D4.2 Dissemination, Exploitation & Communication Plan – updated version

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Abstract:	D4.2 presents the updates to the Dissemination, Exploitation, and Communication (DEC) Plan for the OpenAgri project. The report provides an overview of activities undertaken by WP4 leaders and consortium partners from M4 to M13, highlighting progress achieved and key initiatives implemented. It also outlines an action plan for the next phase of the project, ensuring alignment with project objectives and continued engagement with stakeholders.

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List of Abbreviations and Acronyms	
ADSs	**Agricultural Digital Solutions**
AKIS	**Agricultural Knowledge and Innovation Systems**
DEC	**Dissemination, Exploitation and Communication**
DIH	**Digital Innovation Hubs**
EIP - AGRI	**European Innovation Partnership for Agricultural Productivity and Sustainability**
EC	**European Commission**
EU	**European Union**
IPR	**Intellectual Property Rights**
KPI	**Key Performance Indicator**
KER	**Key Expected Results**
OS	**Open Source**
SOSTAC	**Situation, Objectives, Strategy, Tactics, Action, Control**
SIPs	**Sustainable Innovation Pilots**
TG	**Target Groups**

Table 1: List of abbreviations and acronyms

Executive Summary

This document presents the updated version of the Dissemination, Exploitation, and Communication (DEC) Plan for the OpenAgri project, covering progress from the first year of implementation and outlining strategic actions for the next phases. This update builds on the foundations established in D4.1, incorporating empirical insights, partner feedback, and quantitative progress indicators to ensure alignment with project objectives.

Over the past year, OpenAgri has made significant strides in achieving its dissemination, exploitation, and communication goals. Key accomplishments include:

- **Digital Presence**: The OpenAgri website has served as the project's central information hub, with regular updates showcasing project developments, results, and upcoming activities. Active social media engagement and newsletters have amplified project visibility and reached diverse audiences.
- **Stakeholder Engagement**: A range of activities, including high-level events, webinars, and community-building initiatives, have engaged farmers, policymakers, and industry stakeholders. These efforts have facilitated the integration of feedback into project activities and strengthened connections with target groups.
- **KPI Monitoring**: Enhanced tools for tracking key performance indicators (KPIs) have provided real-time insights into the effectiveness of dissemination and communication efforts. These tools have enabled partners to monitor progress and adjust strategies to meet targets effectively.
- **Preliminary Exploitation Efforts**: The project has identified and updated Exploitable Results and initiated pathways for their practical application. Project partners have contributed valuable data for further refinement of future exploitation pathways.

The revised DEC Plan introduces improvements to methodologies and strategies to address identified gaps and capitalize on lessons learned. This includes:

- **Tailored Communication**: Refinement of messaging and materials to better align with stakeholder needs and project objectives.
- **Enhanced Collaboration Tools**: Deployment of new templates and guidelines for partners to facilitate consistent and effective communication efforts.
- **Focus on Synergies**: Proactive efforts to establish partnerships with complementary projects, networks, and platforms to maximize impact and avoid redundancy.

Moving forward, OpenAgri will prioritize the following:

- **Targeted Campaigns**: New dissemination campaigns will focus on key stakeholders, including policymakers, farmers, and technology providers, to expand the adoption of project outcomes.
- **Advanced Exploitation Planning**: Building on the groundwork laid in the first year, the project will develop detailed exploitation pathways for Key Exploitable Results (KERs), integrating insights from SIPs and broader stakeholder feedback.

- **Impact Maximisation**: Efforts will concentrate on scaling dissemination activities and ensuring that project results contribute to sustainable agricultural practices and policy frameworks.

This version introduces several updates and refinements across multiple sections:

- **Expanded Progress Overview (Section 2)**: Incorporates achievements from M4 to M13, detailing stakeholder engagement activities, digital presence, and dissemination efforts.
- **Enhanced KPI Monitoring (Section 4.1)**: Includes improved tracking mechanisms and real-time evaluation tools to assess communication and dissemination efforts.
- **New Synergies and Collaborations (Section 3.3.7)**: Provides an updated overview of partnerships, sister project collaborations, and joint activities.
- **Updated Exploitation Strategy (Section 5)**: Reflects refinements in the Exploitation and IP Catalogue, results from the second IP Workshop, and conducted market analysis.

This updated DEC Plan provides a structured framework to guide ongoing activities, ensuring that dissemination, exploitation, and communication efforts remain goal-oriented and yield measurable benefits for stakeholders across the agricultural ecosystem.

1. Introduction

1.1 Project Summary

OpenAgri, a Horizon Europe project funded by the European Union, is dedicated to empowering farmers through the provision of free, open-source (OS) tools that are designed to operate effectively even in remote locations with limited network connectivity. Through its 14 Sustainable Innovation Pilots (SIPs), the project serves as a bridge connecting farmers to cutting-edge technologies, thereby narrowing the gap between rural and urban communities. This inclusive approach not only enhances access to essential tools but also contributes to a more prosperous and equitable future for all stakeholders involved.

By addressing key challenges in the agricultural sector, including issues related to accessibility, performance, and sustainability of digital farming tools, OpenAgri is paving the way for a more resilient and efficient agricultural ecosystem.

1.2 Document Scope

This updated Dissemination, Exploitation, and Communication (DEC) Plan builds on the strategies established in D4.1, incorporating insights gained during the first year of the project. It reflects the progress made in engaging stakeholders, raising awareness, and ensuring the practical applicability of project outcomes. Additionally, it introduces refined methodologies, new tools, and improved mechanisms for tracking and evaluating efforts.

The plan provides a detailed framework for improving the reach and impact of the project. It focuses on three interconnected aspects: dissemination and communication to engage stakeholders and amplify project visibility, exploitation to ensure the meaningful application of project results, and monitoring to evaluate progress and adapt strategies as necessary.

1.3 Document Structure

The document is organized into eight chapters:

Chapter 1: Provides the context, scope, and structure of the document.

Chapter 2: Explores the project's results and provides an in-depth overview of the dissemination and communication approach, detailing the strategies, timelines, and key audiences targeted to achieve its goals.

Chapter 3: Provides a summary of the dissemination and communication efforts carried out to date, highlighting the tools and channels employed, updates to the visual identity and communication materials, and the diverse range of communication platforms used.

Chapter 4: Explains the processes and tools for reporting and monitoring, with a particular emphasis on key performance indicators (KPIs)

Chapter 5: Offers an overview of Key Exploitable Results, details from the IP workshop, a comprehensive market analysis, insights into relevant regulations and policies, and an assessment of market barriers and opportunities.

Chapter 6: Summarises the key findings and outcomes of the D4.2 deliverable.

Chapter 7: Provides the list of references used in this deliverable.

Chapter 8: Represents the Annex.

2. Overview

2.1 Project Aims and Outcomes

OpenAgri is a three-year project that began in January 2024 and is set to conclude in December 2026, with the participation of 18 partners from 7 different countries. Its primary aim is to empower farmers with **free, open-source (OS) tools** that can operate even in remote locations with limited network connectivity.

OpenAgri seeks to achieve 4 interrelated objectives:

SO1: Develop a methodology, build an infrastructure and a set of reusable open-source software services to enable the co-creation of open-source ADSs for use by farmers, advisors and AgriTech SMEs.

SO2: Facilitate the creation of a community of farmers, advisors, IT experts and AKIS actors for co-creating OS and open hardware ADSs focusing on a comparison of edge, cloud and mixed solutions, thus enhancing the sector's sustainability and competitiveness.

SO3: Pilot the co-created edge and cloud based ADSs and compare their effectiveness, efficiency and energy performance in various biogeographic and socio-economic framing contexts at farm, regional and national scale.

SO4: Provide a decision-making tool for policymakers, farm advisors, farmers and public administration for the selection of the most appropriate edge, cloud, or mixed model-based OS ADSs.

2.2. Methodology

The OpenAgri DEC Plan has adopted a structured approach inspired by the SOSTAC model, which encompasses essential elements such as Situation Analysis, Objectives, Stakeholder Strategies, Methods and Activities, and Control. These components form the foundation of the dissemination, exploitation, and communication efforts outlined in the earlier deliverable. The implementation of these activities is ongoing, with their effectiveness continuously evaluated using Key Performance Indicators (KPIs).

Figure 1: SOSTAC model which inspired the OpenAgri DEC plan

2.2.1 Multi-actor Approach

OpenAgri employs a multi-actor approach to co-design and co-create innovative Agricultural Digital Solutions (ADSs) and sustainable business models, tailored to the needs of diverse agricultural

stakeholders. This approach engages a wide range of target groups, including small and medium-sized farmers, technology providers, policymakers, and local innovators, fostering collaboration across different agricultural contexts. By prioritizing inclusivity and addressing the unique challenges faced by remote and underserved farming communities, OpenAgri aims to drive scalable innovations that enhance sustainability, productivity, and economic resilience in the agrifood sector.

Key activities include adapting materials to meet the needs of diverse stakeholders, crafting tailored messages for different target groups, leveraging partner networks to extend outreach, and building synergies with complementary initiatives. Participatory engagement, knowledge exchange, and targeted support for stakeholders foster collaboration and ensure the widespread dissemination of project outcomes.

Figure 2: OpenAgri multi-actor approach

2.3 DEC Objectives and Time Plan

The objectives of the OpenAgri DEC Plan are comprehensive and aim to support the project's success on multiple fronts:

- **Facilitate Integration**: Foster collaboration among key players across the agricultural value chain and maintain strong engagement with stakeholders throughout the project's lifecycle.
- **Promote OpenAgri**: Enhance awareness of OpenAgri among diverse stakeholder groups and communities by identifying critical audiences, developing tailored messaging, and employing effective engagement strategies.
- **Diversify Marketing Approaches**: Leverage a mix of targeted content marketing and community-building activities to maximize the reach and impact of the project's dissemination efforts.

- **Increase Awareness and Adoption**: Drive recognition and understanding of OpenAgri's goals and outcomes among farmers, advisors, policymakers, and other key stakeholders, encouraging widespread acceptance and implementation of the project's innovations.
- **Strategically Manage Exploitation and Intellectual Property**: Oversee activities related to the exploitation of project results, intellectual property management, and market analysis, ensuring the project achieves its maximum impact.

The DEC Plan is organized into four phases, carefully aligned with the project's timeline, from initiation through post-completion. This phased approach ensures that dissemination, communication, and exploitation activities evolve in step with project progress, reinforcing long-term impact and sustainability.

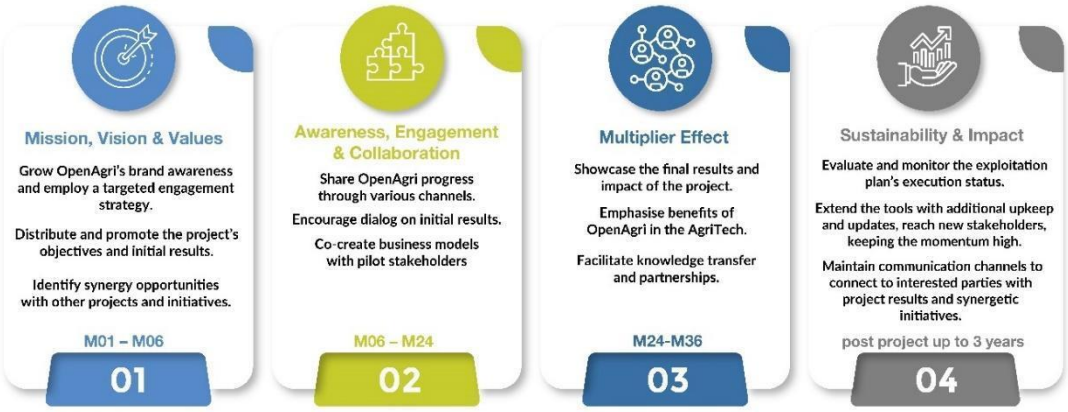


Figure 3: Stages in implementing DEC strategies

2.4 Target groups and engagement strategies

To support the development of the OpenAgri ecosystem and expand its reach, OpenAgri has identified key target groups and tailored engagement strategies as part of its initial DEC Plan. These strategies are designed to effectively connect with stakeholders and amplify the project's impact within the agricultural sector and beyond.

Target Groups	Key messages	Tools and channels
Farmers (Incl. farmers; farm businesses; farmers' associations & federations, unions & cooperatives)	Improve your farm's productivity and decision-making with data-driven tools. Reduce your farm's environmental impact using digital tools. Facilitate the process of reporting and data sharing for CAP subsidies and other reporting requirements.	Policy-focused and other events, practice abstracts, press releases, website, newsletters, social media, partners' networks, other projects/initiatives, etc.
ADSs providers (AgriTech SMEs/scale-ups)	Collaborate with a network of experts and developers to shape the future of agriculture	Webinars, press releases, website, social media, practice abstracts, events, etc.
Open Software Developers	Play a key role in defining the future of agricultural technology through open-source innovation.	Webinars, press releases, website, social media, practice abstracts, events, etc.

Agri Cooperatives Farm Managers and Administrators	Offer your members access to cutting-edge open-source agricultural tools that will lower production costs, reduce environmental impacts and enable easier reporting.	Webinars, newsletters, workshops, Open Days, website, etc.
Extension & Advisory Services Public & private service providers, and agricultural consultants; other AKIS actors	Offer more comprehensive advice on the application of open-source tools in farming.	Press releases, newspapers, practice abstracts, website, newsletters, social media, AKIS Platform, partners' networks, projects/initiatives, operational/focus groups, etc.
Authorities & Policy makers Agricultural & env. authorities; CAP governance bodies (e.g., paying agencies & certification bodies); standardization bodies; EU's DG AGRI, DG ENV, Public Env. monitoring authorities	Support the development of a more innovative and technology-driven agricultural sector.	Policy focused and other events, practice abstracts, press releases, website, newsletters, social media, partners' networks, other projects/initiatives, etc.
Thematic networks & platforms CAP, SWG SCAR-AKIS, Multi-actor projects & Platforms	Promote the adoption of sustainable and innovative agricultural practices	Webinars, press releases, websites, social media, practice abstracts, events, etc.
DIHs In fields of Agriculture, Environment, Technology, Data, AI at local, regional, national and EU level. Agrifood EDIHs	Bridge the gap between research and development, and practical application on farms.	Webinars, newsletters, workshops, Open Days, website, etc.
Industry Associations Agrifood/ ICT clusters/ associations	Champion the use of open-source technology to drive progress in agriculture.	Events and open days, press releases, newsletters, social media, industry magazines, statements in the media, etc.

Table 2: Target groups and engagement strategies for OpenAgri

The engagement strategies implemented by OpenAgri to date have encompassed diverse activities across local and European partner networks. Partners have actively engaged external stakeholders through outreach efforts, collaborative discussions, and participation in industry and policy-focused events. European partners have leveraged virtual engagement strategies to connect with key organisations, share project updates, and expand OpenAgri's network. These efforts have been complemented by the promotion of project objectives and opportunities at various events, enhancing the project's visibility and stakeholder engagement.

3. Dissemination and Communication channels, tools, and activities

3.1 Visual Identity

As outlined in the initial DEC Plan, a key priority for OpenAgri's dissemination and communication strategy was the development of a strong and recognizable visual identity. This identity was designed to effectively convey the project's mission while maintaining consistency across all communication efforts.

OpenAgri's visual identity integrates traditional and modern design elements to create a professional and impactful presence. The identity package includes a distinctive logo, a comprehensive branding guide, document and presentation templates, and clear instructions for partners on the appropriate use of communication materials and acknowledgment of EU funding. Additionally, the project has produced a Visual Identity Book, launched a dedicated website, and developed an Offline Identity Material Package to support branding across both physical and digital platforms. For further examples of these materials, reference is made in the deliverable D4.1.

The branding materials created are tailored for both physical and virtual applications and adhere to the project's strict branding standards. These resources include templates for key documents, project posters, brochures, roll-ups, and other visual assets. Partners have successfully used these materials to engage with local authorities, academic institutions, and other stakeholders, distributing them at events and within their networks. These efforts have generated significant positive engagement and heightened awareness of OpenAgri's objectives and activities.

Figure 4: OpenAgri promotional material

These materials, along with visuals created for consortium activities, have played a key role in establishing and maintaining a consistent and professional visual identity for OpenAgri. In addition to the branding elements, templates for administrative tasks, including deliverables, PowerPoint

presentations, and official letters, were developed under WP4 to ensure streamlined and uniform communication across the consortium.

Throughout the initial 12 months of the project, the visual identity was refined and tested across various channels to gauge public response. These tests included the use of different types of visual communication, highlights of project achievements, and showcasing partner involvement at events and initiatives. This iterative process allowed for an assessment of how well the visual identity resonated with diverse audiences.

Based on feedback received and evolving project requirements, as outlined in previous deliverable, adjustments were made to enhance the clarity, effectiveness, and overall impact of the visual identity. For a deeper understanding of the adaptability and application of these materials, the subsequent sections of this chapter provide further details.

The logo serves as a cornerstone of OpenAgri's visual identity, designed to ensure immediate recognition and alignment with the project's mission. It strikes a balance between simplicity and distinctiveness, incorporating elements that reflect the core themes of the project. The OpenAgri logo features the project acronym in a clean, modern typeface, paired with graphical elements symbolizing innovation, sustainability, and agricultural advancement. The design is optimized for both digital and print use, ensuring versatility and clarity across various applications.

The final logo was developed collaboratively and agreed upon by all consortium members. It is consistently applied across all internal and external communications, including the project website, presentations, brochures, press releases, and event materials, maintaining a unified brand presence. Feedback indicates that the logo has been effective in fostering recognition and reinforcing the project’s identity.

Additionally, the color palette was carefully selected to represent OpenAgri’s values, emphasizing sustainability, growth, and technological inclusivity in agriculture. The colors are optimized for digital platforms while ensuring sufficient contrast for black-and-white printing, enhancing their adaptability. For further details on the logo design and its development process, please refer to the previous deliverable (D4.1).

3.1.1 European Flag and Funding Statement

Acknowledging the support of the European Union is essential for all dissemination and communication activities carried out by the OpenAgri project beneficiaries. This includes media engagements, events such as workshops and seminars, promotional materials, and major deliverables achieved with funding from Horizon Europe. Prominently displaying the European flag (emblem) and the funding statement emphasizes the vital role of EU support in enabling the project's success.

Figure 5: EU emblem

3.1.2 Disclaimer for D&C Related Materials

In addition to the EU Emblem, dissemination and communication material (when applicable) will include the following disclaimer (translated into local languages where appropriate):

"Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Research Executive Agency. Neither the European Union nor the granting authority can be held responsible for them."

3.2 Communication Materials

Since the previous deliverable, OpenAgri has demonstrated the critical role of communication materials in increasing the project's visibility and engagement. Effective materials, tailored for both offline and online use, have contributed to a notable rise in website traffic, social media following, and newsletter subscriptions. Designed to appeal to local, European, and global audiences, these materials have successfully reached diverse public and stakeholder groups.

A key example of this success was OpenAgri's participation in a high-profile agricultural event, where promotional materials played a significant role in engagement. For this event, items such as tote bags, microfiber cloths, notebooks, folders, stickers, and badges were thoughtfully designed and distributed to maximize impact. Additionally, the use of a single, impactful poster, rather than multiple separate designs, streamlined the visual presentation and reinforced the project's brand identity.

These materials not only enhanced the professional and modern appeal of OpenAgri's messaging but also served as effective conversation starters. Attendees, including farmers and other stakeholders, were drawn to the exhibition booth, enabling meaningful discussions and fostering connections with the team representing the project. Further details about this event are provided later in this deliverable.

Figure 6: Example of OpenAgri communication materials

3.3 OpenAgri's Digital Presence

OpenAgri maintains an active and dynamic digital presence across multiple channels, ensuring regular updates to keep stakeholders informed and engaged. Alongside the dedicated project website and various social media platforms, OpenAgri issues a newsletter and distributes press releases regularly to further enhance its visibility. These efforts have effectively captured attention, resulting in increased awareness and recognition of the project, including coverage by reputable media outlets.

PROJECT COMMUNICATION CHANNEL METRIC	ACHIEVED VALUE
Unique website pageviews	34,990
Linkedin followers	861
Facebook followers	41
X followers	34
Youtube followers	13
Instagram followers	45
Newsletter	522

Table 3: Key Communication Metrics

3.3.1 Website

The OpenAgri website (https://horizon-openagri.eu/), launched in M01, functions as a central platform for communication and dissemination, allowing target audiences and stakeholders to stay informed about the project's progress and results. Designed to be user-friendly, the website features up-to-date content, including news updates, editorials, videos, informative blogs, and key project outcomes. To ensure broad accessibility, it also provides digital visualizations of project processes and results. Its mobile-friendly design further enhances accessibility, extending the project's reach and impact.

To maximize visibility and align with the KPIs outlined in the Grant Agreement, OpenAgri integrates search engine optimization (SEO) practices. These include the strategic use of relevant keywords to engage target groups, with a particular focus on blog content. Continuous SEO monitoring evaluates the effectiveness of these efforts, ensuring the website maintains strong search engine rankings and effectively contributes to the project's dissemination objectives.

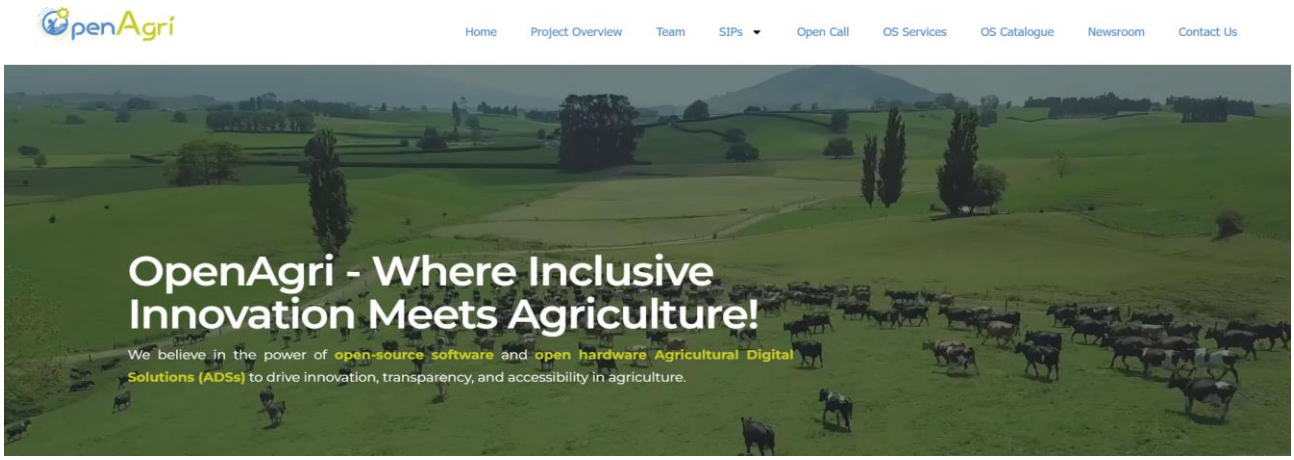


Figure 7: OpenAgri website homepage

The website is structured with the following sections/tabs:

Home Page features the project logo, graphics, project motto, goals, crops in focus, a set of values, a newsletter subscription pop-up, along with social media icons (LinkedIn, Facebook, Twitter, YouTube, Instagram, Slideshare), and contact information.

Project Overview provides a more detailed description of the project and outlines its goals.

Team showcases the consortium partners and offers brief descriptions of each. Users can click on each partner's logo, leading to a new page with a short description of their institution/organisation and their role in the project, along with a link to their website.

SIPs (Sustainable Innovation Pilots) offers a detailed overview of each SIP, including partners, crops in focus, goals, key performance indicators (KPIs), and business and governance models.

Open Call provides comprehensive information and guides for the Open Call.

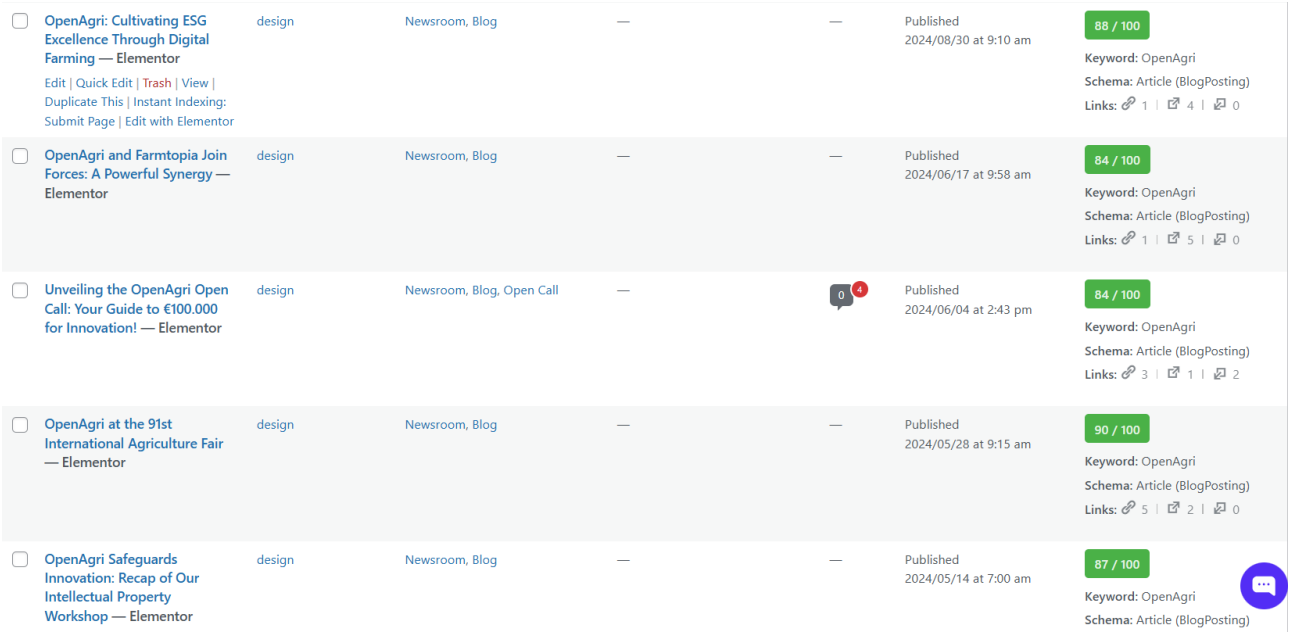
The **OS Services** page provides an overview of OpenAgri's open-source software tools designed to support the digitization of agriculture. These reusable, standards-compliant services enable AgTech providers to develop cost-effective and interoperable solutions, promoting best practices in data sharing, resource optimization, and automation. Built on a microservices architecture, these tools are hosted on GitHub and continuously improved with input from the wider development community.

The **OS Catalogue** is an interactive resource showcasing a wide range of open-source Agricultural Digital Solutions (ADSs). From complete solutions to specialized software and hardware projects, the catalogue helps farmers, developers, and advisors identify and adopt the most effective technologies to enhance agricultural practices and sustainability.

With advanced search and filtering options, detailed solution profiles, and integration tools, the OS Catalogue is designed to streamline the discovery and implementation of innovative tools. Stakeholders are encouraged to explore, provide feedback, and contribute to this dynamic resource, ensuring its continued relevance and growth.

Newsroom includes press releases, news posts, and articles to inform stakeholders about project activities, upcoming events, results, and SIP progress. It also includes a Media Kit in the drop-down menu, offering materials such as logos, posters, brochures, flyers, and other communication resources of interest to media outlets.

To maximize reach and engagement, OpenAgri's SEO efforts are strategically directed toward optimizing each blog and news article. This includes leveraging keyword research, crafting meta descriptions, and employing advanced optimization techniques. Recent posts have demonstrated strong performance, achieving high SEO scores (83/100 or above) as evaluated by the Rank Math WordPress plugin.



OpenAgri: Cultivating ESG Excellence Through Digital Farming — Elementor Edit | Quick Edit | Trash | View | Duplicate This | Instant Indexing: Submit Page | Edit with Elementor	design	Newsroom, Blog	—	—	Published 2024/08/30 at 9:10 am	88 / 100 Keyword: OpenAgri Schema: Article (BlogPosting) Links: 1 | 4 | 0
OpenAgri and Farmtopia Join Forces: A Powerful Synergy — Elementor	design	Newsroom, Blog	—	—	Published 2024/06/17 at 9:58 am	84 / 100 Keyword: OpenAgri Schema: Article (BlogPosting) Links: 1 | 5 | 0
Unveiling the OpenAgri Open Call: Your Guide to €100.000 for Innovation! — Elementor	design	Newsroom, Blog, Open Call	—	0 4	Published 2024/06/04 at 2:43 pm	84 / 100 Keyword: OpenAgri Schema: Article (BlogPosting) Links: 3 | 1 | 2
OpenAgri at the 91st International Agriculture Fair — Elementor	design	Newsroom, Blog	—	—	Published 2024/05/28 at 9:15 am	90 / 100 Keyword: OpenAgri Schema: Article (BlogPosting) Links: 5 | 2 | 0
OpenAgri Safeguards Innovation: Recap of Our Intellectual Property Workshop — Elementor	design	Newsroom, Blog	—	—	Published 2024/05/14 at 7:00 am	87 / 100 Keyword: OpenAgri Schema: Article (BlogPosting)

Figure 8: Screenshot showing RankMath SEO scores of OpenAgri blogs

Synergies page serves as a dedicated space to showcase the project's collaborative relationships and partnerships. This section highlights connections with sister projects, media partnerships, and other initiatives that align with OpenAgri's mission. It will provide an overview of joint activities, shared goals, and cooperative efforts that contribute to the project's impact and amplify its influence across the agricultural and technological sectors. By illustrating these synergistic relationships, the tab will emphasize the importance of collaboration in achieving sustainable and inclusive innovations in digital farming.

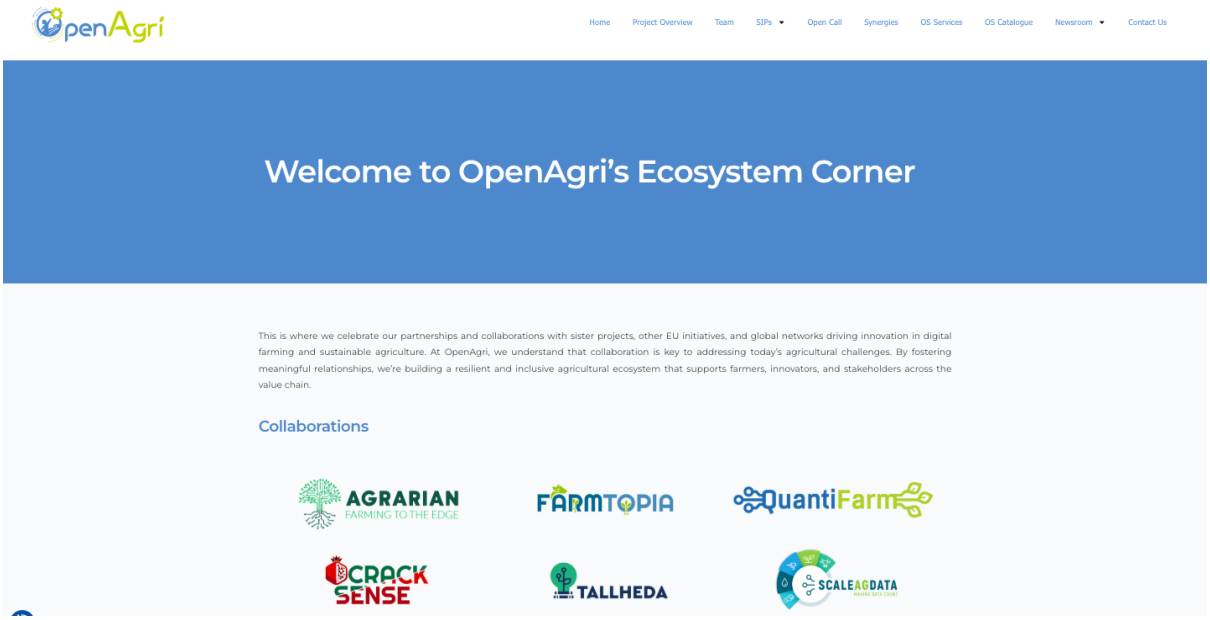


Figure 9: Synergies on the OpenAgri website

Contact Us provides all contact information for the project, enabling easy communication with stakeholders.

Additionally, the website incorporates a Privacy Policy and Terms and Conditions, establishing general rules and policies governing visitors' use of the OpenAgri website.

Regular analysis is conducted to monitor website metrics and ensure the platform functions effectively while supporting the dissemination and communication strategy. This analysis is performed using the Google Analytics dashboard to track progress and measure impact. The OpenAgri website is on course to meet the website-related KPIs outlined in the Grant Agreement. As of the latest analysis, the website has achieved 34,990 page views, accounting for % of the target KPI.

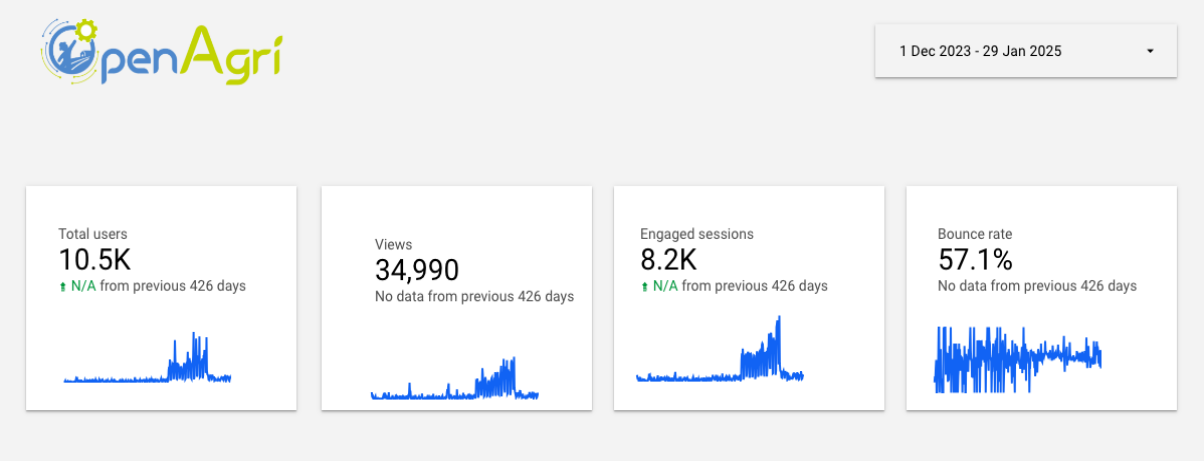


Figure 10: Screenshot showing Google Analytics of the OpenAgri website

3.3.2 Social Media

From the outset of the OpenAgri project, we have built a strong and recognizable presence across six social media platforms: LinkedIn, Facebook, X (formerly Twitter), YouTube, Instagram, and SlideShare. By combining informative and engaging captions with visually appealing content, we have consistently shared updates and news that align with the project's mission, ensuring effective outreach to diverse audiences.

Figure 11: Icons presenting OpenAgri's social media presence

As of 29/01/2025, OpenAgri has a cumulative 994 followers across all its social media platforms. In addition to its dedicated social media profiles, the project has actively leveraged the networks of partners and individual consortium members to expand its reach. This aligns with the initial DEC Plan outlined in D4.1, which emphasized encouraging consortium members to share project content and create original posts highlighting the project.

To maintain a structured and engaging presence on social media, OpenAgri has implemented targeted campaigns designed to attract and engage followers. These include:

- **Meet Our Partners Campaign**: This ongoing campaign showcases the consortium's partner organisations, highlighting each partner's role in the project and including quotes from their team members. Posts are regularly shared to spotlight the 18 partner organisations contributing to OpenAgri's success.
- **Meet Our Collaborators Campaign**: Another active campaign promoting collaborations and synergies with sister projects and other initiatives within the OpenAgri ecosystem. These posts introduce audiences to collaborators, outline overlapping goals, and showcase shared results to emphasize the value of partnerships.
- **Open Call Promotional Campaign**: This campaign is dedicated to sharing updates and promoting opportunities related to the project's Open Calls. It highlights key information about application processes, eligibility criteria, deadlines, and benefits for participants, ensuring widespread awareness and engagement among potential applicants. The campaign plays a crucial role in attracting diverse stakeholders to participate in the Open Call.

These campaigns, combined with consistent updates and visually engaging content, have effectively supported OpenAgri's efforts to broaden its audience and enhance its visibility across key social media channels.

Figure 12: Example of Meet our Partners campaign

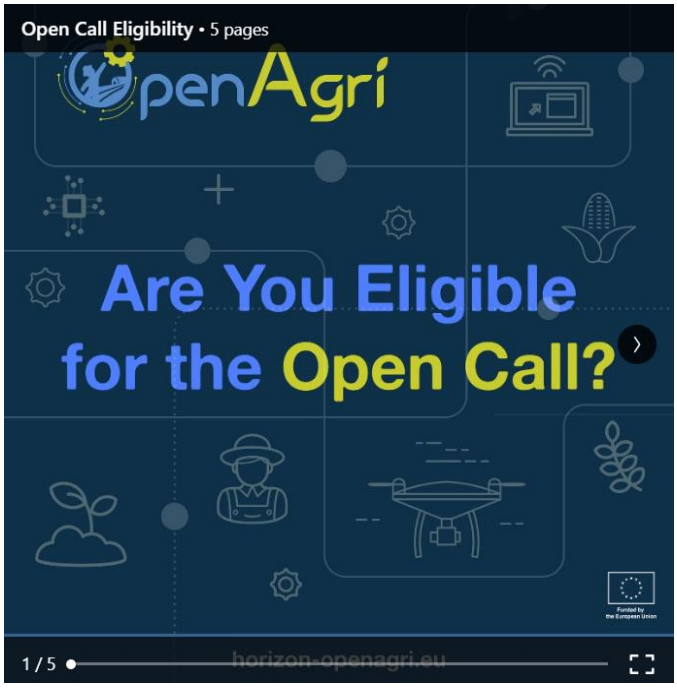


Figure 13: Example of the Open Call campaign

OpenAgri places significant emphasis on the strategic use of hashtags to enhance its social media presence. By leveraging hashtags, the project amplifies visibility, ensures key messages are accessible, and connects with a diverse range of audiences. Hashtags are particularly effective in transforming complex topics into engaging, searchable phrases that resonate with target communities.

To ensure their continued relevance and effectiveness, the selected hashtags are regularly evaluated and refined based on engagement metrics and feedback. This iterative approach allows OpenAgri to adapt its strategy to meet the needs of its audience effectively. While the hashtags introduced in the initial deliverable remain in use, some have been modified to reflect their performance and impact.

Figure 14: Hashtags selected for more effective project promotion

Additionally, the following diagram illustrates the key components of a visually engaging social media post. This serves as a valuable framework for creating impactful and effective content, ensuring consistency and resonance with the project's target audiences throughout its duration.

Figure 15: Diagram presenting method for crafting enticing social media content

3.3.2.1 LinkedIn

LinkedIn has been (https://www.linkedin.com/company/openagri) a key platform for connecting OpenAgri with its target audiences and promoting project activities. With over 800 followers to date, LinkedIn has proven to be the most effective social media platform for advancing OpenAgri's objectives. It serves as a vital hub for engaging with the research community, agricultural stakeholders, industry representatives, and environmental groups, while also identifying opportunities for collaboration with other projects and initiatives.

Project updates are shared consistently, typically twice a week, to maintain audience engagement and visibility. These posts highlight key developments, insights, and opportunities related to OpenAgri. Figure 16 showcases an example of a LinkedIn post with some of the highest impressions and click-through rates, reflecting the platform's effectiveness in reaching and engaging the project's audiences.

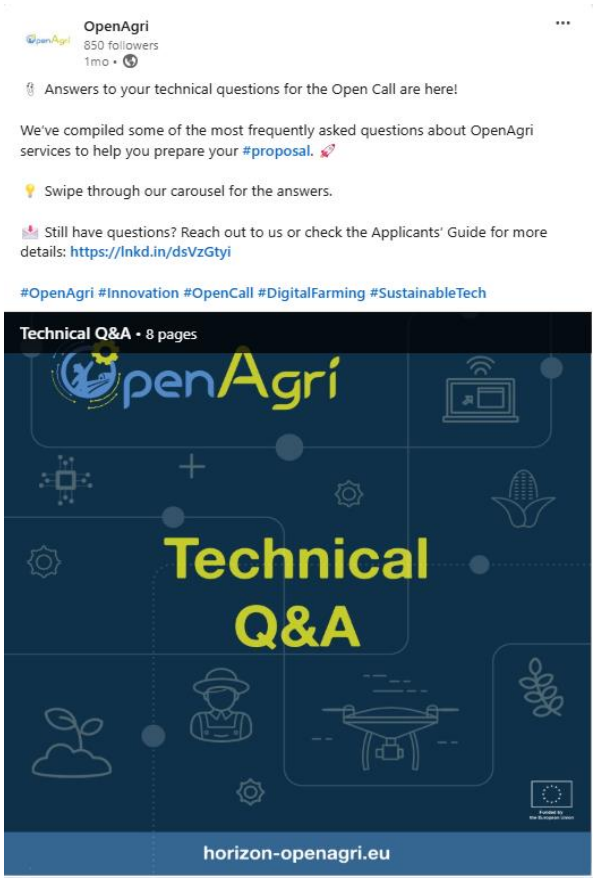


Figure 16: Linkedin post

3.3.2.2 Facebook

OpenAgri currently has 40 followers on its Facebook page, which is actively used to raise awareness among the general public, researchers, and the farming community. The platform serves as a space for sharing project updates, engaging content, and relevant news to connect with a diverse audience. Figure 17 highlights an example of posts.

Figure 17: Facebook post

3.3.2.3 X (Twitter)

OpenAgri's X account plays an important role in enhancing project visibility and fostering connections with policymakers. Through concise messages of 280 characters or less, the account shares updates, event news, articles, and blogs, making it a suitable platform for engaging a community interested in learning more about the project. Currently, the account has 32 followers. Figure 18 provides a screenshot of one of the posts, showcasing its approach to sharing impactful content and driving engagement with its audience.

Figure 18: X post

3.3.2.4 YouTube

A YouTube channel has been established to host and share a variety of video content, including interviews, webinars, highlights from Sustainable Innovation Pilots, and other project-related insights.

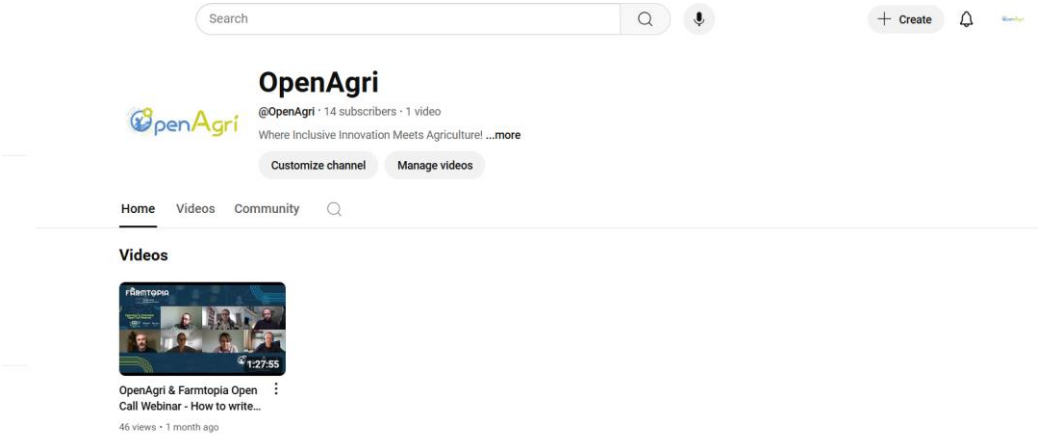


Figure 19: Open Agri YouTube

3.3.2.5 Instagram

Our Instagram profile has successfully attracted a diverse audience, significantly expanding our reach and visibility. By leveraging visually engaging content such as photographs and reels (short videos), the profile effectively connects with a broad range of followers, fostering engagement and raising awareness about the OpenAgri project.

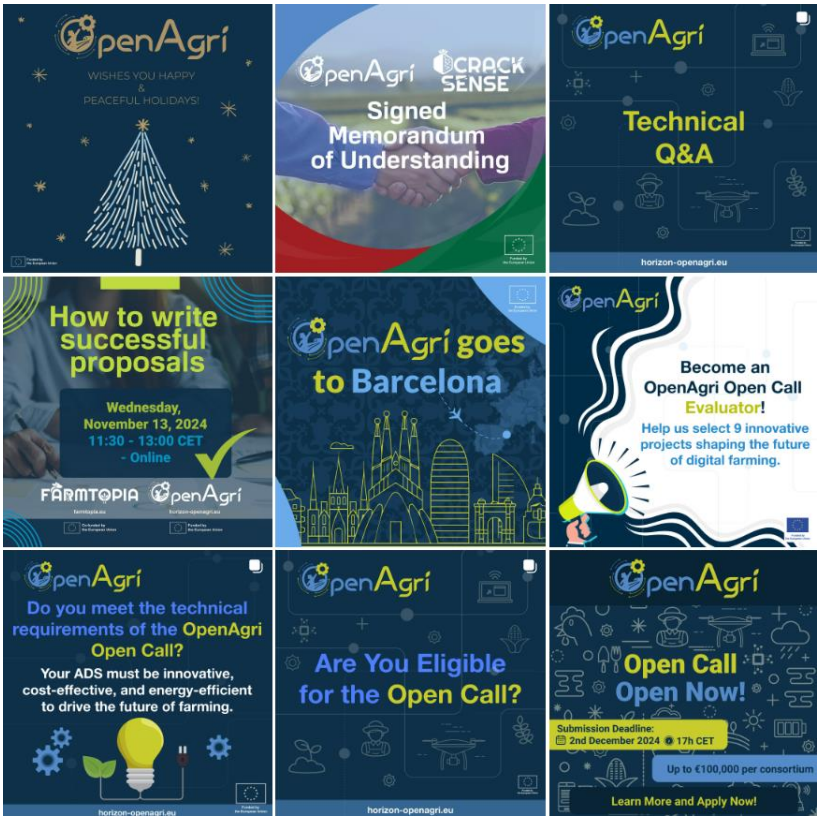


Figure 20: OpenAgri Instagram

3.3.2.6 SlideShare

OpenAgri's SlideShare platform has been established to efficiently share presentations, documents, and other visual content. This resource provides an accessible way for stakeholders to explore detailed project information and materials, further supporting dissemination and engagement efforts.

3.3.3 Newsletter

As outlined in the initial DEC plan, OpenAgri publishes biannually electronic newsletter through Mailchimp, which currently has over 500 subscribers. All subscriber data is managed securely and in full compliance with GDPR and other relevant regulations. The newsletter serves as a key communication channel to update subscribers on project developments, pilot activities, upcoming events, and other relevant news. To date, OpenAgri has successfully distributed newsletters, further enhancing engagement with its audience and stakeholders.

Figure 21: First Newsletter

Target audiences are encouraged to subscribe to the OpenAgri newsletter through links shared on social media platforms and a dedicated subscription form available on the project's website. Additionally, subscriptions are collected during both live and online events. For instance, at the International Agricultural Fair in Novi Sad, Serbia, held in May 2024, numerous attendees signed up to receive updates in anticipation of the Open Call. To further expand the subscriber base, OpenAgri partners are actively encouraged to share information about the newsletter with their networks and contacts.

3.3.4 Press Outreach

As specified in the grant agreement, the communication KPIs for OpenAgri are categorized into three main groups: (1) Press releases, (2) Speeches, interviews, and media participation (TV, radio), and (3) Featured articles in industry magazines.

Between M1 and M12, press releases have been a particularly effective tool for disseminating updates on project activities to the general public and engaging a broad range of stakeholders. During this period, three press releases were issued, with some translated into the languages of consortium members to ensure accessibility for non-English-speaking audiences. This approach has enhanced the project's outreach and visibility across diverse communities.

The press releases distributed by OpenAgri thus far have covered topics such as the project's kick-off, OpenAgri Open Call, and joint press release with Farmtopia. WP4 leaders have taken a strategic approach to distribution, sharing press releases:

- Directly with their established media contacts.
- Through the Prowly PR platform, which provides access to a wide range of media outlets.

Additionally, consortium partners were encouraged by WP4 leaders to forward press releases to their organisations' marketing departments or share them directly with relevant media outlets. To ensure consistency and effectiveness, detailed guidelines for press release distribution were provided to partners via the initial DEC Plan and the document "OpenAgri - TENTATIVE DEC KPI Guidelines."

Figure 22: Joint press release published on local EU platform

The second Press Outreach KPI, focused on speeches, interviews, and media participation (TV and radio), is progressing well and is on track to be successfully achieved, as outlined in the initial KPI distribution plan. To date, three statements about OpenAgri have been featured in video formats across various media. One notable example occurred, when Mladen Radišić, CEO of Foodscale Hub presented OpenAgri's Open Call, goals and mission during an interview on RTV1 in Serbia on the 17th of September 2024.

Figure 23: Foodscale Hub's CEO on RTV1, Serbia, September 2024

As previously highlighted, press releases have been instrumental in achieving the KPI for featured articles in industry magazines. To date, over 16 articles about OpenAgri have been published in various media outlets, surpassing the targets outlined in the "OpenAgri - TENTATIVE DEC KPI Distribution" document for the current and previous reporting periods.

Many of these media mentions also contribute to fulfilling the KPI for editorial backlinks in top-tier online magazine outlets, with 11 backlinks recorded so far. OpenAgri's media coverage spans a range of outlets, primarily European-based, demonstrating the project's growing visibility and impact within the agricultural and research communities.

Figure 24: OpenAgri's coordinator Prof. Christopher Brewster interview for Observant

3.3.5 Publications

OpenAgri is dedicated to producing impactful scientific publications in peer-reviewed journals as well as practice abstracts, aiming to engage a wide range of stakeholders and amplify the project's contributions. These efforts will advance OpenAgri's objectives and emphasize its innovative achievements.

In alignment with EU Open Access and Open Science regulations, all publications will adhere to Open Access principles and open peer review. These works will be published in Open Research Europe or other reputable open-access journals. Additionally, the project will share as much of the developed code, while respecting intellectual property considerations, through platforms such as GitHub.

Adopting Open Access provides several key benefits:

- Increased citation rates for academic publications and reports, enhancing the project's academic footprint.
- Greater visibility among practitioners and stakeholders, particularly farmers, who can directly benefit from the research findings.
- Improved opportunities for future research to build upon OpenAgri's outcomes, fostering reproducibility and advancing scientific continuity.

3.3.5.1 Policy Recommendations

Within the OpenAgri project framework, Policy recommendations are included as part of the dissemination Key Performance Indicators (KPIs). Specifically, they are categorized under Scientific and policy briefs (disKPIs 2).

The primary aim behind formulating a set of Policy recommendations is to facilitate the deployment of Agricultural Digital Solutions (ADS), recognized as pivotal for enhancing the sustainability (economic, environmental, and social) performance and competitiveness of the agricultural sector. To elaborate further, policy measures play a crucial role in encouraging the uptake of ADS, with policy recommendations serving as precursors to such measures.

OpenAgri will gather insights and evidence through a bottom-up dialogue with the 14 Sustainable Innovation Pilots (SIPs), alongside a top-down approach involving an analysis of European policy and regulatory frameworks. These policy recommendations will be tailored to suit both the biophysical and political contexts, seamlessly integrated with ongoing adaptations to the Common Agricultural Policy (CAP) and its overarching objective of fostering sustainable agriculture in Europe.

3.3.5.2 Peer-reviewed Papers and Conference Contributions

OpenAgri is committed to publishing 10 or more peer-reviewed papers and conference contributions. The consortium will strive to publish these in highly reputable journals and at respected conferences.

Peer-reviewed papers and conference contributions are essential scientific publications that play a vital role in disseminating a project's output and results to the scientific community. Importantly, they lend scientific credibility to the project.

Within OpenAgri, scientific publications will primarily be undertaken by research partners and universities. These publications will address various topics closely aligned with OpenAgri's goals.

3.3.6 Event Planning, Realisation and Reporting

During the first year of the OpenAgri project, the consortium actively participated in numerous high-profile AgTech events, fostering community-building and establishing valuable collaborations and synergies. The project maintained a consistent presence across a variety of gatherings, including market and industry events, open day initiatives, webinars, and other engagements.

Event attendance is a shared responsibility among all OpenAgri partners, contributing to the achievement of key dissemination and communication KPIs. Early in the project, comprehensive planning and reporting tools were developed and shared within the project's repository. These resources help map upcoming OpenAgri appearances and track events that have already been attended.

A shared Google Sheet is accessible to all consortium members for event planning, encouraging partners to regularly update it with their scheduled activities.

EVENTS LIST 2024/2025									Period
Project	GA No	Project event (Y/N)	Who	When	Where	What	Type of Attendence (online, in-person)	Comments	09/2024->12/2025
OpenAgri	101134083		MU						
OpenAgri	101134083								
OpenAgri	101134083								
OpenAgri	101134083		AUA						
OpenAgri	101134083								
OpenAgri	101134083								
OpenAgri	101134083	No	EV ILVO	02-04/10/2024	Budapest, Hungary	European Big Data Value Forum 2024	in-person	OpenAgri dissemination material was handed out during the event, where the project's objectives, achievements, and future plans were actively discussed with participants.	
OpenAgri	101134083								
OpenAgri	101134083								
OpenAgri	101134083	No	FSH	19/09/2024	Novi Sad, Serbia	Conference: "Improving the Conditions for the Development of Women's Entrepreneurship in Agriculture in Vojvodina and the Importance of Digital Education"	in-person	OpenAgri project and its Open Call have been presented	
OpenAgri	101134083	No	FSH	14-15/10/2024	Barcelona, Spain	Synergy Days 2024	in-person	project had a booth; a workshop on Open Call has been held	
OpenAgri	101134083	No	FSH	23/10/2024	online	DIGI-SI AGRIFOOD EU Finančna klinika X	online	Open Call has been presented	
OpenAgri	101134083	Yes	FSH	13/11/2024	Online	Joint Webinar: OpenAgri & Farmtopia Open Calls	Online	Open Call will be presented along with a workshop on how to prepare a successful proposal	
OpenAgri	101134083	No	FSH	15/11/2024	Online	Spiloro's Cascade Funding Webinar Series – Session #15: Smart Farming	Online	Presenting Open Call	
OpenAgri	101134083	No	FSH	4-6/12/2024	Budapest, Hungary	"PARTNERING FOR THE FUTURE: BIOEAST and Beyond" High-Level Conference on Central and Eastern European Research and Innovation Priorities in the Context of Sustainable Soil and Freshwater Resilience, Food Systems Security, and Bioeconomy-Related Policies	In-person	OpenAgri project will be presented	
OpenAgri	101134083	No	FSH	14/12/2024	Faculty of Agriculture University of Novi Sad, Serbia	Annual fruit growers meeting of the Association of fruit growers of Vojvodina	In-person	OpenAgri project and SIPs will be presented (especially SIP1 in viticulture)	
OpenAgri	101134083	No	FSH	May 2025	Novi Sad, Serbia	International Agricultural Fair	In-person	OpenAgri project will be presented	
OpenAgri	101134083		P2P LAB						
OpenAgri	101134083								
OpenAgri	101134083								
OpenAgri	101134083		LF						

Figure 25: Google Sheet for event planning

To enhance event promotion and documentation, the Dissemination and Communication (D&C) team developed a photo manual for partners. This guide provides instructions for capturing effective event photographs that highlight OpenAgri branding and showcase participation. The manual, along with guidelines for event appearances and documentation, has been shared with the *OpenAgri - TENTATIVE DEC KPI Guidelines*.

Regarding the event KPI for participation in live, digital, and industry events, OpenAgri has attended 11 such events, being on track for this KPI.

To demonstrate OpenAgri's active engagement with key stakeholders and its effective communication of the project's objectives, several notable events from recent months are highlighted below as examples of these efforts.

Bioeconomy Changemakers Festival

Date and place:	14/03/2024 Novi Sad, Serbia
Type of event:	The Bioeconomy Changemakers Festival seeks to empower young people as catalysts for the transformative change needed to address the numerous challenges Europe faces today. It aims to harness the potential of the bioeconomy to drive this transformation.
Type of audience:	Scientists, Researchers, Professors, Students
Size of audience:	150+
Coverage Level:	National

Brief report and impact on the project:	Many students and researchers eagerly engaged in discussions organized by the team from Foodscale Hub, where Aleksandra Anđelković (FSH) presented OpenAgri and addressed the challenges and opportunities within the bioeconomy sector, specifically focusing on OpenAgri's contributions to this field.

Table 4: Bioeconomy Changemakers Festival presence

Figure 26: OpenAgri at Bioeconomy Changemakers Festival

91st International Agricultural Fair

Date and place:	18/05/2024 Novi Sad, Serbia
Type of event:	The International Agricultural Fair, held in Novi Sad for 91 years, is renowned worldwide and regarded as the most significant event of its kind in the region. This year, the European Union has honoured the fair by becoming its official partner.
Type of audience:	Farmers, experts, students, and the public
Size of audience:	125,000+
Coverage Level:	International
Brief report and impact on the project:	Showcased by our partners from Foodscale Hub, Mladen Radišić, Maja Radišić, and Aleksandra Anđelković (FSH), the project's presentation at the booth led to lots of interest from attendees of varying backgrounds: Agriculture students, farmers, entrepreneurs and consumers were all entertained by our activities which led to them learning more about the project, its SIPs, Open Call and were given project-branded materials.

Table 5: 91st International Agricultural Fair presence

Figure 27: OpenAgri at the 91st International Agriculture Fair

Synergy Days 2024

Date and place:	14&15/10/2024 Barcelona, Spain
Type of event:	A collaborative event held in Barcelona in 2024, aimed at fostering connections between projects, initiatives, and stakeholders to enhance knowledge exchange and drive innovation
Type of audience:	Researchers, policymakers, industry stakeholders, agricultural practitioners, technology providers, and representatives from other EU-funded projects
Size of audience:	Over 500 participants
Coverage Level:	International
Brief report and impact on the project:	Synergy Days 2024 provided a significant platform for OpenAgri to connect with a diverse audience. Project technical coordinator Nikolaos Marianos (GSC GR)presented the project's objectives and progress. Also, this was used as an opportunity to promote the OpenAgri Open Call.

Table 6: Synergy Days 2024 presence

Figure 28: OpenAgri at Synergy Days 2024

FOSSCOMM 2024

Date and place:	09 & 10/11/2024 Thessaloniki, Greece
Type of event:	The annual conference focused on open-source technologies and digital innovation, bringing together developers, researchers, and advocates of open-source solutions.
Type of audience:	Developers, IT professionals, researchers, students, technology enthusiasts, policymakers, and representatives from projects leveraging open-source technologies.
Size of audience:	Over 500 participants
Coverage Level:	International
Brief report and impact on the project:	Fosscomm 2024 served as a valuable platform for OpenAgri to demonstrate its commitment to open-source solutions in sustainable agriculture. The project was presented by Nikos Kalatzis (GSC GR). Overall, OpenAgri's participation enhanced its visibility within the open-source community, and strengthened its network of collaborators.

Table 7: FOSSCOMM 2024 presence

Figure 29: OpenAgri at FOSSCOMM 2024

3.3.7 Networking, Synergies and Liaison

Networking, synergies, and liaisons play a pivotal role in OpenAgri's dissemination strategy. The DEC plan emphasizes building on the strengths of existing and previous projects, while fostering collaborations with complementary initiatives and European Digital Innovation Hubs (EDIHs) to drive growth opportunities. A cooperative framework has been established to create synergies with other projects, pan-European DIH networks, and Agricultural Knowledge and Innovation Systems (AKIS) stakeholders, ensuring efficiency, avoiding redundancy, and maximizing impact.

All collaborations are formalized through the signing of Memorandums of Understanding (MoUs) or similar. To date, OpenAgri has established formal agreements with five projects and initiatives. These partnerships have enabled a variety of joint activities, including mentions in newsletters, mutual promotion on social media platforms, and participation in each other's workshops and launch events. These efforts underscore OpenAgri's commitment to leveraging collaborative relationships to enhance its outreach and overall impact.

Event ended

OpenAgri & Farmtopia: Guide to Successful Proposal Submission

Event by OpenAgri

Wed, Nov 13, 2024, 11:30 AM - 1:00 PM (your local time)

Online

Event link · https://us06web.zoom.us/webinar/register/WN_HQoFGkBCTjywy6qIpVYuXw

Figure 30: Example of joint activity with Farmtopia project

Agrarian
288 followers
7mo •

🗓️On May 19th, our sister project OpenAgri, with Foodscale Hub, was present at the Novi Sad Fair!

💼OpenAgri presented their project and mission moving forward, and introduced Agrarian to the fair!

🤝We are delighted that we have joined forces with OpenAgri as we aim for the same goal and this collaboration will maximize the impact and awareness of both projects!

#NoviSadFair #DigitalAgriculture #AGRARIAN #DigitalAg #innovationinfarming #horizoneu #horizoneurope

NCSR "DEMOKRITOS", Adrestia R&D, SIMAVI Software Imagination & Vision, German Aerospace Center (DLR), Ubotica Technologies, Practin, Epsilon Malta Ltd, Department of Horticultural Genetics and Biotechnology, Mediterranean Agronomic Institute of Chania, TerraviewOS, Sateliot

Figure 31: Another example of joint activities with a sister project Agrarian

3.3.8 Videos

During the duration of OpenAgri, a total of 14 videos will be produced, each corresponding to the 14 planned Sustainable Innovation Pilots (SIPs). These videos will be published on the OpenAgri project's YouTube channel. Additionally, videos showcasing the progress of the project and highlighting innovations in the field of Agricultural Digital Solutions (ADS) may also be created and shared.

3.3.9 EC Tools

OpenAgri will employ a variety of tools offered by the European Commission to support the effective dissemination, exploitation, and communication of the project's outcomes. These resources will enhance the project's visibility, ensure broader engagement with stakeholders, and maximize the impact of its results.

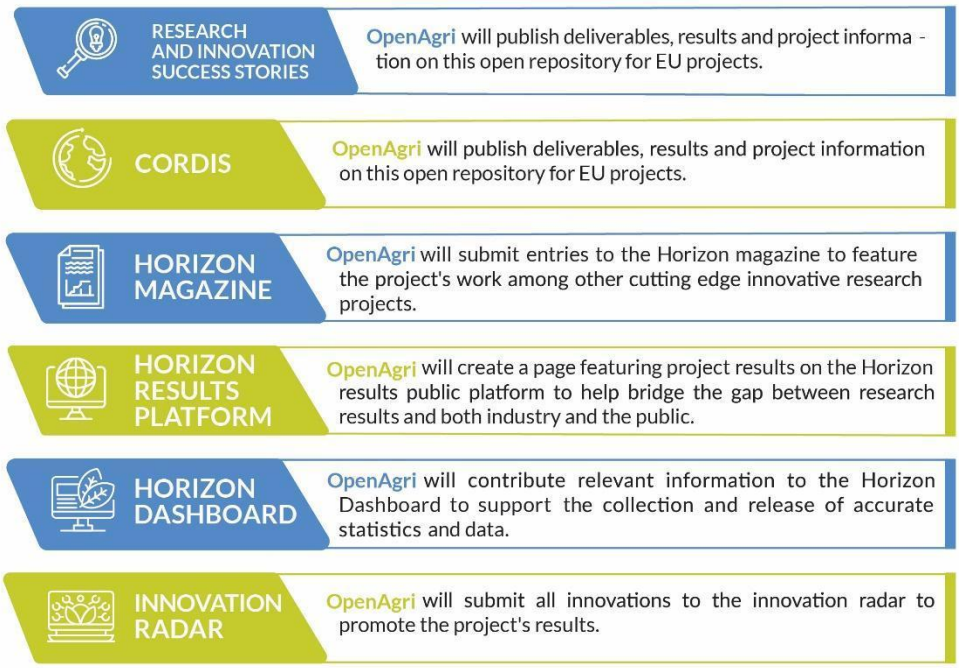


Figure 32: E.C. Tools

3.3.10 Internal Communications and Sustainability

Internal communications and sustainability are vital components of OpenAgri's dissemination KPIs, focusing on key deliverables:

- **SIP Catalogue**: Documenting the progress of the 14 Sustainable Innovation Pilots (SIPs).
- **OpenAgri Booklet**: A comprehensive overview of the project, its objectives, and outcomes.
- **Exploitation & IP Strategy Workshops**: Three sessions to strategize result exploitation and IP management.

Partners collaborate within WP4 to achieve these goals, contributing through activities such as video blogs (vlogs) detailing project updates and SIP progress. Active participation ensures benefits are shared and OpenAgri's objectives are advanced.

4. Monitoring and Evaluation

4.1 Key Performance Indicators (KPIs)

Key Performance Indicators (KPIs) are measurable and clearly defined objectives used to track and assess the progress and success of the OpenAgri project. These indicators have been systematically categorized and monitored from the start of the project to ensure alignment with goals and deliverables.

As detailed in the initial deliverable, a tentative KPI DEC distribution plan was created and shared with all project partners. This plan includes two main components:

- **KPI Distribution per Partner**: Each partner has been assigned specific KPI obligations based on their roles and contributions to WP4, as outlined in the Grant Agreement.
- **KPI Distribution per Period**: KPIs have been allocated across three reporting periods to ensure continuous tracking of progress. These timeframes are segmented into six intervals: M1-M6, M7-M12, M13-M18, M19-M24, M25-M30, and M31-M36. This approach aligns the project's internal reporting periods with official reporting requirements.

From the outset, the KPI distribution sheet has been made available in the shared OpenAgri repository, ensuring that all consortium members can access and review their assigned responsibilities and progress.

4.2 Planning and reporting tools and templates

In WP4, all dissemination and communication activities are regularly monitored, with a clear distinction made between planned and completed actions. This ensures comprehensive tracking and alignment with the project's objectives.

OpenAgri remains committed to the framework outlined in the initial DEC deliverable. WP4 leaders have provided accessible planning and tracking tools for the entire consortium, alongside internal documents for the WP4 team. These tools include a Google Sheet for planning, where consortium members can propose dissemination and communication activities such as events, media outreach, blog topics, and publications. Partners are also required to notify the WP4 team via email if any activities require additional support or promotion.

The WP4 team consolidates this information into an online log, which tracks KPIs for all partners.

5. Exploitation

Following OpenAgri's previously defined Exploitation, Sustainability, and IPR approach and the proposed timeline of activities presented in D4.4 (Exploitation, Sustainability & IPR Management Strategy – initial version), the following activities related to the exploitation of the project's results were implemented in the previous six months (from M07 until M12):

1. Exploitation and IP Catalogue was updated by the project partners in M09, enabling identification and continuous monitoring of the project's exploitable results
2. Project's second Intellectual Property (IP) Workshop was held in M11, where various IP management procedures/activities needed to be followed in Horizon Europe projects were presented to project partners, as well as potential IP protection measures for agri-tech machinery, components and systems; On the same occasion, an overview of the Open Source Business Models was given enabling project partners to understand the applications and benefits of each of them in the context of OpenAgi Agricultural Digital Solutions (ADSs)
3. A comprehensive market analysis was conducted, following the methodology previously presented in D4.4 in M06.

The following subchapters elaborate on each of the abovementioned action points.

5.1 Exploitation and IP Catalogue

Following the initially devised approach, the OpenAgri Exploitation and IP Catalogue was developed and distributed to Project Partners in M5. To populate the Catalogue, Project Partners were asked to fill out a short questionnaire, to provide an overview of project results (tangible or intangible), that have a potential for exploitation after project completion. The Catalogue was updated by Project Partners in M9, providing the following information:

- Name of Result/Exploitable asset
- Description of Result/Exploitable asset
- Individual or Joint result – partners considered other partners' involvement and specified if the result is developed only by one partner (individual) or is shared with more partners (joint). In doing so, they considered the foreground generated.
- Partners involved – partners stated with whom they generated the result.
- Type of result – i.e., product, service, advancement in knowledge, methodology, process, model, networks.
- Marketability – project results can have the potential to be either commercially exploited, to be exploited on the market in order to generate income (e.g., concrete products or services) or non-commercially (e.g., to lay the foundation for further research), or both.
- Type of access to the result – open/public – private/restricted – note that if a result is open does not mean it is not protected. A result can be fully or partially open to the public and that open result can in some cases be protected by some IP measures such as copyright in scientific publications or non-registered soft IP if the owner plans to protect its internal exploitation pathways.
- Intellectual Property (IP) ownership background – the IP asset that each partner is bringing to the project: invention, databases, know-how, secret knowledge, etc.
- IP ownership Result (Foreground) – the outcome generated throughout the project: such as data, knowledge, and information, whatever their form or nature, whether or not they can be protected, which are generated in the action.

- Expected measures to protect IP – patent, industrial design, trademark, utility model, copyright, Soft IP Trade secret, Soft IP Confidential information, Soft IP Company know-how.
- Expected TRL advancement per year.
- Year of commercialization/availability – partners indicated the planned year to start commercialization and/or to make the result available. All non-commercial results will be available before the end of the project, while commercial results can be available on the market some time after the project ends.
- Replicability/Upscaling – indicating the results' replicability potential.
- Planned use: partners exploitation strategy - partners are requested to provide a short qualitative description of how they want to exploit the result after the project's end for their scientific, political, research, or economic/commercial purposes (partner's own purposes). All exploitation possibilities should be considered, including for example, the launch of products and/or services, but also new university courses, new publications, upscaling, and replicability of results in other areas or regions, leverage for further R&D and research projects, etc. In general, planned use is not how society and consumers will exploit the result and neither a general description of the result, but it shows how partners plan to use the result in the market for their own purpose. Planned use should be aligned with what was indicated in the marketability question.
- Target stakeholders/end-users - partners provided a list of key target stakeholders/end-users, covering all stakeholders they intend to reach (e.g., citizens, companies, universities, academia, regions).
- Stakeholders/end-users usage of result - partners provided a brief description of how the stakeholders can use the result/solution/innovation/development.
- Channels - partners indicated the channels they intend to leverage to exploit the result. If the result has a commercial nature, channels are described as sale channels. For example: manufacturing portfolio, research/scientific, advertising channels, publications, demonstrations, etc.
- Key messages (value proposition) - presents the pitch of the project result to the potential customers. This only refers to commercial results (e.g. benefits, problems solved, needs satisfied).
- Exploitation risks - partners listed all the risks they foresee in exploiting the result. Risks can be both from an internal perspective, so referred to the result itself (e.g., high costs, technical constraints, weak assumptions for a methodology), and from an external perspective, and so referred to the market of reference (e.g., high competition, more innovative products in the market, market not ready for a specific solution).

An extract of gathered responses with basic information for each project result that has exploitation potential is presented in the table below. More information and details regarding gathered responses will be showcased in D4.5 in M17. Due to the innovation-oriented nature of the project, Foodscale Hub, as WP4 leader, will continue to monitor and update the Catalogue through an iterative approach together with the Project Partners, to provide a comprehensive overview of project results.

No.	Exploitable Result	Partners involved
1.	**DigiCompost ADS**	GSC GR, EMBIO
DigiCompost is a low-cost, deploy-and-forget IoT-based system for monitoring compost piles and providing decision support, supporting organic fertilizer production by enhancing the efficiency of the process and reducing manual labour.		
2.	**OpenAgri DSS**	SCIO, EV ILVO, GSC GR
A tool aiming to assist policymakers, Public Authorities, Farmers, and Farm Advisors in selecting the most suitable cloud, edge, or mixed ADSs for any given set of conditions		
3.	**Community engagement and integration protocols**	P2PLAB, AUA, EV ILVO, FSH, LF, PSNC, ISP, IDELE, CIRBEEF, EMBIO, EDEN, WODR
A handbook in shareable format with guidelines for the effective engagement of diverse actors in the co-creation of tailored agricultural technologies.		
4.	**Complex irrigation system software**	PSNC, L-PIT, WODR
Software enabling complex irrigation control, using both data from soil sensors and data from meteorological stations and satellite data.		
5.	**Geospatial framework**	EV ILVO, SCIO, GSC GR, UM
Geospatial comprehensive methodological framework aimed at evaluating the suitability and demand for Agricultural Digital Solutions (ADSs) across Europe.		
6.	**Catalogue of existing OS solutions**	EV ILVO, UM, AUA, FSH, P2PLAB, LF, SCIO, GSC GR, PSNC, IDELE, EMBIO, EDEN
A catalogue containing a comprehensive list of existing OS and open hardware solutions, published on a dedicated section of the OpenAgri website.		
7.	**SIP3 ADS: Detection of Colorado Potato Beetle infection**	EV ILVO, ISP
This ADS is tailored to address the specific challenge of detecting and managing the Colorado Potato Beetle (Leptinotarsa decemlineata) infestation in potato crops across Flanders.		
8.	**AI Detection models & training dataset**	EV ILVO
Models for the detection of Colorado beetle in agricultural fields, datasets used for the model training		
9.	**AI models for Viewer device**	EDEN
AI computer vision models that will be used for serving Viewer's functionalities (disease detection, yield estimation, canopy profiling)		
10.	**Digital Farm Calendar**	UM, GSC GR, GSC NL
The “OpenAgri Digital Farm Calendar” service will address the data capture needs of farms including the manual recording of: farmers' activities, farmers' observations, parcel properties, and recording of farm’s assets.		
11.	**Method of calculating cattle visits to water troughs**	IDELE, CIRBEEF
UHF RFID detection data is used to measure an animal's presence at water the trough. This data must be aggregated to obtain a period of visit to the trough with a start time, end time, and duration.		
12.	**Weather Data service**	UM, GSC GR, GSC NL
The functionalities offered by the “OpenAgri Weather Data service” will be based on the fusion of existing open or low-cost weather monitoring and forecast services e.g., OpenWeather, ECMWF, and also by connecting to local weather stations.		
13.	**Pest & Disease Management service**	UM, GSC GR, GSC NL
The “OpenAgri Pest & Disease Management service” will offer a modular pest infestation probabilistic decision support system.		
14.	**Irrigation Management service**	UM, GSC GR, GSC NL

The “OpenAgri Irrigation service” will support farmers and advisors in optimizing their irrigation strategy through the provision of data-driven recommendations.		
15.	**Interoperable data exchange and access control service**	UM, GSC GR, GSC NL
The “Interoperable data exchange and Access Control Service” will act as a data translator capable of being customized and connected with the API of an underlying information system and enable controlled and secure data exchange compliant with (de facto) standardized data models/ontologies and APIs		
16.	**Reporting service**	UM, GSC GR, GSC NL
The “Reporting service” will enable (semi)automated reports generation to significantly reduce reporting burdens towards a variety of stakeholders		
17.	**User-friendly graphical interface (web-dashboard)**	UM, GSC GR, GSC NL
A user-friendly graphical interface (web-dashboard) will be implemented based on the reuse of an existing OS framework (e.g. Knowage). The web-dashboard will support users’ interaction with the OS Services, and offer a range of plug-ins for external data sources.		

Table 8: An extract with basic information from OpenAgri Exploitation and IP Catalogue

5.2 Exploitation and IP Workshop

OpenAgri’s second Intellectual Property (IP) Workshop was conducted on November 25th, 2024. The session was held on the Zoom platform and lasted for one hour. The workshop gathered 16 attendees, which is sufficient as there was at least one representative of each OpenAgri beneficiary.

Key topics that were covered throughout the workshop include:

1. OpenAgri’s exploitation timeline, providing information on the exploitation-related activities performed in the previous period, as well as the upcoming activities
2. IP management procedures and activities in Horizon Europe projects, e.g. capturing of all the IP generated during the project, determination of IP ownership, and setting strategies for IP protection through utilizing different IP protection measures, such as patents, utility models, industrial designs, trademarks, copyrights, trade secrets, and geographical indicators & applications of origin.
3. Exploitation of project’s Key Exploitable Results (KERs), showcasing different potential exploitation routes for OpenAgri’s project results
4. OS Business models, including OS platform, funding-based, infrastructure, open innovation, open-core platform, proprietary-like, and traditional OS software.
5. Common IP protection measures for agri-tech machinery, components, and systems, providing more information on IP protection of software, databases, and different hardware and software components of agricultural digital solutions
6. Lastly, there was a dedicated time for a Q&A session, answering partner’s questions regarding IP and specifically regarding different business models presented in the workshop.

Figure 33: A screenshot from the Intellectual Property Workshop #2

For the partners who haven't been able to attend, or who wish to access the workshop's materials again, the recording of the workshop and the slides were made available on the project's repository. This workshop was also used to announce some of the upcoming workshops that will be relevant to the OpenAgri consortium and will cover topics such as IPR and software, IPR and software protection for AI-devised inventions, as well as the impact of Open Source on IPR. Project partners are also welcome to initiate one-on-one sessions if needed, to discuss their individual exploitation pathways and IP-related matters individually.

5.3 Market Analysis

To set a firm basis for exploring future exploitation routes of OpenAgri project results, it is necessary to conduct a thorough market analysis, focusing on different aspects, segments, and characteristics of the digital agriculture market. A general overview of the target market enables getting a wider perspective on the ecosystem in which OpenAgri solutions are being developed. Exploring market trends and barriers provides an overlook of the current market state, as well as market dynamics. Conducting a comprehensive market breakup analysis sheds light on different aspects of the digital agriculture market – focusing on target geographical areas, main applications, as well as end users of the solutions. Also, exploring different regulations and directives that are relevant in the context of the OpenAgri Sustainable Innovation Pilots (SIPs) provides a good understanding of the EU's legislative landscape in the field.

For this deliverable, an initial market analysis has been carried out, focusing on 5 core SIPs of the OpenAgri project. This market analysis will be extended, if needed, in the upcoming period, once 9 additional SIPs are established through the Open Call. Extended market analysis relevant to external SIPs (stemming from the Open Call) will be executed in the upcoming period following the same methodology and showcased in D4.5 (M17). Serving as a starting point for the market analysis, a short questionnaire was created and distributed to all the SIP leaders to make sure that the analysis is tailored to be as relevant as possible for the whole OpenAgri consortium. The general structure of the questionnaire can be found in the Annex (Chapter 8).

5.3.1 Industry description

The global Digital Farming market is forecasted to grow from the 2024 value of USD 24.48 billion, to USD 71.08 billion by 2031, growing at a Compound Annual Growth Rate (CAGR) of 14.25%. [1] The main characteristic of this niche is continuous innovation, especially in the field of precision farming techniques. Continuous improvements in digital agriculture technology are driving the productivity rise, increasing sustainability, and supporting the implementation of green business practices, all leading to further growth of the digital agriculture market.

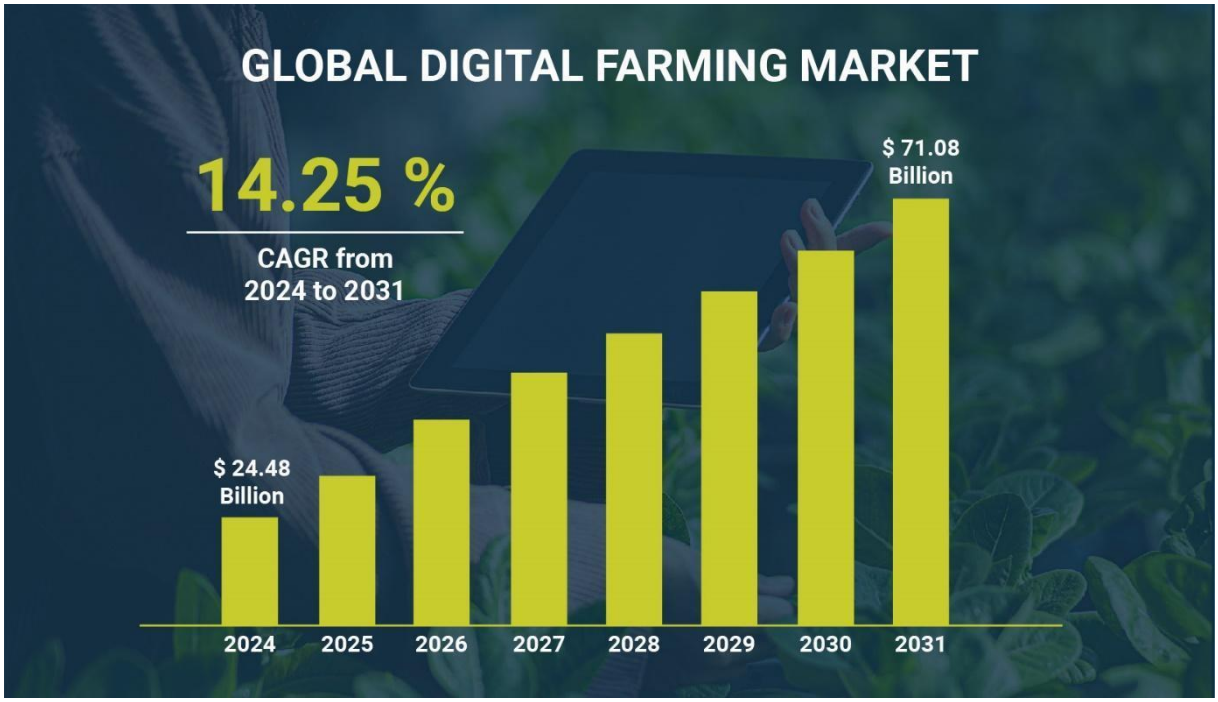


Figure 34: Global Digital Farming Market Growth

Source: https://www.verifiedmarketresearch.com/product/digital-farming-market/#:~:text=Global%20Digital%20Farming%20Market%20size%20was%20valued%20at%20USD%2024.48,agriculture%20to%20improve%20farming%20methods.

Digital agriculture solutions are aiming to provide more efficient and sustainable production systems by employing innovative technologies such as remote sensing tools and advanced data analytics. Innovative digital platforms utilized in agricultural activities are contributing significantly to resource optimization, reducing negative environmental impacts, and contributing to improved decision-making processes based on sound data. Incorporating digital technologies in agriculture can lead to more efficient and sustainable agricultural practices, resource optimization, improved crop yield, as well as contribution to reducing negative environmental impacts of agricultural activities. One of the largest advantages of utilizing digital agriculture solutions is improved knowledge and information sharing, forming a base for making informed decisions, capacity building, and enhancing the overall agriculture performance.

One of the fastest-growing Digital Farming market segments is Precision Farming. Precision Farming (Precision Agriculture) is the science of enhancing crop yields and decision support through the utilization of high-technology sensors and different analysis tools. [2] According to Precedence Research, the global Precision Farming market is growing significantly – it is predicted that it will reach an astonishing $34.01 billion in 2032, compared to $12.48 billion currently. This market is growing with a CAGR of 13.30% over the period observed (2023 until 2032) – showing great potential for new innovative technologies and products to be introduced to the market. [3]

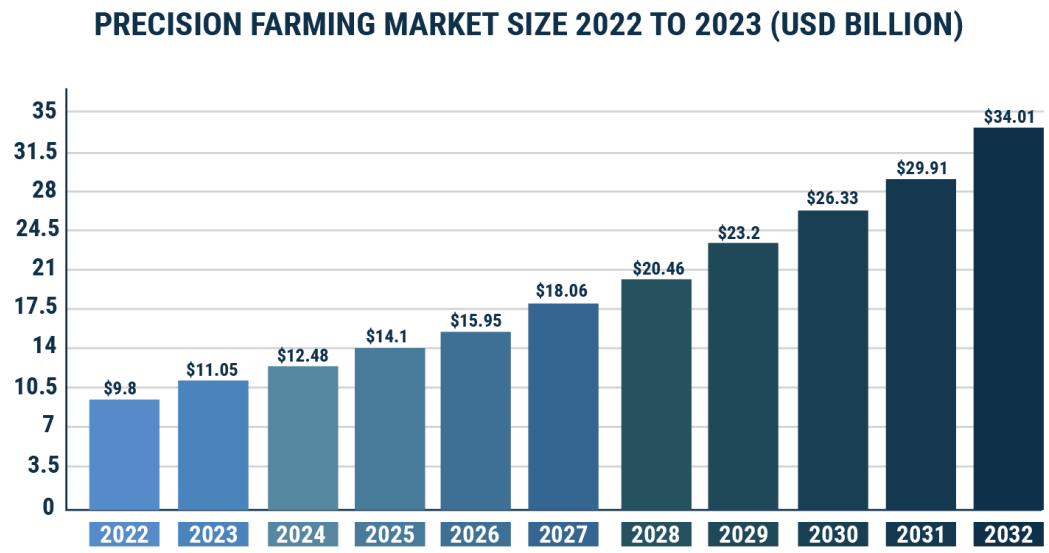


Figure 35: Global Precision Farming Market Growth

Source: https://www.precedenceresearch.com/precision-farming-market#:~:text=The%20global%20precision%20farming%20market%20size%20was%20accounted%20at%20USD,USD%2034.01%20billion%20by%202032.

Precision farming techniques can be very beneficial in increasing productivity and efficiency of traditional agricultural practices. These innovative practices aim to provide a better understanding of the spatial demands of a specific area, enable informed decision-making, prevent resource waste, as well as improve the climate resilience of the area. Precision farming is often combined with innovative decision support tools and systems of warning triggers so that agricultural actors can adapt their agricultural activities over time to better accommodate the fast pace of changes.

There are a lot of different factors affecting the growth of the digital farming market, such as constant technological advancements, a growing population, and a rising need for high-quality, accessible, and cost-effective agriculture digital solutions. These solutions can be beneficial in achieving production goals and increasing yields, fostering sustainability, efficiency, and cost-effectiveness, which is specifically important for small and medium-sized farms that work with largely limited resources. The development of open-source software and hardware, focusing on solving the specific needs of farmers in the target markets can be a foundation for creating a more sustainable, efficient, and environmentally friendly agricultural landscape in Europe and beyond.

5.3.2 Definition and analysis of the digital agriculture market's development

Digital agriculture and precision farming technologies are gaining traction largely because of the increased uptake of the Internet of Things (IoT). There are several key market dynamics factors driving the development and expansion of the global digital agriculture sector. A rise in the uptake of digital agriculture technologies such as IoT sensors, drones, advanced data analytics, remote sensing tools, precision agricultural tools, and AI are all contributing to the large growth of the digital agriculture market. Many countries are investing and providing incentives to encourage the uptake of these solutions, to increase productivity and overall sustainability of agricultural processes. Support of individual countries and local municipalities is very important, due to the lack of financial resources for the adoption of digital agriculture solutions in small farms. Efforts to enhance

digitalization and agricultural and rural development should be incorporated into the overall country-wide strategy of supporting the agricultural field.

5.3.2.1 Market trends

The main trends that are shaping the future of digital agriculture are: **(i)** rising involvement of AI in agricultural digital solutions, **(ii)** data analytics being a central concept enabling informed decision-making, forecasts, and optimization, and **(iii)** overcoming connectivity issues through modern solutions, a combination of cloud, edge and mixed models, which is highly relevant to the scope of the OpenAgri project. Besides those, the main drivers for the growth of the digital agriculture market can be divided into the following sections: **(i)** the need for optimizing farm management activities and making informed, data-driven decisions, **(ii)** different governmental/policy initiatives for digitalization of farming, **(iii)** need for more sustainable and eco-friendly farming, **(iv)** increased uptake of digital technologies and artificial intelligence (AI) by farmers, and **(v)** rising food demand and scarce resources in need of better use.

Farm management activities can often be burdening and time-consuming. Optimization of these activities can effectively be done by utilizing the benefits of agricultural digital solutions, which enable farmers and landowners to improve their daily operations, based on insights derived from sound data.

Also, digital agriculture solutions can be used to drive the governmental/policy shifts towards creating a supportive framework for the larger uptake of these solutions. A larger demand for ADSs, a wider user pool, and a broader implementation of these solutions can all lead to the creation of different initiatives aimed at improving farm activity digitalization.

Sustainability and ecological factors of farming have been the focus in the previous period, with a larger number of farmers and consumers aiming for sustainable and eco-friendly farming practices and products. These needs are currently the driving force of development and larger uptake of ADSs, with innovative technologies and improvements of traditional farming practices enabling numerous benefits, both for producers and the end-users and consumers.

Integrating AI in agricultural digital solutions has seen a surge in the previous years. This has remained a strong driver for the ADS market development, with new AI technologies being developed and implemented constantly.

The demand for food is constantly on the rise, in lockstep with the rise in global population, which poses a need for optimizing resource use and allocation, focusing on efficiency. All these factors strongly influence the development of the global digital agriculture market, with new solutions and products being created constantly, contributing to improved sustainability, accessibility, and modernization of the whole agriculture sector.

5.3.2.2 Market barriers

Besides different trends driving the development of the Digital Agriculture market, there are a couple of market barriers as well. Some of the main barriers to further expansion of the digital agriculture market are: **(i)** insufficient knowledge and lack of comprehensive education programs, **(ii)** high initial investments when implementing agricultural digital solutions, **(iii) connectivity** issues (especially in developing countries and remote areas), and **(iv)** data security and privacy issues.

High-quality education content focusing on technology advancements and their benefits for efficient agricultural operations can largely contribute to capacity building and enhancement of knowledge in this field. Knowledgeable stakeholders formulating comprehensive education programs can also

benefit from the knowledge exchange with farmers, landowners, etc., ensuring that new technological advancements in the agriculture field are interconnected with the established practices of traditional agriculture.

One of the largest barriers to the employment of agricultural digital solutions are large initial (setup) costs. This barrier can be successfully overcome by employing and utilizing Open Source (OS) solutions. These services enable the uptake of digital agriculture which is publicly accessible and available. This way, the challenge of high initial setup costs for digital agriculture solutions can be successfully overcome.

Since connectivity issues pose a large threat to the stability and availability of agricultural digital solutions in remote areas with weak connectivity, it is important to employ practices that will mitigate this risk. Focusing on a shift from cloud-based to edge or mixed solutions can enable farmers in remote areas to have all the benefits of ADSs, with uninterrupted availability and connectivity.

Data security and privacy issues have become a rising concern in all aspects of business and everyday life, including agriculture. Various data security measures such as tokenization, encryption, data backup, firewalls, and antivirus software can be implemented to overcome this risk and enable secure data sharing and connection. It is of the highest importance that safeguarding data sharing is enabled, building trust and enabling further development and uptake of digital agriculture solutions.

5.3.3 Digital agriculture market breakup

5.3.3.1 Market breakup by geographical area

In the scope of the OpenAgri project, 5 core SIPs are established, forming a partnership between an ADS provider and a farm/agrifood organisation representative. These SIPs are operated in different European countries, namely Greece (SIP1), France (SIP2), Belgium (SIP3), Poland (SIP4), and Cyprus (SIP5). A short assessment of these key potential markets for future commercial exploitation of the ADSs stemming from the core SIPs activities is presented below.

Greece

In Greece, agricultural land is 5.3 million ha large, with 63% of the Greek territory represented by rural areas. Greek agricultural system is comprised of approximately 700.000 farms, which are mainly small in size and family owned. [4] The agricultural market in this country is facing many different challenges like extreme climate conditions (heat, drought, slopes – which affect soil texture, quality, and dryness), island remoteness, and difficulty of access, as well as limited access to innovations and knowledge. The digital agriculture market in Greece is growing at a steady pace, similar to the European market as a whole. Fast technological advancements, precision farming, and increasing integrations of AI in ADSs all result in steady growth, fuelled also by both local and European initiatives and incentives for agricultural innovations. The digital agriculture market in Greece provides solutions regarding precision farming, smart irrigation, livestock monitoring, etc.

France

Agricultural land in France is 28 million ha large, comprising about 456.000 farms, with the average size being 69 ha. The French agricultural sector is highly diversified, due to different landscapes, climate conditions, and soil types across the country. Agricultural production value adds up to EUR 72.9 billion, being among the highest in the EU. The sector is largely structured, with 724 recognized

producer organisations. [5] Largest agricultural sectors in terms of production value are cereals, wine, milk, and cattle. The country is focused on increasing food security, resilience, and overall efficiency of agricultural production. The digital agriculture market in France is growing rapidly due to the increasing need and surge in the adoption of precision farming tools, innovative farm management platforms, and diverse digital agriculture solutions. The French government is providing strong support to research and development of agri-tech innovation. The agricultural sector in France is facing several challenges, such as climate variations and land fragmentation, all resulting in a rising need to improve sustainability and efficiency of agricultural practices. CAP Strategic Plan for France contributes to the EU Green Deal's objectives of carbon neutrality, through farm diversification, permanent grassland preservation, support for alternative (plant-based) protein production, and organic farming practices. The French government supports these efforts through both national and EU funding schemes aimed at promoting the digital transformation of agriculture.

Belgium

Agricultural area in Belgium covers 44.4% of the country's territory, and the average size of agricultural holdings has tripled since 1980 – increasing from 12.49 ha in 1980 to 38.7 ha in 2022. [6] There are approximately 35.000 farms in the country, focusing on both crop and livestock production. [7] Belgium's digital agriculture market is expanding, driven by strong government support for innovation in this field, and by an increasing uptake of precision farming techniques. These techniques enable farms to increase productivity, reduce negative environmental impact, and improve the overall efficiency of their agricultural practices. The country has a well-developed agri-tech ecosystem, with both public and private sector initiatives encouraging digital solutions in agriculture. The Belgian government supports the development of agricultural digital solutions through different grants, intending to drive innovation and modernize the agricultural sector.

Poland

The Polish agricultural landscape consists of approximately 1.4 million farms. Total rural area occupies 85% of the country's area, while agricultural areas account for 52% of the country's area. [8] Challenges in Polish agriculture reflect in high fragmentation of agricultural land, a lack of modernization in farming practices, as well as high exposure to climate change, especially in droughts. A shift from traditional to digital agriculture is currently one of the key transitions that the Polish agricultural market is pursuing. Farmers in Poland are increasingly turning to using digital solutions and smart devices created to optimize farming activities and processes and to contribute to achieving different sustainability, environmental, and climate goals. Solutions focusing on precision farming and farm management systems are gaining traction, especially in larger farms. Government and EU incentives, as well as the increasing awareness of affordable agricultural digital solutions, are expected to drive the market forward in the years to come.

Cyprus

Agricultural land in Cyprus covers around 135.560 ha and consists of around 34.940 farms which are rather small (average farm size is 3 ha). The most important cultures in the country's agricultural production (more than 60%) are olives, citrus fruits, or a combination of other permanent crops, like grapevine. [9] Many farmers are utilizing a mixed system on their farms, combining crop and livestock production. There are many challenges for the agricultural sector in Cyprus, including water scarcity, land degradation, and limited arable land due to the island's topography. The country is aiming to improve farm competitiveness and efficiency through different plans, programs, and subsidies. Cyprus' CAP Strategic plan highlights the importance of farm modernization and improvements in production activities, as a means of overcoming shortfalls in capital productivity,

achieving competitive advantage, and strengthening the position of farms in both the local, and the EU market. More efficient irrigation techniques and innovative soil management practices are in demand, aiming to overcome the country's agricultural challenges. Despite challenges in terms of infrastructure and adoption of digital solutions among farmers, the Cypriot market is showing a large potential for growth in the agri-tech sector.

5.3.3.2 Market breakup by application

To gain a better understanding of market segmentation by different applications and solutions, it is important to analyse different technology types and applications of digital agricultural solutions. The digital agriculture market can be divided by technology type/application into smart irrigation, livestock monitoring and management, precision farming, drones and aerial imaging, and farm management software.

Smart Irrigation

Smart irrigation technology uses sensors, weather data, and different automated systems, with the aim of determining the specific irrigation needs of a landscape and optimizing irrigation schedules and water use. These solutions contribute to optimizing farm resources, reducing waste, and maximizing efficiency. Key components of smart irrigation solutions include soil moisture sensors, automated irrigation systems, and data-driven weather forecasting tools. This market is growing substantially, fuelled by decreasing costs of controllers and sensors, strong support and government initiatives for water use optimization, as well as continuous tech advancements in the field of smart irrigation.

Livestock Monitoring and Management

The livestock monitoring and management sector is growing substantially, with new solutions rising in the market aiming to increase productivity, efficiency, and animal welfare. This sector is utilizing digital tools (such as wearable sensors and RFID tags), to monitor animal well-being, track behaviour patterns, detect diseases early, as well as optimize feeding and breeding practices. One of the largest benefits of livestock monitoring and management systems is the enablement of real-time monitoring, which can bring great benefits to farmers in terms of saving time, optimizing resource use and energy consumption. Typically, livestock monitoring solutions have high initial setup and maintenance costs, making them less affordable for small and medium-sized farms.

Precision Farming

The precision farming market is focusing on creating digital solutions with the aim of maximizing crop yields, optimizing farming activities, and minimizing resource usage (water, fertilizers, pesticides, etc.), based on real-time data. The main technologies utilized in these solutions are variable-rate technology (VRT), different types of sensors, GPS, and advanced data analytics. The precision farming market is growing substantially, due to the growing global population, increasing demand for food, and the increasing need for automation of farming activities. The solutions stemming from this market are helping farmers achieve their production goals more efficiently and sustainably. The European Commission focuses on precision farming and precision agriculture as one of the most important factors in achieving the goals set by the European Green Deal, and the Farm to Fork Strategy. Also, through the Common Agricultural Policy (CAP), the EU is providing a large stream of funding to encourage increased uptake of different sustainable agriculture practices, precision farming included.

Drones and Aerial Imaging

The drones and aerial imaging market provides different solutions utilized for crop monitoring, field mapping, and gathering high-resolution images for various uses. This imaging provides valuable insights into crop health, pest detection, precise irrigation needs, and many more. Unmanned aerial vehicles (UAVs) offer many advantages for farmers, such as high-quality imaging, and remote sensing capabilities. These drones are usually equipped with a range of sensors and imaging technologies such as cameras and multispectral sensors, allowing farmers to gather precise data on crops, soil, and other factors. This market is growing significantly due to constant technological innovations, cost-effectiveness, government support, and increasing awareness about the benefits of these solutions.

Farm Management Software

Farm management software solutions are a useful tool for farmers, helping them to track and manage their activities. Some of the common features of farm management software solutions include inventory management, financial performance tracking, crop rotation tracking, etc. These platforms often integrate data from different digital tools, enabling informed decision-making. The farm management software market is growing as well, with an increased uptake of these solutions, and their better recognition in supporting the farmers in making their day-to-day activities more efficient.

5.3.3.3 Market breakup by end users

Farmers

Farmers are the primary users of digital agriculture solutions. In their everyday activities, they can utilize solutions such as farm management software, smart irrigation solutions, livestock management systems, etc., in order to optimize their farming operations. These solutions are useful in enhancing productivity and boosting efficiency. By utilizing different data-driven solutions, farmers can make informed decisions based on sound data and optimize their day-to-day activities. One of the key trends expected to rise in the upcoming period is the increased uptake of AI solutions in farming practices, as well as shifting focus to more sustainable farming solutions. Since initial/setup costs of digital agriculture solutions can be very high, early adopters of such solutions could be large-scale farmers, with larger land ownership, as they could be more likely to have access to funds needed to set up and deploy such solutions.

Agricultural Organisations and Cooperatives

Besides individual farmers, different agricultural organisations and cooperatives are an important segment of the agricultural market. Multiple farmers and landowners join forces with the aim of improving productivity, reducing costs, streamlining and optimizing supply chains, achieving economies of scale, etc. There is a rise in the uptake of digital agriculture solutions among agricultural cooperatives, which in turn help optimize farming operations across a broad base of smaller-scale producers.

Research and Educational Institutions

Research and educational institutions are key actors when it comes to the development and innovation of digital agriculture solutions. On a global level, numerous universities, faculties, and research centres conduct different studies, experiments, and research, with the goal of exploring the capabilities, limitations, and benefits of different innovative digital solutions in agriculture. These

institutions often collaborate with industry and technology experts, forming a cohesive partnership that translates research into practical innovative digital solutions in agriculture.

Public Sector and Regulatory Authorities

The digital agriculture market is largely influenced and shaped by the public sector and different regulatory bodies, whose task is to set policies, standards, and regulations in the field of digital agriculture solutions. The EU regulates this market segment through frameworks like the Common Agricultural Policy (CAP), promoting the adoption of digital solutions in agriculture that are in alignment with broader goals such as environmental protection, carbon emission reduction, water management optimization, etc. Through different public and private funding mechanisms, farmers, technology developers, and other stakeholders are encouraged to develop and adopt innovative agriculture digital solutions, to contribute to more productive, efficient, and sustainable agriculture.

Large-Scale Agribusinesses

In terms of digital agriculture solutions adoption, large-scale agribusinesses are one of the key players, often being early adopters of such solutions, due to their access to capital and investments, as well as lower risk-aversion. These companies often have extensive operations over several different countries/continents, with a client base often extending to the global plan. Some of the main characteristics of large-scale agri-companies are complex supply chains, access to larger funds for research and deployment of innovative solutions, as well as a diverse product offering and client base. These organisations are often one of the earliest adopters of digital agriculture solutions, utilizing their benefits to increase efficiency, enhance profitability, optimize their operations, and reduce costs.

Technology Solution Providers

Technology solution providers are the main suppliers of hardware, software, and different services that enable innovation in the digital agriculture market. These companies are focusing on developing innovative solutions and technological advancements such as different sensors, drones, GPS systems, farm management software, data analytics platforms, remote sensing technologies, etc. Besides their products, they also offer several services such as technical support, maintenance, advisory services, and similar, to make sure their solutions function properly and provide a high level of quality and reliability.

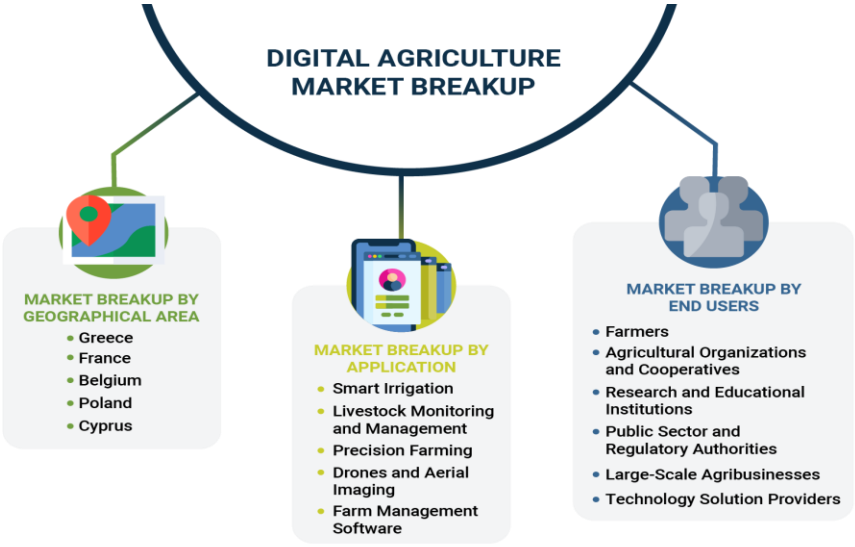


Figure 36: Digital agriculture market breakup

5.3.4 Competitive landscape analysis

The competitive landscape for the OpenAgri project is diverse, with key players operating across different sectors of digital agriculture of the project's five core SIPs. In the upcoming deliverable (D4.5 - Exploitation, Sustainability & IPR Management Strategy - updated), the market analysis will be expanded to be relevant also for the external Pilots (stemming from the Open Call). Also, this deliverable will dig deeper into the competitive landscape and try to capture the most prominent players in all market segments relevant to the OpenAgri project.

As each OpenAgri SIP focuses on a specific application of digital technology in farming, it is important to analyse the key competitors of each SIP to get a good overview of the competitive market.

Building upon the insights gathered from the Market Analysis Questionnaire, we will analyse the general characteristics of each SIP's direct and indirect competitors (if found). More detailed competitive landscape analysis and comparison with each SIP's competitive advantages will be laid out in the next exploitation deliverable, D4.5, which is due in M17 and is sensitive in nature.

SIP1: Vineyard visual scouting

Within the OpenAgri project, SIP1 focuses on using Viewer device for visual scouting for disease detection, yield estimation, forecasting, and canopy density profiling in vineyards in Greece. The main direct competitors for this SIP include Orchard-Robotics (USA), Aurea Imaging (Netherlands), and Bloomfield Robotics (USA).

Direct competitors for SIP1			
No	**Direct competitor**	**Product offering**	**Competitive advantage of the competitor**
1	Orchard-Robotics (USA)	Advanced camera system & computer vision software gathering precision data for visible fruit on any tree	Over 10+ internal sensors; custom-built computer vision and AI software
2	Aurea Imaging (Netherlands)	TreeScout is an add-on, mounted on the grower's tractor, creating accurate orchard maps by using high-definition images and deep learning techniques. Applications include high-precision mapping of growth and vigor, fruit counting, spraying, and root pruning.	Edge computing processing capacity; high-definition 3D computer vision system
3	Bloomfield Robotics (USA)	Camera attached to any vehicle, for plant-level imaging and deep learning techniques, combined for assessing and managing each plant's health and performance	Continuous AI-driven assessment, precise and accurate plant-level health and performance insights

Table 9: Direct competitors for SIP1

Besides direct competitors, there are some indirect competitors in the market, that are offering different products but are targeting a similar client base. For SIP1, the main indirect competitors are Augmenta Mantis and Chouette.

Indirect competitors for SIP1			
No	**Indirect competitor**	**Product offering**	**Competitive advantage of the competitor**
1	Augmenta Mantis (Greece)	Augmenta field analyzer uses Computer Vision Machine Learning (CVML) technology to translate camera images into agronomic insights and suggests variable-rate applications in real time.	Self-calibration; variable-rate application precision
2	Chouette (France)	Autonomous sensor mounted on a grower's vehicle, providing analysis of each plot and mapped summaries, overviewed in their platform	User-friendly interface, AI-driven

Table 10: Indirect competitors for SIP1

SIP2: Cattle monitoring

In France, SIP2 provides a digital solution for remote animal monitoring, using UHF RFID antennas, data loggers, and UHF ear tags for each individual animal to monitor attendance at a water trough, extracting drinking habits and providing alerts. Through this solution, farmers can monitor animal activity, and identify animals that are sick or exhibit unexpected behavior. This solution hasn't been introduced to the market yet, so there are no direct competitors identified. The main indirect competitors of this SIP are MooMonitor by DairyMaster, mOOvement, and CeresTag.

Indirect competitors for SIP2			
No	**Indirect competitor**	**Product offering**	**Competitive advantage of the competitor**
1	MooMonitor (Ireland)	Wearable sensor for tracking cow neck movements, detecting heat-related activity, rumination, resting, feeding, head position, and restlessness	Easy and accurate heat detection, alert system ensuring early intervention
2	mOOvement (Australia, The Netherlands)	GPS ear tags for tracking cattle location	Solar-powered GPS ear tags
3	CeresTag (Australia)	Animal monitors with satellite connectivity	No additional infrastructure needed; tracking grazing, resting/rumination, walking, drinking, and pasture intake

Table 11: Indirect competitors for SIP2

SIP3: Detection of Colorado potato beetle

Piloting in Belgium, SIP3 operates in the arable/potatoes sector, creating a solution using a UAV equipped with hyperspectral (NIR) and RGB cameras that scout the field, while pre-trained AI algorithms will accurately identify the presence of Colorado Potato beetle, and specify parcel's prescription maps. The main competitor identified for this SIP is a startup company from the

Netherlands, Croptic, while the main indirect competitors are FLYDROPS (Greece), Cropim (Estonia), and Pix4D (Switzerland).

Direct competitors for SIP3			
No	**Direct competitor**	**Product offering**	**Competitive advantage of the competitor**
1	Croptic (Netherlands)	Drone imaging with the aim to reduce the amount of pesticides through weed detection, pest, and disease scouting	Utilizing AI to reduce the amount of pesticides

Table 12: Direct competitors for SIP3

Indirect competitors for SIP3			
No	**Indirect competitor**	**Product offering**	**Competitive advantage of the competitor**
1	FLYDROPS (Greece)	Drone spraying services	Multispectral imaging, variable dose mapping
2	Cropim (Estonia)	Drone spraying services	Scheduled spraying
3	Pix4D (Switzerland)	Hybrid drone and satellite mapping	Trial plot management, AI detection for spot spraying

Table 13: Indirect competitors for SIP3

SIP4: Smart irrigation controller

SIP4 focuses on creating a smart irrigation controller, connected to irrigation valves, capable of integrating soil moisture sensors and FMISs. It enables automated irrigation of the fields, allowing for the optimization of the doses using data on the rainfall, evapotranspiration, water needs of plants, temperature effects, and soil type, which are obtained from external datasets: weather stations, soil maps, weather forecasts, and satellite data. SIP4 solution is innovative in the market and therefore has no direct competitors. However, identified indirect competitors of this SIP are LUMO (USA), Rachio (USA), Hydrawise (USA), and Bauer (Germany).

Indirect competitors for SIP4			
No	**Indirect competitor**	**Product offering**	**Competitive advantage of the competitor**
1	LUMO (USA)	Smart irrigation valve, with a built-in flow meter	Built-in flow meter; onboard computer for 24/7 remote control; solar-powered
2	Rachio (USA)	Smart sprinkler controller	Automated smart watering schedule, and automatical adjustment for rain, wind, etc.; quick and easy install
3	Hydrawise (USA)	Wi-Fi sprinkler controller, with a water management platform that	Predictive watering based on weather

		enables water management and reporting	adjustments, smart watering based on environmental conditions
4	Bauer (Austria)	Different irrigation systems, integrated with a mobile app for simple use	Long tradition; established supplier; real-time notifications and alerts

Table 14: Indirect competitors for SIP4

SIP5: Compost monitoring

In remote areas of Cyprus, SIP5 is developing low-cost, deploy-and-forget LoRaWAN IoT sensors and actuators enabling parallel monitoring of conditions (temperature, moisture, pH) and control (automated irrigation) of multiple compost piles in remote areas. This will be combined with an easy-to-use portable BioElectric-chemical analysis sensor (BELD) capable of estimating NPK content of compost samples on-site and in near-real-time. This compost monitoring ADS facilitates real-time monitoring of compost piles through sensors, automates the fermentation process, and provides on-site analysis of Nitrogen-Phosphorus-Potassium (NPK) content. Direct competitors are not found in the market, as this is an innovative solution. Indirect competitors of this SIP are MontyCompost (Australia), Periskop (Finland), and SmartCompost (Brazil).

Indirect competitors for SIP5			
No	**Indirect competitor**	**Product offering**	**Competitive advantage of the competitor**
1	MontyCompost (Australia)	Compost monitoring solution, with a sensor-equipped device tracking temperature, moisture, air pressure, and other parameters, streamlining the composting process	Connected to a convenient mobile app; data-backed composting recommendations
2	Periskop (Finland)	Compost monitoring system – wireless temperature probes providing real-time compost temperature tracking	Wireless temperature probes, real-time alerts
3	SmartCompost (Brazil)	A composting device that monitors temperature, humidity, and gas emission	Multi-parameter tracking

Table 15: Indirect competitors for SIP5

Open-source competitive landscape

Since OpenAgri is focusing on creating open-source ADSs for use by farmers, advisors, and AgriTech SMEs by utilizing different technologies and innovations, it's interesting to look at the key players in the Open Source market segment.

The Open Source competitive landscape is very diverse, offering numerous solutions (both software and hardware based), in the field of digital agriculture. Below is an overview of key players in the agri-tech Open Source field, covering information regarding their offering, pricing strategy and business model, strengths and weaknesses, as well as system modularity and target audience.

Competitor	farmOS
Website	https://farmos.org/
Offering	A web-based farm record-keeping application and planning software tailored to agricultural needs
Pricing	Free for the OS version; paid options via hosting services or customization.
Business Model	SaaS; Freemium
Strengths	Easy to implement; Strong community; Integrates well with IoT and GIS tools
Weaknesses	Requires technical expertise for self-hosting
System Modularity	Yes
Target Audience	Small and medium-sized farmers; Agricultural cooperatives; Farm advisors; Developers; Agricultural researchers

Table 16: farmOS overview

Competitor	FarmVibes.AI
Website	https://microsoft.github.io/farmvibes-ai/
Offering	Multi-modal GeoSpatial ML models for agriculture and sustainability (AI-powered tools for precision agriculture (e.g., weather predictions, soil health analysis))
Pricing	Free (OS code available)
Business Model	Open-source, self-hosted
Strengths	Very strong community; Highly customizable; Advanced AI capabilities and integration with Microsoft tools
Weaknesses	Reliance on Azure increases costs; Steep learning curve for setup
System Modularity	Yes
Target Audience	Precision agriculture farms; Large-scale farms; Agricultural researchers; Tech-savvy farmers; Data scientists

Table 17: FarmVibes.AI overview

Competitor	ekylibre
Website	https://ekylibre.com/eng/home/
Offering	OS Farm Management Information System (FMIS) covering finance, planning, and operations
Pricing	Freemium model with a free OS base and paid services for premium features starting at 9,90€
Business Model	SaaS; Freemium
Strengths	Traceability, real-time costs tracking (strong focus on financial management within farming)
Weaknesses	Limited global adoption
System Modularity	Yes, but moderate - focusing on core functionalities
Target Audience	Medium and larger farms; Farm advisors

Table 18: ekylibre overview

Competitor	FarmBot
Website	https://farm.bot/
Offering	Open-source, automated, small-scale farming robots for gardens
Pricing	Open hardware and software; kits sold at a premium starting at 2.495$
Business Model	HaaS and direct sales
Strengths	Performs several agricultural operations; Flexibility; DIY customization; Strong community engagement
Weaknesses	Limited scalability for large-scale agriculture
System Modularity	Yes
Target Audience	Gardening enthusiasts; Small-scale, sustainable farms; Educational institutions; Community-based farming organizations

Table 19: FarmBot overview

Competitor	Tania
Website	https://usetania.org/
Offering	Open-source farm management software for smallholder farms
Pricing	Free
Business Model	Open Source (Community driven)
Strengths	Extensible modules; Built for IoT; Simplicity and ease of use
Weaknesses	Limited features compared to competitors like farmOS or ekylibre
System Modularity	Yes, but limited - primarily designed as a standalone application
Target Audience	Smallholder farms; Community-based farming organizations; Farmers in developing regions

Table 20: Tania overview

Competitor	LiteFarm
Website	https://www.litefarm.org/
Offering	OS Farm Management Tool designed for sustainable and regenerative agriculture
Pricing	Free
Business Model	Open Source (Grant-funded)
Strengths	User-friendly - supporting 8 languages; Interdisciplinarity
Weaknesses	Dependency on external funding; Limited advanced integrations
System Modularity	Yes - Basic modularity with pre-configured features
Target Audience	Sustainable, urban, and organic farms; Research institutions focused on sustainable farming; Farm advisors

Table 21: LiteFarm overview

Competitor	ODI Agriculture
Website	https://theodi.org/
Offering	Open data tools in agriculture to improve transparency and innovation
Pricing	Starting at £100 for individual membership
Business Model	Non-for-profit; Grant-based, with a focus on public good and data advocacy
Strengths	Data sharing and interoperability
Weaknesses	Focused more on data standards than operational tools for farmers
System Modularity	Modular data tools enabling diverse applications
Target Audience	Agriculture data professionals; Policy makers; NGOs and researchers focused on agricultural transparency

Table 22: ODI Agriculture overview

Competitor	Farm Hack
Website	https://farmhack.org/welcome
Offering	A community of farmers, developers, and agricultural professionals that collaboratively develop open-source agricultural tools
Pricing	Free
Business Model	Open Source Community; Non-profit
Strengths	Diversity; Knowledge sharing; Solutions tailored to local needs
Weaknesses	Requires significant technical expertise for implementation
System Modularity	N/A; focuses on tool sharing rather than software modularity
Target Audience	Farmers and DIY farming technology enthusiasts; Rural communities needing locally adapted solutions

Table 23: FarmHack overview

Competitor	OpenTEAM
Website	https://openteam.community/
Offering	A collaborative platform for Open-Source tools for data-driven sustainable farming practices
Pricing	Free
Business Model	Open Source Ecosystem (Grant-funded + Partnerships)
Strengths	Collaborative and inclusive; Interoperability
Weaknesses	Limited direct tools; More focused on enabling collaboration
System Modularity	Yes, high modularity for integration with other systems
Target Audience	Farmers and farming communities; Developers of agricultural solutions; Research institutions promoting data-driven farming

Table 24: OpenTEAM overview

Competitor	ISPA
Website	https://www.ispag.org/
Offering	Promotes precision farming practices with open data and open-source tools for smart farming. Focused on scientific exchange.
Pricing	Free, Membership based
Business Model	Non-for-profit; Membership funded
Strengths	Professional, scientific approach; Global outreach
Weaknesses	Focused more on research than practical farm management tools
System Modularity	N/A; primarily focused on guidelines and frameworks
Target Audience	Agricultural scientists and researchers; Governments and policy makers promoting precision agriculture; Precision farmers

Table 25: ISPA overview

Competitor	AgStack
Website	https://agstack.org/
Offering	AgStack is the AgriFood team of the Linux Foundation, a member of the OpenAgri consortium. Develops open-source standards and libraries that can be used to build applications for farming operations, crop management, and agricultural supply chains. OpenAgri will donate its open-source codebase to AgStack, ensuring its sustainability and continuous improvement by a global open-source community.
Pricing	Free, Membership based (AgStack foundation)
Business Model	Open Source Ecosystem (Grant-funded)
Strengths	Linux Foundation expertise and community; Scalable and collaborative infrastructure
Weaknesses	Limited user-facing tools; More focused on backend solutions
System Modularity	Yes, highly modular, providing a foundation for app development
Target Audience	Developers building agricultural applications; Agricultural supply chain managers; Digital agriculture startups

Table 26: AgStack overview

Competitor	Open Food Network
Website	https://openfoodnetwork.org/
Offering	Platform for building open-source software to support local food systems, including farming
Pricing	Free; paid hosting options available
Business Model	SaaS + Freemium
Strengths	Easy to setup
Weaknesses	Limited focus beyond food distribution
System Modularity	Yes, customizable for various food system needs
Target Audience	Farmers focused on direct-to-consumer distribution; Local food system stakeholders (small-scale producers, cooperatives); Organizations promoting food system transparency and sustainability

Table 27: Open Food Network overview

Within the OS landscape, OpenAgri solutions have a large potential as they provide both OS software and hardware-based solutions. These solutions are versatile, reusable and standards-compliant, with a focus on modularity, enabling a high degree of customization. These characteristics of OpenAgri OS solutions provide a strong foundation for their future exploitation, as they demonstrate a strong market potential.

5.3.5 Regulation and policy

The agricultural digital solutions market is legally covered through various regulations, focusing on ensuring sustainable practices, fostering environmental protection, and enabling food and feed security. These regulations have a significant impact on how agricultural technologies, including digital solutions, are developed, adopted, and used. New agricultural digital solutions entering the market need to navigate a complex regulatory landscape, to ensure compliance. Key regulatory frameworks in this field include the Common Agricultural Policy (CAP), the European Green Deal, the Farm to Fork Strategy, the General Data Protection Regulation (GDPR), The Data Governance Act (DGA), and the EU Code of Conduct on agricultural data sharing by contractual agreement, which are overviewed below.

5.3.5.1 General regulations and policy

Common Agricultural Policy (CAP)

The Common Agricultural Policy (CAP) has been set up to support farmers and enhance food security in the EU. The CAP represents a partnership between society and agriculture, providing a stable food supply, environmental protection, farmer's income safeguarding, and rural area development. Launched in 1962, the CAP has been changing and evolving over the years to meet the changing landscape, requirements, and needs. The latest CAP (2023-27) has entered into force on January 1st, 2023.

Figure 37: CAP objectives

Source: https://eu-cap-network.ec.europa.eu/common-agricultural-policy-overview_en

The overarching goal of the CAP is to provide support to the EU's farming sector, specifically through income support (via direct payments), market measures, and rural development measures. Through CAP, the EU provides continuous support to farmers' food production, rural community development, and environmentally sustainable farming. From its foundation until today, the CAP has

contributed to food availability (at reasonable prices), enhancing productivity and market stabilization, as well as fair living standards for farmers.

The European Green Deal

The European Green Deal is setting the foundation for Europe to become the first continent that is climate neutral. Launched in 2019, some of the main topics this strategy covers are climate neutrality, energy efficiency, biodiversity and environment protection, sustainable agriculture, transport solutions, industry enhancements, research and innovation in different fields, as well as finance and regional development.

Figure 38: The European Green Deal

Source: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52019DC0640

Comprised of different policy initiatives, the European Green Deal drives the EU towards a green transition, striving to achieve the goal of the EU being climate-neutral by 2050. Under the Green Deal, a legislative foundation has been set through different laws and rules, supporting the transformation of the EU and its green transition towards a more modern, fair, prosperous, and sustainable future. The Green Deal has set a number of goals for 2050 including climate neutrality, a circular economy, clear industry, a healthier environment, more sustainable farming, and climate justice and fairness. This EU's sustainable growth strategy is strongly focused on reducing pesticide and fertilizer use, promoting organic farming practices and sustainable food production, transforming supply chains, and supporting farmers through financial and policy support.

The Farm to Fork Strategy

The Farm to Fork Strategy focuses on supporting food systems that are fair, environmentally friendly, and sustainable, in line with the European Green Deal. This strategy was adopted in May 2020 and is a vital part of the European Green Deal. Since food systems nowadays are not exhibiting sufficient levels of sustainability, The Farm to Fork Strategy aims to enhance food systems by reducing their negative environmental and climate impacts, supporting biodiversity, ensuring food security, and achieving a balance between food affordability and fair financial returns. The concept of Farm to Fork looks to cover various stages of food production and consumption, making it beneficial for both producers and consumers. An overview of Farm to Fork key areas of focus is presented below.

Figure 39: Farm to Fork Strategy

Source: https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en

The Farm to Fork strategy provides both legislative and non-legislative initiatives, utilizing different policies to support the transition towards more sustainable food systems. Besides this, a regulatory and legislative framework is being developed, to create a foundation for effective implementation of the strategy. Through the Farm to Fork Strategy, the EU aims to reduce the negative environmental and climate footprint of food systems in Europe and make those systems more resilient, while fostering food security and a global transition towards increased sustainability.

General Data Protection Regulation (GDPR)

General Data Protection Regulation (GDPR) is focused on ensuring data security in different data platforms. This regulation has large implications for agricultural data platforms, since user consent for sharing their data has to be gathered, and data collection and usage has to be clearly communicated. Also, a large focus is put on security measures, ensuring data safety in all phases of personal data collection, handling, and storage. [10]

The Data Governance Act (DGA)

The Data Governance Act (DGA) is a key pillar of the European Strategy for Data, which focuses on creating a unified market for data and supporting the EU's competitive position and data sovereignty on the global level. The DGA is a framework regulating the reuse of data, both personal and non-personal, as for the cases when personal data is concerned, GDPR applies. The main focus of DGA is on overcoming obstacles to the reuse of data, reinforcing data availability mechanisms, and strengthening general trust in data sharing. [11]

EU Code of conduct on agricultural data sharing by contractual agreement

The EU Code of Conduct on agricultural data sharing by contractual agreement is a document providing general principles for data sharing within the agri-food chain. Since agricultural data is essential to farmers and numerous actors in the entire agricultural value chain, this code of conduct aims to safeguard this data and set guidelines, rights, and responsibilities in data sharing in the agri-food sector. Compliance with this code is voluntary. [12]

5.3.5.2 SIP-related regulations and policy

Pesticides regulations

Since sustainability is an important goal when it comes to pesticides and other plant protection products, the EU has established a framework for Community action to achieve the sustainable use of pesticides. Through Directive 2009/128/EC, the EU aims to achieve sustainability in pesticide use through minimizing the risks and impacts of pesticide use. [13]

Also, regarding pesticides and other plant protection products in the EU, Regulation (EC) No 1107/2009 is applied. This regulation lays down the rules for placing plant protection products on the market, ensuring their safety and efficiency. [14] Strict approval criteria for active substances are set, to make sure that plant protection products are safe for human and animal health, as well as for the environment.

In Greece, where SIP1 is operating, national regulations regarding plant protection products are laid out through Law 4036/2012 (Pesticide marketing, sustainable use, and other provisions) [15]. The provisions of this law showcase Greek national implementation measures for the sustainable use of plant protection products, as well as the National Action Plan in this field.

Livestock monitoring regulations

European Animal Health Law (Regulation (EU) 2016/429) on transmissible animal diseases looks to set the foundation for preventing and controlling animal diseases that can be transmitted to other animals or humans. It has replaced and extended EU rules on animal health, bringing them together into one law. [16]Regulation (EU) 2019/2035 supplements European Animal Health Law and provides rules for establishments keeping terrestrial animals and hatcheries, and the traceability of certain kept terrestrial animals and hatching eggs. [17] Besides these two, Regulation (EU) 2021/520 provides rules for the application of EU Animal Health Law, with regard to the traceability of certain kept terrestrial animals. [18] These regulations are specifically important in ensuring animal welfare, safety of production, as well as public safety.

In France, where SIP2 is operating in the field of cattle monitoring, there is no overall legal act focusing on animal welfare. However, the topic of animal protection falls under the Penal Code [19], as well as secondary legislation through different Decrees.

Unmanned aerial vehicles (drones) regulations

European Union Aviation Safety Agency (EASA) Drone Regulations [20] cover two EU regulations: Regulation (EU) 2019/947 on the rules and procedures for the operation of unmanned aircraft [21], and Regulation (EU) 2019/945 on unmanned aircraft systems and on third-country operators of unmanned aircraft systems [22] In this publication, main rules for the operation of unmanned aircraft are laid down, making them accessible to stakeholders efficiently and reliably.

In Belgium, where SIP3 is operating, there are no country-specific drone regulations, as the same drone laws apply across the whole EU. However, Belgium has distinguished three different classes of drone operations, each of them having their specific requirements for licensing, which is showcased in the table below. For example, for some of the classes, a notification before the flight to BCAA (Belgian Civil Aviation Authority) or authorization to operate is needed.

	Private use	Model aircraft [1]	Class 2	Class 1b	Class 1a
Max height	10m (32.8ft)	Check AIP for terrain restrictions	150ft (around 45m)	300ft (around 90m)	300ft (around 90m)
Max. weight	< 1kg (2.2lbs)	1kg - 150kg (2.2lbs - 330lbs)	< 5kg (11lbs)	< 150kg (330lbs)	< 150kg (330lbs)
Remote pilot's age	All ages	All ages	At least 16yo	At least 18yo	At least 18yo
Remote pilot qualification	None	None	Theorical training + Practical skill test	Theoretical exam + Practical skill test	Theoretical exam + Practical skill test
Registration of the drone	No	No	Yes	Yes	Yes
Certificate of conformity for drone	No	No	No	No	Yes
Operations manual drafted by the operator	No	No	No	Yes	Yes
Risk assessment by the operator	No	No	No	Yes	Yes
Declaration of compliance made by operator	No	No	No	Yes	No
Authorization to operate received from BCAA	No	No	No	No	Yes
Flight notification to BCAA before start of flight	No	No	No	Yes	Yes

Figure 40: Requirements for different types of drone operations in Belgium

Source: https://uavcoach.com/drone-laws-in-belgium/

Radio spectrum regulations

In Europe, radio spectrum is regulated through Decision No 676/2002/EC on a regulatory framework for radio spectrum policy (radio spectrum decision). This decision lays down the rules for regulating the availability of radio spectrum, as well as technical conditions for its use. [23] Different member states might have different rules for the use of radio waves, so it's important to examine a particular country's legislation to make sure that radio wave utilization is in line with the specific country's regulatory framework and to ensure full compliance.

In Poland, where SIP4 is operating, the regulatory authority responsible for (among other topics) management of radio spectrum, is the President of the Office of Electronic Communications (UKE). This authority aims to provide Polish citizens access to high-quality telecommunications and postal services. This authority also issues radio licenses to interested parties – no permit is required for the use of radio devices intended for reception only. [24]

Regulations for organic waste

Waste framework regulation is given through Directive 2008/98/EC [25] of the European Parliament and of the Council on Waste. This regulation promotes the recycling of organic waste and provides a legal framework for waste management in Europe. Also, measures are given to prevent or reduce the generation of waste, improve the efficiency of its use, and reduce the negative impacts of resource use. It is important to mention that the majority of European States have some criteria fulfillment regarding composting, but there is no uniformity, and individual member state's laws and regulations need to be observed when exploring composting activities. [26]

In SIP5 country of operation (Cyprus), the above-mentioned EU-wide directive is implemented in the country's legislative framework through the implementation of the Waste Law (Law No. 185(I)/2011). This legislation aims to create a suitable framework for harmonizing the Cypriot legislation with EU-wide regulations on Waste Management. [27]

5.4 OpenAgri market potential

Based on the performed market analysis, OpenAgri's solutions are in a strong position for a market entrance. Innovative agriculture digital solutions, coupled with OpenAgri's emphasis on OS software and hardware, increased connectivity, and accessibility, all imply a good market perspective and outlook. This project's solutions stand out due to their innovation and ability to integrate various data sources for enhanced decision-making processes and streamlining farmers' everyday operations.

ADSs stemming from the OpenAgri SIPs have a strong ability to cater to multiple end users, including farmers, agricultural cooperatives, large-scale agribusinesses, and technology solution providers. While large agribusiness and large-scale farmers are typically early adopters of these solutions due to their access to capital, agricultural cooperatives and small-scale farmers are also increasingly embracing agriculture digital solutions with the aim to improve productivity and reduce costs.

The market potential of OpenAgri's solutions will be further explored throughout the project, setting a firm ground for future possible commercial exploitation of the project's results.

6. Conclusions and Next Steps

6.1 Conclusions

This second report on dissemination, exploitation, and communication activities provides a detailed summary of the DEC efforts undertaken by the OpenAgri consortium. These efforts have successfully engaged key stakeholders and advanced the project's objectives. As piloting activities ramp up, an even greater level of engagement and outreach is anticipated.

To sustain and amplify the impact achieved thus far, it is crucial for all consortium partners to remain actively involved in dissemination and communication activities. Their contributions are essential to fulfilling the project's DEC goals and ensuring the effective exploitation of its outcomes.

6.2 Next Steps for Dissemination and Communication Activities

OpenAgri will place additional emphasis on expert interviews, media outreach, and active participation in upcoming events.

Moving forward, the project will also focus on producing scientific publications, hosting webinars, and contributing to EIP-AGRI Practice Abstracts, broadening its reach and reinforcing its commitment to open science and innovation.

6.3 Next Steps for Exploitation Activities

In the upcoming period, the team will focus on working on Deliverable D4.5 – Exploitation, Sustainability & IPR Management Strategy – updated version, which is due in M17. This deliverable will provide an overview of the mapped funding opportunities, and further explore exploitation routes for commercial & non-commercial results. Also, market analysis will be expanded, if necessary, to be relevant also to additional SIPs that will stem from the Open Call. One funding opportunities webinar will be organized, to ensure a good knowledge transfer, as well as answer any questions Project Partners might have on this topic.

As presented during the IP Workshop #2, several workshops will be delivered in the upcoming months, covering topics that will be relevant to the whole OpenAgri consortium:

- IPR and Software
- IPR & Software IP Protection for AI-Devised Inventions
- The Impact of Open Source on IPR.

Project Partners are also welcome to initiate 1:1 sessions to discuss their individual needs regarding exploitation and IPR, but also to suggest any relevant topic that should be covered through workshops or other sessions. This way, the project ensures that knowledge and information shared is highly relevant for the partners and provides value in terms of future exploitation of their results within the OpenAgri project.

7. References

Cesaro, A., Belgiorno, V., & Guida, M. (2015). Compost from organic solid waste: Quality assessment and European regulations for its sustainable use. *Resources, Conservation and Recycling, 94*, 72-79.

Crop Life Europe. (2024, October 9). *EU Code of Conduct on Agricultural Data Sharing by Contractual Agreement*. Retrieved from https://croplifeeurope.eu/wp-content/uploads/2021/03/EU_Code_of_conduct_on_agricultural_data_sharing_by_contractual_agreement_2020_ENGLISH.pdf

EUR-Lex. (2024, October 24). *Decision No 676/2002/EC*. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32002D0676

EUR-Lex. (2024, October 25). *Directive 2008/98/EC*. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02008L0098-20180705

EUR-Lex. (2024, December 13). *Directive 2009/128/EC*. Retrieved from https://eur-lex.europa.eu/eli/dir/2009/128/oj

EUR-Lex. (2024, October 11). *Regulation (EC) No 1107/2009*. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02009R1107-20221121

EUR-Lex. (2024, October 14). *Regulation (EU) 2016/429*. Retrieved from https://eur-lex.europa.eu/eli/reg/2016/429/2019-12-14

EUR-Lex. (2024, October 3). *Regulation (EU) 2016/679*. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02016R0679-20160504

EUR-Lex. (2024, October 16). *Regulation (EU) 2019/2035*. Retrieved from https://eur-lex.europa.eu/eli/reg_del/2019/2035/oj

EUR-Lex. (2024, October 22). *Regulation (EU) 2019/945*. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019R0945

EUR-Lex. (2024, October 22). *Regulation (EU) 2019/947*. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019R0947

EUR-Lex. (2024, October 18). *Regulation (EU) 2021/520*. Retrieved from https://eur-lex.europa.eu/eli/reg_impl/2021/520/oj

EUR-Lex. (2024, October 3). *Regulation (EU) 2022/868*. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32022R0868

European Commission. (2024, November 21). *CAP Strategic Plan - Belgium - Flanders*. Retrieved from https://agriculture.ec.europa.eu/cap-my-country/cap-strategic-plans/belgium-flanders_en#:~:text=Flemish%20agri%2Dbusinesses%20are%20mainly,takes%20place%20on%20specialised%20farms.&text=There%20are%20over%2035%20000,000%20farms%20are%20in%20Flanders.

European Commission. (2024, November 22). *CAP Strategic Plan - Cyprus*. Retrieved from https://agriculture.ec.europa.eu/cap-my-country/cap-strategic-plans/cyprus_en

European Commission. (2024, November 19). *CAP Strategic Plan - France*. Retrieved from https://agriculture.ec.europa.eu/cap-my-country/cap-strategic-plans/france_en

European Commission. (2024, November 21). *CAP Strategic Plan - Greece*. Retrieved from https://agriculture.ec.europa.eu/cap-my-country/cap-strategic-plans/greece_en

European Commission. (2024, November 22). *CAP Strategic Plan - Poland*. Retrieved from https://agriculture.ec.europa.eu/cap-my-country/cap-strategic-plans/poland_en

European Union Aviation Safety Agency. (2024, October 21). *Drones & Air Mobility*. Retrieved from https://www.easa.europa.eu/en/domains/civil-drones

Hellenic Republic, Ministry of Rural Development and Food. (2024, December 13). *Law 4036/2012*. Retrieved from https://www.minagric.gr/images/stories/en_docs/plant_protection/Law_4036_2012_CONSOLIDATED_eng.pdf

Natlex/International Labour Organization. (2024, December 16). *Waste Law, 2011 (Law No. 185(I)/2011)*. Retrieved from https://natlex.ilo.org/dyn/natlex2/r/natlex/fe/details?p3_isn=109779&cs=1Q8tSnheXu5LhxgVm4opZmULqB_0GGAORp3iqdrqBDxv4UnDtrwis78QskF13ES44ogIqVWtNt8jAqGH0nqMBCQ#:~:text=The%20Law%20aims%20at%20harmonizing,of%20other%20related%20EU%20directives.

Office of Electronic Communication. (2024, December 16). *UKE - About Us*. Retrieved from https://www.uke.gov.pl/en/about-us/

Prachi, S., P., P. C., Petropoulos, G., Pavlides, A., Srivastava, P., Koutsias, N., . . . Bao, Y. (2020). Hyperspectral remote sensing in precision agriculture: present status, challenges, and future trends. In *Hyperspectral remote sensing* (pp. 121-146). Elsevier.

Precedence Research. (2024, November 19). *Precision Farming Market*. Retrieved from https://www.precedenceresearch.com/precision-farming-market#:~:text=The%20global%20precision%20farming%20market%20size%20was%20accounted%20at%20USD,USD%2034.01%20billion%20by%202032.

SHERLOC. (2024, December 16). *Penal Code*. Retrieved from https://sherloc.unodc.org/cld/uploads/res/document/france---code-pnall-2019_html/Code_penal_France_v.30-10-2019.pdf

Statbel. (2024, November 20). *Key Figures on Agriculture 2023*. Retrieved from https://statbel.fgov.be/en/news/key-figures-agriculture-2023#:~:text=The%20utilised%20agricultural%20area%20accounts,been%20stabilizing%20for%20several%20years.

Verified Market Research. (2024, November 15). *Digital Farming Market*. Retrieved from Verified Market Research: https://www.verifiedmarketresearch.com/product/digital-farming-market/#:~:text=Global%20Digital%20Farming%20Market%20size%20was%20valued%20at%20USD%2024.48,agriculture%20to%20improve%20farming%20methods.

8. Annex

Market Analysis Questionnaire

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As a part of task T4.5: Exploitation, Sustainability and IPR, we are conducting a thorough market analysis. In this context, we have prepared a short questionnaire. The purpose of this questionnaire is to capture OpenAgri SIPs leaders' insights, needs and wants regarding market entrance and commercial exploitation of the solutions stemming from the SIPs activities. Your feedback will enable us to adapt the market analysis to serve as a solid foundation for future commercial exploitation of OpenAgri project results.

Thank you for your contribution in advance!

SIP Information	
SIP name:	
SIP leader (organisation):	
SIPs Main contact person for T4.5 activities:	

Part A: Geographical Scope	
Please indicate the geographical areas you are interested in placing your ADS:	

Part B: Market Information	
B.1. Overall Market	
What are the biggest market challenges you foresee:	
Please identify potential market risks:	
B.2 Competition	
Who would be your direct competitors:	
Who would be your indirect competitors:	
How much competition is there? Does the market appear to be saturated:	
What is the primary competitive advantage of your ADS:	

Part C: Target Customers / Potential Stakeholders	
Please indicate your target customers:	
Describe the customers' needs:	
Please indicate any other stakeholder who can support your ADS commercialization:	

Part D: Regulation and policy	
Please state any regulation and/or policy you find relevant in the context of Market Analysis for OpenAgri solutions:	

Part E: General Comments	
Please state any additional issue/topic that Market Analysis as a part of T4.5 should investigate:	