EU Innovation Agenda. The same applies to their AU counterparts.

The collaboration under the AU-EU Innovation Agenda needs to occur hand in hand with the AU and the EU as well as their Member States, and a wide range of stakeholders, such as the private sector, business enterprises (industries), public and private research and higher learning institutions as well as non-governmental and civil society organisations. With special regards to Africa, it is deemed crucial to leverage on the demographic dividend to empower the youth, which, through entrepreneurship, is increasingly promoting and implementing radical innovations.

This final version of the AU-EU Innovation Agenda builds on the prior Working Document, by taking into account the feedback and input provided by stakeholders on the draft Agenda, gathered through several initiatives that took place throughout the year 2022 as part of a "Stakeholder dialogue process". These initiatives include an online public consultation[14] (conducted between 14 February and 30 June 2022), numerous outreach events, conferences and workshops and a large AU-EU Innovation Agenda Stakeholder Event[15] (Nairobi and online, 23-24 November 2022).

[10] https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/stronger-europe-world/global-gateway/eu-africa-global-gateway-investment-package_en

[11] Including through possible association of third countries to Horizon Europe.

[12] Strategic Forum for International Cooperation (SFIC) Secretariat. Africa task Force Strategic Report. European Research Area and Innovation Committee. Brussels (OR. en), 28 May 2020. ERAC-SFIC 1355/1/20. REV1 https://data.consilium.europa.eu/doc/document/ST-1355-2020-REV-

[13] /en/pdf?fbclid=IwAR0OkWOWscLsqflOB_yk65KXSUybChcXTeo1X_WWu_vc682vpRm3RFSoZ

[14] Report on the outcome of the online public consultation on the Working Document of the AU-EU Innovation Agenda available at the page: https://research-and-innovation.ec.europa.eu/system/files/2022-12/2022-10_AU-EU%20Innovation%20Agenda_Public%20Consultation_Report-v2.pdf

[15] Report on the AU-EU Innovation Agenda Stakeholder Event available at the page: https://research-and-innovation.ec.europa.eu/document/download/7a666ede-7fad-41d6-8c06-f0c6a73a5eed_en

2. OBJECTIVES

A joint working group of the AU-EU HLPD on STI took stock of previous and ongoing joint R&I activities[16], results and lessons learnt of the Africa-Europe Innovation Partnership[17] pilot project, opinions of the AU-EU Advisory Group on R&I[18], discussions that took place at the EU-AU R&I Ministerial 2020, and the pilot mapping exercise of projects of the EU-AU R&I Partnership on Food and Nutrition Security and Sustainable Agriculture[19], as well as progress of the R&I Partnership on Climate Change and Sustainable Energy (CCSE), including on climate resilience and adaptation. The identification of gaps and needs in the field of digitalisation that resulted in the key recommendations of the AU-EU Digital Economy Task Force and initiatives like the D4DHub were also taken into account. A number of innovation cooperation needs and gaps were identified and used to elaborate a distinct set of objectives for the AU-EU Innovation Agenda, taking into account the different conditions between continents and countries.

The results of the analysis of needs and gaps identified five areas: **a) the innovation ecosystem b) innovation management, c) knowledge exchange, including technology transfer, d) access to finance, and e) human capacity development**. Details of the analysis are provided in Annex 1 of this AU-EU Innovation Agenda.

The objectives of the Agenda are based on the principles of co-creation and co-ownership, sustainability and openness. Aspiring to a systemic approach, these objectives aim to be complementary with each other and are shaped according to the UN SDGs and the principles and values of international cooperation in research and innovation:

1. **Make it real:** Translate innovative capacities and achievements of AU and EU researchers and innovators across sectors (e.g. public, private, non-profit entities, civil society organisations and individuals), directly into tangible outputs[20], thereby supporting sustainable growth and jobs, in particular for the youth. In this process, ensure that also local innovation, grassroots' projects and less codified forms of knowledge are taken into consideration, leveraging also knowledge from humanities and social sciences.

2. **Generate impact by design:** Foster and/or strengthen innovation ecosystems to enhance socio-economic impact on the ground through the exchange of knowledge, technology, competences, human resources and experience between and within AU and EU countries. To achieve this, openness in science and innovation will be enhanced, while entrepreneurship, joint ventures, public-private partnerships, support to incubation and access to funding for R&I, will be strengthened, aiming for just twin (digital and green) transitions.

3. **Strengthen people, communities, and institutions:** Develop sustainable, long lasting and mutually beneficial higher education, research and innovation partnerships between AU and EU countries as foundations for resilient knowledge economies and societies, preventing or mitigating, among others, the effects of major crises. In doing so, care will be taken in involving also the African Diaspora, and in empowering communities, also through citizen science initiatives, aiming for gender balance. Special care will also be paid to training of

[16] Inserted in Roadmap.
[17] Africa - Europe Innovation Partnership (AEIP) Insights from the AEIP final conference https://africaeuropeinnovationpartnership.net/
[18] EC. EU-Africa cooperation in research and innovation | European Commission (europa.eu). https://ec.europa.eu/info/research-and-innovation/strategy/strategy-2020-2024/europe-world/internationalcooperation/eu-africa-cooperation_en [13]
[19] Inserted in Roadmap.
[20] "Tangible outputs" in this context refers to products, services, business and employment opportunities as well as evidence-based policy guidance.

researchers and recognition of curricula, as well as to strengthening R&I infrastructures and cooperation therein, considering the need for creating and sustaining employment opportunities and job attractiveness for youth and women.

4. **Learn, monitor, and scale it up:** Scale-up instruments that can take forward existing successful bilateral or multilateral programmes and projects between AU and EU partners, enable and/or strengthen the knowledge triangle of education, research, and innovation, and place special focus on public participation, transparency, and inclusion, mainly through capacity empowerment, particularly for the youth, women and vulnerable groups (e.g. persons with disabilities, persons from disadvantaged socio-economic background, refugees, etc.), advancing knowledge and fostering entrepreneurship and co-creation, to limit and counteract talent drain. A special effort will be put in ensuring the full involvement in this process of all actors in the innovation ecosystem, spanning science, citizens, industry and policy.

3. ACTIONS

Actions are proposed that address the needs identified in Annex 1for each of the four priorities of the EU-AU HLPD: **Public Health, Green Transition, Innovation & Technology and Capacities for Science**. In addition, a set of actions cutting across all priorities are included. Implementation of these actions will help reaching the objectives of the Agenda within specific timeframes. Each action is linked to one or more objectives of the Agenda, as indicated by the numbers in square brackets [], and to one or more areas of needs and gaps identified (cfr Annex 1) as per < A, B, C, D, and/or E > for each action.
The short-term actions represent the R&I activities to be launched or implemented within 3 years of implementation. Medium- to long-term actions are considered to achieve tangible outcomes within 3 to 6, and 6 to 10 years, respectively. In addition, some actions will be continuous throughout the time span of the Innovation Agenda and beyond, while others will have a fixed-time duration.

3.1 Short-term actions

3.1.1) Cross-cutting

1) Fostering the links and networks between the business and government sectors, including public-private partnerships (PPPs), higher learning and research organisations, financial institutions and civil society organisations, through the establishment of a dedicated consultative platform under the AU-EU Innovation Agenda, enhancing the quality and the efficiency of measures improving innovation ecosystems. [1,2,3] < A >

2) Designing mechanisms to pro-actively involve citizens in the innovation ecosystems, to boost active citizenship for ensuring a better and faster societal uptake of innovation outputs, and to improve their creative and collective intelligence, while making effective efforts to close the gender gap and to avoid any type of discrimination. In this process, include knowledge from social sciences and humanities. [2,3] < A >

3) Fostering the participation of financing partners, e.g. business angels, into AU-EU partnerships to jointly improve access to the use of innovative financial engineering,

including for early stage businesses and start-ups, thus enhancing the uptake of new products and innovation services. [1,4] < B, D >

4) Creating easily accessible and widely available microcredit schemes for researchers and innovators in order to promote the setting up of start-ups and incubators, by thus contributing to both the Sustainable Development Goal 9 and to the African Union's Agenda 2063, including through the creation of a grassroots enabling environment for the implementation of the African Continental Free Trade Area [1,2,3] < A, B, D >.

3.1.2) Public Health

1) Supporting the transformation of health R&I outputs into relevant products, policy guidance and services, including medical, digital, technological and social innovations with application in healthcare, strengthening of primary healthcare systems and provision of effective and efficient patient care practices at community level, taking into thorough account social determinants of health. [1,2] < A, B, C >

2) Developing joint research and innovation agendas on health priorities [to encompass, holistically, both communicable and non-communicable diseases (including, among others, poverty related-neglected diseases, antimicrobial resistance and zoonoses) as well as mental health, in infants, youth and adults], enhancing best practices and common standards in the selected areas of cooperation, and spreading availability and use of key enabling and emerging technologies (e.g., genomics, digitalisation, internet of things, robotics, AI) to enhance the performance and resilience of public health systems, which have been shown to be extremely fragile under the 'stress test' of the COVID-19 pandemic, that will be also impacted by ongoing climate change and by the expanding threat of antimicrobial resistance. [1,2] < B, C, E >

3.1.3) Green Transition

1) Identifying and sharing climate resilience and adaptation practices during consultative meetings of national, bilateral and multilateral key players, aiming to avoid lock-in development paths and 'Combat Climate Change Impacts' (SDGs 13). [1,2,3,4] < B, C, E >

2) Developing and supporting the market uptake of innovative renewable energy solutions and use devices, suitable for easy and prompt adoption by 'energy communities', 'energy villages', and/or at household level, with affordable and sustainable access for less favoured territories and less favoured groups, to prevent deterioration of rural environments and improve the urban ones (smart & green cities). In so doing, ensure the uptake and deployment of emerging technologies from existing projects in the area of Climate Change and Sustainable Energy (CCSE). [1,2] < B, C, E >

3) Supporting the development of innovative climate services through a new "space science, technical and innovation cooperation" action for risk reduction at local and regional level, based on extended in-situ and remote networks of climate changes and impacts, as well as on resilience and adaptation practices, in line with the AU-EU Space Dialogue and SDG 13. [1,2] < A, B, C, E >

4) Fostering the development and enhancement of sustainable and resilient agricultural and food systems value chains, capitalising on successful collaborative AU-EU R&I projects, to improve food and nutrition security and sustainable agriculture (FNSSA) leveraging regional, national and local specificities and competitive advantages. By doing so, increase local transformative, post-harvesting, warehousing and processing capacities and strengthen links between farmers, fishers and markets and consumers. [1,2,3] < A, B, C, D >

5) Supporting the development and scale up of efficient, secure and sustainable management of water resources (taking into account seas, waterways, rainwater, etc.) including water access, management, sanitation and use, flooding resilience and agricultural irrigation, in urban and rural settings in Africa. By doing so, encourage the emergence of water-savvy technologies, innovations and infrastructures that could be utilised in remote regions, to improve climate resilience, adaptation and mitigation, leveraging water research and value chains [1,2] < A >

6) Supporting the development and scale up of efficient and sustainable management of cultural heritage and cultural practices (taking into account their natural environment), including tangible, intangible and natural heritage. In this view, encourage a green management of cultural and natural heritage (e.g. through reuse of old buildings, preservation, support and reactivation of traditional skills, etc.) relying in particular on R&I to improve heritage preservation and make it a resource for sustainable development policies [1,2] < A, C >

3.1.4) Innovation and Technology

1) Supporting research and innovation cooperation between AU and EU research organisations and companies (in particular SMEs) from low tech to high tech (e.g., frugal innovation including organisational innovation) by making smart use of local intelligence and adapted business-driven models, mobilising multi-actor approaches (innovation platforms, living labs, etc.) in sectors like agro-food-nutrition, circular economy, sustainable manufacturing, One Health, raw materials, using digitalisation and artificial intelligence as transversal enablers. [3] < A, B, C, E >

2) Supporting technology/innovation hubs, networks, and operations of accelerators and incubators, including by assessing technology fields that could benefit from standardisation, to develop the human capital and skills pool for effective technology transfer and to stimulate entrepreneurship, inter alia through thematic exchange programmes between start-ups, researchers and policymakers, including social innovation beyond technologies. [1,3,4] < A, B, C, E >

3) Linking science with education, by promoting a culture of innovation and scientific communication programmes at all education levels. [2,3,4] < A, B, C, E >

3.1.5) Capacities for Science

1) Strengthening cooperation between AU and EU higher education institutions, research centres and organisations, and capacity building partnerships, with a focus on the potential of knowledge transfer, teaming, twinning and learning mobility activities (e.g., by involving the European University Alliances, consortia from the Erasmus+ programme and the Intra-Africa Academic Mobility Scheme, and ARISE grantees), by

reinforcing scientific and academic mobility opportunities (through notably the Marie Skłodowska-Curie Actions), to support the co-construction and/or co-reinforcement of training programmes, and research and innovation projects in line with the socio-economic needs of the concerned countries/regions, both in the AU and in the EU. [3,4] < C, E >

2) Improving the transparency and recognition of higher education qualifications and the relevance of curricula to enhance mobility. [3,4] < E >

3) Setting up training programmes for students and young scholars/post-doctoral fellows in the priority areas of AU-EU cooperation in R&I, to overcome the lack of qualified personnel and increase employability chances for youth, to limit and counteract talent drain, especially in domains pertaining to the actions foreseen by the AU-EU Innovation Agenda, so to contribute to their implementation accordingly. [3, 4] < A, C, E >

4) Fostering the development of high-performing digital education systems and upgrade digital skills and competences for the digital transformation. [3,4] < E >

3.2 Medium-term actions

3.2.1) Cross-cutting

1) Re-skilling and/or upskilling citizens of all ages in countries in the AU and in the EU, to allow them all to profit from innovation and technologies, and to counteract the insurgence of new or the increase of existing inequalities and/or discriminations, targeting SDGs 8-9-13. [1,3,4] < C, E >

2) Ensuring sustainability of research mobility programmes by providing conducive support infrastructures for scholars returning to Africa to create jobs/entrepreneurship/start-ups. [3,4] < A, C, E >

3.2.2) Public Health

1) Ensuring technology transfer and improving and developing quality vaccines, medicines and health technologies and production (e.g. by favouring the development of 'thematic' start-ups and fostering private sector investment), to avoid shortage and ensure affordability, availability, and accessibility for the people in need. By doing so, ensure equitable access to, distribution and fruition of innovative and sustainable health technologies across geographical areas. [1,2] < A, B, C >

2) Ensuring the development of specific training curricula and capacity building throughout the entire value chain process, from research through manufacturing and development until final registration and delivery to the marketplace and end-users (last mile included) of health technologies, to ensure local employability and thriving of youth and early career professionals as well as continuing education and professional retraining. [1,2,3] < A, B, C, E >

3.2.3) Green Transition

1) Fostering digital applications and green technologies to enhance climate resilience and adaptation and to give impetus to agricultural and agro-ecological production as well as

aquaculture, healthy and sustainable food processing and consumption. Co-designing with food system actors to scale digital solutions for food production (harvesting and warehousing included), processing and marketing to support sustainable and agro-ecological transition. [2] < B, C, E >

2) Developing in Africa renewable energy solutions in a changing world for climate change mitigation and adaptation. [1,2] < B >

3) Catalysing the development of circular economy strategies and policies, to ensure the implementation of actions foreseen by the AU-EU Innovation Agenda in both food and nutrition security and sustainable agriculture (FNSSA) and climate change and sustainable energy (CCSE). [2] < A, D >

4) Developing citizen science and engagement of key players for effective and efficient services to reduce unprecedented climate risks at local and regional level, both in urban, coastal and rural areas, in line with the climate adaptation pillar of Climate Change and Sustainable Energy (CCSE) aiming for a long-term AU-EU Partnership for scaling-up best solutions and practices. [1,2] < A, B >

3.2.4) Innovation and Technology

1) Enhancing R&I infrastructure and manufacturing capacity in Africa, so to strengthen supply and value chains within the continent, to enable also the fulfilment of medium- and long-term actions foreseen by the AU-EU Innovation Agenda. [1,2,3] < A, B >

3.2.5) Capacities for Science

1) Promoting joint master and doctoral degrees between AU and EU universities, and supporting the inclusive mobility of students, researchers and staff by building on existing programmes (such as Erasmus+ and Marie Sklodowska-Curie Actions, which support the development of excellent doctoral programmes) to increase the number of future researchers and innovators freely moving among and between both areas, while limiting the risks of talent drain. [3,4] < C, E >

2) Supporting the creation of enabling STI environment for sustainable innovation ecosystems through Smart Specialisation roadmaps to reinforce the innovation culture across the quadruple helix actors, the evidence basis for prioritisation of innovation investments and the participatory governance processes for tackling place-specific developmental challenges. [3,4] < A, B, C, D, E >

3.3 Long-term actions

3.3.1) Cross-cutting

1) Tapping the full potential of sciences by promoting research with a special focus on youth, women, vulnerable groups (e.g. persons with disabilities, persons from disadvantaged socio-economic background, refugees, etc.) and demography, mitigation and management of global challenges (including those posed by climate change, biodiversity loss, pollution and natural hazards), to build better societies and create well-being for all, in the AU and EU member-states and regions. [1,2] < A, E >

3.3.2) Public Health

1) Designing and implementing new and innovative methods and tools to monitor, prevent, diagnose and counteract future health threats due to long standing, (re)emerging, or antimicrobial resistant pathogens, as well as chronic diseases, promoting One Health and precision medicine in a changing environment, embedding the mental health dimension in this approach. By doing so, ensure the implementation and strengthening of coordinated surveillance and responsiveness capacity at local / community, national, regional and continental level. [1,2,3] < A, B >

3.3.3) Green Transition

1) Improving the agricultural and fisheries innovation ecosystem, to strengthen capacities of actors to co-design, co-invest, scale up and employ innovative technologies and methodologies through a multi-stakeholder approach, to build thematic networks in Africa and to strengthen exchanges of knowledge and experiences between Europe and Africa. By doing so, enhance the capacity of the agricultural sector to create decent jobs, given the importance of agricultural and fisheries employment in Africa. This will entail engaging the private sector, stimulating public-private partnerships, enhancing capacity for proactive innovation policy development and co-investment in the area of food and nutrition security and sustainable agriculture (FNSSA) and climate change and sustainable energy (CCSE) including mitigation, adaptation and resilience to face future climate challenges. [1,2,3,4] < A, B, C, D, E >

3.3.4) Innovation and Technology

1) Reinforcing and facilitating inclusive and affordable access to world-class research and innovation infrastructures in the AU and EU countries, so that they can fully play their role of research and innovation hubs and 'lighthouses' for the whole continents. [3,4] < A, B, E >

2) Ensuring that digital transformation supports the dissemination of knowledge, e.g. through promoting connection with the European Open Science Cloud. [3,4] < A, B, C, E >

3.3.5) Capacities for Science

1) Providing specific support for better bridging research and innovation in AU and EU countries by fostering the emergence of new and/or by strengthening the existing centres of excellence, inter alia for young African and European researchers while supporting senior researchers by establishing 'advanced study institutes' ("collegium") bringing together AU and EU researchers in residence, within the framework of calls for proposals targeting cross-cutting subjects. [1,4] < A, C >

2) Modernising and reinforcing the research and higher education systems (RHESs), both in AU and EU countries, since effective, enduring and impactful innovation ecosystems cannot thrive in the absence of RHESs based on high quality, inclusiveness, openness, transparency and merit. [3] < A, B, C, E >

4. MONITORING AND EVALUATION

The aforementioned four objectives will be integrated into an operational framework according to a stepwise and flexible approach, following the adoption of the AU-EU Innovation Agenda. This will allow to timely review the implementation of the Agenda and will provide opportunities to correct or redirect the implementation on a solid evidence base, according to the lessons learnt.

Implementation of the actions will be closely aligned with the monitoring of the implementation of the policies on both sides, including the 'Global Approach to Research and Innovation' and the AU Agenda 2063, and the AU STISA policy. The approach will follow closely the impact-oriented monitoring (IOM) methodology of R&D projects/programmes[21].
The overall follow-up of the M&E process will be handled by the AU-EU HLPD on STI to allow the EU and AU to interact with key players to be involved in the tracking of the AU-EU Innovation Agenda's achievements.

An overview of Key Performance Indicators (KPIs) to be assessed to monitor the attainment of each of the 4 objectives of the AU-EU Innovation Agenda, will be proposed in the Roadmap. This will allow to periodically measure progress towards achieving the objectives, enabling for learning along the process.

5. ROADMAP

The AU-EU Innovation Agenda will be supplemented by a living "Roadmap" document[22] providing an overview of: (i) mechanisms of governance of coordination of the implementation of the Agenda, under the aegis of the HLPD on STI; (ii) the Monitoring & Evaluation methodology to be employed to measure the impact of the AU-EU Innovation Agenda; (iii) an inventory of past and present AU and EU STI Initiatives on which the Innovation Agenda will build (initial Annex 1 of the Working Document version of the Agenda); (iv) a summary of the outcome of the mapping of joint AU-EU R&I projects in the area of Food and Nutrition Security and Sustainable Agriculture (FNSSA), assessed for their innovation and business potential and unmet needs to be addressed for their potential scale up (initial Annex 3 of the Working Document version of the Agenda); and (v) a toolkit for initiatives that will enable the implementation of the short-, medium- and long-term actions of the Innovation Agenda.

[21] Developed by FP7 funded EVAL-Health of which AUDA-NEPAD was a consortium member.
[22] https://research-and-innovation.ec.europa.eu/system/files/2023-07/ec_rtd_eu-au-innovation-agenda-roadmap.pdf

ANNEX 1 to AU-EU Innovation Agenda: SUMMARY OF NEEDS AND GAPS

This section provides an overview of the main current needs and gaps identified by AU and EU policy makers and the innovation communities of both sides, as explained in chapter 2: objectives. The needs and gaps are identified around 5 areas: **A) The innovation ecosystem, B) Innovation management, C) Knowledge exchange, including technology transfer, D) Access to financial resources, and E) Human capacity development.**

A. The innovation ecosystem

- Need for a joint AU-EU innovation strategy, plan or program: Note was taken of the many past and current innovation programmes across the two continents, involving numerous AU and EU projects and programmes by various institutions (bilateral or multilateral). However, there is very limited to no coordination and communication between relevant AU-EU innovation projects at continental or regional level, thus creating a need for enhancing alignment aiming for complementarities and synergies among different initiatives, to maximise their positive impact on the ground.
- Need for stronger involvement of players outside the traditional R&I communities, such as development cooperation partners also investing in and supporting R&I initiatives; such as, for example, programmes and projects of AUDA-NEPAD, African Outer Space Programme, EU Global Gateway, African Development Bank, UN organisations etc. Utilise networks and funds availed by these programmes and projects.
- Need for systematic interaction between researchers, policymakers, business and civil society representatives, and other stakeholders in view of the uptake of research findings for commercialisation to be increased and for better use by the civil society and policy makers *(also from FNSSA mapping)*.
- Need to ensure gender equality and empower women, youth and vulnerable groups (e.g. persons from disadvantaged socio-economic background and/or persons with disabilities and/or refugees and/or stigmatised/discriminated groups of people) and their entrepreneurship throughout R&I processes.
- Need to strengthen human resources capacities, for instance with regard to specialists jobs and governmental structures, dedicated to translating technological know-how into market valorisation (from the lab to the market).
- Need to strengthen infrastructural capacity of R&I organisations, especially in Africa, including also through administrative and logistical support and good governance.
- Need for valorising social sciences and humanities, as much as “hard sciences” in innovation and entrepreneurial processes.
- Need for strengthening the scientific advisory capacities of Science Academies as independent think tanks and knowledge institutions, and reinforce the science-policy interface and thus the uptake of scientific advice provided to policy makers. This could include e.g. the harmonisation of regulations at continental level around technology and innovation on IPR, standards, data protection, and payment interoperability (in the context of the African Continental Free Trade Agreement, AfCFTA).
- Need for engaging grass root communities in consultations on and implementation of R&I initiatives, throughout the stages of Project Cycle Management of R&I initiatives, including, though not limited to, the initial crucial steps of programming, identification and formulation, to ensure the expected outputs and outcomes do actually fulfil unmet needs on the ground.

- Need to integrate the knowledge triangle concept across strategic alliances and partnerships between existing and future AU and EU R&I cooperation programmes, including the need to integrate women and youth in STEM actions could significantly contribute to sustainable growth and jobs.
- Need to reduce/reverse talent drain of young, talented African researchers and innovators, who carry out their studies or training abroad and, for instance due to a lack of performing research infrastructures, do not have the opportunity to continue their research in their home settings. In this context, how major emerging countries transformed the brain-drain into a brain-gain has important lessons for the AU.
- The EU–AU partnership must deal with a larger geopolitical context. Other non-EU G20 countries are also important actors on the African continent. A strategic analysis of their objectives and actions in Africa is needed.
- Need to share best practices on national level for regional and continental synergies and maximise the value chain.

B. Innovation Governance and Management

The gap between research experts and grass root innovators must be reduced for innovation to spur the achievement of the Sustainable Development Goals, but to achieve this, the following needs should be addressed:

- Need to secure an equitable and co-owned governance of collaborative AU-EU initiatives in R&I, to be managed and thriving in a level playing field.
- Need to foster entrepreneurship, career guidance, continuing education and professional training and employability, innovation management, and social innovation (e.g. concepts of more active citizenship). Need for systematic interaction between researchers, policymakers, innovators and other stakeholders in view of the entrepreneurship support and uptake of research findings for policy and society to be more actively promoted, supported and implemented.
- Need for monitoring, evaluating and following up joint AU-EU (and beyond) R&I undertakings, in order to identify best practice and build on existing successes and available positive results.
- Need for reliable, accessible and usable data, data collection, sharing and monitoring tools across the four priority areas of the AU-EU cooperation in R&I, e.g. in health systems' preparedness and in climate services.
- Need for systematically and regularly identify, select and support through ad-hoc/tailored mechanisms most promising and mature projects (from a Technical Readiness Level viewpoint), outcome of AU-EU cooperation in R&I, that stand higher chances to turn into tangible socio-economic development outcomes and thus reach end-users.
- Need for tailor-made advice and support from experienced professionals for entrepreneurs, SMEs e.g. in the agri-business/food systems and energy sectors, in order to create successful initiatives to foster collective innovation to develop strong value chains (transformative industries included).
- Need to encourage policymakers to open public procurement to start-ups and entrepreneurs, and to encourage open innovation cooperation with the private sector.
- Need to strengthen human resources capacities, for instance regarding specialists' jobs and governmental structures, dedicated to translating technological knowhow into market valorisation (from the lab to the market).

- Need for possibilities and methodologies for AU and EU policymakers to trial innovative technologies or approaches in practice, e.g. by creating regulatory sandboxes or support policy hackathons in areas such as health, finance, agriculture, energy, cities, climate adaptation should be encouraged.
- Need to promote development of national and regional policies and legislations for R&I incentives to create an enabling environment for innovation.

C. Knowledge Exchange, including Technology Transfer

Recognise the differences between Technology Transfer Organisations (TTO) in the EU and AU regarding their modus operandi (some of which are hybrid organisations, which for instance combine traditional TT with incubators). Needs identified include:

- Need to enhance the relationships between TTOs, tech hubs, and project coordinators to increase the local/regional/international exchange between them, to facilitate translating research outcomes into private sector implementation *(also from FNSSA mapping, and upcoming from CCSE)*.
- Need to build a conducive environment that favours voluntary and mutually agreed technology transfer and support market uptake of innovative technology through joint actions in relevant fields, e.g. logistics, renewable energy and energy efficiency, sustainable forestry, seafaring, circular economy, health technologies, digital, agriculture, agro-processing and agro-ecology, green hydrogen and climate services for risk reduction.
- Need to strengthen the overall innovation and IP protection (governance framework), and supporting universities and R&I centres in developing appropriate policies and procedures for identifying, protecting and managing IP, interacting with the private sector, with spin-off companies and with early-stage investors.
- Need for exchanges of good practices and solutions to be made possible through "open systems", including citizen science for effective and efficient solutions to scale-up [e.g. services for climate risk reduction, in line with Climate Change and Sustainable Energy (CCSE) Adaptation Pillar].
- Need to support local and national authorities to develop technology transfer related support mechanisms like Proof of Concept and technology transfer funds.
- Need for the implementation of frugal innovation programmes.

D. Access to financial resources

In comparison to the American and certain Asian markets, R&I performers and innovators in the EU and AU experience a more limited access to financial resources. Therefore, needs identified include:

- Need for a repository of available funding opportunities for innovation to be translated into tangible results, presented in conjunction with capacity building sessions for relevant innovators.
- Need for the development of a joint EU-AU scheme to support innovation in priority. This could support technology demonstration projects, early-stage entrepreneurs, applied research and knowledge exchange platforms.
- Need to strengthen existing R&I funding instruments, and promote the establishment of new, flexible funding programmes at bilateral, regional and international levels, while also diversifying funding partners.
- Need for accessible and inclusive financial support schemes to scale up R&I project outcomes, and transform them into successful entrepreneurial ventures, like start-ups,

and related infrastructure, normally requiring important investments *(also from FNSSA mapping study, and upcoming from CCSE))*.

- Need for private capital and corporations to play their important role in maintaining an innovation ecosystem (e.g. by attracting early stage and corporate investors to local innovation ecosystems to support the growth and expansion of spin-off companies or absorb generated IP through licensing); need for more public-private partnerships and blended finance models in R&I, to promote "de-risking" of innovative ventures and encourage private investment through public funding.
- Need to stimulate investment in knowledge synthesis and translation and link R&I to standardisation, with a view to support commercialisation of research findings as well as strengthen the evidence-base in policymaking.
- Need targeted support to private companies in their attempts to invest in Africa and mainly in research and innovation cooperation between European and African companies (small and medium enterprises) on a lower tech and innovation level.
- Strengthen joint intra-Africa higher education, R&I programmes, in support of building knowledge economies and reinforce economic diversification.
- Strengthen link with climate funds for climate resilient pathways (e.g. Green Climate Fund, Adaptation Fund, Climate Investment Funds), in line with extended services for climate risk reduction at local and regional level.
- Need to identify key actors in Africa around R&I, as well as actors in Europe with pertinent programmes for joint implementation in the African region and equip them with available instruments.
- Need to articulate the added value from R&I to governments and key institutions. Alignment with targeted contributions and achievement of goals for effective transformation.

E. Human capacity development

Differences in the capacities between AU and EU innovation players (universities, research institutions, incubators, accelerators, investors, venture capitalists, private equity firms, governments), and approaches, combining capacity empowerment and enabling environment upgrading, need to be taken into account, together with respecting principles of a just transition approach. Specific needs include:

- Need for improving mobility, and facilitating exchanges (within and between the two continents) and training of students, staff and researchers (for instance through Erasmus+ and the Marie Skłodowska-Curie Actions), cooperation, transformation and innovation capacities of higher education institutions, R&I management capacities, science communication capacities, STEM and social sciences capacities, e.g. on the basis of teaming and twinning activities (e.g., involving the European University Alliances and consortia from the Intra-Africa Academic Mobility Scheme).
- Need to develop and strengthen the research capacities of African Higher Education and R&I institutions.
- Need to develop technological universities for TVET education that fill in the gaps in R&I job needs.
- Need to consider agricultural and agricultural value chain employment as an entry point of public policies and development programmes that aim at improving household livelihoods and food security, at upgrading agriculture – environment relations, food systems sustainability and at fostering structural changes. Job attractiveness for youth and empowerment of women are deemed as key points in

these regards, considering youth aspirations regarding income, working conditions and/or contractual relations, to make women's work visible and recognised, with equitable access to resources. Need to develop African institutions and citizens capacities in NewSpace (smallsats, space service delivery, etc.).Need for training and capacity building also outside academia and Higher Education Institutions, to include the entire innovation value chain, encompassing also basic educational and vocational programmes, civil society and local communities.

- Need for strengthening existing programmes on Health topics of long-term collaboration and potential for growth, particularly with the vaccines production hubs.
- Need for enhancing and mainstreaming digital literacy and digitalisation across Africa.
- Need to protect and leverage traditional/indigenous know-how in innovation generation.

Throughout all the aforementioned areas of needs and gaps, the importance of engaging the African diaspora in Europe (and elsewhere) is recognised as crucial for knowledge and experience sharing for developing expertise and innovations in Africa and Europe.