



# **Vision for EU Agriculture and Food**

## **AIOTI Input**

**7 February 2025**

## Background

The EU Commission launched in January 2024 the Strategic Dialogue on the future of EU agriculture with the aim to shape a shared vision for the EU farming and food system<sup>1</sup>. The result of the dialogue was published in a report in September 2024<sup>2</sup>, which shows a strong consensus to achieve “agrifood systems that are more resilient, sustainable, competitive, profitable, and just”.

AIOTI contributed to the Strategic Dialogue in July 2024 by providing its recommendations<sup>3</sup>, in particular to the following question, focusing on digital technologies:

**How can we make better use of the immense opportunities offered by knowledge and technological innovation?**

Building on the results of the Strategic Dialogue, the EC expressed its intention to deliver a **Vision for EU Agriculture and Food**, in cooperation with the to-be-established **EU Board for Agriculture and Food (EBAF)**<sup>4</sup>. AIOTI welcomes the recommendations set out in the Strategic Dialogue report and wants to further contribute constructively to the debate by providing its views on how to leverage digital technologies for achieving a thriving EU agrifood sector.

### AIOTI views on the Strategic Report<sup>5</sup> recommendations

	Strategic Dialogue Report recommendations	AIOTI input
<b>REC#1</b>	<p>5.1. Facilitating access to and better sharing of knowledge and skills (page 85):</p> <p>“Evaluate and revise, where needed, the design, governance and functioning of <b>farming extension and advisory services</b>, aimed at providing farmers and food producers – in an inclusive way – with access to free and independent expert guidance, technical assistance, and training programs.”</p>	<p>It is essential that this guidance and training includes <b>advice on digital solutions</b>, because the benefits of digital technologies and their real performance in agriculture are not always clear or well understood. As an example, digital tools (e.g. digital farm logbooks) imposed by new EU regulations are perceived both as an extra burden and as new means for increasing the control over farmers activity, when they were intended to be the opposite: tools for making farmers' life easier.</p> <p>In addition, comparing the performance of different technologies/solutions is not straightforward, making difficult to estimate the Return on Investment. Thus, there is a need for <b>training, but also tools/methodologies to allow independent experts to benchmark (quantitatively) different solutions</b>, that will eventually lead to well-informed decisions on the selection of the most appropriate solutions.</p>
<b>REC#2</b>	<p>5.2. Increasing investments and partnerships in Research &amp; Innovation (page 85):</p> <p>“Support and strengthen <b>innovation hubs and experimental settings</b> (such as testbeds, field/living labs, landscaping initiatives and demo farms) across different regions of the EU, where farmers, food business operators,</p>	<p>We understand that enabling ag-tech companies to test and validate their innovative technologies in real conditions, demonstrating performance and viability, should be <b>one of the cornerstones of digital agriculture innovation in Europe</b>, as expressed in our previous input<sup>3</sup>. The TEF (Testing and Experimentation Facilities) initiative<sup>6</sup>, which is already being developed with help of the European Commission through the Digital Europe programme, goes in this direction.</p> <p>TEFs should even play a bigger role, filling existing gaps in the ecosystem and becoming <b>the places where innovative</b></p>

<sup>1</sup>[https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/agriculture-and-green-deal/strategic-dialogue-future-eu-agriculture\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/agriculture-and-green-deal/strategic-dialogue-future-eu-agriculture_en)

<sup>2</sup> A shared prospect for farming and food in Europe. The final report of the Strategic Dialogue on the future of EU agriculture. [https://agriculture.ec.europa.eu/document/download/171329ff-0f50-4fa5-946f-aea11032172e\\_en?filename=strategic-dialogue-report-2024\\_en.pdf](https://agriculture.ec.europa.eu/document/download/171329ff-0f50-4fa5-946f-aea11032172e_en?filename=strategic-dialogue-report-2024_en.pdf)

<sup>3</sup> AIOTI input for strategic dialogue on the future of EU agriculture. <https://aioti.eu/aioti-input-for-strategic-dialogue-on-the-future-of-eu-agriculture/>

<sup>4</sup> [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_24\\_6205](https://ec.europa.eu/commission/presscorner/detail/en/ip_24_6205)

<sup>5</sup> [https://agriculture.ec.europa.eu/document/download/171329ff-0f50-4fa5-946f-aea11032172e\\_en?filename=strategic-dialogue-report-2024\\_en.pdf](https://agriculture.ec.europa.eu/document/download/171329ff-0f50-4fa5-946f-aea11032172e_en?filename=strategic-dialogue-report-2024_en.pdf)

<sup>6</sup> <https://www.agrifoodtef.eu/>

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	<p><i>technology developers and public authorities can collaborate to pilot and assess the effectiveness of new or existing technologies and knowledge, while showcasing these in real-life settings."</i></p>	<p><b>technology created by ag-tech companies and the real needs of farmers meet:</b></p> <ul style="list-style-type: none"> <li>• Providing benchmarking services, as well as training for farmers and digital advisors (supporting REC#1)</li> <li>• Raising digital awareness, especially at a local level, sharing good practices and experiences of real farmers (supporting REC#1)</li> <li>• Involving final users (farmers) in the co-creation of new digital tools and solutions together with the ag-tech sector. This interaction should help to translate technology features into tangible benefits provided by usable products and, conversely, to translate pain points into product requirements. These activities could be performed and/or implemented (at least partially) in coordination with the EIP AGRI through its 'Focus Groups' and 'Operational Groups'<sup>7</sup>.</li> </ul> <p>Challenges to be addressed:</p> <ul style="list-style-type: none"> <li>• The business model of TEFs, achieving a proper balance between public funding and private resources attracted by commercialisation of services.</li> <li>• Concentration in large reference TEFs vs. more local approaches ensuring local impact. Local dimension and specialisation of the TEF should be jointly considered.</li> <li>• There is the need for one element to link all the pieces around the TEFs: research, co-creation, testing, training, dissemination... The existing European network of <b>Digital Innovation Hubs</b> seems the natural choice to play this role.</li> </ul>
<p><b>REC#3</b></p>	<p><i>5.2. Increasing investments and partnerships in Research &amp; Innovation (page 85):</i></p> <p><b>" Member States are requested to increase EU funding for research, development and innovation (RDI) initiatives, specifically on sustainability-focused agri-food technologies and innovations, allocating a higher percentage of the Horizon Europe to projects aimed at developing and testing new technologies and innovations for sustainable agriculture, food production, and distribution."</b></p>	<p>We completely agree with this recommendation, although there is a <b>strong need for a better alignment between EU, national and regional levels.</b></p> <p>We can find two recent examples in the implementation of the TEFs and the DIHs (Digital Innovation Hubs) initiatives. The situation where we have new instruments (with new funding rules and objectives), and a lack of proper coordination between EU and national/regional administrations, is seriously hampering the good progress of these initiatives and limiting their positive impact in the agrifood sector.</p> <p>Another example can be found in the implementation of public-private European partnerships, for which the variety of national approaches results in a fragmentation of participation and impact.</p> <p>More details can be provided in specific comments about these aspects.</p>
<p><b>REC#4</b></p>	<p><b>5.3. Streamlining regulatory procedures for the access to market of new technologies and innovations (page 86):</b></p> <p><b>"Harmonize standards and certification processes across Member States to reduce barriers</b></p>	<p>This general recommendation is applicable also to digital technologies, as expressed in our previous input<sup>3</sup>, to address the existing <b>lack of interoperability</b>. The proliferation of proprietary solutions and the lack of standards adoption lead, among others, to vendor lock-in, difficulty of integrating data from different tools, and scalability issues. Non-interoperable systems lead eventually to higher complexity and higher costs. These problems are especially relevant for small farms,</p>

<sup>7</sup> <https://ec.europa.eu/eip/agriculture/en/node.html>

	Strategic Dialogue Report recommendations	AIOTI input
	to market entry for innovative agri-food products and technologies"	with less financial resources and technical expertise to face the technical challenges.  One action point is to <b>accelerate the adoption of standards</b> that make digital farming solutions truly interoperable. This includes, but is not limited to, the efforts being done on the European Agrifood Data Space <sup>8</sup> . The agrifood sector should be in the priorities considered within the Rolling Plan for ICT Standardisation <sup>9</sup> . There are also global initiatives concerning digital agri-tech, for example led by ISO, for which there should be more support. All in all, efforts towards technical interoperability and standards must include round-table and multi-actor approaches.
REC#5	5.4. Using the opportunities of digitalization in a responsible manner (page 86):  "Work towards a <b>transparent data governance model</b> with clear rules on data ownership, interoperability and ethical use"	The efforts being done under the European Agrifood Data Space initiative <sup>8</sup> are clearly going in this direction. However, it must be considered that <b>many local initiatives are already taking place</b> . These have been spurred by public data spaces programs at national and regional level which are not necessarily coordinated with the EU initiative, even if they are being established under the general EU data spaces rules, like the Spanish plan for sectorial data spaces <sup>10</sup> .
REC#6	5.4. Using the opportunities of digitalization in a responsible manner (page 86):  "Investments in digital infrastructure should be accelerated, ensuring a good coverage of <b>high-speed internet connectivity</b> in all (rural) areas across Europe, including maximizing the <b>roll-out of broadband networks</b> ."	We fully agree in this recommendation. As noted in our previous input <sup>3</sup> , we cannot ignore the current situation in which <b>the connectivity needs of a large proportion of the farming areas in the EU are inadequately served</b> . This is seen commonly as one of the main barriers for the adoption of <a href="#">digital technologies in farming</a> , not only of advanced services but even the basic ones.  It must be noted as well that Europe is facing a process of progressive farmland abandonment. <sup>11</sup> <b>Reintegrating these abandoned lands in the agrifood sector</b> for production purposes cannot be done without proper digital infrastructure deployment.  Accelerate the <b>deployment of connectivity solutions that work for farming areas</b> should be a clear priority in the agenda of the agrifood sector. This includes, in the longer term, the design of future generation (6G) serving the real needs of the farming sector, but also in the short term the deployment of next-gen connectivity technologies (such as 5G) in rural areas, as well as the design of <b>alternative connectivity solutions together with suitable business models</b> (e.g. portable stations, LEO satellite connectivity, etc.) or <b>asynchronous operation modes</b> where users with no connectivity (e.g. out on the farm) can still enter data onto their phone and this is subsequently synced when the user is back in their home or office.
REC#7	5.4. Using the opportunities of digitalization in a responsible manner (page 86):  "Incentives, e.g. within the CAP framework, are needed for the adoption of precision agriculture"	We strongly agree with this recommendation, however the <b>use of digital technology in the CAP framework should not be restricted to precision agriculture</b> . The benefits of digital technologies go much beyond, in terms of monitoring and reporting for simplification of CAP controls <sup>12</sup> , biodiversity and

<sup>8</sup> <https://agridataspace-csa.eu/>

<sup>9</sup> <https://digital-strategy.ec.europa.eu/en/policies/rolling-plan-ict-standardisation>

<sup>10</sup> <https://datos.gob.es/es/noticia/plan-de-impulso-de-los-espacios-de-datos-sectoriales>

<sup>11</sup> J.M. Terres et al. Farmland abandonment in Europe: Identification of drivers and indicators, and development of a composite indicator of risk. Land Use Policy, 49, 20-34. <https://doi.org/10.1016/j.landusepol.2015.06.009>

<sup>12</sup> <https://aioti.eu/wp-content/uploads/2019/05/AIOTI-CAP-controls-and-ICT-technologies-May-2019.pdf>

	Strategic Dialogue Report recommendations	AIOTI input
	<p><b>technologies</b>, including IoT sensors, drones, AI, and satellite imagery, thereby improving resource efficiency and crop management.”</p> <p>[...]</p> <p>“Reaching the EU’s objectives in terms of agriculture and food production, rural development, climate neutrality, and biodiversity restoration requires a dedicated and commensurate budget that matches all ambitions in a balanced and equal importance.”</p>	<p>environmental monitoring<sup>13</sup>, or support of agroecology<sup>14</sup>, all crucial elements in the current CAP framework and the future of EU farming.</p>
<p><b>REC#8</b></p>	<p>5.4. Using the opportunities of digitalization in a responsible manner (page 87):</p> <p>“Overall robust <b>monitoring and evaluation mechanisms</b> need to be established to assess the impact of digitalization initiatives in the agri-food sector. Data on adoption rates, productivity gains, environmental outcomes, and socio-economic results should be collected to inform future policy decisions.”</p>	<p>We agree with this recommendation, which addresses two different questions:</p> <ul style="list-style-type: none"> <li>▪ As noted in our previous input<sup>3</sup>, the need to <b>measure and monitor the adoption and real use</b> of digital solutions in the agrifood sector. This is essential to understand the impact of digital technology in the sector, however currently it is highly challenging to find reliable statistics. On the one hand, we need standardised surveys with comparable data, at the EU level, on the adoption of digital tools. On the other hand, the current connectivity coverage statistics based on population coverage do not reflect well the reality in the farming sector. We propose to build an <b>EU Digital Index for the farming sector</b> (i.e. a sectorial version of DESI<sup>15</sup>) to monitor: <ul style="list-style-type: none"> <li>▪ Adoption of digital tools (by technology, type of farming activity, farm size, etc)</li> <li>▪ Availability of digital infrastructure, such as connectivity coverage.</li> </ul> </li> <li>▪ The need to effectively <b>benchmark the performance of digital solutions from a quantitative point of view</b> (see above views on REC#1).</li> </ul>
<p><b>REC#9</b></p>	<p>Deploying a new approach to deliver on sustainability (Page 10)</p> <p>“Members call for launching an <b>EU-wide benchmarking system in agriculture and food systems</b> aiming to harmonize methodologies of on-farm sustainability assessments. This system should be based on common objectives, principles, and criteria, and include <b>monitoring and verification tools</b> with common metrics and indicators. It should measure where each farm and sector stands, facilitate comparisons</p>	<p>We agree with the recommendation and further link it with REC#1 and REC#7.</p> <ul style="list-style-type: none"> <li>▪ In REC#7, we highlight the <b>role of digital technologies for monitoring and verification</b>.</li> <li>▪ In REC#1, we highlight the <b>role of TEFs for testing benchmarking protocols and validating benchmarking tools</b> (digital or not).</li> </ul>

<sup>13</sup> <https://aioti.eu/wp-content/uploads/2023/05/AIOTI-Role-of-IoT-in-addressing-biodiversity-and-environmental-monitoring-Final.pdf>

<sup>14</sup> <https://aioti.eu/wp-content/uploads/2022/02/AIOTI-Role-of-IoT-in-addressing-agroecological-focus-of-Green-Deal-Final.pdf>

<sup>15</sup> <https://digital-strategy.ec.europa.eu/en/policies/desi>

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	across diverse sustainability objectives and ambitions and thus contribute to carry out the necessary steps to increase sustainability standards"	
REC#10	<p>5.4. Using the opportunities of digitalization in a responsible manner (page 86):</p> <p>"Data utilization can offer significant benefits and support the benchmarking system (see C.1.2) and data exchange in the agrifood systems. It also raises concerns about fairness, quality and privacy. Hence, robust data governance frameworks and their proper implementation are essential.</p>	<p>See our comments above on REC#5.</p> <p>In addition, we see an opportunity to put this recommendation again in the context of TEFs, which could be cornerstones for the generation of a <b>"benchmarking data space"</b>.</p>
REC#11	<p>C.5. Better access to and use of knowledge and innovation (page 85):</p> <p>"Lastly, innovation and the use of technology must be aligned with and guided by <b>a long-term vision</b> of agriculture and food systems in the EU."</p>	<p>We fully concur with this perspective. It is also important to consider that the long-term vision is reinforced by centrally <b>coordinated accompanying research</b>, which continuously refines and aligns this vision, monitors progress, and adjusts research directions accordingly. This approach also facilitates the identification of innovation barriers and synergies with adjacent fields.</p>
REC#12	<p>5.1. Facilitating access to and better sharing of knowledge and skills (page 85):</p> <p>"This also implies the <b>establishment of institutional structures and organizational capacity</b> to identify and deal with knowledge and skills gaps, overcoming obstacles to the transition."</p>	<p>These measures are highly welcomed. It is also advisable to conduct <b>continuous or at least regular evaluations</b> through accompanying studies to assess labor market dynamics, identify necessary adjustments in labor demand and supply, provide recommendations, and facilitate stakeholder networking. This analysis should consider all spatial levels, including rural development and regional differences.</p>
REC#13	<p>5.1. Facilitating access to and better sharing of knowledge and skills (page 85):</p> <p>"Therefore, access to and sharing of knowledge and skills must be improved in a way that includes and benefits all actors in the food chain."</p>	<p>This is undoubtedly a crucial aspect, which, in our view, is already largely addressed by <b>Agricultural Knowledge and Innovation Systems (AKIS)</b>—a comprehensive knowledge exchange framework:</p> <p>"the ways people and organisations interact within a country or a region. AKIS can include farming practice, businesses, authorities, research, etc. and can vary a lot, depending on the country or sector. When developing new AKIS, technical, organisational and social dimensions should be taken into account (a 'systems approach'), this helps bridge the gap between science and practice."<sup>16</sup></p> <p>During the period 2023–2027, AKIS is undergoing evaluation and enhancement, including an assessment of how its various components interact to support knowledge creation and innovation.</p>

<sup>16</sup> [eip-agri brochure knowledge systems 2018 en web.pdf](#)

	Strategic Dialogue Report recommendations	AIOTI input
		We recommend that EBAF actively collaborate with AKIS and integrate its activities into the ongoing evaluation and improvement process.

## Final remarks

1. The Strategic Dialogue report remarks the importance of further developing and supporting environmentally friendly agriculture, in particular **organic farming, agroecology and regenerative agriculture**. Thus, it is important to support the development of digital solutions for these agriculture modalities, which is a new area to be explored: from simple uses of sensors to highly sophisticated digital models/digital twins and gamification of the agricultural transition. We need digital solutions focused on the needs of an **agriculture that pursues the transition to zero emissions**.
2. The EU farming sector is mainly composed of small family farms. The efforts to digitalize the sector must take into account this reality without contributing to further enlarge the digital divide.
3. Supporting the digitalisation of the European agrifood sector should be done in close cooperation with the European ag-tech sector. The opportunity is in promoting European ag-tech companies which make the most of AI, IoT, sensing, communications, etc... all technologies Made in Europe integrated in an innovative agrifood value chain, contributing to achieve strategic autonomy for Europe, hand in hand with food security and sustainability.



## About AIOTI

[AIOTI](#) is the multi-stakeholder platform for stimulating AI, IoT and Edge Continuum Innovation in Europe, bringing together small and large companies, academia, researchers, policy makers, end-users and representatives of society in an end-to-end approach. We strive to leverage, share and promote best practices in the AI, IoT and Edge Continuum ecosystems, be a one-stop point of information to our members while proactively addressing key issues and roadblocks for economic growth, acceptance and adoption of the AI, IoT and Edge Continuum Innovation in society. AIOTI contributions goes beyond technology and addresses horizontal elements across application domains, such as matchmaking and stimulating cooperation by creating joint research roadmaps, defining policies and driving convergence of standards and interoperability.

AIOTI WG Agriculture addresses current and emerging needs of the Modern Precision and Sustainable Agriculture through actions related to (1) Policies and standards by contributing to the development of EU policies and standards in Agriculture, Fisheries and Forestry, (2) Research and Innovation by creating opportunities for collaborative research and innovation for domain stakeholders and facilitating consortia building for EU funded projects, and (3) technological innovation by Identifying key technological developments and gaps in in the relevant areas of Agriculture, Fisheries, Forestry and Environmental Monitoring.