

Joint AU-EU Roadmap for the Research and Innovation Partnership on Food and Nutrition Security and Sustainable Agriculture (FNSSA) 2027-2036

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Executive Summary

The African Union (AU) and the European Union (EU) share a strong interest in competitive, resilient, sustainable, fair, inclusive and attractive agri-food systems capable of ensuring food and nutrition security. This is particularly important against the background of on-going challenges related to climate change, biodiversity loss, pollution, the unsustainable management of natural resources, societal transformation, geopolitical instability and market disruption. Building on the achievements of, and lessons from, the 2016–2026 roadmap, this renewed AU–EU Roadmap for a Research and Innovation (R&I) Partnership on Food and Nutrition Security and Sustainable Agriculture (FNSSA) sets out the strategic framework for the period 2027–2036.

This renewed roadmap reaffirms the role of the AU–EU High-Level Policy Dialogue (HLPD) on Science, Technology and Innovation (STI) as the political steer for cooperation and builds on existing collaboration by reinforcing an integrated and impact-oriented approach towards a joint R&I agenda. It responds to common African and European priorities and aims to strengthen R&I cooperation across the full agri-food value chain, from natural resources and primary production to food systems, markets, trade, deployment and uptake.

The roadmap is structured around four mutually reinforcing thematic priorities:

1. Sustainable management of agriculture and food systems;
2. Agri-food systems transformation for healthy nutrition shaped by societal change;
3. Integrated agri-food markets, trade and innovation deployment;
4. Bioeconomy as an engine of sustainable transformation.

These priorities are underpinned by two cross-cutting enablers: digitalisation and the social sciences and humanities (SSH). The roadmap also strengthens the operational dimension of the partnership by setting out principles for implementation, coordination, knowledge management, stakeholder engagement, scaling mechanisms, monitoring and evaluation.

The overall objective is to move from fragmented project-based cooperation towards a coherent AU–EU R&I partnership that aligns efforts, connects complementary R&I initiatives, accelerates innovation uptake and delivers tangible benefits on both continents for farmers, citizens and consumers, businesses, researchers and public authorities.

1. Rationale and strategic context

The renewal of the AU–EU R&I FNSSA roadmap takes place in a profoundly changed global environment. Since the launch of the first roadmap in 2016, climate pressures, biodiversity loss, land degradation, water stresses, zoonotic and plant health risks, pollution, malnutrition, societal change and geopolitical and energy supply instability have intensified[1]. At the same time, digitalisation, artificial intelligence, the bioeconomy, collaborative multi-actor innovation and sustainable solutions (e.g. agroecology) offer major opportunities for transformation, if appropriately developed and implemented.

In both Africa and Europe, policy priorities have evolved from a largely yield-centred approach towards a broader objective of competitiveness and strategic autonomy, resilience, sustainability, and fairness. For the EU, the recently adopted Communication on a new strategic approach to research and innovation in the agri-food sector provides new opportunities to strengthen the impact of R&I in the agri-food sector.

This new roadmap reflects the abovementioned shift and aligns with key continental and international frameworks, including the African Union Agenda 2063, the Kampala Comprehensive Africa Agricultural Development Programme (CAADP) Strategy and Action Plan 2026–2035, the AU's Science, Technology and Innovation Strategy for Africa 2034 (STISA-2034), the European Green Deal, the Vision for Agriculture and Food, the Clean Industrial Deal, the evolving EU bioeconomy agenda, the EU's Global Gateway strategy, the AU-EU Innovation Agenda (2023-2033), and the UN Sustainable Development Goals.

The new roadmap also incorporates lessons from the 2016–2026 FNSSA partnership cycle. That first phase enabled the establishment of collaborative structures, substantial efforts in joint R&I and stronger links between African and European institutions. However, it was also marked by limitations due to fragmentation, an uneven uptake of results, and insufficiently strong links between research and innovation, market deployment and the uptake of results.

The next FNSSA partnership cycle should therefore focus not only on defining relevant R&I priorities, but also on improving the conditions for impact: better coordination and alignment of efforts, strong stakeholder participation, suitable innovation instruments, and clearer pathways for market deployment and the adoption of new knowledge and innovation, thus providing stronger links between science, R&I policy and implementation.

[1] The 6th AU-EU agriculture ministerial conference, held in Rome in June 2025, highlighted that through strengthened AU-EU cooperation, R&I can drive climate-smart, biodiversity friendly, inclusive and resilient transformation across sectors.

2. Vision, objective and guiding principles

2.1 Vision

The AU and the EU will deepen their FNSSA partnership on R&I to accelerate the transition towards competitive, resilient, sustainable, fair and healthy agri-food systems and generate mutual benefits across both continents.

2.2 Overall objective

The objective of this roadmap is to provide a joint strategic framework for cooperation on an AU-EU R&I Partnership on FNSSA for 2027–2036 by identifying common priorities, guiding programming and strengthening the conditions for the effective implementation, deployment and uptake of innovation and policy relevance.

2.3 Guiding principles

The implementation of the roadmap should take into account the following principles:

- Full political and operational engagement, joint interest, co-design and co-ownership between African and European partners;
- Mutual benefits while recognition of differentiated contexts and needs;
- Systemic and integrated approaches across the whole agri-food value chain;
- Scientific excellence, societal relevance and sustainability-by-design;
- Innovation orientation, with clear pathways from research to market deployment and the uptake of results;
- Inclusiveness and equity, regarding agrifood systems actors with special attention to youth, women and rural communities;
- Multi, inter and transdisciplinary approaches, including strong integration of One Health and SSH;
- Policy coherence and dialogue;
- Monitoring, learning and adaptability.

3. Priority areas

3.1. Sustainable management of agriculture and food systems

Climate change, biodiversity loss, soil degradation, a lack of water and water quality, a lack of access to energy and high energy costs, diseases and pests, and pollution are major threats to agricultural production, the provision of ecosystem services, and livelihoods and economic stability in both Africa and Europe. These challenges differ in form and intensity across regions, but they create a shared need for resilient agricultural production systems and more sustainable resource stewardship.

Joint AU–EU R&I could therefore focus on strengthening resilience to the triple planetary crisis (climate change, biodiversity loss and pollution) across the whole agri-food value chain while improving resource use efficiency, ensuring the availability of diverse and nutrient-rich crops (incl. neglected and underutilised ones), livestock and aquatic products, and restoring natural resources.

Priority R&I needs may include climate-resilient crops, sustainable livestock production systems (addressing animal health and welfare), aquatic food systems, resilient seed and breeding systems, crop–livestock integration, pastoral and rangeland systems. Furthermore, organic agri-food systems, forestry and agroforestry, soil organic matter management, fertiliser efficiency and nutrient management may be considered as priorities. At the same time, further priorities may include renewable energy integration, circular biomass use, waste management and other recycling approaches, integrated pest and disease management, biocontrol, bio-stimulants, drought and salinity management, and erosion control and efficient water management. Drivers of R&I activities should include nature-based solutions and related agroecological, territorial and landscape approaches, including the maintenance and restoration of soil health.

R&I activities shall support locally adapted but ultimately replicable and up-scalable solutions reflecting the diversity of agroecological and socio-economic contexts across both continents, with attention being paid to nutrient-dense crops, biofortification, and post-harvest practices that preserve nutritional quality. They should compare and combine complementary approaches, including agroecological, regenerative, climate-smart and organic practices, and test their performance in different environments and socio-economic conditions paying attention to the identification of enablers and of barriers to the adoption of new knowledge and innovations. Living labs, demonstration farms and multi-actor approaches with a genuine involvement of farmers and end users should play an important role in this regard.

In line with the One Health approach, R&I should also strengthen the understanding of zoonotic disease emergence and spread, antimicrobial resistance, mycotoxins, food contamination and pollution along the agri-food chain. This may include R&I on affordable diagnostics, integrated surveillance, early warning systems, disease-resistant plant and animal breeding and strategies to mitigate and tackle food safety risks while maintaining productivity, thereby contributing to the availability of safe, healthy and nutritious food and diets.

Given the interdependence of climate, biodiversity, water, food, health, energy and markets, this priority area calls for flexible nexus approaches that support inter, multi and transdisciplinary R&I approaches and seek locally relevant solutions. R&I should also contribute to strengthening foresight, early warning systems, resilience assessment frameworks and innovation pathways suited to fragile, disaster-affected and conflict-affected settings.

3.2. Agri-food systems transformation for healthy nutrition shaped by societal change

Food systems in Africa and Europe must respond simultaneously to multiple challenges: population growth and urbanisation in Africa, ageing populations and rural depopulation in Europe, changing diets, rising burdens of malnutrition and non-communicable diseases,

persistent and emerging food safety risks and increasing exposure to plant, animal and zoonotic diseases.

Priority R&I needs may include nutrition, food safety, food processing, food environments and territorial approaches to agri-food systems and support food policies that address nutrition-related non-communicable diseases in both Africa and Europe. This includes continued work on: the links between agri-food systems and climate risks; impacts on prices, food quality, diets, producer livelihoods and consumer behaviour; local food processing; the reduction of food loss and waste; and more efficient input and output use.

Child nutrition should be treated as a high-priority area. Research should support context-specific solutions to improve the quantity, quality and safety of food for vulnerable groups, including through school-food schemes, nutrition education and innovative local production of specialised or ready to use emergency foods where appropriate. Women, especially mothers, should be explicitly recognised as key stakeholders in nutrition-related R&I and capacity-building efforts. The knowledge and practices of Indigenous Peoples and local communities should also be recognised, including their contribution to diverse, nutritious and sustainable diets.

R&I activities should support urban food systems, rural-urban links, territorial food governance and the role of traditional diets, while addressing the health risks associated with changing dietary patterns. This should also encompass microbiome enhancing fermented foods, culinary heritage, local food cultures, crop and food diversity and the informal food economy. R&I should help improve the accessibility, affordability and healthiness of urban food environments.

3.3. Integrated agri-food markets, trade and innovation deployment

Agri-food markets and trade are essential for food and nutrition security, equity, income generation, value addition and resilience across both continents. Yet, different challenges, such as fragmented standards, weak quality infrastructure, or uneven certification systems continue to constrain market integration and innovation uptake. The roadmap therefore should address R&I that could foster sustainable trade, standards and deployment pathways.

R&I may support traceability, sanitary and phytosanitary systems, food and feed safety, certification systems and innovation for cold chains, logistics and packaging, including nutrient retention and nutrition information, keeping in mind the importance of local and informal markets. High-priority sectors include, among others, fruits and nuts, vegetables (including oils), dairy, fish and meat, where market integration depends on effective storage, transport, traceability and border management, as well as bio-based inputs. Agricultural non-food products (e.g. fibbers, phytosanitary or medicinal products, gums and rubber) should be also considered.

R&I activities should consider laboratory twinning, interoperable digital certification pilots and participatory assessments of the feasibility and socioeconomic impacts of policies. Approaches should be proportionate, tailored to local conditions and inclusive, so that smallholders and SMEs are not excluded from improved standards and value chains.

Affordable certification and traceability systems should be developed, including for agroecological and organic products, local food systems and deforestation-free supply chains.

R&I initiatives can develop and improve tools such as Life Cycle Assessment (LCA) and True Cost Accounting (TCA) to support the quantification of systemic impacts of value chains (including ecosystem services, biodiversity, soil health, and public health outcomes) to enable more informed trade decision-making processes that integrate sustainability dimensions.

Food processing through energy- and water-efficient technologies for local markets or for export would contribute to a sustainable and resilient food system. Post-harvest loss reduction and food waste management should be treated as an important action line, including research on logistics, storage diagnostics, and energy-efficient cold chains.

The roadmap also emphasises the need to bridge the gap between scientific results and practical implementation. Living labs, SME accelerators, public-private consortia, expert advisory systems and startups and scaleups should be supported. This may include thorough appropriate governance, capacity building, feasibility testing, compliance support and technology adaptation. R&I needs may include aspects such as solutions for food safety testing, traceability tools, or bio-based packaging.

3.4. Bioeconomy as an engine of sustainable transformation

The bioeconomy can make a major contribution to the shared AU–EU objectives of sustainability, value addition, reduced dependencies, competitiveness and circular resource use. The roadmap identifies a sustainable and circular bioeconomy as a strategic field for joint R&I and a key driver of innovation, competitiveness and sustainable transformation in agriculture, food systems and rural areas.

A central objective should be to improve the added value associated with biomass supply, use and processing. On both continents, especially in Africa, the development of advanced processing and conversion technologies, testing capacity, quality assurance and regulatory science for bio-based products could be supported. Current trade structures remain largely asymmetric and too often centred on primary commodities. R&I can help address the technological, regulatory and infrastructural constraints that limit greater local and regional value addition and circularity.

Priority R&I actions may include: bioeconomy clusters as vehicles for shared efforts; support for partnerships related to sustainable biorefineries; regulatory and policy living labs; research on indigenous and traditional knowledge as a source of innovation; territorial waste management; bio-based inputs (including biofertilisers, biostimulants and biopesticides) and strengthened biosafety and biotechnology capacities. R&I-based solutions can improve the efficient use of food-processing side-streams with modular bioprocessing systems for bio-based products and bioenergy.

Implementation should respect the food first principle and ensure that sustainability, equity and market access considerations are embedded from the outset. R&I cooperation will be essential to generate evidence that could support equivalence protocols and safety standards relevant to both African and European contexts.

4. Cross-cutting enablers

4.1 Digitalisation and artificial intelligence (AI)

Digitalisation and AI are critical enablers of agri-food systems transformation, but its potential is constrained by its natural resources' depletion risks and unequal connectivity, especially in rural Africa and in some less-resourced European regions. R&I activities may focus on practical, inclusive and scalable agri-food related digital solutions, including earth observation, mobile services, digital advisory tools and traceability systems. Furthermore, data platforms and tools can support epidemiological surveillance, dietary diversity, ecosystem services, market information, sustainable value chain and farm management practices that are related directly to the priorities of this roadmap.

A dedicated effort is needed on data governance, standardisation, interoperability and long-term access. European expertise in Findable, Accessible, Interoperable, Reusable (FAIR) data and agricultural data spaces should be combined with African and European service providers and farmer organisations to co-develop usable and trusted digital solutions.

The roadmap also underlines the importance of farmer control over data, fair benefit-sharing, participatory governance and sustained end-user support. Digital and AI uptake depends not only on tools, but also on advisory services, training, trust, open science and Open Innovation Principles and viable business models. R&I needs to support the development of AI governance models to ensure transparency, accountability and interpretability of AI informed systems and risk minimization in a rapidly changing technological environment.

4.2 Social sciences and humanities (SSH)

SSH are essential to understanding and overcoming the social, cultural, economic, behavioural, institutional and policy implementation aspects that may have limited the uptake of innovations under the first roadmap cycle. SSH should no longer be treated as peripheral disciplines, but as a central enabler of transition and implementation.

Besides being integral to addressing the other priorities, SSH contributions should address stakeholder behaviour and decision-making, livelihoods, land ownership and appropriation, labour conditions, value creation and distribution, employment creation, (inter-)generational dynamics, gender equity, inclusiveness, consumer choices, market incentives, business models, misinformation, regulatory design and the role of indigenous, traditional and local knowledge. SSH should support the co-construction of viable organisational models, participatory innovation approaches and policy frameworks suited to diverse contexts.

The roadmap therefore calls for strong interdisciplinary integration of SSH R&I across thematic priorities and implementation instruments, including living labs, and policy experimentation.

5. From research priorities to implementation and impact

A major lesson from the 2016–2026 cycle is that generating knowledge does not automatically lead to impact. The renewed roadmap therefore treats innovation as a continuum, requiring tailored instruments from research and experimentation to market deployment, uptake and scaling.

Close interaction with the AU-EU Innovation Agenda will help to implement successful innovation models. Synergies and complementarities with relevant funding instruments and initiatives including private sector (e.g. innovation fairs and de-risking initiatives) should be considered to maximise impact, avoid fragmentation and support the pathway from research to market deployment and uptake of results by all relevant actors, from farmers to citizens and policymakers. This includes Horizon Europe and its relevant European Partnerships and initiatives, as well as other EU and AU funding instruments and Global Gateway actions.

Overall, projects should be designed with clearer articulation between research, experimentation, demonstration, capacity development, market deployment, dissemination, adoption and feedback from end users. Different instruments are needed for different stages of the innovation journey, including collaborative research projects, coordination actions, cluster approaches, proof-of-concept support, living labs, innovation hubs, demonstration farms, pilot value chains and co-creation platforms, building on existing successful innovation models.

The multi-actor approach with stakeholders and end-users are at the core of the roadmap. Farmers, pastoralists, SMEs, women, youth, local authorities, consumer groups and Indigenous Peoples should be involved not only as recipients, but as co-designers and co-implementers of innovation processes and tools. This participatory orientation is essential to ensure relevance, legitimacy and adoption. Policy engagement should similarly be embedded throughout the R&I cycle. It is finally acknowledged that R&I cooperation also contributes to strengthen the long-term capacity of African universities and public research institutes.

6. Governance, coordination and knowledge management

The roadmap requires effective coordination to reduce fragmentation and improve coherence across initiatives. The FNSSA Working Group and the AU–EU HLPD on STI are identified as key delivery and coordination mechanisms and ensure links between policy priorities and implementation processes. The International Research Consortium on FNSSA (IRC-FNSSA), through networking, evidence synthesis of existing R&I results, stakeholder engagement and gap identification, should help connect R&I efforts and results with shared priorities and implementation opportunities. To strengthen the impact of R&I activities, engagement with Regional Economic Communities should be sought.

Mapping of existing and emerging R&I investments, capacities, results and gaps against roadmap priorities to improve coherence should be promoted in order to inform shared calls, joint scoping exercises, co-designed impact indicators and links with other relevant AU–EU and multilateral initiatives. Hence, complementary projects and funding initiatives can help

improve strategic alignment avoiding duplication, strengthening synergies and supporting market deployment, uptake and scaling.

Knowledge management is another strategic necessity. Knowledge, results and data generated across the partnership should be preserved, structured and made accessible through a long-term AU–EU knowledge repository based on open science principles. Advanced digital tools, including AI-supported, synthesis and multilingual access, should be used to improve usability and outreach.

7. Monitoring, evaluation and learning

The roadmap's monitoring, evaluation and learning (MEL) framework should support decision-making, portfolio adaptation and future programming, not merely for reporting. It should include explicit decision points, theories of change, leading indicators and decision rules tailored to different instruments, especially maturation and innovation-oriented initiatives.

Independent evaluation arrangements should be considered for maturation projects and field-based instruments. In living labs and similar settings, farmer and citizen-assessed impacts and end-user feedback should be treated as primary indicators alongside scientific outputs. This feedback should be integrated into a comprehensive monitoring framework combining qualitative and quantitative indicators. This MEL framework should be designed to capture scientific and other project outputs, and outcomes as well as ensure interoperability with the broader HLPD process.

The roadmap also proposes the establishment of a repository that captures null results, implementation failures and unexpected negative outcomes (e.g. technologies and non-technological solutions that worked but are not economically, social or environmentally viable). This would strengthen institutional learning and help avoid repetition of ineffective approaches in future programmes.

8. Indicative implementation orientations for 2027–2036

Implementation of the roadmap should proceed through a balanced mix of short-, medium- and longer-term actions, drawing on the logic already established under the previous roadmap and actions of the AU-EU Innovation Agenda while progressively strengthening strategic coordination, aligning efforts and capacity deployment.

In the **early phase**, priority should be given to joint agenda setting, mapping of existing R&I efforts and gaps, management of existing knowledge including MEL, and pilot implementation instruments, alignment of programming actors, launch of coordinated calls, and strengthening the involvement of the IRC-FNSSA. IRC-FNSSA working groups may provide a continuum for project clusters to contribute to knowledge management and prepare for start-up and scale-up actions with public and private actors by connecting them around shared roadmap priorities. Furthermore, synergies could be identified with existing capacity-building programmes (e.g. vocational training). In the **medium term**, emphasis should shift towards

consolidating strategic portfolios, to reduced fragmentation, scaling of successful approaches, R&I policy cooperation and increased use of maturation mechanisms as well as establishment of knowledge management arrangements and mobilisation of pilot instruments such as living labs, R&I policy dialogues and cluster-based innovation actions including through SSH.

In the **longer term**, the partnership should aim for an integrated, flexible and operational AU–EU R&I ecosystem on FNSSA, capable of supporting sustaining cooperation, stronger market and policy impacts, shared efforts and more systematic uptake of jointly generated knowledge and innovation with co-benefits for the AU and the EU and by cooperation with public and private actors on piloting, start-up and scale-up schemes.

9. Conclusion

The renewed AU–EU FNSSA Roadmap 2027–2036 provides a shared framework for a more integrated, strategic and impact-oriented R&I cooperation on food and nutrition security and sustainable agriculture. It builds on the foundations established by the 2016–2026 roadmap while responding to a more complex and demanding context marked by environmental, health, demographic, economic and geopolitical pressures.

Its added value lies in combining shared strategic priorities with stronger implementation logic: systemic approaches, One Health, digital and SSH integration, stakeholder-centred innovation and uptake, knowledge management, coordinated governance and clearer pathways from research to deployment.

By working together through this roadmap, the AU and the EU can strengthen their capacity to generate solutions, reduce vulnerabilities, support innovation and accelerate agri-food systems transformation for the benefit of both continents and beyond.

The present roadmap does not intend to create rights or obligations under international or domestic law or to result in binding financial implications.

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