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DIVINE - DemonstratIng the Value of agri data sharIng for boostiNg data Economy in agriculture

Deliverable D7.3

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Glossary

Abbreviation	Description
AACARI	Agriculture Alliance of the Caribbean
ABAC	Attribute-Based Access Control
ACM	Association for Computing Machinery
ADAPT	Agricultural Data Application Programming Toolkit
ADS	Agricultural Digital Solution
ADSC	Analisis – Dynamic & Security Computations
ADSE	Agricultural Data Space Ecosystem
AEF	Agricultural Industry Electronics Foundation
AFNOR	Association Française de Normalisation
AGDM	Agricultural Data Model
AgMES	Agricultural Metadata Element Set
AGML	Agriculture Markup Language
AgTech/AgriTech	Agriculture Technology
AI	Artificial Intelligence
AIM	Agricultural Information Model
AIOTI	Alliance for Internet of Things Innovation
AOS	Agricultural Ontology Service
API	Application Programming Interface
AWI	Approved Work Item
BD	Big Data
BDVA	Big Data Value Association
BLE	Bluetooth Low Energy
BRCGS	British Retail Consortium Global Standards
BSI	British Standards Institution
B2B	Business-to-Business
CAP	Common Agricultural Policy
CBV	Common Business Vocabulary
CEJA	Committe of European Junior Farmers/European Council of Young Farmers
CEN	European Committee for Standardization
CIGR	Conference of International Commission of Agricultural and Biosystems

	Engineering
CNS	Communications and Network Security
CoAP	Constrained Application Protocol
COINS	Conference on Omni-layer Intelligent Systems
COP	Conference of the Parties
COPA COGECA	Comite des Organisations Professionnelles Agricoles – Comite General de la Cooperation Agricole de l'Union Europeenne
CREA	Consiglio per la Ricerca in Agricoltura e l'Analisi dell'Economia Agraria
CSA	Coordination and Support Action
CSCN	Conference on Standards for Communications and Networking
DCMI	Dublin Core Metadata Initiative
DCOSS-IoT	Distributed Computing in Smart Systems and Internet of Things
DEC	Dissemination, Exploitation and Communication
DG AGRI	Directorate-General for Agriculture and Rural Development
DG CNCT	Directorate-General for Communications Networks, Content and Technology
DG ENV	Directorate-General for Environment
DG RTD	Directorate-General for Research and Innovation
DG SANTE	Directorate-General for Health and Food Safety
DGW	Domain Working Group
DIGI	Digiotouch OU
DIH	Digital Innovation Hub
DIN	Deutsches Institut für Normung
DL	Deep Learning
DSBA	Data Spaces Business Alliance
DSS	Decision Support System
DSSC	Data Spaces Support Centre
DWG	Domain Working Group
Dx.y	Deliverable x.y
EAFF	Eastern Africa Farmers Federation
EBDVF	European Big Data Value Forum
EC	European Commission
ECHA	European Chemicals Agency
ECPA	European Conference on Precision Agriculture

EEA	European Environment Agency
EFSA	European Food Safety Authority
eIDAS	Electronic Identification, Authentication and Trust Services
EIF	European Interoperability Framework
EIP	European Investment Plan
EN	European Norm
ENG	Engineering – Ingegneria Informatica S.p.A.
ENoLL	European Network of Living Labs
EO	Expected Outcome
EPCIS	Electronic Product Code Information Services
ETSI	European Telecommunications Standards Institute
EU	European Union
FAIR	Findable, Accessible, Interoperable, Reusable
FAO	Food and Agriculture Organisation
FE	Farm Europe AISBL
FMCG	Fast-Moving Consumer Good
GeoJSON	Geographic JavaScript Object Notation
GFSI	Global Food Safety Initiative
GLOBALGAP	GLOBAL Good Agricultural Practices
GLOBALGAP GRASP	GLOBAL Good Agricultural Practices Risk Assessment on Social Practice
GNSS	Global Navigation Satellite System
GS1	Global Standards One
HACCP	Hazard Analysis and Critical Control Points
HE	Horizon Europe
H2020	Horizon 2020
IA	Innovation Action
ICCS	Institute of Communication and Computer Systems
ICEAE	International Conference on Environmental and Agricultural Engineering
ICFAE	International Conference on Food and Agricultural Engineering
ICL	International Conference on Localisation
ICPA	International Conference on Precision Agriculture
ICT	Information and Communication Technology
IDSA	International Data Spaces Association EV

IEEE	Institute of Electrical and Electronics Engineers
IETF	Internet Engineering Task Force
IEC	International Electrotechnical Commission
IFS	International Featured Standards
IGARSS	International Geoscience and Remote Sensing Symposium
INLE	Inlecom Commercial Pathways Company Limited by Guarantee
INSPIRE	Infrastructure for Spatial Information
IoT	Internet of Things
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPNLF	International Pole and Line Foundation
IPR	Intellectual Property Rights
IPSN	Information Processing in Sensor Networks
ISDA	International Swaps and Derivatives Association
ISG	Industry Specification Group
ISO	International Organisation for Standardisation
ISO/JTC	International Organisation for Standardisation/Joint Technical Committee
ISO SC	International Organisation for Standardisation Subcommittee
ISO/TC	International Organisation for Standardisation/Technical Committee
IT	Information Technology
ITC	Inovacijsko Technoloski Grozd Murska Sobota
ITU	International Telecommunication Union
JSON	JavaScript Object Notation
KGZS	Kmetijsko Gozdarska Zbornica Slovenije Kmetijsko Gozdarski Zavod Murska Sobota
KM	Key Message
KPI	Key Performance Indicator
LDAP	Lightweight Directory Access Protocol
LoRaWAN	Long Range Wide Area Network
MAA	Multi-Actor Approach
MDPI	Multidisciplinary Digital Publishing Institute
ML	Machine Learning
MQTT	Message Queuing Telemetry Transport

MSCA	Marie Sklodowska-Curie Actions
Mxy	xyth Month
NB-IoT	Narrowband IoT
NBN	Belgian Bureau for Standardisation
NGO	Non-Governmental Organisation
NGSI-LD	Next Generation Service Interface – Linked Data
NP	NEUROPUBLIC AE Pliroforikis & Epikoinonion
NSAI	National Standards Authority of Ireland
OAuth	Open Authorisation
OEM	Original Equipment Manufacturer
OGC	Open Geospatial Consortium
OMA LwM2M	Open Mobile Alliance Lightweight Machine to Machine
oneM2M	one Machine-to-Machine
PAFO	Pan African Farmers Organisation
RAM	Reference Architecture Model
RBAC	Role-Based Access Control
RDF	Resource Description Framework
RIA	Research and Innovation Action
R&D	Research and Development
R&I	Research and Innovation
SACAU	Southern African Confederation of Agricultural Unions
SAML	Security Assertion Markup Language
SAREF4AGRI	Smart Appliances REFerence ontology for AGRIculture
SCoDIHnet	Smart Connectivity Digital Innovation Hub Network
SDS	Statistics and Data Science
SensorML	Sensor Model Language
SETU	South East Technological University
SIAL	Salon International de l'Alimentation
SME	Small and Medium-sized Enterprise
SOS	Sensor Observation Service
SOSA	Sensor, Observation, Sample, Actuator
SSCI-CIAg	Symposium on Computational Intelligence in Agriculture
SSCI-CIRS	Symposium on Computational Intelligence in Remote Sensing

SSN	Semantic Sensor Network
SWG	Standards Working Group
S3	Smart Specialisation Strategies
TG	Target Group
TD	Thing Description
TLS/SSL	Transport Layer Security/Secure Sockets Layer
TRUE	TRUsted Engineering
Tx.y	Task x.y
UAV	Unmanned Aerial Vehicle
UCD	University College Dublin
UMNAGRI	Union Maghrebine et Nord-Africaine des Agriculteurs
UN	United Nations
UNCCC	United Nations' Climate Change Conference
UNE	Instituto Español de Normalización
UNFSS	United Nations' Forum on Sustainability Standards
UNI	Ente Nazionale Italiano di Unificazione
USA	United States of America
VICOM	Fundacion Centro de Technologias de Interaccion Visual y Communicaciones VICOMTECH
WF-IoT	World Forum on Internet of Things
WFO	World Farmers' Organisation
WFS	Web Feature Service
WMS	Web Map Service
WoT	Web of Things
WP	Work Package
W3C	World Wide Web Consortium
XACML	eXtensible Access Control Markup Language
XML	eXtensible Markup Language
ZSCR	Zemedelsky Svaz Ceske Republiky

Executive Summary

The current document constitutes the deliverable D7.3 “Global outreach, dissemination, standardisation and external collaboration plan and activities” of the DIVINE project. This deliverable is the joint output of Tasks 7.2 “Global outreach, dissemination and standardisation” and 7.3 “Collaboration with related projects”, reporting the plans and the respective activities that took place during the first half of the project. It also encapsulates part of the early work documented in the internal document 7.1 “Initial DIVINE Dissemination & Collaboration Plans and Initial Plan for Multi-Actor Approach Activities Stakeholder Mobilisation”, which was released in M03.

The main objective of the DIVINE project is to boost the data economy in agriculture by demonstrating the value of agri-data sharing. Global outreach and dissemination play a crucial role in fulfilling the vision of DIVINE, spreading its core messages, and raising awareness of its innovative endeavours among targeted stakeholder groups and the general public. Similarly, standardisation supports this initiative by facilitating collaboration with stakeholders and ensuring access to specific markets. External collaboration with related projects also supports synergistically addressing challenges and engaging with broader and more diverse communities.

In the current report, the strategy that will be followed throughout the project for these three crucial activities is presented. The strategic approach proposed includes setting clear goals and objectives, identifying the main categories of the targeted stakeholders, the standardisation bodies of interest, and the related projects as well as providing a timeline and a workflow plan for the entire duration of the project. This will create a clear common understanding of what actions should be made and what activities should be performed with respect to global outreach, dissemination, standardisation, and external collaboration throughout the project.

Apart from planning, this deliverable reports on the global outreach, dissemination, standardisation, and external collaboration activities conducted from the beginning of the project (M01) until today (M18). In line with the global outreach and dissemination plan, the project’s visual brand identity has been created, different types of promotional material have been produced and various activities have been performed, leveraging a wide range of dissemination channels, such as the project’s website, social media, publications, and participation in various events. Similarly, following the proposed standardisation plan, standardisation processes have been initiated for two technical DIVINE modules. Moreover, important steps have been made towards identifying related projects and collaborating with them, mainly through the participation in and the organisation of special events to achieve our shared goals. The current deliverable also outlines the progression made within the reported period (M01-M18) towards achieving our goals regarding these three cardinal tasks, with respect to specific key performance indicators (KPIs).

Finally, this report presents the activities that are scheduled to be conducted during the next period (M19-M36), until the end of the project. Again, these activities will be performed in alignment with the proposed strategic planning and the overarching vision of DIVINE. Thus, a clear roadmap is provided for the upcoming months, ensuring the maximisation of the project’s impact, considering some foreseen challenges at the same time.

1 Introduction

DIVINE aims to build an ecosystem for sharing and analysing agri-data; investigate the value of agri-data sharing from technical, business, and policy perspectives; demonstrate this added value via four real-world pilots; and eventually, boost the data economy in agriculture. With an interdisciplinary consortium of 15 partners from 8 European countries and 4 sector-led pilots implemented across 4 different countries and 4 different farm enterprises, it plans to spread its main innovations, promote new standards, and engage with diverse key stakeholders in the agricultural data economy.

To achieve this, a comprehensive strategic plan for global outreach, dissemination, standardisation, and external collaboration has been developed since the very first months of the project. This plan is intended to provide the DIVINE consortium with a tangible roadmap towards achieving its main goals with respect to outreach, dissemination, standardisation, and collaboration with related initiatives. According to it, specific activities have been performed during the first half of the project (M01-M18) and even more are planned for the second half of the project (M19-M36).

Global outreach and dissemination activities are fundamental for spreading DIVINE's objectives, sharing its main innovations and key findings, and raising awareness of the benefits of agri-data sharing. Moreover, they foster knowledge and technology transfer, collaboration, and engagement with many different stakeholder groups from the agri-food, technology, and policymaking domains, among others. Therefore, a consistent outreach and dissemination approach is needed at all stages of the project to increase public trust and understanding and eventually, support DIVINE to achieve its ultimate goals. This is realised through a wide spectrum of different tools and platforms to ensure impact maximisation.

During the reported period, important preliminary achievements of the DIVINE project have been disseminated to targeted groups of stakeholders and to the general public. Following the proposed global outreach and dissemination plan, the project's visual brand identity has been created, different types of printed and digital promotional material have been produced, the project's website, newsletter and social media accounts have been established. Moreover, various activities have been performed, including producing mass media and scientific publications, and participating in a large variety of dissemination events, workshops, and conferences. As the project progresses, more such activities are planned to be conducted until the end of the project (M36).

On the other hand, standardisation activities also play a vital role in the fulfilment of the DIVINE's vision. Through these endeavours, main results of the project will be promoted to relevant standardisation bodies, related to technical, industrial, and agri-food sectors, focusing on aspects tackling agri-data sharing. This is expected to facilitate collaboration with targeted stakeholders and exploitation of DIVINE results by third parties, creating a common framework for adopting innovative solutions, developed within the project, in larger markets. Therefore, standardisation opportunities will be pursued throughout the project, targeting diverse standardisation bodies.

During the first 18 months of the project, two modules developed in the frame of DIVINE, the Dataspace Protocol, and the Agricultural Information Model (AIM), have been targeted for standardisation and the respective activities are currently in progress. Moving on to the next period

(M19-M36) these standardisation endeavours are expected to significantly evolve and potentially be completed by the end of the project.

External collaboration activities are equally crucial to the success of the project. Through cooperation with related actions and projects, progress can be significantly accelerated, extending solutions developed by other consortia and adopting best practices to synergistically address common challenges. Moreover, collaborating with other projects allows access to different and broader networks, maximising visibility of the project and engagement with targeted stakeholders, thus, providing new opportunities.

During the first half of the project (M01-M18), dozens of related actions, mainly EU-funded and national projects, have been identified, and initial connections with many of them have been established. DIVINE has been featured at several networking events and has jointly organised with other related projects some meetings to strategize our actions towards achieving our shared goals. As we embark on the second half period of the project (M19-M36), collaborative efforts will be intensified, and more joint events will be scheduled until the end of the project.

Deliverable D7.3 “Global outreach, dissemination, standardisation and external collaboration plan and activities” is the joint output of Tasks 7.2 “Global outreach, dissemination and standardisation” and 7.3 “Collaboration with related projects”. Its purpose is to document the proposed strategy and the activities that took place during the first 18 months of the project (M01-M18) as well as to outline future activities planned for the next 18 months of the project (M19-M36) with respect to global outreach, dissemination, standardisation, and external collaboration. To this end, part of the preliminary work reported in the internal document 7.1 “Initial DIVINE Dissemination & Collaboration Plans and Initial Plan for Multi-Actor Approach Activities Stakeholder Mobilisation”, which was released in M03, is also incorporated herein.

Although the current deliverable and the respective tasks belong to the scope of Work Package 7 (WP7) “Business Modelling and Exploitation, Dissemination, Standardisation, and Stakeholder Mobilisation”, the actions presented herein are dependent on all the WPs of the project. It is the insights, the outputs, and the results of other tasks and WPs that are promoted through global outreach, dissemination, standardisation, and external collaboration activities. Therefore, it is essential that all DIVINE partners are actively engaged in these activities throughout the project. All project partners are invited to contribute to dissemination by promoting key DIVINE results to their networks and exploiting their own communication channels as well as to external collaboration by bringing DIVINE into contact with related projects with which they are also associated.

The remainder of this documents is structured as follows:

- In Section 2, the strategy and the planning of global outreach, dissemination, standardisation, and external collaboration is presented. For each one of these activities, its main objectives are analysed. Then, the targeted audience groups, the targeted types of standards and standardisation bodies, and the targeted types of related projects, respectively, are outlined. In the end, a timeline and a workflow plan are proposed for each one of these activities to be followed throughout the project.

- In Section 3, the activities conducted in the first period of the project (M01-M18) with respect to global outreach, dissemination, standardisation, and external collaboration are reported. Regarding global outreach and dissemination, visual brand identity, social media, website, e-newsletter, promotional material, public deliverables and public-friendly outlines, mass media and scientific publications, conferences, workshops, and other events are discussed. Regarding standardisation, the activities conducted for standardising two DIVINE modules, the Dataspace Protocol, and the Agricultural Information Model (AIM) are presented. Regarding external collaboration, identified related projects are listed, specific European networking events fostering collaboration with relevant actions are highlighted, alongside joint activities organised with collaborating initiatives.
- In Section 4, next steps and activities planned to be conducted during the next period (M19-M36) with respect to global outreach, dissemination and external collaboration are analysed. Some anticipated challenges are also listed.
- In Section 5, the main points of this deliverable are summarised, and the respective conclusions are raised.

2 Strategy and planning of global outreach, dissemination, standardisation and external collaboration

In this section, a comprehensive strategy is proposed for each one of the following activities: global outreach, dissemination, standardisation, and external collaboration. These strategies have been developed since the very first months of the project and serve as roadmaps, creating a common understanding and a framework for conducting specific activities with respect to global outreach, dissemination, standardisation, and external collaboration. The proposed strategies can address specific inquiries such as the rationale behind an action (why), the action itself (what), its timing (when), the responsible partners (who), the tools and channels that need to be leveraged (how), and the intended recipients or stakeholders to be engaged (to whom). Although these strategic plans are meant to be followed throughout the project, some adjustments may be required as the project progresses. Consequently, the effectiveness of the proposed strategies will be continuously monitored and might be updated to reflect changes of the project during its lifetime as well as changes in related fields, e.g. in the agri-food sector.

2.1 Global outreach and dissemination strategy

The main objective of DIVINE is to boost the data economy in agriculture by demonstrating the value of agri-data sharing. Global outreach and dissemination will play a crucial role in achieving this. Therefore, a strategic outreach and dissemination plan is needed to strategize all the respective activities that will be conducted throughout the project and aim at diffusing the DIVINE's objectives and results beyond the project's consortium.

It is worth noting that global outreach and dissemination are two closely related concepts but not completely identical ones. In a nutshell, global outreach corresponds to all those communication activities that aim to increase project's visibility, inform the public about its objectives, and promote its results using accessible language. On the other hand, dissemination is focused on sharing project's results, knowledge and insights gained with targeted groups of stakeholders, who can learn and benefit from them [1]. Both types of activities are essential for the success of Research and Innovation (R&I) actions, like DIVINE. Despite these deviations, there is still a great overlap between them. Thus, in the current deliverable, they will be grouped in one section.

2.1.1 Objectives

The objectives of DIVINE's global outreach and dissemination are listed below:

- Increasing the project's visibility in the dynamic and rapidly evolving field of agricultural data economy throughout its lifetime.
- Defining and promoting a consistent identity of the DIVINE project.
- Raising public awareness of project's objectives, activities, progress, and outcomes, using accessible language.
- Spreading the added value and the economic and societal potential of agri-data sharing, creating a common understanding of the importance of a transparent data economy in agriculture, and highlighting the crucial role of digital innovations and related policies in this emerging field.

Maximising the overall impact of the project and increasing public trust around agri-data sharing and analysing.

- Publicly sharing knowledge, methodologies, useful insights gained throughout the project and innovative solutions developed within the scope of DIVINE, to advance the field and contribute to the extension of the respective state-of-the-art approaches.
- Identifying and engaging with targeted diverse groups of stakeholders, who can benefit from DIVINE's results, including but not limited to farmers, agricultural organisations, technical providers, and policy makers.
- Establishing and maintaining stable and effective communication channels with targeted audiences, exploiting also pre-existing communication and dissemination means and networks of the consortium partners.
- Facilitating both commercial and non-commercial exploitation of DIVINE's results and innovative solutions, attracting interested third parties, preparing a fertile ground for adopting the project's results, and positioning it in large emerging related markets.
- Fostering collaboration and synergies with other related initiatives in the fields of agricultural innovation and research, and smart farming, among others.

2.1.2 Targeted audience groups

Upon defining the objectives of global outreach and dissemination, it is equally important to identify and describe the basic targeted audience groups to whom we are going to disseminate the project's objectives, activities, progress, and outcomes, as illustrated in Figure 1.

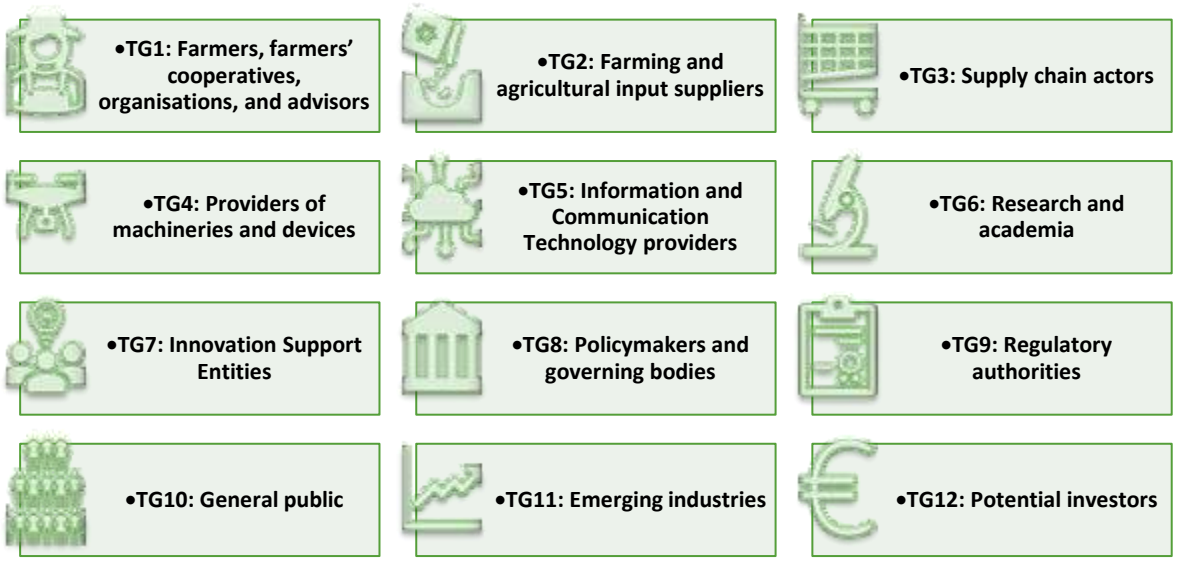

Figure 1: Overview of DIVINE's targeted audience groups.

This identification process has been conducted within the scope of a stakeholder analysis in conjunction with Task 7.4 "Governance of Multi-Actor Approach activities and stakeholder mobilisation". An initial mapping of key stakeholders and target groups (TGs) has also been included in the DIVINE's proposal and sets the basis for the analysis below. As soon as the main targeted

audience groups are identified, outreach and dissemination can be streamlined by specifying which key messages and project's results will be promoted to each TG and which tools, communication channels and platforms will be employed to maximise engagement with each one of these TGs, based on their specific interests and background.

The main DIVINE's targeted audience groups identified are listed below together with their particular interests:

- **TG1: Farmers, farmers' cooperatives, organisations, and advisors**

  This TG corresponds to the main end-users of DIVINE. It encompasses individuals directly involved in the agricultural production, including farmers, food producers, agronomists, as well as consultants and advisors who provide support and guidance to farmers, extension agents, family-owned farms, agricultural small and medium-sized enterprises (SMEs), large commercial agricultural enterprises, agricultural cooperatives, farmer associations, agricultural representative bodies, and Non-Governmental Organisations (NGOs).

  Some examples of farmers' organisations include Coldiretti in Italy and Zemedelský Svaz Ceské Republiky (ZSCR) in Czech Republic, at a national level, Copa-Cogeca Organisation at a European level, and World Farmers' Organisation (WFO), which is a distinguished member of the DIVINE consortium, at a global level.

  Stakeholders belonging to this TG are interested in optimising agri production, by leveraging data-driven approaches and digital technologies. They wish to maximise efficiency of their crop and livestock management and minimise costs during production while maintaining high quality and market-valuable product standards.

  To this end, it is essential to disseminate DIVINE's key results to them, focusing on pilots' insights and financial benefits and using accessible language without diving into too many technical details. WFO network and channels will be largely exploited to reach this TG alongside DIVINE's established channels (website, newsletter, and social media), mass media publications and DIVINE's presence in high-profile events that attract hundreds and thousands of farmers and advisors.

- **TG2: Farming and agricultural input suppliers**

  This TG corresponds to businesses that provide essential goods and services to the agricultural sector, such as seeds, fertilisers, pesticides, and other agrochemicals, as well as individuals employed in them.

  For example, BASF Agricultural Solutions, Syngenta, and Bayer Crop Science are some large companies in Europe operating in this field.

  This type of stakeholders is interested in promoting their goods and services to increase sales and profits. This will be amplified by visualising and quantifying the benefits of using these supplies at the right time of the production cycle based on data-driven decision support systems (DSSs) in the frame of precision farming.

  So, again, main pilots' results should be disseminated to them, focusing on financial benefits without diving into too many technical details. The respective information will be disseminated through DIVINE's website, newsletter, and social media, mass media publications and presence in various events directed at various agrifood stakeholders.

- **TG3: Supply chain actors**

  This TG corresponds to people, companies and entities in general who are involved in various stages of the agricultural supply chain, including but not limited to transportation, processing, packaging, wholesaling/retailing, and finally, distribution.

Some key players in this industry are the following: Cargrill, Louis Dreyfus Company, Mondelez International, Danone S.A., Neste S.A., Eurofins Scientific, DSM Nutritional Products, etc.

This category of stakeholders is mainly interested in ensuring optimal quality of the agricultural products provided at reasonable prices as well as in improved traceability. They wish to gain a competitive advantage in the market, and this may be achieved in the new era of agricultural data economy.

So, DIVINE's main findings will be shared with them through DIVINE's website, newsletter, and social media, mass media publications and presence in various high-profile events that attract representatives from this TG.

- **TG4: Providers of machineries and devices**

  This TG consists of companies and individuals that manufacture and/or distribute agricultural machinery, equipment, and other advanced technological interventions, such as sensors, robotics, drones or unmanned aerial vehicles (UAVs), etc.

  Some companies belonging to this category are the following: KM Agri, KUHN Group, Topcon Agriculture, and John Deree among others.

  The main interest of this TG in the DIVINE scope is the exploitation of sensors, drones, and other digital equipment to automatically collect (and analyse in some cases) potentially useful agri-data.

  So, we should share technical results and innovations with them, accompanied by a cost-benefit analysis to support the uptake of the developed tools. This can be achieved by distributing technical reports, participating in technical workshops or conferences and organise more such events. Of course, social media, website announcements and newsletters can also be helpful in this case, as well.

- **TG5: Information and Communication Technology providers**

  This TG corresponds to companies, startups, tech SMES, and service providers, who provide Information and Communication Technology (ICT) solutions that can be applied to or are tailored to the agricultural sector. They develop and distribute software platforms and applications, hardware infrastructures, databases, data spaces, data analytics tools, Artificial Intelligence (AI) algorithms, Internet of Things (IoT) solutions, and other digital technologies to improve and digitalise agricultural processes and decision-making. People working in this industry, like software developers, Information Technology (IT) experts, and data analysts also belong to this category.

  Some core DIVINE partners, like ENG, DIGI, NP, and ADSC, fall into this category. Some other leading companies belonging to this TG are the following: Farmers Edge, Agrivi, Agroptima, and Gamaya.

  The focus of this TG lays on the digital transformation of the agrifood sector and the widespread use of ICT and digital technologies to enhance the efficiency of agricultural processes and decision-making.

  Therefore, DIVINE's technical solutions and outcomes of WP2 "Ecosystem Architecture and Technical Integration", WP3 "Agricultural Data Spaces Ecosystem", and WP4 "Knowledge Extraction, Decision Support and Benchmarking" should be forwarded to them. Technical reports, participation in and/or organisation of technical workshops and conferences will help to this end, largely exploiting the networks of the consortium partners that belong to this category. Again, secondarily, social media, website announcements and newsletters may also prove helpful.

- **TG6: Research and academia**

  This TG includes universities, research institutions, academic organisations, and individuals that conduct research in the fields of agriculture, farming, ICT, and smart technologies, among others. They also provide educational programmes/courses, and training in the same fields. Moreover, they are usually involved in research and development (R&D) or research and innovation (R&I) actions, like DIVINE. Additionally, other related research projects and initiatives, their consortia, and the entire scientific community fall into this category.

  Some key partners of the DIVINE consortium, like ICCS, SETU, VICOM, FE, ITC, IDSA, and UCD belong to this category. Moreover, related research projects include SmartAgriHubs, DEMETER, AgriDataSpace, ScaleAgData, Farmtopia and AgriDataValue among others. A more comprehensive list of related projects is provided in Section 3.3.1 of the current report.

  Stakeholders belonging to this TG are interested in exploring novel methodologies and extending the current state-of-the-art in the field of smart farming, digital agriculture, and data-driven agricultural decision-making. Therefore, key project's findings, and advances in these research fields will be shared with them.

  Depending on the specific research interests of each university, institution, and researcher, different insights and key findings of the DIVINE project should be disseminated to them. For example, organisations that focus on agriculture are more interested in pilots' results while engineering schools and institutes are rather interested in technical outcomes. However, the main approach of engaging with this TG is common and is mainly based on scientific publications and participation in scientific conferences. Moreover, the Open Research Europe publishing venue (https://open-research-europe.ec.europa.eu/) can also be leveraged. Connections of the DIVINE partners falling into this category will be exploited to this direction. Moreover, all partners will contribute through their connections or their participation in the consortia of related research projects. More details on this approach can be found in Section 3.3 "External collaboration activities" of this document.

- **TG7: Innovators and innovation hubs**

  This category encompasses innovators as well as entities and organisations that provide infrastructures, resources, or other kind of support to innovative solutions, fostering knowledge and technology transfer as well as entrepreneurship within the agrifood sector. This may include Digital Innovation Hubs (DIHs), incubators, accelerators, and other industrial associations focusing on innovation.

  Some of the DIVINE partners maintain their own innovation hubs, including ICCS's DIH (https://www.dih-ntua.gr/), Gaiasense HUB (https://gshub.gr/) by NP, and DIH-AGRIFOOD (https://itc-cluster.com/dih-agrifood/) by ITC. Moreover, some other organisations that operate in this field include: StartLife, FoodTech Accelerator, AgrifoodTech Platform, and Agri-Tech East.

  This TG aims at accelerating the adoption of advanced technologies and innovative methods and implementing a paradigm shift in agriculture with respect to the agri-data economy.

  In this respect, all the innovative solutions developed, and all the novel methodologies proposed within DIVINE should be promoted to these stakeholders. Related results can be disseminated via the DIHs maintained by DIVINE partners, highlighting their novelty and the potential that they hold. Participation in innovation-centred events and in general presence through the website, the newsletter and the social media could increase project's visibility among innovators. Finally, to this end, some EU platforms, such as the EU Innovation Radar Platform (https://innovation-radar.ec.europa.eu/) and the Horizon Results Platform (https://horizoneuropencpportal.eu/store/horizon-results-platform) may also be exploited.

- **TG8: Policymakers and governing bodies**

  This TG corresponds to government bodies, policymakers, and agencies that develop policies, strategies, frameworks, and guidelines with respect to the agricultural development, research, innovation, and sustainability.

  Indicative examples of this TG are the European Commission's (EC's) Directorate-General for Agriculture and Rural Development (DG AGRI), the Directorate-General for Environment (DG ENV), the Directorate-General for Health and Food Safety (DG SANTE), the Directorate-General for Communications Networks, Content and Technology (DG CNCT), the National Ministries of Agriculture of each country, and intergovernmental organisations, such as the United Nations' (UN) Food and Agriculture Organisation (FAO), the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), and the World Bank. It is also worth mentioning that two members of the DIVINE consortium, CREA and KGZS, are public bodies and have direct contacts with government representatives in Italy and Slovenia, respectively.

  This kind of stakeholders is interested in the creation of new policies with respect to the emerging data economy in the field of agriculture.

  Thus, the outcomes of WP6 "Agri Data Sharing Governance Models and Policymaking" should be promoted to them. Moreover, it is important to share with them detailed and solid pilots' results, demonstrating the added value of agri-data sharing and its benefits to the farmers and the rest stakeholder groups, as governing bodies focus on public interest affairs. This may be achieved through presentations in targeted events that are directed to policymakers and governing bodies representatives among other groups of stakeholders.

- **TG9: Regulatory authorities and standardisation bodies**

  This category includes entities responsible for developing and enforcing regulations, promoting standards, and proposing compliance requirements with respect to various aspects of agricultural processes, such as food safety, environmental protection, and trade. These entities are also responsible for ensuring that agricultural activities adhere to all the respective regulations and standards.

  Indicatively, the European Food Safety Authority (EFSA), the European Chemicals Agency (ECHA), and the European Environment Agency (EEA) belong to this category. Moreover, the following associations: European Common Agricultural Policy (CAP) Network, Big Data Value Association (BDVA), Alliance for Internet of Things Innovation (AIOTI), FIWARE, Agricultural Industry Electronics Foundation (AEF), and International Swaps and Derivatives Association (ISDA) operate within the standardisation domain.

  These stakeholders are interested in the adoption of novel standards and the maximisation of adherence to them and other pre-existing relative regulations.

  Therefore, DIVINE standardisation endeavours in the frame of Task 7.2 "Global outreach, dissemination and standardisation" should be promoted to them. Moreover, other DIVINE results focusing on e.g., reducing the environmental footprint of food production based on the European Green Deal could be of interest to European regulatory authorities. Respective information will mainly be disseminated through targeted high-profile events.

- **TG10: General public**

  This TG is comprised of individuals, organisations, and entities in general from diverse backgrounds that may not be directly involved in the agrifood sector and the data economy in agriculture, but they are impacted by it and are interested in getting relative updates and insights.

Consumers of agricultural products, citizens, residents of both rural and urban areas, nutrition enthusiasts, and environmental advocates are some types of stakeholders that fall into this category.

This specific TG may have diverse interests with respect to the DIVINE's scope. However, it is more likely that all these stakeholders are interested in securing access to high-quality, adequate, and safe food supplies with minimum environmental impact.

Therefore, key findings of DIVINE revolving around these aspects will be shared with them. The main tools and channels that would be leveraged to this end span across social media, websites, newsletters, mass media publications, public events, etc.

- **TG11: Emerging industries**

  New and emerging industries within the agrifood sector belong to this category. For example, Agriculture Technology (AgTech or AgriTech), vertical farming, alternative sustainable agricultural initiatives, precision farming, and the agricultural data economy are some emerging industries in the agrifood sector.

  Some leading companies that operate in the respective emerging industries identified include EcoRobotix, AgriSensys, Satelligence, and 365FarmNet among others.

  Emerging industries in the agrifood sector are mainly interested in shaping new market values, accelerating a paradigm shift in the agrifood sector in the frame of the agricultural data economy elevation, and co-creating novel business models that reflect their needs.

  So, the respective DIVINE's results are of particular interest to them and should be disseminated through business events, newsletters, etc.

- **TG12: Potential investors**

  Last but not least, this TG corresponds to individuals, venture capital firms, private equity firms, and other entities that are interested in investing funds into innovative solutions and projects within the agrifood sector.

  Some examples of potential investors include CapAgro, BayerGrowth Ventures, Danone Manifesto Ventures, and Anterra Capital.

  This category of stakeholders is highly interested in innovative funding schemes connected to the agricultural data economy.

  DIVINE's main results should be shared with them, focusing on financial benefits and market potential of DIVINE's innovative solutions. This could be achieved mainly though business events, financial reports, etc.

More details about the stakeholders' engagement plan are provided in D7.4 "Multi-Actor Approach activity planning, roadmap and initial results".

Finally, DIVINE's dissemination strategy considers wide socio-demographic coverage with respect to gender, age, educational background, and geographical distribution. Throughout the project, our approach will be maximally inclusive.

2.1.3 Timeline and workflow plan

Now that we have a basic understanding of the main targeted audience groups of DIVINE, their interests and the means to approach them, we can proceed with the development of a concrete workflow plan based on a phased approach. This plan indicates which global outreach and dissemination activities need to take place, which TGs will be approached as well as which tools and which DIVINE partners will be involved in these activities at every phase of the project.

2.1.3.1 Three-phase global outreach and dissemination plan

The proposed global outreach and dissemination phased approach is part of the Dissemination, Exploitation and Communication (DEC) plan presented in the proposal of the project, which is also displayed in Figure 2. According to this plan, there are discrete consecutive dissemination and exploitation phases aiming at maximizing impact at each project's stage. To this end, each phase is characterized by different focus in terms of key messages (KMs) to be shared, TGs to be approached, and respective activities to be conducted. These phases may overlap at some points, but it is essential to follow in general this sequential concept, indicating that we are moving from a rather coarse-grained outreach and dissemination approach to a more fine-grained one, as the project progresses.

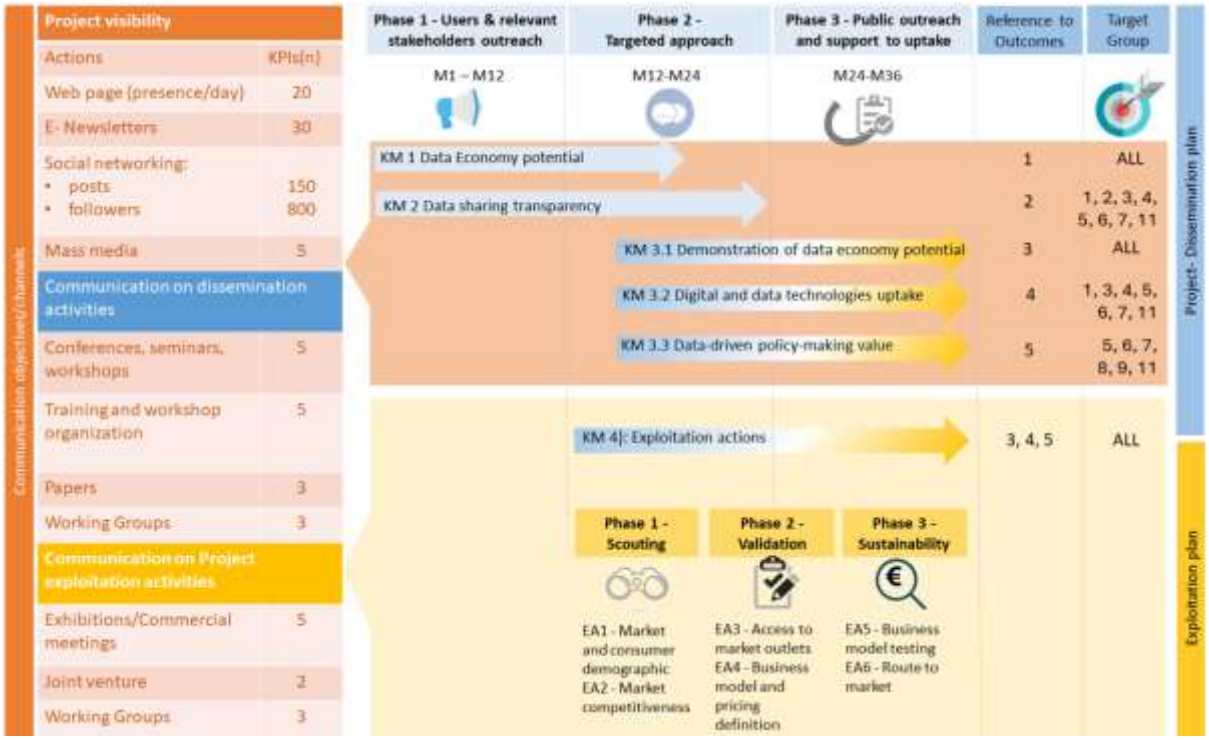

Figure 2: The three phases of the DIVINE's DEC plan.

A more detailed description of DIVINE's three-phase global outreach and dissemination plan is depicted in Figure 3. Dissemination activities are continuous and should be conducted from the very beginning of the project until its completion. They may even last up to four years after the end of the project [1]. During the first phase "Users and relevant stakeholders outreach plan" [M01-M12], the global outreach and dissemination plan will be developed, and the necessary steps will be taken to prepare a fertile ground for all the foreseen dissemination activities. During the second phase "Targeted approach" [M12-M24], global outreach and dissemination endeavours will be focused on engaging with specific TGs and increasing the project's impact through targeted activities. Finally, during the third phase "Public outreach and support to uptake" [M24-M36], global outreach and dissemination efforts will be intensified focusing on sharing DIVINE's outcomes to foster exploitation and uptake of the project's solutions beyond its life cycle.

Phase 1 **Users and relevant stakeholders outreach plan [M01-M12]**

- Developing the global outreach and dissemination plan
- Identifying the main targeted audience groups
- Initiating community and stakeholders' network building
- Creating the project's visual brand identity
- Increasing visibility and raising awareness of DIVINE's scope and objectives among all the TGs
- Sharing the economic and other benefits of agri-data sharing and using DIVINE's services
- Promoting KM1 and KM2
- Establishing the project's website
- Creating the project's social media accounts
- Producing the project's leaflet
- Identifying targeted events and participating in some of them
- Establishing monitoring processes and tools

Phase 2 **Targeted Approach [M12-M24]**

- Identifying and approaching key players in the market and the target users' ecosystem
- Expanding the initial community of stakeholders based on existing networks
- Promoting DIVINE's innovations, activities and preliminary results
- Promoting all the KMs
- Forming 3 working groups on KM3.1, KM3.2, and KM3.3 to create open discussions around these topics with key experts in the agricultural data economy field
- Producing publications in mass media, scientific journals and conferences
- Participating in targeted events and workshops
- Organising training seminars, workshops and meetings with specific TGs
- Increasing the project's impact and encouraging adoption/exploitation of its solutions
- Monitoring dissemination activities performance and adjusting the respective strategy if necessary

Phase 3 **Public outreach and support to uptake [M24-M36]**

- Consolidating DIVINE community building and support
- Disseminating project's outcomes and pilots' results
- Continuing the promotion of KM3.1, KM3.2, KM3.3 and KM4
- Producing publications in mass media, scientific journals and conferences
- Organising and attending focused events targeted to specific TGs and joint field workshops
- Organising training seminars and workshops
- Maximising project's impact
- Focusing on the commercial potential and the uptake of DIVINE's solutions (exploitation-oriented dissemination)
- Facilitating knowledge transfer
- Ensuring that project's results and legacy will be shared beyond the project's life cycle

Figure 3: Overview of DIVINE's three-phase global outreach and dissemination plan.

2.1.3.2 Key messages

The main key messages that have been identified for dissemination to different TGs, mapped to DIVINE's expected outcomes, are the following:

- **KM1 – Data Economy potential**
  - Description: Dissemination actions for informed decisions based on costs, benefits, risks, and economic and societal potential of agricultural data sharing.
  - Mapped expected outcomes: EO1 - Awareness and informed decisions based on the demonstration of the costs, benefits, risks, and added value as well as the economic and societal potential of agricultural data sharing taking an EU perspective.
  - TGs: ALL
  - Phases: 1 and 2
- **KM2 – Data sharing transparency**
  - Description: Dissemination actions increasing the adoption of transparency practices in data sharing in the agrifood value chain.
  - Mapped expected outcomes: EO2 - Increase in transparency in data sharing in the agricultural value chain.
  - TGs: TG1, TG2, TG3, TG4, TG5, TG6, TG7, TG11
  - Phases: 1 and 2
- **KM3.1 – Demonstration of data economy potential**
  - Description: Project results and pilot evidence linked to the introduction of effective and efficient use of private and public data for private and public purpose.
  - Mapped expected outcomes: EO3 - Increased sharing of agricultural data, effective and efficient use of private and public data for private and public purpose, particularly through demonstration of the costs, benefits, risks, and added value as well as the economic and societal potential of agricultural data sharing taking an EU perspective.
  - TGs: ALL
  - Phases: 2 and 3
- **KM3.2 – Digital and data technologies uptake**
  - Description: Project results as contribution to increase the uptake of digital and data technologies in the agricultural sector. Special focus on indirect contribution to increase environmental and economic performance of the agricultural sector through increased and enhanced use of digital technologies and data.
  - Mapped expected outcomes: EO4 - Contribute to an increased uptake of digital and data technologies in the agricultural sector and indirectly contribute to an increase in environmental and economic performance through increased and enhanced use of digital technologies and data.
  - TGs: TG1, TG3, TG4, TG5, TG6, TG7, TG11
  - Phases: 2 and 3
- **KM3.3 – Data-driven policymaking value**
  - Description: Dissemination actions to amplify policymaking and monitoring in agricultural data economy and digital farming.
  - Mapped expected outcomes: EO5 - Strengthen policymaking and monitoring capacities in agriculture and data technologies.

- TGs: TG5, TG6, TG7, TG8, TG9, TG11
- Phases: 2 and 3

- **KM 4 – Exploitation actions**
  - Description: Dissemination actions related to the exploitation activities carried out within the DIVINE Exploitation Strategy and Plan. Presentation of DIVINE results at business sector fairs and user events.
  - Mapped expected outcomes: EO3 - Increased sharing of agricultural data, effective and efficient use of private and public data for private and public purpose, particularly through demonstration of the costs, benefits, risks, and added value as well as the economic and societal potential of agricultural data sharing taking an EU perspective; EO4 - Contribute to an increased uptake of digital and data technologies in the agricultural sector and indirectly contribute to an increase in environmental and economic performance through increased and enhanced use of digital technologies and data; EO5 - Strengthen policymaking and monitoring capacities in agriculture and data technologies.
  - TGs: ALL
  - Phases: 2 and 3

Key messages 3.1, 3.2, 3.3, and 4 are also linked to exploitation activities. That is why they are partially coloured blue (for dissemination) and partially orange (for exploitation) in Figure 2.

2.1.3.3 Tools and channels

After special consideration of DIVINE's target audience groups and key messages, we have decided to leverage the following list of tools, communication channels and platforms to support all the types of global outreach and dissemination activities that are scheduled to be conducted throughout the project according to the three-phase plan:

Figure 4: Overview of DIVINE's global outreach and dissemination tools and channels.

- **Social media:** Social media offer excellent opportunities for community building and networking. Billions of people, organisations, and companies worldwide are using various social media platforms to connect with other people, promote their work, etc. Some popular choices include LinkedIn, Twitter, Facebook, Instagram, and YouTube. The platforms that will be exploited by DIVINE will be chosen based on their unique characteristics and the types of stakeholders that can be targeted through them. However, all identified TGs can be approached by at least one of the most popular social media platforms, ensuring maximised visibility of the project and effective public outreach. Apart from the creation of DIVINE's

social media accounts which is foreseen, all partners of the DIVINE consortium are expected to leverage their own social media accounts to disseminate DIVINE's objectives and results. Some related KPIs that have been defined in the proposal of the project include reaching more than 800 followers and making more than 200 posts in total throughout the project's lifetime.

- **Website:** Through a project's website all the groups of its stakeholders can stay updated and engaged. The website can serve as a central digital hub for disseminating project's activities, insights, and main achievements. To maximise its appeal, it is very important to provide tabs and sections with diverse types of content, each one of them addressing to different TGs. For example, it may encompass sections such as News, Objectives, Results, etc. DIVINE's website is planned to be created by the very first months of the project to certify its web presence. Some related KPIs from the project's proposal include having the project's website available at M06, continuously updating the website, 80% of piloting farmers and advisors using the community mechanisms provided within the website and maintaining daily presence at least equal to 20.
- **E-newsletter:** An electronic newsletter can prove a very useful communication tool, as it can be used to deliver timely updates and share insights and highlights with specific stakeholders. In this way, it is ensured that interested parties are getting informed directly about important project's news. The frequency of distributing DIVINE's newsletter editions to stakeholders' mailboxes will be set to 6 months, as this time span is considered sufficient for keeping them updated without annoying them and bombarding them with too many emails. The e-newsletter can also be disseminated to dedicated portals, such as AMITOM, EUREKA/EUROAGRI, EU CAP NETWORK, COPA-COGECA, and International Society for Horticulture Science among others. A related KPI defined in the project's proposal corresponds to obtaining more than 30 registered users to the DIVINE's newsletter.
- **Mass media:** Utilising mass media for global outreach and dissemination purposes can help the project reach a wide audience. For example, press (including newspapers, wide-audience and/or specialised magazines, as well as online news platforms), local and/or national television shows and radio broadcasts can raise awareness about DIVINE's scope, activities, and main outcomes. This is expected to significantly increase the visibility of the project and attract the interest of the general public (TG10) and other stakeholders. A relative KPI set in the project's proposal requires to make more than 5 publications on traditional media by the end of the project.
- **Scientific journals:** Scientific journals serve as platforms for sharing key research findings, insights, and novel methodologies with the academic and the broader scientific community. By publishing DIVINE's innovative results in reputable journals, the project may gain recognition for its contributions to the field and engage with specific TGs, mainly in research and academia (TG6), fostering knowledge exchange, and eventually advance the field of data economy in agriculture. There is a respective KPI in the project's proposal mentioning that at least 2 scientific articles should be published by the end of the project.
- **Conferences, workshops, and other events:** These types of events play a vital role in the project's global outreach and dissemination, as they provide excellent opportunities for demonstrating the project's outcomes and key findings. Depending on the type of each event, engagement with diverse groups of stakeholders is supported, fostering community building, networking, and dialogues to eventually advance the field. For example, scientific conferences may be exploited to engage with the research and academic community (TG6), technical workshops and events may be exploited to approach technical stakeholders (TG4, TG5, TG6, TG7, and TG11), agricultural events may be exploited to target farmers and other

agrifood stakeholders (TG1, TG2, TG3, TG6) while business fairs may be leveraged for exploitation purposes, approaching industrial partners, companies and potential investors (TG1, TG2, TG3, TG4, TG5, TG7, TG11, and TG12). DIVINE will participate in events of all these types and will also organise its own workshops and training seminars. More specifically, according to the project's proposal, DIVINE is foreseen to be presented in at least 5 European and/or international events and in at least 5 business events to promote its results. It will also organise 2 EU workshops in collaboration with other stakeholders for analysis purposes and 3 training seminars.

- **Printed and digital promotional material:** Finally, printed and digital promotional materials such as leaflets, brochures, banners, infographics, videos, etc. are powerful tools for disseminating the project's key messages, objectives, and results. They may transform complex information into accessible formats with appealing visuals, fostering engagement with all the TGs. Whether distributed at events, shared online, or circulated in printed format, promotional materials are essential to raise awareness about the project and to increase its impact. DIVINE foresees to produce a project brochure from the first months of the project. This brochure will serve as a one-pager, summarising the project's objectives, purpose, and scope and will be distributed to interested third parties of all TGs.

2.1.3.4 Timeline

A more detailed timeline of the global outreach and dissemination actions that are planned to be conducted throughout the project is presented in Table 1. This sequence of actions is aligned with the three-phase approach illustrated in Figure 3. The following table can also serve as a draft calendar of DIVINE's planned global outreach and dissemination activities.

Table 1: Timeline of DIVINE's global outreach and dissemination actions.

Action	Month
Create the project's visual brand identity (logo, templates, etc.)	M02
Develop the project's global outreach and dissemination plan (drafted in the internal document 7.1)	M03
Create the project's website	M04
Create the project's social media accounts	M04
Participate in conferences, workshops, and other events	M04-M36
Produce the project's brochure/one-pager	M06
Distribute periodic newsletter editions	M12, M18, M24, M30, M36
Publish in scientific journals	M12-M36
Review the project's global outreach and dissemination plan and update it (if necessary) for the next period (part of the deliverable 7.3)	M18
Report on global outreach activities conducted in M01-M18 and plan the next steps for M19-36 (part of the deliverable 7.3)	M18
Form 3 working groups to initiate open discussions on KM3.1, KM3.2 and KM3.3	M19
Organise training seminars and EU workshops	M19-M36
Plan final activities and review the conducted actions (drafted in the internal document 7.3)	M27
Hold the final project's event	M36
Report on the overall results of global outreach and dissemination (part of the deliverable 7.6)	M36

2.1.3.5 Partners' roles

It is clear that the contribution of all DIVINE partners to global outreach and dissemination activities is essential to ensure the successful engagement with all the TGs and the maximisation of the project's impact. Therefore, all the members of the DIVINE consortium should be actively engaged in these actions throughout the project. Of course, each partner will adjust the overarching DIVINE's global outreach and dissemination plan to their particular interests, fields of operation, network, collaborations, individual communication channels, tools, and capabilities as well as exploitation plans. More specifically:

- **ICCS**, as a leading research institution in Greece associated with the School of Electrical and Computer Engineering of National Technical University of Athens, will present DIVINE's key findings in various scientific conferences focusing on technical aspects, such as syntactic and semantic interoperability, data analytics, AI, IoT, AgTech, data spaces, etc. Similarly, ICCS's researchers will publish articles in high-reputation academic journals in the same fields. Moreover, ICCS may promote DIVINE through PhD dissertations on relevant research domains, undergraduate and/or postgraduate courses, projects, and theses. It will also exploit the established synergies with Greek SMEs and industry as well as its DIH (https://www.dih-ntua.gr/) on Intelligent Systems, Data Engineering and Media to promote smart farming innovative solutions at a national level, supporting its ambition to become a hub of IoT-based precision agriculture solutions in the Southeast Europe. Finally, ICCS can share DIVINE's scope and results with other research projects that it is associated with and the respective consortia, like DEMETER, AgriDataSpace, and ScaleAgData.
- **SETU** will promote DIVINE's key messages to several regional industry-focused initiatives that it is part of. Similarly, it will exploit established links to agriculture and ICT companies to promote DIVINE's activities and outcomes. Moreover, this organisation is also involved in a number of relevant national (Irish) and EU projects (e.g., DEMETER, SmartAgriHubs, CITIES2030, AgriDISCRETE, VistaMilk, etc.) where information from DIVINE will be shared and promoted. Finally, as a formal academic organisation, SETU's researchers will disseminate project's work via articles in scientific journals, conferences, and presentations in other industry events.
- **ENG**, as a member of the following organisations: BDVA TF7.SG9 Agriculture, GAIA-X initiatives and working groups, IDSA, FIWARE Foundation Context, and EIT Digital Ecosystem, will be in charge of disseminating project's results to them. Similarly, ENG will promote DIVINE's activities and results to related EU-funded projects, that it is also associated with, such as AgriBIT and OPEN DEI.
- **INLE** will actively promote DIVINE's solutions in relevant exhibitions and conferences at a both national (Irish) and EU level. This may include Foodexpo, in Herning, Denmark (the largest food event in northern Europe), ANUGA FOODTEC, in Köln, Germany, and Salon International de l'Alimentation (SIAL), in Paris, France.
- **DIGI** will disseminate DIVINE's results at several technology-centred conferences and events, including IoTWeek, World Forum on IoT (WF-IoT), Latitude59, Slush (annual conferences in Tallinn, Helsinki), and other Business-to-Business (B2B) conferences. Through all these events, it will demonstrate the benefits of the dataspace-enabled DIVINE pilots. Additionally,

DIGI will exploit its participation in BDVA, AIOTI, and GAIA-X initiatives as well as in the pan European network of DIH-AGRIFOOD to promote DIVINE's outcomes.

- **VICOM** will publish the results of their R&D work in data security technologies for the agricultural domain in several high-impact conferences and scientific journals within the Cybersecurity or Agrifood Communities.
- **CREA** will disseminate DIVINE's objectives and results within the Italian Rural Development Plan activities, and the activities carried out for the implementation and monitoring of the EU agricultural policies. Other dissemination opportunities will be possible through synergies with ongoing European research projects dealing with data management and technologies for agriculture, like Open IACS and NIVA.
- **FE** will mainly conduct dissemination activities by leading Task 7.4 "Governance of Multi-Actor Approach activities & stakeholder mobilisation", engaging with and providing information beyond the members of the DIVINE consortium, to all the interested stakeholders.
- **NP** will disseminate the project's results using the networks of AIOTI and BDVA and exploiting Greek nation-wide domain-specific media like the Ypaithros Chora newspaper and portal (https://www.ypaithros.gr/) for agrifood professionals. Moreover, NP will present DIVINE in various domain-specific events, including the Agrotica exhibition and the Annual Panhellenic Conference of GAIA Epicheirein with more than 500 participants.
- **ITC** is managing the DIH-AGRIFOOD, a network of around 1.000 organisations, reaching more than 7.000 European organisations (https://mapping.dih-agrifood.com/). So, it plans to exploit this wide network to disseminate DIVINE's results, as well. Moreover, ITC will support the dissemination of DIVINE's outcomes through its membership in AIOTI, Smart Connectivity DIH Network (SCoDIHnet), European Network of Living Labs (ENoLL), and EU Smart Specialisation Strategies (S3) Thematic platform – Thematic area: High Tech Farming.
- **IDSA** will communicate and disseminate the DIVINE project's outcomes and achievements in its community of more than 2.000 participants, through social media networks and major events, such as the IDSA summit.
- **WFO** will contribute to the dissemination activities of DIVINE by the means of global outreach activities and Multi-Actor Approach (MAA) activities. As the reference organisation of the global farming community in the DIVINE initiative, WFO will leverage a diverse range of outreach channels to promote DIVINE's activities and outcomes. This includes the internal (to WFO members) newsletter, the WFO's website, the WFO social media networks, internal flagship events, like the WFO Annual Meetings in 2024 and 2025, and external international events and processes. In this way, the broad dissemination of the project and the maximisation of awareness and understanding of the project's activities and outcomes will be ensured within the WFO's extensive network of around 80 national farmers' organizations and agricultural cooperatives from more than 50 countries (representing 6 constituencies in Europe, Asia, Oceania, Africa, Latin America and North America). It is worth mentioning that WFO's communications audience goes beyond its membership and also includes regional and sub-regional farmers' organisations partnering with WFO (such as AACARI, CEJA, UMNAGRI, EAFF, SACAU, COPA COGECA, PAFO, and IPNLF), as well as civil society organisations, private sector associations, research and academic entities, and

multilateral and international organisations, including UN agencies, that engage with WFO. This diverse audience represents a perfect target audience of professionals who are likely to be interested in the innovative solutions offered by the DIVINE project. Furthermore, WFO will take deliberate steps to extend the dissemination of DIVINE project's activities and outcomes to a broader audience, such as in global political fora (as done through the participation in the COP28 in Dubai). Finally, workshops and events, such as the participation in the the WFO Gymnasium High-Level Capacity Building Program in 2023, will potentially provide excellent opportunities to further amplify the impact of the DIVINE project.

- **UCD** and in particular the DIVINE's team members are involved in a series of industry led initiatives at both national (Irish) and international level focused on the digital agricultural space. More specifically, UCD is associated with companies such as Origin, Trimble US, John Deere etc. as well as with industry led research partnerships such as Consus, SpiralG, BioOrbic, Farm4More, FarmzeroC which have both national and international funding. Thus, UCD will promote DIVINE's activities and outcomes through these collaborations.
- **KGZS** will disseminate the project's results using KGZS's portal (http://www.kgzs-ms.si/), social media networks managed by KGZS in LinkedIn and Facebook as well as Zelena dežela, a Slovenian newspaper with an edition of 92,000 copies. Additionally, KGZS will promote DIVINE's results in AGRA, a Slovenian international fair of agriculture and food.
- **ADSC** will present the data-driven efficiency improvement from DIVINE's use cases to agricultural cooperatives and stakeholders.

2.2 Standardisation strategy

Standardisation may be defined as the process of establishing a set of guidelines and/or specifications and implementing a set of commonly agreed rules, protocols and practices in a particular field or industry. This procedure could provide consistency and interoperability among diverse technologies, data formats, communication protocols and security protocols among others as well as assure quality within various products and services, agricultural and farming processes, food safety, environmental impact mitigation, etc.

The urgent need for cohesive standards within the emerging field of agricultural data economy and the rapidly evolving fields of smart farming and precision agriculture is becoming more and more evident. Therefore, targeted standardisation activities are planned to be carried out throughout the DIVINE project. To ensure that these endeavours will be successful, a strategic standardisation plan is needed.

2.2.1 Objectives

The main objectives of standardisation within the scope of DIVINE are listed below:

- Targeting and engaging with relevant standardisation bodies or organisations and other related EU initiatives to align with pre-existing standards, extend them and create new ones related to digital tools, services, operations as well as policies in the agrifood sector.

- Fostering technical interoperability among different digital technologies, data platforms, systems, devices, and data formats within the fields of AgriTech and digital farming.
- Fostering semantic interoperability with respect to agricultural ontologies and semantic models.
- Assuring quality in agri-data collection, storage, and processing, ensuring data consistency, reliability, and usability.
- Assuring security and protection of private agri-data implementing specific security protocols.
- Assuring quality in other services, applications, and innovative solutions provided by DIVINE.
- Implementing standards related to agricultural processes to maximise efficiency considering economic and environmental aspects, as well.
- Supporting exploitation, uptake, reuse, and adoption of DIVINE's solutions during and beyond its life cycle. Standardising innovative solutions may even guarantee access to specific markets that pose certain requirements.
- Facilitating collaboration among diverse stakeholders both within the same field and from different industries and domains, like farmers, technological providers, ICT companies, policymakers, researchers, etc.
- Accelerating innovation within the agricultural data economy by streamlining processes.
- Ensuring alignment with regulations and legal requirements that may be in place.

2.2.2 Targeted categories of standards and standardisation bodies

To create a comprehensive standardisation strategy, it is essential to identify the main categories of standards that should be targeted within the scope of DIVINE, according to the objectives defined above. Moreover, some standardisation bodies at different geographic levels that develop and publish standards falling into these categories should be also identified to be targeted via the DIVINE's standardisation activities that will be conducted.

Some basic categories of standards in the field of agricultural data economy and digital farming are the following:

- **IoT/sensors standards:** ISO/IEC 30141, ISO/IEC 21823, ISO/IEC 29183, ISO/IEC 20922, ISO/IEC 27030, OGC Sensor Things API, OGC Sensor Observation Service (SOS), OGC Sensor Model Language (SensorML), W3C Web of Things (WoT) Thing Description (TD), one Machine-to-Machine (oneM2M) releases
- **Communication protocol standards:** OMA Lightweight M2M (LwM2M), Zigbee, Message Queuing Telemetry Transport (MQTT), Constrained Application Protocol (CoAP), Bluetooth Low Energy (BLE), Narrowband IoT (NB-IoT), Long Range Wide Area Network (LoRaWAN), ISO 11783 (ISOBUS)
- **AI standards:** ISO/IEC 23894, ISO/IEC 23053, ISO/IEC 27047, ISO/IEC 22989
- **Geospatial standards:** ISO 19115, ISO 19139, ISO 19136, ISO 19111, ISO 19156, ISO 19157, OGC Web Feature Service (WFS), OGC Web Map Service (WMS), OGC Agriculture Markup Language (AGML), GeoJSON
- **Security standards:** Open Authorisation 2.0 (OAuth 2.0), Lightweight Directory Access Protocol (LDAP), Kerberos, Role-Based Access Control (RBAC), Attribute-Based Access

Control (ABAC), Security Assertion Markup Language (SAML), eXtensible Access Control Markup Language (XACML), IEC 62443 series

- **Ontologies, vocabularies, and data exchange standards:** Agricultural Ontology Service (AOS), JSON, XML, ISO 15161 (AgXML), Agricultural Metadata Element Set (AgMES) by FAO, ISO 16757 or Agricultural Data Model (AGDM), ETSI Next Generation Service Interface – Linked Data (NGSI-LD)
- **Agricultural process standards:** GLOBALGAP, GLOBALGAP GRASP
- **Agricultural machinery standards:** ISO 25119, ISO 22866, EN 13732
- **Food safety standards:** ISO 22000, ISO 22002 series, ISO22004, BRCGS Global Standard for Food Safety, Hazard Analysis and Critical Control Points (HACCP), Codex Alimentarius standards, International Featured Standards (IFS) Food Standard
- **Supply chain and retail standards:** GS1 Electronic Product Code Information Services (EPCIS), GS1 Common Business Vocabulary (CBV)

Moreover, some related standardisation bodies, organisations, or initiatives at various geographic levels (international, European, and national) are listed below:

- **At an international level:** International Organisation for Standardisation (ISO) and especially its subcommittees in AI/Big Data (ISO SC 42 AI/BD), IoT (ISO SC 41 IoT), and geographic information and geomatics (ISO/TC 211), International Electrotechnical Commission (IEC), International Telecommunication Union (ITU), Internet Engineering Task Force (IETF), Open Geospatial Consortium (OGC) and especially its Agriculture Domain Working Group (Agriculture DGW), Agricultural Data Interoperability Consortium (AgGateway), Agricultural Industry Electronics Foundation (AEF), UN Food and Agriculture Organization (FAO), Global Food Safety Initiative (GFSI), Global Standards One (GS1), World Wide Web Consortium (W3C) and especially its Web of Things (WoT) initiative, oneM2M, Dublin Core Metadata Initiative (DCMI), International Swaps and Derivatives Association (ISDA)
- **At a European level:** European Committee for Standardization (CEN), European Telecommunications Standards Institute (ETSI) and especially its Industry Specification Group (ISG), GAIA-X, EU Multi-stakeholder standardisation group, Big Data Value Association (BDVA), FIWARE
- **At a national level:** British Standards Institution (BSI) in United Kingdom, Deutsches Institut für Normung (DIN) in Germany, National Standards Authority of Ireland (NSAI), Association Française de Normalisation (AFNOR) in France, Ente Nazionale Italiano di Unificazione (UNI) in Italy, Instituto Español de Normalización (UNE) in Spain, Belgian Bureau for Standardisation (NBN) in Belgium, etc.

2.2.3 Timeline and workflow plan

After defining the objectives of standardisation within the scope of DIVINE and identifying the main categories of standards and the respective bodies, organisations and initiatives that publish them, we can proceed with the development of a phased standardisation workflow plan. This plan will serve as a roadmap, indicating how standardisation activities should evolve as the project progresses and how the consortium partners could contribute to these endeavours.

2.2.3.1 Three-phase standardisation plan

According to the proposed plan, there are three discrete standardisation phases, each one of them with a different focus aligned with the project's stages. Although these phases may overlap at some points, in general, we should follow this sequential concept throughout the project to ensure that we move from a coarse-grained standardisation approach to a more fine-grained one through time.

Based on the proposed workflow plan: During the first phase "Standardisation plan and scouting" [M01-M12], the standardisation plan will be developed, standardisation bodies and initiatives of interest will be identified, and the respective activities will be initiated. During the second phase "Targeted approach" [M12-M24], efforts will be continued towards standardising selected DIVINE modules and engaging with related standardisation bodies. Finally, during the third phase "Publishing standards and uptake" [M24-M36], standardising selected DIVINE modules will be finalised and the respective produced standards will be directed to publication. The overall DIVINE's three-phase standardisation plan is illustrated in Figure 5.

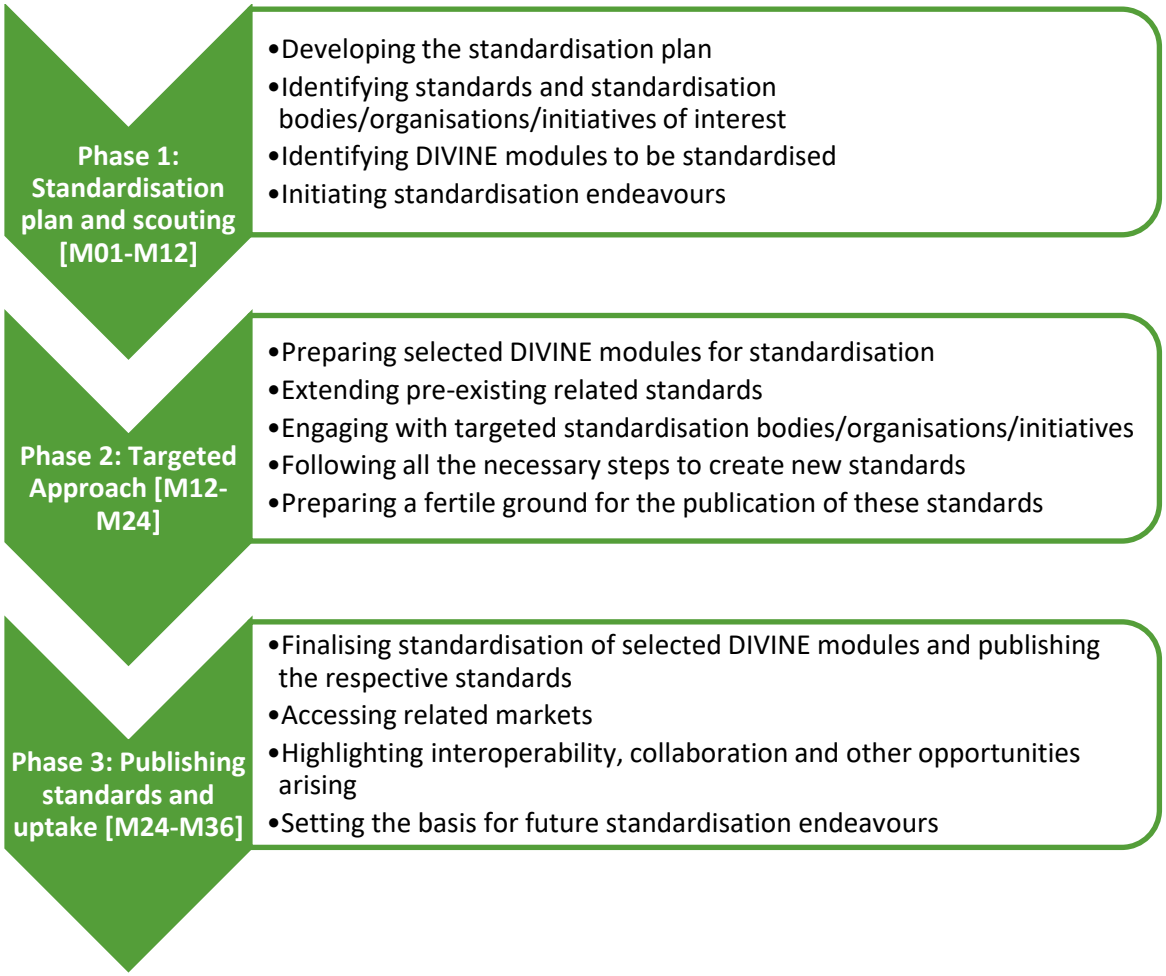

Figure 5: Overview of DIVINE's three-phase standardisation plan.

2.2.3.2 Partners' roles

Many partners of the DIVINE consortium, mainly the technical ones, can contribute to standardisation activities depending on their particular interests and fields of operations. For example, technical partners working on DIVINE Reference Architecture will explore the potential of

its alignment with relevant model architectures, such as BDVA, AIOTI, and GAIA-X. Similarly, partners working on technical interoperability will leverage ongoing interoperability-related standardisation initiatives, like W3C Web of Things, ETSI ISG on Content Information Management, European Interoperability Framework (EIF) and oneM2M. Moreover, the DIVINE Agricultural Data Model which aims at achieving semantic interoperability, will encompass and extend pre-existing agrifood ontologies and vocabularies, like Smart Appliances REFerence ontology for AGRIculture (SAREF4AGRI), NGSI-LD FIWARE agri-data model, IDSA models, Agricultural Data Application Programming Toolkit (ADAPT), Infrastructure for Spatial Information (INSPIRE), AGROVOC, AgroXML/AgroRDF, and AIM, many of which are widely accepted standards in the field.

2.3 External collaboration strategy

External collaboration corresponds to partnering with other organisations, associations, and initiatives, beyond the consortium of the project. Although this may include collaborations with industry partners, governmental and EU agencies, research institutions, farmers' associations, and other types of organisations, in this section, we particularly focus on collaborations with other research initiatives, including R&I or R&D projects as well as with Innovation Actions (IA) and Coordination and Support Actions (CSAs), reflecting the work that is being performed in Task 7.3 "Collaboration with related projects".

These synergies will play a crucial role in accelerating the project's progress and achieving shared goals, addressing at the same time common challenges in the agricultural data economy domain. Thus, it is very important to develop a concrete external collaboration plan from the beginning of the project to ensure the maximisation of these endeavours' impact.

2.3.1 Objectives

The main objectives of collaborating with other related initiatives and actions are listed below:

- Exchanging best practices, knowledge, insights, and methodologies in the fields of digital agriculture, precise farming, and agricultural decision-making.
- Reusing and adopting suitable pre-existing applications, services, and tools developed within other projects instead of having to reinvent the wheel.
- Supporting exploitation and uptake of solutions developed within DIVINE by other projects during and beyond its lifetime, fostering technology transfer.
- Fostering discussions with a larger pool of stakeholders, obtaining access to new ideas and insights from consortia with diverse expertise and skill sets, supporting increased interdisciplinarity in our approach.
- Supporting the dissemination of DIVINE's objectives, activities, and outcomes to a much wider network of TGs through joint dissemination actions, such as workshops, conferences, and other events.
- Creating an environment of mutual support and understanding to accelerate progress and innovation.

- Increasing the impact of research outcomes to jointly elevate the data economy in agriculture.
- Maximising the possibility of addressing major ongoing challenges and broader research questions in the field.
- Increasing credibility, reliability, and quality of research results through reproducing and extending other studies, contributing to building public trust in agricultural data-driven approaches.
- Establishing robust relationships and encouraging further collaboration in future research initiatives.

2.3.2 Targeted types of related projects

Having set the objectives of external collaboration activities within the scope of DIVINE, we will also identify and describe the basic categories of related projects to be targeted for potential synergies. As soon as these categories are identified, external collaboration can be streamlined by specifying the information and the technologies that should be exchanged as well as the joint activities that should be conducted with each one of them.

DIVINE is interested in 7 main categories of related projects in this field, following the division of its work into discrete WPs. These scope-based categories are listed below:

- **Ecosystem architecture and technical integration:**
  This category includes projects that provide reference architectures, integrating various technical modules to create an ecosystem for smart agriculture solutions (or even in other fields and applications), including user interfaces and dashboards, technical interoperability, and service provisioning.
  An indicative example of this category is the OPEN DEI CSA that aims at comparing reference architectures and enabling a unified data platform for large-scale pilots.
  Projects that fall into this category will be mainly approached in terms of exchanging knowledge, best practices, methodologies, and tools in the frame of WP2 “Ecosystem architecture and technical integration”.
- **Agricultural data spaces:**
  This category encompasses projects that design and implement Application Programming Interfaces (APIs), platforms, databases and other environments that enable seamless access, storage, semantic interoperability, management, integration, security, and exchange of various types of agri-data from multiple sources.
  Some examples of initiatives that belong to this category include DEMETER, IoF2020, and AgriDataSpace among others.
  Collaboration with projects of this category is foreseen within WP3 “Agriculture Data Spaces Ecosystem” in terms of knowledge and technology transfer with respect to agricultural data spaces. Moreover, joint dissemination and exploitation activities may be organised to ensure engagement with agri-data owners and other stakeholders.
- **Knowledge extraction from agri-data, agricultural decision support and benchmarking:**
  This category corresponds to projects that aim to extract knowledge from agricultural data to support evidence-based decision-making in agricultural and farming processes. In this

respect, related projects may develop AI algorithms, Machine Learning or Deep Learning (ML/DL) models, data fusion and analytics pipelines and exploit visualisation tools to extract potentially useful insights from agricultural datasets.

Some indicative projects belonging to this category include DEMETER, Farm Manager, and ScaleAgData among others.

Synergies with this type of projects will be based on WP4 "Knowledge extraction, decision support and benchmarking" activities. Agri-data analytics models developed within other research actions will be extended, attempting to improve the current state-of-the-art performances. Additionally, joint work in this respect could be presented in conferences, workshops, and other events targeted to both technical and non-technical audiences.

- **Farming and agricultural pilots:**

  This type of projects implements and evaluates innovative technologies, practices, and solutions in real-world agricultural and farming settings. This may include field trials, demonstrations, and small-scale or/and large-scale piloting activities to assess the feasibility and the effectiveness of digital interventions and data-driven approaches, gathering feedback from the actual end users.

  For example, Nefertiti, DEMETER, ATLAS, ZeroW and AgriBIT constitute some projects that fall into this category.

  Collaboration with these projects is foreseen in the context of WP5 "Pilots, Applications, and Evaluation". Best practices and methods will be exchanged with other research initiatives in this respect. Participation in related networking events will be also targeted.

- **Agri-data sharing governance models and policymaking:**

  This category includes projects that aim at developing governance frameworks, policies, and regulations for agri-data sharing to ensure responsible and ethical use of agricultural data, considering legal and privacy constraints.

  Some examples of research initiatives falling into this category include SFIB and Data4Food2030.

  Collaborative activities with this kind of projects will focus on exchanging insights, knowledge, and methodologies with respect to policies and governing guidelines. Some joint presentations and discussions in policy-related events may take place throughout the project.

- **Business modelling, exploitation, and agri-stakeholders mobilisation:**

  This category includes projects that develop business models, strategies and pathways for the commercialisation and exploitation of innovative smart agriculture solutions. Additionally, it includes initiatives that aim at engaging with various types of stakeholders from the diverse TGs that have been identified in Section 2.1.2. These projects do not necessarily have to do with digital technologies, and they might involve only agrifood stakeholders, which are our primary end users.

  For example, TRUSTyFOOD and AgriDISCRETE projects belong to this category.

  Synergies with these projects will be developed on the basis of WP7 "Business modelling and exploitation, dissemination, standardisation and stakeholder mobilisation". The respective collaborative activities will play a vital role in maximising the project's impact, as they are expected to increase stakeholder engagement through shared best practices,

methodologies, connections, and joint dissemination actions, such as participating in targeted events and organising joint workshops.

- **Combination of more than one of the above categories:**
  Last but not least, most projects (like DEMETER, AgriDataSpace and ScaleAgData) are associated with more than one of the aspects listed above. Consequently, they belong to multiple categories and can pursue collaborative actions with DIVINE in many respects, including reference architectures, agri-data spaces, AI-driven approaches, agricultural pilots, policies and governance models as well as exploitation and stakeholders' engagement.

Apart from this categorisation above, related projects of interest can be divided into groups according to their geographic level.

In DIVINE, most of the related projects that are planned to be targeted are European initiatives funded under the Horizon Europe (HE) or the Horizon 2020 (H2020) programmes. Horizon Europe, and particularly its second pillar, is organised into 6 specific thematic clusters. Since DIVINE was funded under Cluster 6 "Food, Bioeconomy, Natural Resources, Agriculture and Environment", projects funded under this cluster will be primarily targeted, as it is more likely that they share more common goals with DIVINE. However, some projects funded under Cluster 4 "Digital, Industry, and Space", and Cluster 5 "Climate, Energy, and Mobility" may also be of interest to DIVINE. All these European Projects correspond to Research and Innovation Actions (RIA), Innovation Actions (IA) or Coordination and Support Actions (CSA). Finally, some potentially related European projects may be funded by the EU External Investment Plan (EIP) and the Erasmus+ programme.

Apart from the European initiatives, efforts will be made to identify and target international projects that reach beyond the EU borders and may have a global impact. Additionally, national projects in the fields of DIVINE will be targeted. These projects will be primarily based on countries that are represented in the DIVINE consortium, like Greece, Ireland, Italy, Estonia, Spain, Belgium, Slovakia, and Germany. However, initiatives from other European countries will also be considered. Finally, some regional initiatives of smaller scale will also be approached.

2.3.3 Timeline and workflow plan

Now that we have a clear understanding of the objectives of external collaboration and the main categories of related projects to be targeted within DIVINE, we can proceed with the development of a concrete phased external collaboration workflow plan. This plan will serve as a roadmap until the end of the project, specifying which collaborative activities should be conducted at each phase of the project, which tools and channels will be exploited to support them and how the DIVINE partners could contribute to these endeavours.

2.3.3.1 Three-phase external collaboration plan

According to the proposed external collaboration plan, there are three discrete phases, each one of them with a different focus aligned with the evolution of the project. Although these phases may overlap at some points, in general, we should follow this sequential concept throughout the project to ensure that we are moving from a rather coarse-grained external collaboration approach to a more fine-grained one through time.

Based on the proposed workflow plan: During the first phase "External collaboration plan and scouting" [M01-M12], the external collaboration plan will be developed, targeted related projects will be identified and approached, and some first discussions will take place to explore collaborative opportunities. During the second phase "Targeted approach" [M12-M24], more meetings and round table discussions with related projects will be scheduled to identify common tasks and modules developed by other projects that could be exploited or extended within DIVINE as well as to organise joint activities. Finally, during the third phase "Joint actions and future collaborations" [M24-M36], joint activities will be organised, the dissemination and exploitation of DIVINE's outcomes will be supported by associated projects, and the foundations for future collaborations will be set. The overall DIVINE's three-phase external collaboration plan is illustrated in Figure 6.

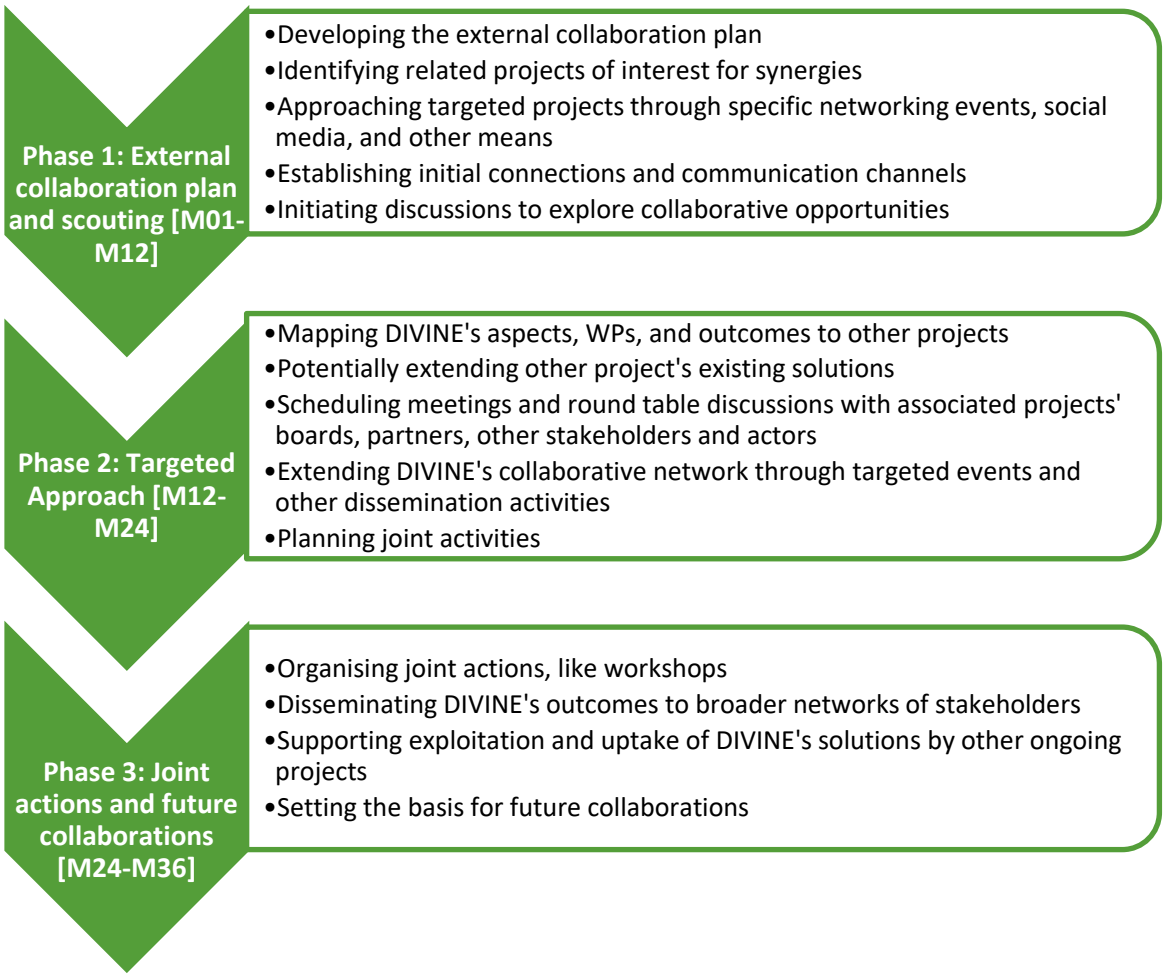

Figure 6: Overview of DIVINE's three-phase external collaboration plan.

2.3.3.2 Tools and channels

Related initiatives and their consortia are part of the TG6 "Research and academia" listed in Section 2.1.2 of this report. Thus, collaboration with them will be mainly pursued through dissemination tools and channels, described in Section 2.1.3.3, that have been identified as suitable to engage with this specific TG. Therefore, primarily participation in targeted events, conferences and workshops that foster networking will be exploited to connect with related projects. Of course, the project's social media, e-newsletter, and website alongside both printed and digital promotional materials will

support these endeavours, as well. Scientific publications may also foster collaboration with other research initiatives. However, mass media publications are expected to play a less important role in engaging with targeted related projects.

2.3.3.3 Partners' roles

Apart from the exploitation of the right tools and communication and dissemination channels, to ensure the maximisation of the impact of external collaboration activities, it is essential that all consortium partners contribute to these activities by leveraging their individual network. Most of the DIVINE partners participate in or coordinate other related projects in the field. So, they will serve as facilitators with respect to the initiation of discussions to explore collaborative opportunities with these projects. Moreover, they might continue to serve as key liaisons between the DIVINE and the other projects' consortia throughout the project. For example:

- **ICCS** has supported collaboration with DEMETER and AgriDataSpace, and will carry on supporting interaction with ScaleAgData, as it is a Consortium member of these EU-funded projects.
- **SETU** supports collaboration with national (Irish) projects, like AgriDISCRETE and other EU projects, such as, DEMETER, SmartAgriHubs, Nefertiti, VistaMilk, ZeroW and CITIES2030 among others.
- **ENG** facilitates collaboration with related EU-funded projects, that it is also associated with, such as AgriBIT and OPEN DEI.
- **DIGI** supports collaboration with ongoing EU-funded projects, for example, ZeroW, DS2.
- **VICOM** serves as the main liaison between DIVINE and FAME.
- **CREA** pursues synergies with other EU research projects dealing with data management and technologies for agriculture, like Open IACS and NIVA4CAP.
- **FE** contributes to synergising with ScaleAgData.
- **NP** encourages partnerships with PLOUTOS, NIVA4CAP, MEF4CAP, ScaleAgData, etc.
- **ITC** supports collaboration with both Slovenian projects, such as EKOGEN, and European initiatives, such as PLOUTOS, ENVISION, Data4Food2030, and DS2 among others.
- **WFO** facilitates collaboration with the EU initiative TRUSTyFOOD.
- **UCD** serves as the primary link between DIVINE and LIFE Farm4More, Consus, SpiralG, BioOrbic, and FarmzeroC projects.
- **KGZS** supports collaboration activities with Farm Manager and PLOUTOS.
- **ADSC** serves as a facilitator in collaborating with DIY4U.

3 Global outreach, dissemination, standardisation and external collaboration activities

During the first 18 months of the project, various global outreach, dissemination, standardisation, and external collaboration activities have been conducted according to the respective strategies that have been presented in Sections 2.1, 2.2, and 2.3. The reported period corresponds to the entire first phase (M01-M12) and half of the second phase (M13-M18) of each one of the individual global outreach and dissemination, standardisation, and external collaboration plans. Therefore, all the activities that are presented in this section have been carried out in accordance with the discrete focus of these phases towards achieving the DIVINE's objectives of global outreach, dissemination, standardisation, and external collaboration, respectively.

3.1 Global outreach and dissemination activities

As we have explained in the previous section, although global outreach and dissemination activities are not identical concepts, they usually overlap and leverage common tools and channels to achieve their goals. Therefore, DIVINE's global outreach and dissemination activities are presented together in the current section.

One of the first actions that were performed in the frame of global outreach and dissemination corresponds to the development of the respective strategy, workflow plan and timeline, which have been presented in Section 2.1. Aligned with this strategic plan, activities related to the first phase "Users and relevant stakeholders outreach plan" (M01-M12) have been successfully conducted during the first year of the project, achieving certain milestones while some preliminary activities related to the ongoing second phase "Targeted approach" (M12-M24) have also been performed and more such activities will be carried out during the next six months.

To elaborate, during the first year of the project, the main targeted audience groups of DIVINE have been identified (and they are listed in Section 2.1.2), the project's visual brand identity has been created, the website and social media accounts have been established, and a concrete social media strategy has been developed to approach and maximise engagement with the right TGs. All these tools and channels have been exploited to build the initial DIVINE's community, raise awareness of DIVINE's scope, objectives, and the benefits of agri-data sharing, focusing on the data economy potential and data sharing transparency. Stakeholders' engagement has also been supported by the participation in specific targeted events, conferences, and workshops. Additionally, different types of promotional materials, like the project's brochure, have been produced and distributed through all the above channels. Finally, some monitoring and planning tools in this respect have been established.

Moreover, during the first half of the second year of the project, we have identified some key players in the market and expanded our initial stakeholders' network, accordingly. The promotion of DIVINE's activities and preliminary results is a continuous action, supported by a continuous social media presence and update of the website, and particularly its News section. Moreover, during these months the first edition of the DIVINE's newsletter has been published and some mass media

and scientific publications have been produced. Additionally, participation in targeted events, conferences, and workshops has been continued, while further events of interest during the upcoming months have been identified and are presented in Sections 3.1.8.1 and 3.1.9.1 of this report. Finally, all these global outreach and dissemination activities are being continuously monitored through appropriate tools.

3.1.1 Visual brand identity

From the launch of the project, the DIVINE's visual brand identity has been created, including the project's logo, colour palettes and fonts, as well as some Word and PowerPoint templates, to ensure a unified and cohesive appearance of the project. All the respective materials have been designed in coherence with high practical and aesthetic standards to support the project's visibility and make the disseminated contents more readable and appealing to the audience.

3.1.1.1 DIVINE logo

The DIVINE's logo serves as the main symbol and visual identifier of the project. As "a picture is worth a thousand words", DIVINE's logo has been carefully designed to represent the key aspects of the project, revealing that it is related to the smart agriculture and farming domain.

Two different logos have been produced, as illustrated in Figure 7. The first one is the primary circular logo, which embeds a more complex graphic design and the name of the project. The second one corresponds to a wide or horizontal version of the primary logo and encompasses a simpler illustration as well as the name of the project. In this way, in both cases, it is ensured that the project can be unambiguously identified by its logo.

Figure 7: DIVINE's primary and horizontal logo.

Both logos are shared with all the partners of the consortium in both .JPG and .PNG formats. It is essential that one of them, the primary one in most cases, is included in all the digital and printed materials that are produced within the DIVINE project, including the project's website, social media accounts, newsletters, brochures, posters and other promotional materials as well as PowerPoint presentations and Word documents.

3.1.1.2 DIVINE colours and brand identity manual

A visual style guide has been created which contains specifications regarding the visual identity of the DIVINE project such as colours, logo, imagery, typography, the use of icons etc.

The aim of this guide is to ensure all partners present the DIVINE project in a uniform manner. The brand guide is available on the internal cloud platform.

The selected primary colours are displayed in Figure 8 below:

Figure 8: DIVINE primary colours.

3.1.1.3 Word and PowerPoint templates

Moreover, Word templates dedicated to the deliverables and the internal documents of the project as well as PowerPoint templates for both internal and external presentations have been circulated to all the partners of the consortium. These templates, as depicted in Figure 9, ensure that all the project's reports and presentations will be made in a unified and consistent way.

Figure 9: DIVINE's Word and PowerPoint templates.

3.1.2 Social media

Since the very first months of the project social media accounts have been created for the DIVINE project on various popular platforms. As it has already been discussed in the global outreach and dissemination plan, in Section 2.1.3.3, DIVINE will leverage the power of social media to build an online network of stakeholders and keep them engaged and updated on various aspects, activities, and outcomes of the project throughout its lifetime. In this way the key messages of DIVINE, as described in 2.1.3.2, will be disseminated to a wide spectrum of diverse TGs. To achieve this, a comprehensive social media strategy has been developed, which encompasses the identification of the targeted audience, the selection of the most suitable platforms, the definition of specific measurable goals, the planning of social media posts and the tracking of social media performance.

After a thorough analysis of various popular social media platforms, considering both their unique characteristics and the main objectives and targeted audience groups of DIVINE global outreach and dissemination, as described in Sections 2.1.1 and 2.1.2, respectively, it has been decided to create DIVINE accounts on X (formerly Twitter), LinkedIn, Facebook, and YouTube. These platforms demonstrate quite diverse features and traditionally attract different types of TGs, each one of which expresses diverse interests with respect to the project. By creating accounts for DIVINE on all these media, we aim at engaging with as many different TGs as possible. Due to the inherent variability of these platforms, different approaches have been followed to adapt the style of the posts to their unique characteristics, and eventually maximise the engagement rate in each case. More information on the discrete characteristics and offerings of each platform as well as the different strategies of posting followed for each one of them will be provided later in this section.

Figure 10: The set of DIVINE's social media.

A wide variety of posts has been planned and made during the first 18 months of the project mainly through its X, LinkedIn, and Facebook profiles. Most of them aimed at informing the DIVINE stakeholders' network about its main activities, including presentations and featuring of the project in conferences and other events, organisation of targeted meetings with important actors and stakeholders in the digitalised agrifood sector, related publications, etc. Similarly, some posts emphasised key outcomes of the project and preliminary milestones accomplished so far, or the significant progress made towards achieving the overarching project's objectives. On the other hand, some posts focused on sharing the project's objectives themselves and aimed at raising awareness

on the data economy potential in the agricultural sector, the transparency in agri-data sharing, the power of digital technologies and data-driven approaches to transform the agrifood domain, and the importance of the respective policies. Additionally, some related announcements have been made and some invitations have been shared to various stakeholders to attend specific events associated with DIVINE. Finally, a few important updates, news, and information posted by e.g., DG AGRI, Agricultural and Rural Development CAP or other governing bodies have also been shared via the DIVINE's channels.

To maximise dissemination's impact and engagement with all the TGs through social media, the content of the above posts needs to be served in an appealing and eye-catching way. Insights from scientific studies [2], [3] in this field have been considered while creating the respective content. So, for example, almost all the DIVINE's posts include images or short videos, concise descriptions conveying clear messages, links to the project's website or to the registration forms of promoted events, mentions of the consortium partners and related EU organisations as well as hashtags to reach wider audiences. In this respect, a set of related hashtags has been identified, including #DIVINEproject, #HorizonEurope, #SmartAgriculture, #AgriculturalInnovation, #AgriculturalResearch, #DigitalAgriculture, #DigitalFarming, #SmartFarming, #InnovationInFarming, #agridatasharing, #agridata, #DataEconomy, #dataspace, #farmers, #agrifood, #agriculture as well as more hashtags related to certain events and campaigns, such as #EUAgiFoodDays, #UNCCC, #EBDVF2023, etc. that are used based on the scope of the respective posts.

Besides the content itself, the frequency of posting plays an important role in maximising engagement with targeted audiences. To this end, tremendous effort has been put into maintaining the social media of DIVINE active. The initial plan was to publish an average of one post per week on each platform, but this will be increased as the project progresses, and more activities and outcomes of the project are produced and disseminated during the second and the third phase of the global outreach and dissemination plan. To organise this efficiently and schedule the respective posting, a dedicated social media calendar has been created. The proposal of the project introduces a KPI which requires more than 200 posts to be made throughout the project's duration. During the first 18 months of the project, 185 posts have been published in total, out of which 66 tweets, 72 LinkedIn posts, 45 Facebook posts and 2 YouTube videos, indicating that if we continue with the same pace, this baseline will be significantly exceeded by the end of the project.

Even though the social media accounts of DIVINE are managed by the T7.2 leader, all partners are contributing to the content creation process, by providing material and updates for dissemination. Additionally, all partners have contributed to the increase of DIVINE's visibility, by engaging with its posts and resharing them with their network either through their organisational or their personal account as well as by posting their own DIVINE-related insights and updates.

Finally, all the social media platforms employed provide some analytics tools and dashboards that may help us gain useful insights into the engagement that is achieved and the audience that is reached through the DIVINE's social media. This information, depending on the platform, may include the number of various interactions and the engagement rate for each post, the number of the followers, and some demographic data about them, like their region, age, gender, industry, etc. More details about these insights will be provided separately for each platform later in the

document. However, it is worth noting that in some cases, thousands of impressions have been obtained for key DIVINE posts.

From the beginning of the project, a continuously increasing number of followers has been observed in every social network, from almost all the TGs that have been identified and are listed in Section 2.1.2, including but not limited to representatives from the agrifood, ICT, research, and policymaking domains, as well as related national and EU projects. A KPI has been defined in the proposal of the project that requires reaching more than 800 followers in total by the end of the project. This baseline has been significantly surpassed, as today DIVINE counts 1459 followers in total (1006 followers on LinkedIn, 294 followers on Twitter, 149 followers on Facebook and 10 subscribers to the project's YouTube channel).

Finally, it is worth noting that all these metrics and data are stored in a live shared Excel spreadsheet that serves as a reporting tool and aims at facilitating the monitoring and the quantitative analysis of DIVINE social media performance through time.

3.1.2.1 X – formerly Twitter

X, formerly known as Twitter, constitutes a powerful platform that fosters dynamic conversations, sharing ideas, thoughts, and news through concise messages of 280 characters maximum. A DIVINE X account (https://twitter.com/divine_hrzn_eu) has been created with the handler @divine_hrzn_eu since the first months of the project, as this platform is ideal for participating in the global dialogue around the emerging field of data economy in agriculture and connecting online with all the identified TGs.

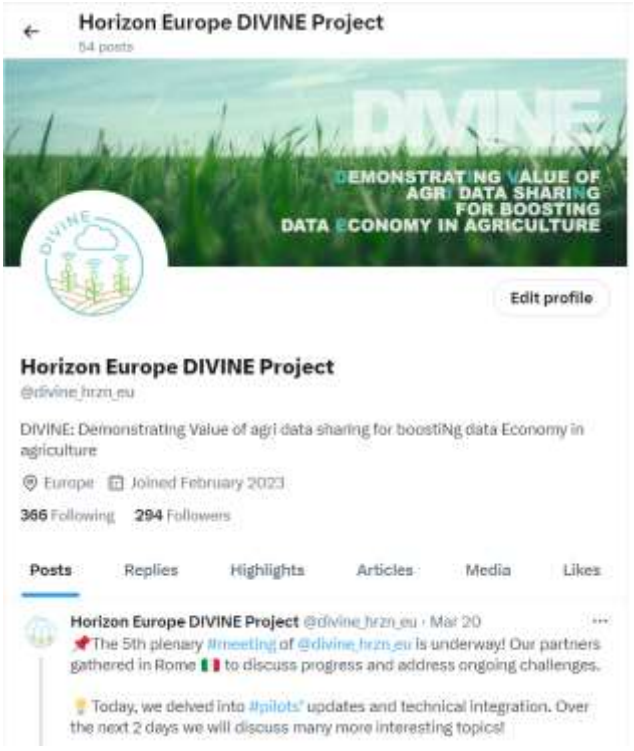

Figure 11: DIVINE X (formerly Twitter) account.

Due to the inherent characteristics of X, posts on this platform should be shorter and "catchier", encapsulating all the necessary information in a single concise message. In case more details would be beneficial for the recipients, these are provided within a thread, a series of connected tweets revolving around the same concept. Additionally, tweets mentioning DIVINE or related to the aspects that are addressed by DIVINE are also being retweeted to keep our stakeholders' network up to date.

Figure 12: Example of a DIVINE tweet.

Over the first 18 months, DIVINE X account has gained more and more followers, reaching the number of 294 followers today (end of March 2024). Moreover, as Figure 13 illustrates, the platform offers an analytical tool which quantifies and visualises impressions and engagements obtained from tweets during a specific selected date range. Exploiting this tool we have documented the respective performance metrics of all the DIVINE-related posts in a dedicated shared Excel spreadsheet since the beginning of the project. According to these findings, the average impressions, engagement, and engagement rate obtained per tweet throughout the reported period are 358.36, 27.42 and 13.48%, respectively. Notably, the first two metrics are slightly improved when counting only the first tweet of each thread. It is also worth mentioning that the most popular tweet identified corresponds to the recap of the second plenary meeting of the DIVINE consortium, reaching up to 2.7k impressions, approximately. More details about the statistical metrics of the DIVINE tweets can be found in Table 2 and Table 3.

Table 2: Statistical metrics of DIVINE's X performance per tweet during M01-M18.

	Likes	Retweets	Replies	Views/Impressions	Engagement	Engagement Rate
Max	31	5	2	2678	107	29.10%
Mean	8.69	1.49	0.30	358.36	27.42	13.48%
Median	7	1	0	172.5	20	13.90%

Table 3: Statistical metrics of DIVINE's X performance per tweet during M01-M18 if we exclude replies to threads.

	Likes	Retweets	Replies	Views/Impressions	Engagement	Engagement Rate
Max	31	5	2	2678	107	24.70%
Mean	9.85	1.81	0.26	442.12	35.87	12.89%
Median	9	2	0	227	30.5	13.60%

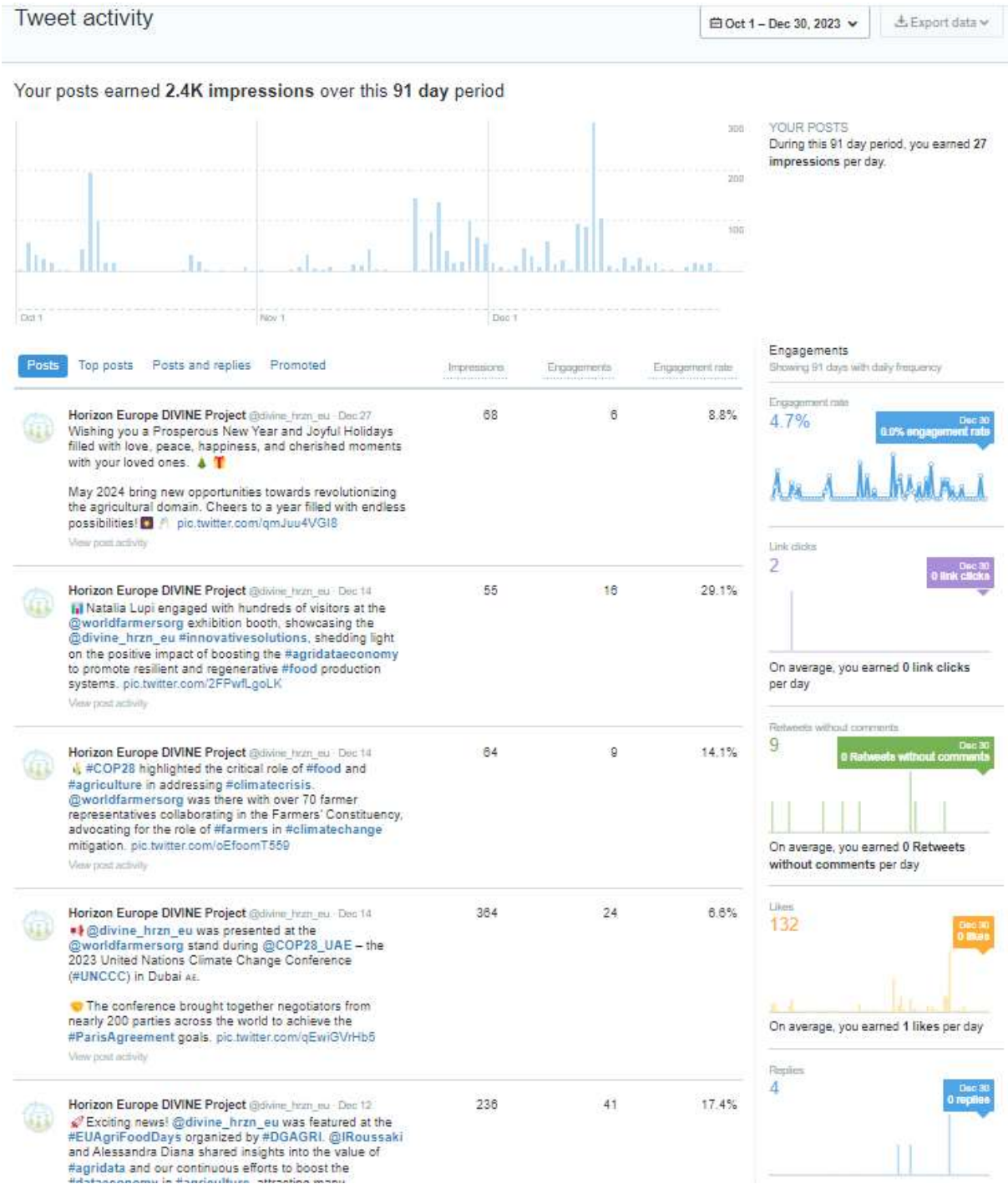

Figure 13: A snapshot of DIVINE tweets activity during the last three months of 2023.

Apart from the DIVINE X account, that is managed by the Task 7.2 leader, most of the consortium partners are active on X, maintaining both organisational and personal accounts. More than 20 tweets referring to DIVINE have been shared through their profiles and even more DIVINE's tweets have been reshared by them, significantly increasing in this way the potential outreach of the project's news and updates. All the X organisational accounts managed by the DIVINE partners are listed in Table 4 along with their current network capacity.

Table 4: DIVINE consortium partners' X accounts.

Partner	X Account handler	X Account URL	Current number of followers
ICCS	@IccsNtua	https://twitter.com/IccsNtua	488
SETU	@SETUIreland @WaltonInst	https://twitter.com/SETUIreland https://twitter.com/WaltonInst	4371 4212
ENG	@EngineeringSpa	https://twitter.com/EngineeringSpa	8404
DIGI	@digiotouch	https://twitter.com/digiotouch	282
VICOM	@Vicomtech	https://twitter.com/Vicomtech	1402
CREA	@CREARicerca	https://twitter.com/CREARicerca	2731
FE	@FarmEurope	https://twitter.com/FarmEurope	4882
NP	@NEUROPUBLIC	https://twitter.com/NEUROPUBLIC	1516
ITC	@ITC_cluster @DihAgrifood	https://twitter.com/ITC_cluster https://twitter.com/DihAgrifood	481 816
IDSA	@ids_association	https://twitter.com/ids_association	2421
WFO	@worldfarmersorg	https://twitter.com/worldfarmersorg	9094
UCD	@ucddublin @ucdagfood	https://twitter.com/ucddublin https://twitter.com/ucdagfood	65444 10185
KGZS	@KGZMB	https://twitter.com/KGZMB	200

WFO X account is of particular interest, as WFO is the leading global farming community involved in DIVINE, and, thus, plays a vital role in approaching our main end users, including farmers, agricultural cooperatives, SMEs, and organisations, as well as other related stakeholders falling into TG1. As it is outlined in Table 4, WFO's X profile counts more than 9k followers and has reached 532,642 impressions in 2023 with a medium engagement rate of 4%. One of the WFO tweets (https://x.com/worldfarmersorg/status/1677271087636160517?s=20) featuring DIVINE that stands out corresponds to the 2nd Gymnasium Technical Session towards UN Forum on Sustainability Standards (UNFSS) in July 2023, where DIVINE representatives were invited as speakers. This post reached 304 impressions and 33 engagements.

3.1.2.2 LinkedIn

LinkedIn serves as a professional networking platform that revolves around career development and professional opportunities. Unlike other popular social media, it fosters strictly professional discussions in various industries and domains worldwide. DIVINE has created a LinkedIn account (https://www.linkedin.com/company/horizon-europe-divine-project/) named "Horizon Europe DIVINE Project", since February 2023 to support engagement with specific targeted groups of professionals, companies, organisations, and industries falling into all the TGs identified in Section 2.1.2, except for maybe the general public. Through this platform, participation in the global

dialogue around the emerging fields of agricultural data economy, precise farming and digital agriculture is enabled.

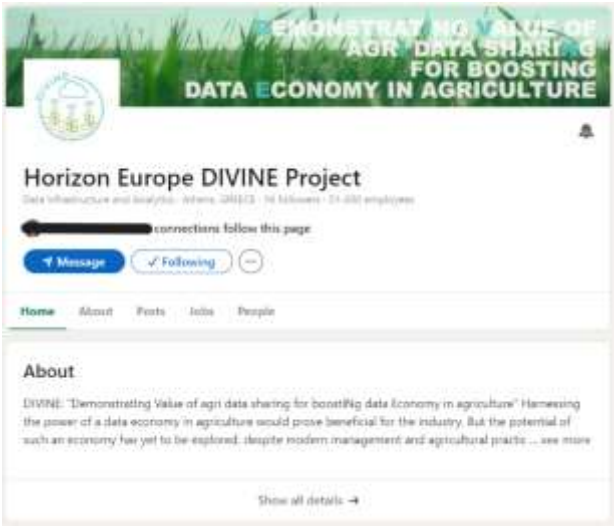

Figure 14: DIVINE LinkedIn account.

LinkedIn posts, following the platform's objectives, tend to be more business- and industry-oriented. Consequently, DIVINE LinkedIn posts are usually more formal, and they may also be longer, encapsulating more technical or domain-specific details that may be less accessible to the general public. In this respect, more details from the ongoing work within the DIVINE's WPs are shared through this network. Additionally, posts that mention DIVINE or share useful insights in the field are also disseminated through the DIVINE's LinkedIn network.

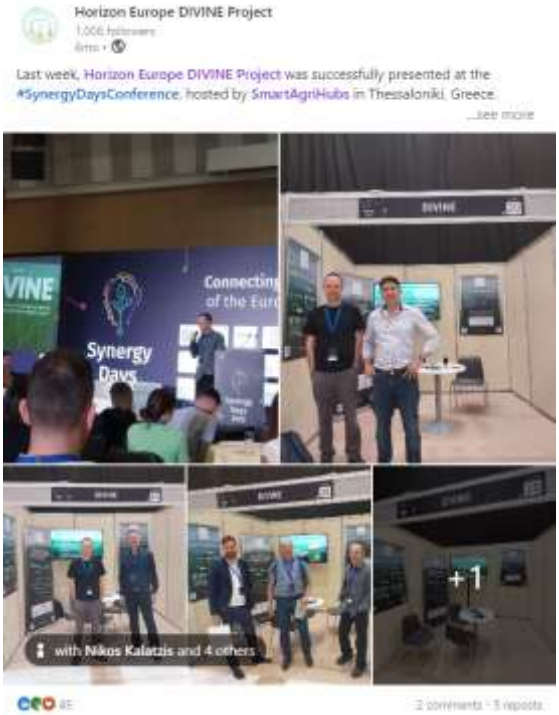

Figure 15: Example of a DIVINE LinkedIn post.

Moreover, LinkedIn, as illustrated in Figure 16, offers some analytics tools that provide insights into the content engagement achieved in terms of impressions, clicks, reactions, comments, reposts, and follows. These tools also shed light on page views and the visitors' background in terms of industry, job function, company size, seniority, and location. The same demographic information is also available for the followers of the DIVINE page.

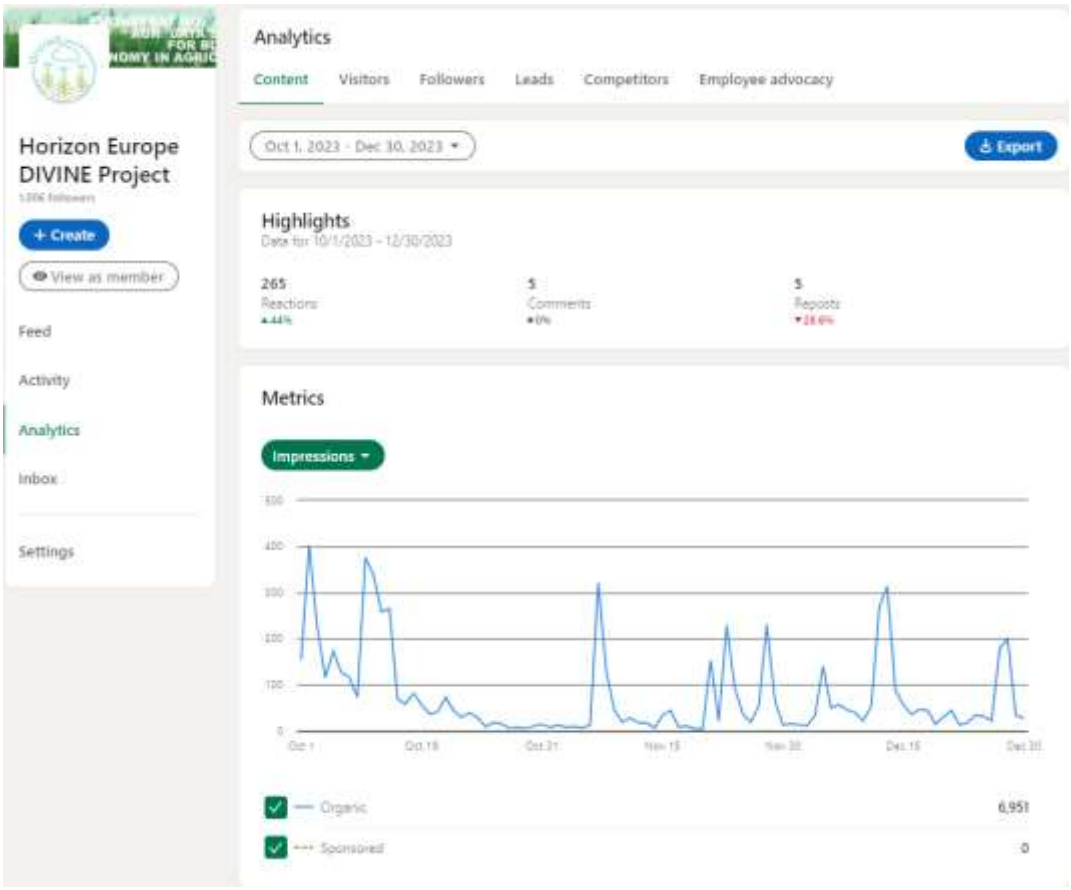

Figure 16: A snapshot of DIVINE LinkedIn highlights during the last three months of 2023.

Currently, DIVINE's LinkedIn profile counts more than 1k followers (1006 followers to be exact), constituting the largest social media community of the project. As the analytics tools of the platform indicate, this base of followers is distributed across more than 32 countries worldwide and 5 continents. Similarly, followers of the DIVINE LinkedIn page span across various industries, including research and academia, ICT, government administration, farming, machinery manufacturing, etc. covering almost all the TGs listed in Section 2.1.2. The top 5 industries of the DIVINE LinkedIn followers are depicted in Figure 17. Although dozens of farmers and people or organisations in the farming industry have been engaged with DIVINE on LinkedIn, this was not enough for this category of primary DIVINE's stakeholders to rise to the top 5 industries. This was anticipated, because LinkedIn is not as widely used as other social media platforms among farmers, as our agricultural partners have confirmed.

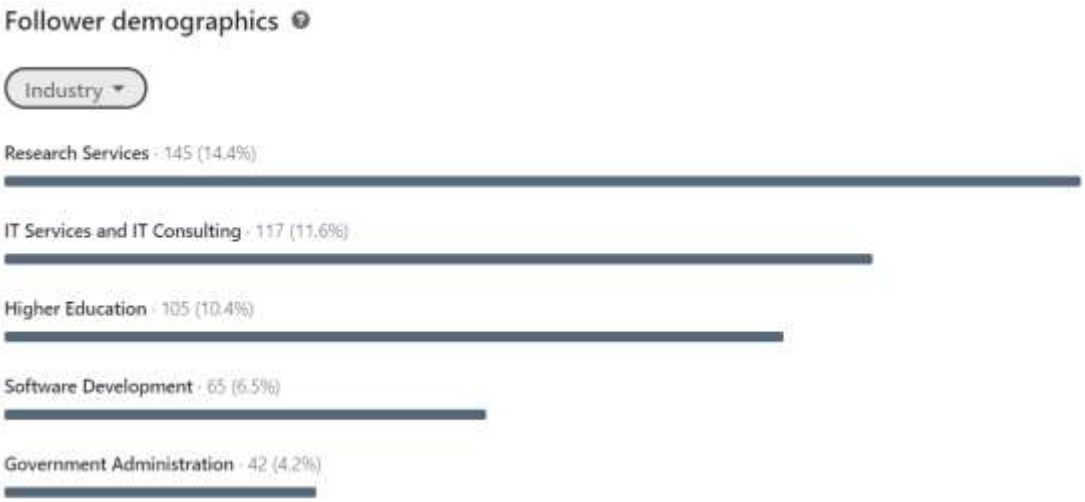

Figure 17: Top 5 industries of DIVINE LinkedIn followers.

With the help of these analytics dashboards, a set of specific performance measurements has been documented in a dedicated shared Excel spreadsheet with respect to all the DIVINE-related posts since the beginning of the project. According to these measurements, the average impressions, engagement, and engagement rate obtained per post throughout the reported period are 742.91, 115.53 and 13.78%, respectively. There are 4 DIVINE LinkedIn posts that stand out, with engagement rate ranging between 30% and 40%, approximately. These correspond to the recaps of the second and the third plenary meetings of the DIVINE consortium, the presentation of the project in the IEEE COINS 2023 conference, as well as its promotion during the EU AgriFoodDays 2023 in Brussels. More details about the statistical metrics of the DIVINE LinkedIn posts can be found in Table 5.

Table 5: Statistical metrics of DIVINE's LinkedIn performance per post during M01-M18.

	Reactions	Reposts	Comments	Impressions	Engagement	Engagement Rate
Max	156	29	18	1965	607	40.97%
Mean	30.73	2.34	0.74	742.91	115.53	13.78%
Median	27	2	0	609	48.5	8.76%

Finally, all partner organisations and many individual members of the DIVINE consortium maintain their own LinkedIn accounts and are actively contributing to increase the visibility of the project by engaging and reposting the DIVINE's posts as well as by publishing their own DIVINE-related content. It is worth noting that there are more than 40 LinkedIn posts by DIVINE partners, related projects and other stakeholders referring to the DIVINE's work. All the LinkedIn organisational accounts managed by the DIVINE partners are listed in Table 6 along with their current network capacity.

Again, we make a special reference to WFO, as the farmers' organisation which is part of the DIVINE consortium and our primary link to the agricultural stakeholders, mainly belonging to TG1. WFO maintains a LinkedIn account with almost 7.5k followers that reached 157,744 impressions in 2023 and obtained a medium engagement rate of 7.9%. Through this network, WFO has shared many updates with respect to its participation in DIVINE. For example, they have shared a post (https://www.linkedin.com/posts/world-farmer%27s-organisation_datasharing-dataspaces-

agriculture-activity-7083035438482882561-cTUt) about the 2nd Gymnasium Technical Session towards UNFSS which was held in July 2023, and DIVINE representatives were invited as speakers. This post reached 366 impressions and 1.64% engagement rate.

Table 6: DIVINE consortium partners' LinkedIn accounts.

Partner	LinkedIn Account	Current number of followers
ICCS	https://www.linkedin.com/company/iccs-episey-ntua/	1812
SETU	https://www.linkedin.com/school/south-east-technological-university/	17381
ENG	https://www.linkedin.com/company/engineering-group/	133956
INLE	https://www.linkedin.com/company/inlecom-commercial-pathways/	963
DIGI	https://www.linkedin.com/company/digiotouch-ou/	1694
VICOM	https://www.linkedin.com/company/vicomtech/	16084
CREA	https://www.linkedin.com/company/crea-ricerca/	32245
FE	https://www.linkedin.com/company/farm-europe/	851
NP	https://www.linkedin.com/company/neuropublic-s-a-/	4748
ITC	https://www.linkedin.com/company/innovation-technology-cluster/ https://www.linkedin.com/company/dihagrifood/	1181 3142
IDSA	https://www.linkedin.com/company/international-data-spaces-association/	6520
WFO	https://www.linkedin.com/company/world-farmer%27s-organisation/	7491
UCD	https://www.linkedin.com/school/university-college-dublin/ https://www.linkedin.com/school/ucdagfood/	295357 3987
KGZS	https://www.linkedin.com/company/kgzs-zavod-murska-sobota/	142
ADSC	https://www.linkedin.com/company/analisis-dsc/	545

3.1.2.3 Facebook

Facebook is a versatile social media platform providing its users with opportunities to connect with others, share updates, exchange messages, join groups, follow pages, and participate in public discussions based on their interests. In DIVINE, a Facebook account with the name “Horizon Europe Divine Project” has been created since February 2023 (https://www.facebook.com/people/Horizon-Europe-Divine-Project/100090421393292/). Through this platform, it is expected to approach more effectively farmers and stakeholders belonging to TG1, the general public, as well as individuals from other TGs.

Facebook posts tend to be more friendly and relaxed compared to tweets and LinkedIn posts. Language used in this platform should be more accessible and messages should not contain too much technical or domain-specific information. So, Facebook posts are rather focused on DIVINE’s events, presentations, overarching objectives and achievements. Finally, related posts created by other partners, initiatives and EU organisations will be shared through the DIVINE’s Facebook profile, as well.

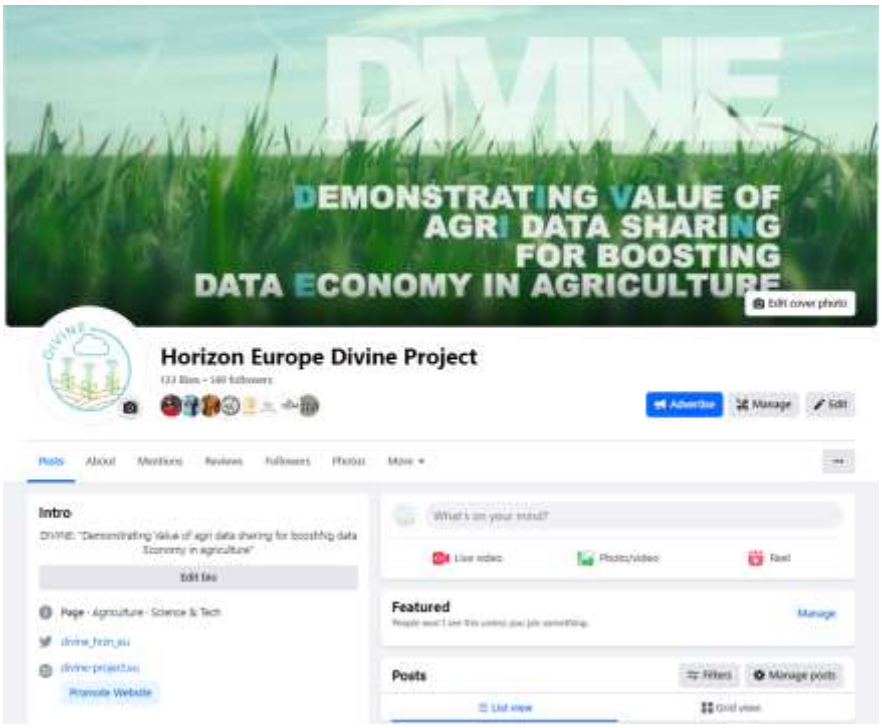

Figure 18: DIVINE Facebook account.

Figure 19: Example of a DIVINE Facebook post.

Like X and LinkedIn, Facebook provides a professional dashboard with insights and visualisations of the overall reach of the page and engagement with its individual posts as well as of the followers' demographics, such as their age, gender, and location. An overview of this tool is presented in Figure 20.

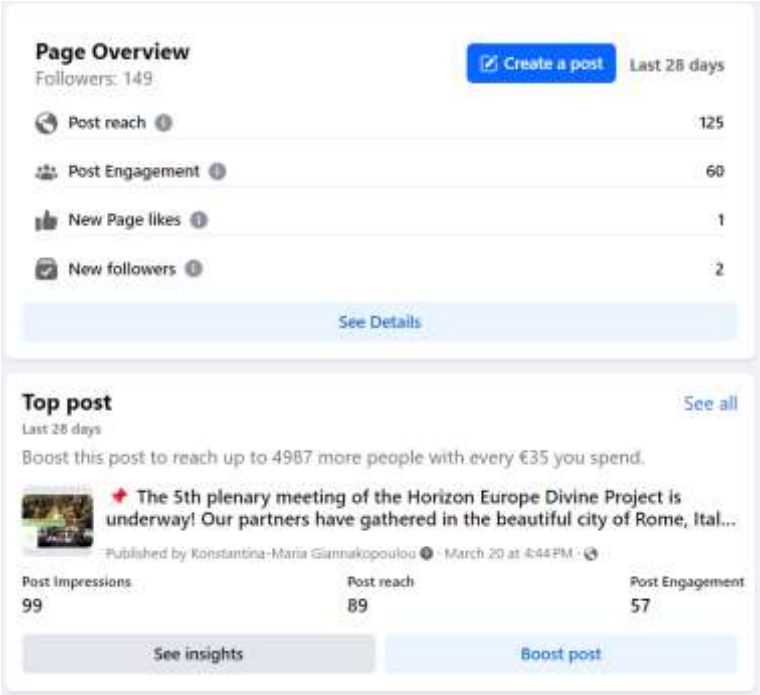

Figure 20: DIVINE Facebook page overview during the last 28 days.

Figure 21: Age and gender distribution of DIVINE Facebook followers.

During the first 18 months of the project, its Facebook page has gained 149 followers. This online community is the smallest one out of the three social media, that we have discussed so far. We have observed that it was more difficult to grow our network on this platform comparing to LinkedIn and Twitter. This may be partially attributed to the declining popularity of this platform especially among younger ages [4]. Despite these challenges, we managed to build a network of 149 followers from

more than 10 countries across Europe, America, and Asia. Moreover, as Figure 21 illustrates, the gender distribution of this group is rather balanced, attracting slightly more women than men. Finally, regarding the age distribution of this online community, it is becoming clear from Figure 21 that the working age population, which corresponds to the majority of the TGs identified in Section 2.1.2, has been successfully approached, as the age of most Facebook followers ranges between 18 and 64 years old.

Moreover, engagement-related data has been collected from the content tab of the professional dashboard and documented in a dedicated shared Excel spreadsheet since the beginning of the project. According to this data, the average impressions, reach, and engagements obtained per Facebook post throughout the reported period are 158.04, 124.12 and 61, respectively. There is one Facebook post that stands out with 1358 impressions, 1193 reach and 268 engagements. The topic of this post is the recap of the second plenary meeting of the project. More engagement-related metrics of the DIVINE Facebook posts are presented in Table 7.

Table 7: Statistical metrics of DIVINE's Facebook performance per post during M01-M18.

	Reactions	Shares	Comments	Impressions	Reach	Engagements
Max	34	5	2	1358	1193	268
Mean	11.44	1.42	0.19	158.04	124.12	61
Median	10	1	0	96.5	69.5	34

Finally, many partners of the DIVINE consortium maintain their own Facebook accounts and leverage them to engage with the DIVINE's posts, repost them as well as share their own DIVINE-related content. Since the launch of the project, 17 posts by DIVINE's partners and other stakeholders have been made about DIVINE on Facebook. All the Facebook organisational accounts managed by the DIVINE consortium partners are listed in Table 8 along with their current network capacity.

Table 8: DIVINE consortium partners' Facebook accounts.

Partner	Facebook Account	Current number of followers
ENG	https://www.facebook.com/gruppo.engineering	8.2K
DIGI	https://www.facebook.com/digiotouch	89
CREA	https://www.facebook.com/CREARicerca	14K
NP	https://www.facebook.com/neuropublic	2.1K
WFO	https://www.facebook.com/worldfarmersorg	11K
UCD	https://www.facebook.com/universitycollegedublin	107K
KGZS	https://www.facebook.com/zbornicaKGZS/	4.4K
ADSC	https://www.facebook.com/ingenierianalisisdsc	20

On this platform, NP and WFO are very active and committed to share DIVINE's updates with their networks. WFO, in particular, has a Facebook page with more than 11k followers, 35,537 page reaches in 2023 and a medium engagement rate of 0.72%. During the first 18 months of the project, they have made various posts about DIVINE. For example, they have shared a post (https://www.facebook.com/worldfarmersorg/posts/pfbid02mA3kX8LAFhmTivW2msaJAmkWTurvoYm7BKbiuj6AVANcMtiNNXsXQRDbUeg2b9ijl) about the 2nd Gymnasium Technical Session towards

UNFSS which was held in July 2023, and DIVINE representatives were invited as speakers. A reach of 390 and 403 impressions have been obtained for this post.

3.1.2.4 Instagram

While developing the social media strategy for DIVINE, it was decided not to create a DIVINE Instagram account because of the platform's certain limitations in conveying complex messages and information that are usually the key outputs of R&I initiatives. The purpose of Instagram is rather aesthetic than informative. So, the platform mainly revolves around visual content creation and sharing, such as photos, reels, etc. and does not foster discussions around a data-driven transformation in the agricultural sector.

However, today, Instagram is one of the most popular social media platforms worldwide. Therefore, and to ensure that we will reach an as much wide audience as possible, we have decided to potentially exploit the already established Instagram accounts of the DIVINE partners, as listed in Table 9. This will be performed only for special occasions, e.g., for promoting large project's events, like its planned EU workshops.

Table 9: DIVINE consortium partners' Instagram accounts.

Partner	Instagram Account	Current number of followers
SETU	https://www.instagram.com/setuireland/	7351
DIGI	https://www.instagram.com/digiotouch/	31
CREA	https://www.instagram.com/crearicerca/	3168
NP	https://www.instagram.com/neuropublic/	170
WFO	https://www.instagram.com/worldfarmersorg/	1065
UCD	https://www.instagram.com/universitycollegedublin/	49K
KGZS	https://www.instagram.com/kgzszavodmb/	823

However, DIVINE partners are already using these channels to promote their organisational or institutional events, many of which are featuring DIVINE. For example, WFO's Instagram account has more than 1k followers, 13,518 page reaches in 2023 and a medium engagement rate of 0.74%. Through this network, WFO's flagship events are promoted, like the WFO Annual Meeting, the WFO Gymnasium, and its participation in COP28. In all these events, the DIVINE project has been presented to relevant stakeholders, as we will see with more details later in Section 3.1.9.2.

3.1.2.5 YouTube

YouTube is a video-sharing platform for both entertainment and educational purposes, covering diverse topics. A DIVINE YouTube channel has been created since the very first months of the project (https://www.youtube.com/@horizoneuropedivineproject5378), as depicted in Figure 22, to support the dissemination of the project's objectives, progress, activities, and outcomes. So, its purpose is clearly informative aiming at keeping all the diverse stakeholders' groups of the project up to date in an appealing way.

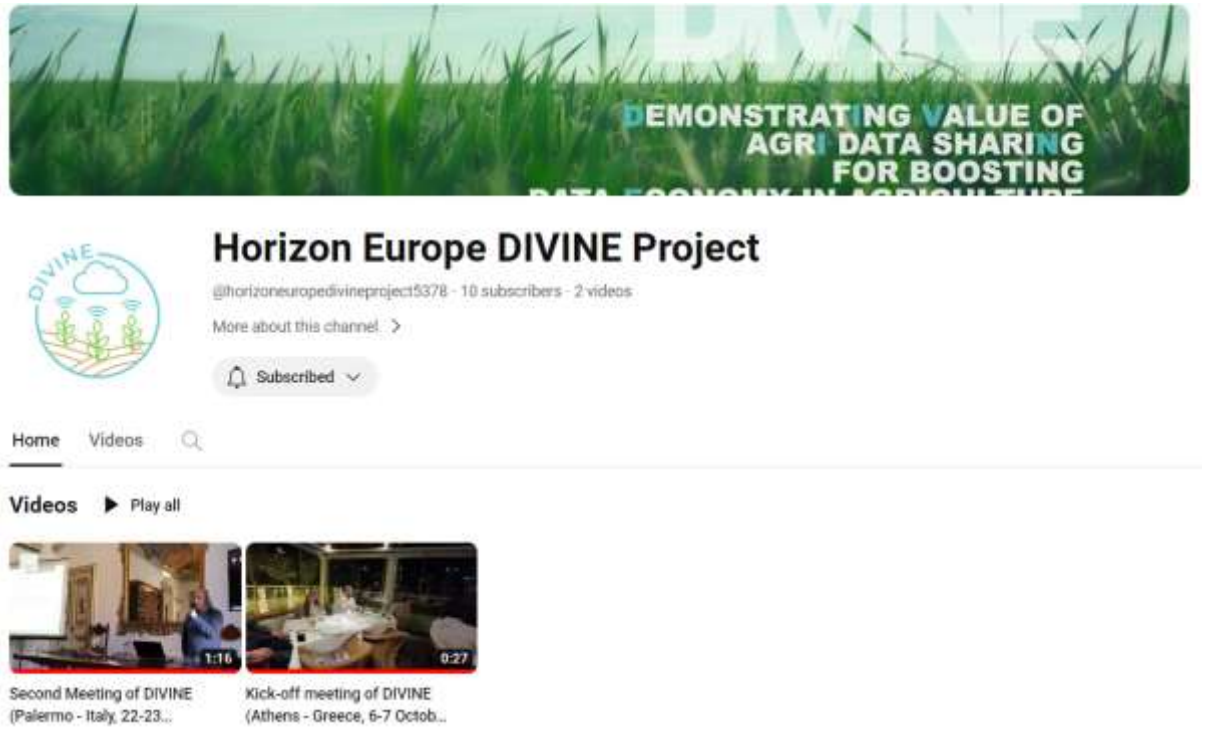

Figure 22: DIVINE YouTube channel.

During the first 18 months of the project, two short videos have been uploaded to the YouTube channel from the first two plenary meetings of the DIVINE consortium. These videos count 94 and 58 views, respectively, and 3 likes each while the project's YouTube channel has gained 10 subscribers until today.

Table 10: DIVINE consortium partners' YouTube channels.

Partner	YouTube Channel	Current number of subscribers
SETU	https://www.youtube.com/@setuireland	432
ENG	https://www.youtube.com/@ENGINEERING-INNOVATION	719
DIGI	https://www.youtube.com/@digiotouch	13
VICOM	https://www.youtube.com/@Vicomtech	1.87K
CREA	https://www.youtube.com/@CREARicercadavedere	3.5K
NP	https://www.youtube.com/@neuropublicsa	72
IDSA	https://www.youtube.com/@internationaldataspacesass9223	683
WFO	https://www.youtube.com/@worldfarmersorg1	303
UCD	https://www.youtube.com/@universitycollegedublin	48.6K
KGZS	https://www.youtube.com/@zbornicaKGZS	403

As in the previous cases, many partners of the DIVINE consortium have already established YouTube channels that can also support the global outreach and dissemination activities of the project. WFO, the leading farming community of our consortium, maintains a YouTube channel that gained 57k views in total during 2023 and a medium engagement rate of 114%. Additionally, IDSA has shared the IDSA Tech Talk playlist (https://www.youtube.com/playlist?list=PLjtVEFHmKqTvy6dw-kcpapuEDPSR1ANVd) on their YouTube channel, including the recordings of a series of tech talks

focused on TRUsted Engineering (TRUE) Connector, Semantic Interoperability, IDS Reference Architecture Model (RAM), Legal Interoperability, and other topics related to the work that is being performed within the DIVINE project.

3.1.3 Website

The website of DIVINE (https://divine-project.eu/) has been launched since the very first months of the project to support its initial communication and dissemination plans, in line with the respective KPI set in the project's proposal. The project's website serves as one of the main global outreach and dissemination interfaces with all the TGs listed in Section 2.1.2. It is a fully functional website, supporting both a desktop and a mobile version, as demonstrated in Figure 23.

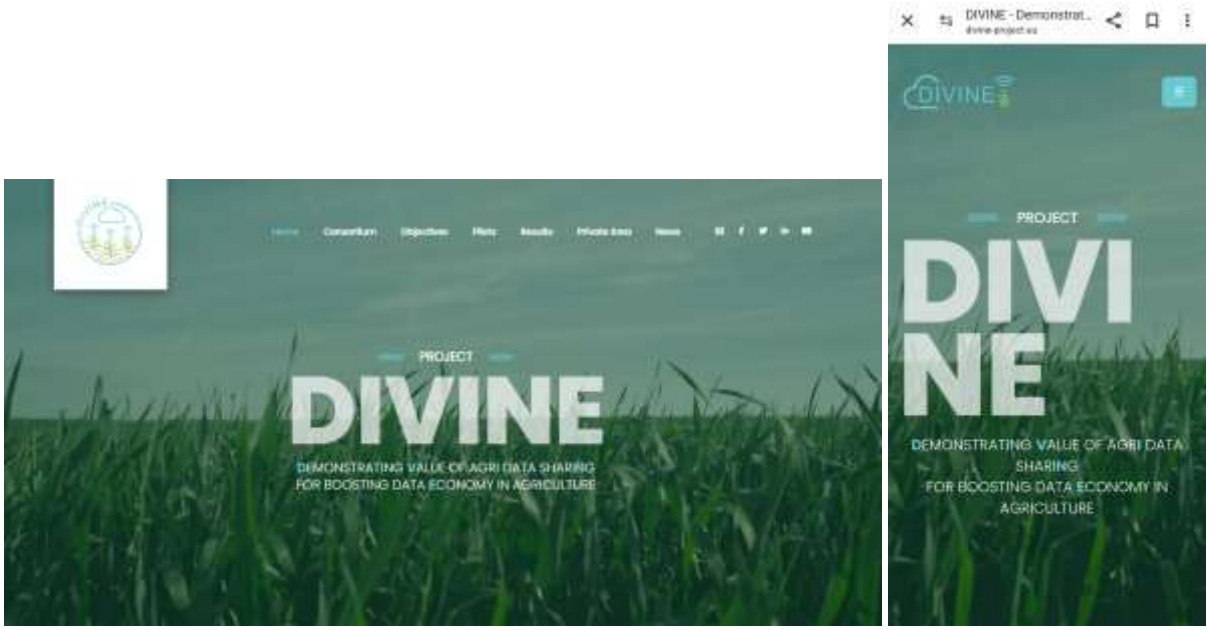

Figure 23: Desktop and mobile version of the DIVINE's website.

Regarding its structure, as outlined in Figure 24, it hosts several different sections/tabs, such as "Home", "Consortium", "Objectives", "Pilots", "Results", "News", and "Private Area". The "Home" tab provides some basic information about the project and the motivation behind it. The "Consortium" page lists the DIVINE partners and presents the respective geographical distribution. The "Objectives" page lists the main objectives of the project while the "Pilots" page provides some fundamental information about the 4 DIVINE pilots. There is also a page "Results" that will be populated as the project progresses and as soon as the first results become available. Additionally, the "News" page is continuously being updated, featuring the latest news of the DIVINE project in reverse chronological order. Finally, the project's website includes a "Private Area" section where project information and reports/deliverables can be easily downloaded by relevant parties.

Additionally, the website provides links to the social media accounts of the project and lists some contact details, like a general email address DIVINE-info@lists.cn.ntua.gr, to enable external stakeholders and interested third parties to reach us. Similarly, the newsletter editions of the project are available through a dedicated section of the website.

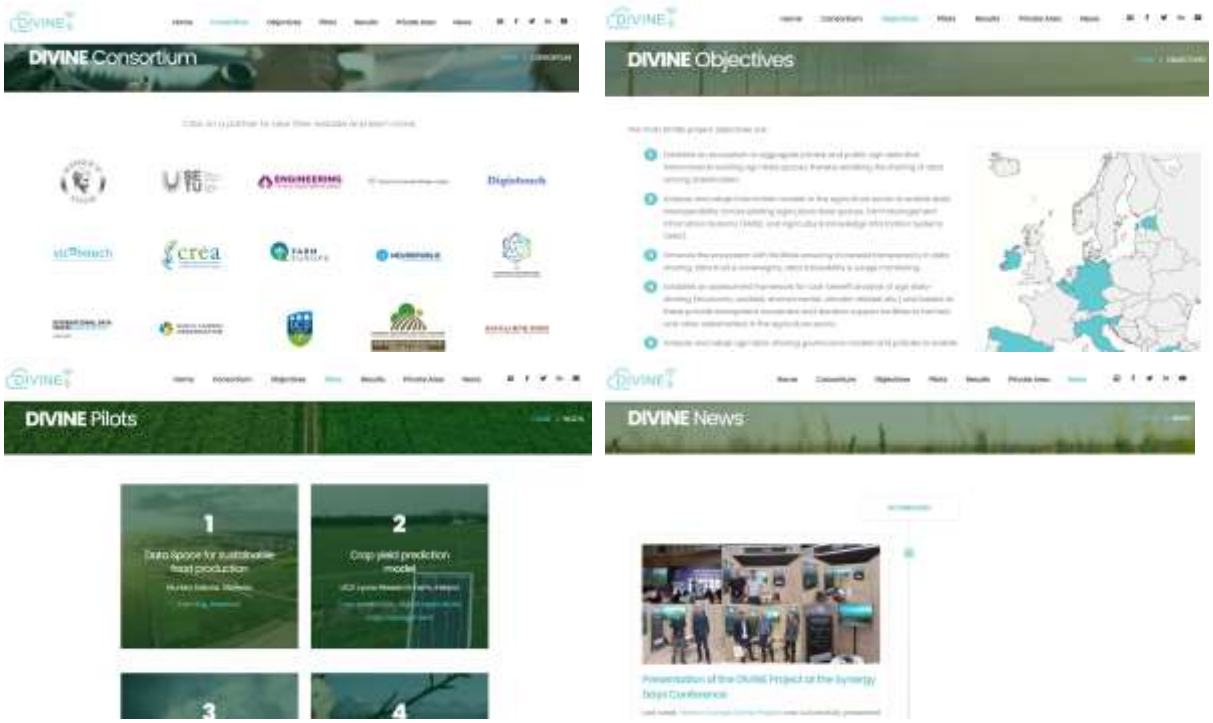

Figure 24: Main sections of the DIVINE's website.

Finally, the footer is fixed on all the website pages, displaying some basic information about the project, acknowledging the funding that it has received from the Horizon Europe Programme, providing some links to its latest news, and listing some contact details.

The population of the DIVINE project's website is a continuous process throughout the project. Although it has been developed and maintained by the WP7 leader (ICCS), all consortium partners are contributing to it by providing their updates, activities, insights, and news with respect to the project progress. During the first 18 months of the project, significant efforts have been made to keep the content of the website relevant to the DIVINE's scope, informative for all the potential stakeholders' groups, and appealing to the visitors.

Notably, the project's website is built on the latest web development technologies and encompasses a TLS/SSL certificate, complying with the current web security standards. It is also fully responsive and allows smooth user navigation from smartphones and tablets. The website will be updated regularly by the webmaster with input from partners. Website traffic is being monitored using a private statistics platform and has been growing consistently over time, as shown in Figure 25.

Moreover, to ensure traffic maximisation, Search Engine Optimisation (SEO) techniques have been employed since the launch of the DIVINE's website. For example, some keywords and key phrases, like "agriculture", "farmers", "agri-data", "data economy", "data sharing", "agri-data spaces", etc. are being included in various sections of the website to ensure that people searching these terms, and thus, are potential stakeholders, could easily discover the project's website.

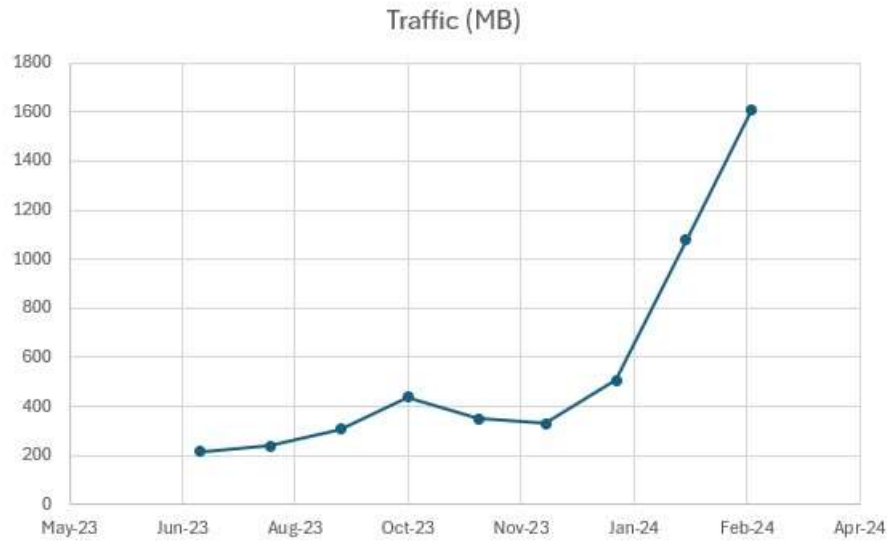

Figure 25: Website traffic in Mbytes.

Finally, all the DIVINE partners maintain their own organisational websites and most of them, as Table 11 indicates, have also made DIVINE visible and reachable through their websites, and particularly the "Projects" page which lists all the projects of one organisation including DIVINE. Notably, the WFO's website, which is the main direct link of the project to the farmers' communities, is characterised by an annual reach of 30,000 users, obtaining an increase of 10,000 users in 2023. In particular, the page of the WFO's website dedicated to DIVINE counts 214 views from 131 users, with an average engagement time of 44 seconds, 562 event counts and 18 link clicks.

Table 11: DIVINE consortium partners' websites.

Partner	Website	DIVINE page on partner's website
ICCS	https://www.iccs.gr/	-
SETU	https://www.setu.ie/ https://waltoninstitute.ie	https://waltoninstitute.ie/projects/divine
ENG	https://www.eng.it/en/	-
INLE	https://inlecom.ie/	https://inlecom.ie/projects/divine-2/
DIGI	https://www.digiotouch.com/	https://www.digiotouch.com/divine
VICOM	https://www.vicomtech.org/en/	https://www.vicomtech.org/en/rdi-tangible/projects/project/demonstrating-the-value-of-data-sharing-to-boost-the-agridata-economy
CREA	https://www.crea.gov.it/en/home	-
FE	https://www.farm-europe.eu/	-
NP	https://www.neuropublic.gr/	-
ITC	https://itc-cluster.com/	https://itc-cluster.com/project/divine/
IDSA	https://internationaldataspaces.org/	https://internationaldataspaces.org/make/projects/
WFO	https://www.wfo-oma.org/	https://www.wfo-oma.org/divine/
UCD	https://www.ucd.ie/	-
KGZS	https://www.kgzs-ms.si/	https://www.kgzs-ms.si/dogodki-in-projekti-2/ostali-projekti/divine/
ADSC	https://analisis-dsc.com/	-

Similarly, as demonstrated in Table 12, many partners have published DIVINE-related news and announcements on their own websites regarding important project's events and milestones. For example, the WFO news on the 2nd Gymnasium technical session towards UNFSS (https://www.wfo-oma.org/wfo_news/towards-sustainable-food-systems-gymnasium-students-convene-with-agriculture-experts-at-engaging-debate-ahead-of-unfss2/?fbclid=IwAR2jRf2NQ8bkDM_SGOfZe-rpa0OaQsArN40KcoRRC97vQ_3PetGIOqrVNZ8), which made an extensive reference to the DIVINE project and its representatives' speeches, has gained 46 views from 28 users, with an average engagement time of 38 seconds, 127 event counts and 2 link clicks.

Table 12: Examples of DIVINE-related announcements on the partners' websites.

Partner	News	Date	URL
WFO	Kick-off meeting of DIVINE	08/10/2022	https://www.wfo-oma.org/wfo_news/kick-off-meeting-of-divine/
WFO	WFO GA – Investing in farmers' solutions for resilient food systems with a positive impact on nature	04/05/2023	https://www.wfo-oma.org/wfo_news/wfo-ga-2023-all-you-need-to-know-about-the-event-program/
DIGI	3rd plenary meeting of DIVINE in Tallinn	23/06/2023	https://www.digiotouch.com/3rd-plenary-meeting-of-divine-in-tallinn
WFO	WFO Gymnasium students, group of 21 active young farmers from across the globe, convene with agriculture experts ahead of UNFSS+2	07/07/2023	https://www.wfo-oma.org/wfo_news/towards-sustainable-food-systems-gymnasium-students-convene-with-agriculture-experts-at-engaging-debate-ahead-of-unfss2/
CREA	5th plenary meeting of DIVINE	22/03/2024	https://www.crea.gov.it/en/web/politiche-e-bioeconomia/-/5%C2%B0-plenary-meeting-del-progetto-divine-1?inheritRedirect=true&redirect=%2Fen%2Fricerca%3Fq%3DDIVINE

3.1.4 Electronic newsletter

The DIVINE e-newsletter is distributed to interested parties and stakeholders on a 6-month basis, starting from M12. Its purpose is to ensure that stakeholders from all the TGs identified in Section 2.1.2 are regularly informed about the project's progress, important updates, and milestones. Each edition may contain a progress report of the last 6 months, focusing on insights gained through the pilots, details about the latest events, workshops, and conferences, updates on the latest project's deliverables as well as on other DIVINE activities, supporting phases 2 and 3 of the global outreach and dissemination plan. The frequency of 6 months has been considered a sufficient time span for keeping all the stakeholders updated without annoying them and bombarding them with too dense information.

During the first 18 months of the project, the inaugural edition of the DIVINE's newsletter has been published and is available through the project's website (https://divine-project.eu/newsletters/1/).

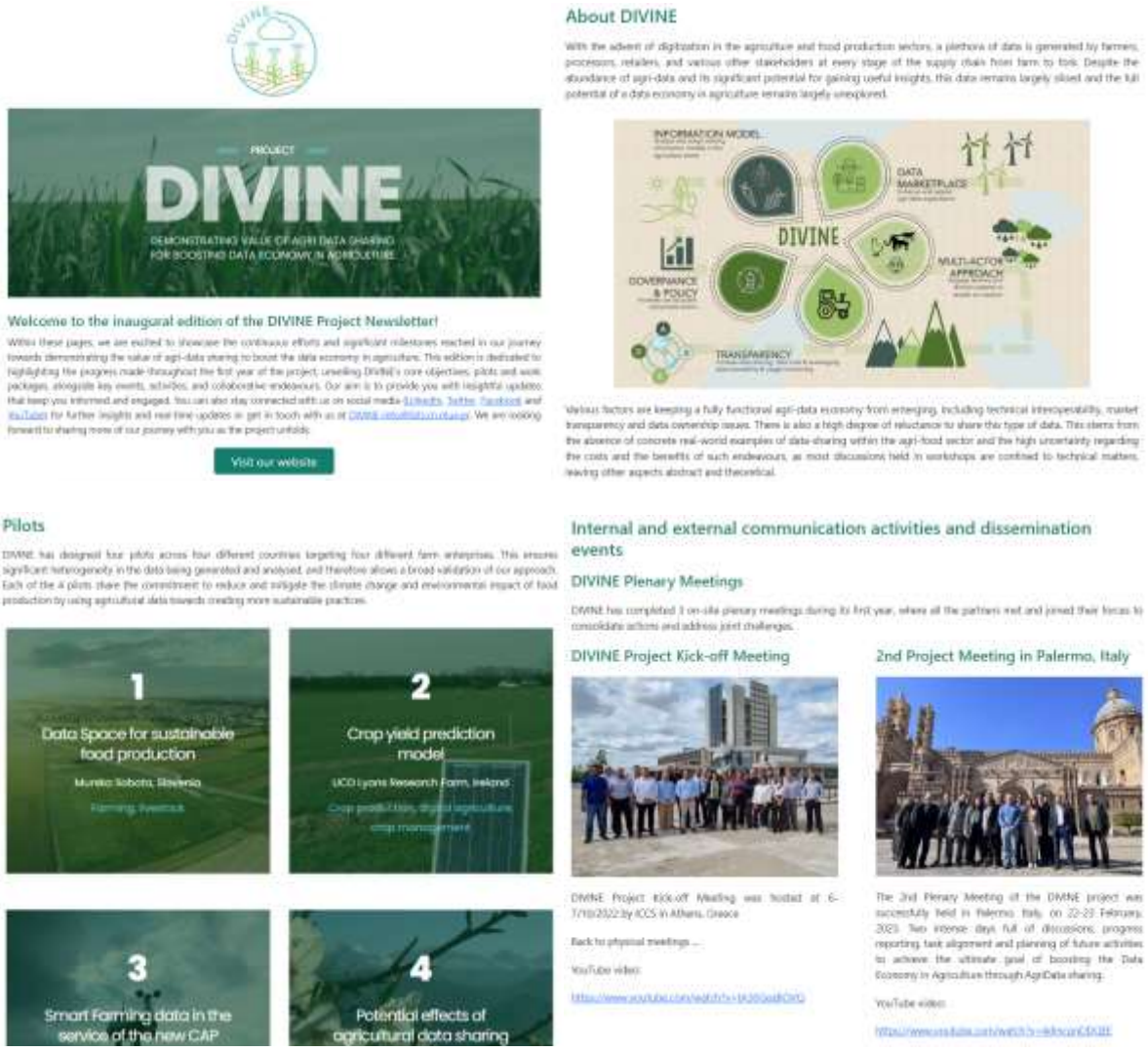

Figure 26: Screenshots from the inaugural edition of the DIVINE newsletter.

This edition shares insights and updates from the first year of the project (M01-M12). It was decided to initiate the project's newsletter after the completion of its first year and not in M06, to ensure that the first edition will be populated with interesting content from both a quantitative and qualitative aspect. As depicted in Figure 26, this edition encompasses:

- A welcome section, stating the purpose of this newsletter.
- An about section, where general information about the scope of the project is provided.
- A consortium section, dedicated to listing the partners of the DIVINE consortium.
- An objectives section, where all the main objectives of the project are listed.
- An expected outcomes section, outlining the key results of the project, as they are anticipated.
- A work packages section, demonstrating how the DIVINE's work is divided in 7 WPs.
- A pilot's section, describing the unique characteristics and objectives of each one of the 4 DIVINE pilots.

- A section dedicated to all the internal and external communication activities and dissemination events that have taken place during the first 12 months of the project, including the plenary meetings of the DIVINE consortium, two meetings with representatives from the EC, some synergy events and bi-lateral discussions with related projects, presentations of DIVINE in scientific conferences and other events.
- And finally, the DIVINE brochure is included.

The next edition of the DIVINE's newsletter will report on M13-M18 and is planned to be published in M19 to include insights from the deliverables that are due in M18 and from the first round of the project's pilots. As the project progresses, the newsletter will include more updates and is expected to attract more stakeholders in the field.

Although each issue is edited and published by the T7.2 leader (ICCS), all partners, and particularly the WP leaders and the pilot leaders, contribute to the preparations, by providing interesting and appealing content, useful insights, and updates on their latest activities. All the DIVINE consortium partners are also expected to promote the project's newsletter through their own channels, including their organisational website, social media accounts, and newsletter. Apart from the consortium partners, the first edition of the newsletter has been forwarded to several related portals, like Copa Cogeca, that further disseminated it to their wide networks via personal emails.

Similarly, DIVINE updates have been featured in the newsletters of some of the DIVINE partners. For example, WFO publishes a monthly e-newsletter to over 300 contacts within WFO membership, which includes 81 organisations from 55 countries worldwide comprising full members and affiliates. The 2023 July edition made an extensive reference to the 2nd Gymnasium Technical Session towards UNFSS, in which DIVINE representatives were invited as speakers. The open rate and click rate obtained are 36.65% and 13.61%, respectively.

3.1.5 Printed and digital promotional materials

A wide variety of printed and digital promotional materials has been produced during the first 18 months of the project to support the dissemination of its objectives and outcomes, increase its visibility and maximise stakeholders' engagement.

First of all, some visual materials, like infographics and graphs, have been created from the first months of the project with the help of graphic design tools. For example, the infographic illustrated in Figure 27 aims at conveying the overall scope of the DIVINE project in an appealing visual way. Infographics like this have been shared with the consortium to be included in presentations, social media posts, announcements or reports, leaflets, brochures, the project's website, etc.

Similarly, a video has been produced since the first year of the project. This video outlines the vision, the objectives, the 4 pilots, the innovations, the expected outcomes, and the consortium of DIVINE. It has been displayed at various events where DIVINE was invited to have a booth and engage with the visitors. Since this video was created at an early stage of the project, it is planned to be updated with insights gained from the last months. As soon as the updated version is ready, it will also be uploaded to the DIVINE's YouTube channel.

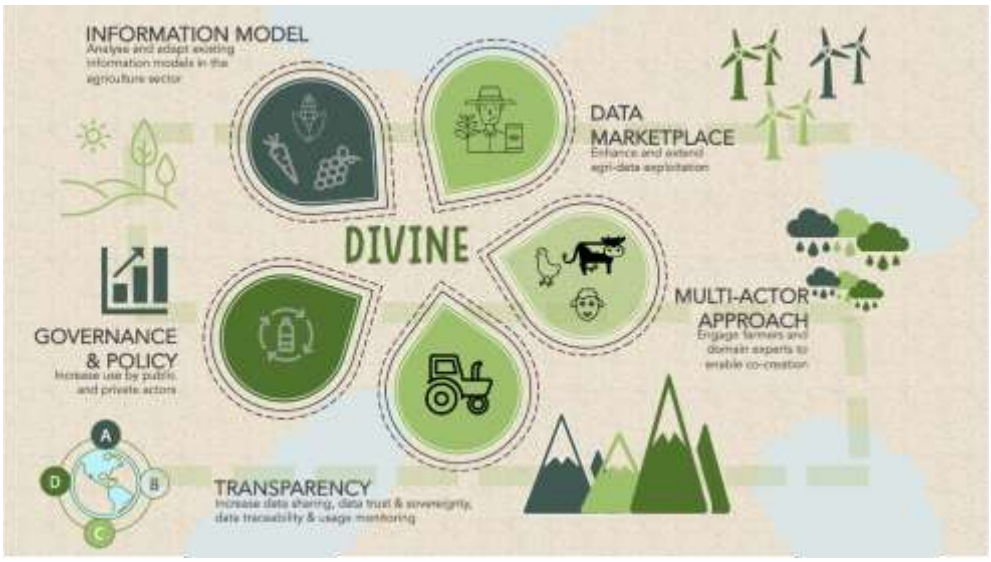

Figure 27: An example of a DIVINE infographic.

Moreover, brochures, leaflets, and flyers are traditionally essential promotional materials that can be circulated in both printed and digital formats. In this respect, a DIVINE brochure has been produced since the very first months of the project. As it is outlined in Figure 28, this brochure summarises the objectives, the scope, the approach, and the expected outcomes of DIVINE. Hundreds of copies have been distributed to various stakeholders at the venues of conferences, workshops, and other events that DIVINE was present. We opted for brochures instead of leaflets and flyers because the latter materials are similar to brochures but have more restricted space. However, should the need for these promotional materials arises, we will create a project leaflet and a flyer, as well.

Figure 28: The front and the back page of the DIVINE brochure.

Additionally, some roll-up banners and posters have been prepared to enhance DIVINE's presence in conferences, workshops, and other events. These banners and posters summarise the scope and the approach of DIVINE through graphic designs and short texts and present the project in numbers with respect to its partners and pilots. Again, these printed materials have boosted the presence of DIVINE in certain networking and other events throughout the first 18 months of the project.

Finally, some other promotional items, such as pens and bags with the DIVINE logo printed on them have been created and distributed to attendees in conferences, exhibitions, and other events in which DIVINE has participated.

Figure 29: Demonstration of DIVINE posters, banner, brochures, video, and promotional items at event venues.

All these promotional materials are displayed in Figure 29 in action at two different event venues.

3.1.6 Public deliverables and public-friendly outlines

During the first 18 months of the project, 13 deliverables of the project have been produced and submitted to the EC, out of which 6 are characterised by a public dissemination level. This means that as soon as they get accepted by the EC, they should become publicly available. Thus, we plan to upload them to a dedicated section in the project's website.

The public deliverables produced until today are the following:

- D1.1 "Data Management Plan" [M06]
- D1.2 "Project Report Year 1" [M12]
- D6.1 "Development & integration of agri-data sharing governance models, policies and regulations – Release 1" [M12]
- D6.2 "Agri-data sharing policy framework adoption manual and guidelines – Release 1" [M12]
- D7.3 "Global outreach, dissemination, standardisation and external collaboration plan and activities" (the current report) [M18]
- D7.4 "MAA activity planning, roadmap and initial results" [M18]

Additionally, public friendly outlines may also be provided for selected deliverables with dissemination level restricted to the consortium and the EC, ensuring that there will be no leakage of

confidential information. In this way, DIVINE's stakeholders could get a better understanding of the project's activities and solutions without delving into too many details.

3.1.7 Mass media publications

Mass media, like press (including newspapers, wide-audience and/or specialised magazines, as well as online news platforms), local and/or national television shows and radio broadcasts will also be leveraged by DIVINE to reach an as much wide audience as possible.

3.1.7.1 Identification of targeted mass media

The main targeted media outlets for the DIVINE project correspond to journals and magazines with a particular focus on agricultural innovations and novel farming practices, published in both printed and digital formats. Keeping this in mind, during the first half of the project, a set of related journals, magazines, and other channels that could be targeted to disseminate the key messages of DIVINE has been identified. The list of the respective mass media is presented in Table 13 and will be periodically updated throughout the project.

Table 13: Related mass media.

Media Outlets	Description	Region
Agrinnovation Magazine (https://eu-cap-network.ec.europa.eu/publications/agrinnovation-magazine-issue-9_en)	Magazine focused on agricultural innovation	EU
Irish Farmers Journal (https://www.farmersjournal.ie/)	Journal focused on agricultural news, farming advice, and market information	IE
Irish Farmers Monthly (https://www.irishfarmersmonthly.com/)	Online news portal focused on farming	IE
Ypaithros Chora newspaper (https://www.ypaithros.gr/en/)	Online news platform for agrifood professionals	EL
AgroTypos (https://www.agrotypos.gr/en)	Newspaper focused on news, market trends, and farming advice	EL
Agrarheute (https://www.agrarheute.com/)	Online news platform focused on farming practices and agricultural news	DE
CPM – Crop Production Magazine (https://www.cpm-magazine.co.uk/)	Magazine focused on agronomy, crop management, AgriTech, etc.	UK
Farmers Weekly (https://www.fwi.co.uk/)	Magazine focused on news, market trends, and farming advice	UK

3.1.7.2 Journal and magazine articles

During the first 18 months of the project, an article titled "The Right Tools" has been published in the 2024 January issue of Irish Farmers Monthly. Professor Kevin McDonnell from UCD delved into DIVINE's transformative impact on the agricultural landscape, explaining how the project's approach can support informed decision making in cereal farming with the help of cutting-edge digital tools (https://flipflashpages.uniflip.com/3/12754/1130710/pub/html5.html#page/41). It is worth noting that the issues of Irish Farmers Monthly are directly mailed to approximately 22k Irish farmers.

Figure 30: DIVINE article published in the Irish Farmers Monthly magazine.

Another article outlining the Irish pilot of the DIVINE project is being prepared by UCD for publication in one of the next issues of the Irish Farmers Journal (https://www.farmersjournal.ie/), which has a weekly readership of approximately 379,400 people.

3.1.8 Scientific publications

As DIVINE is an R&I project, it is very important to publish its key findings in reputable academic journals and conference proceedings to promote them to the research and scientific community.

3.1.8.1 Identification of targeted scientific journals, special issues and conferences

During the reported period, more than 20 scientific journals with a scope related to one or more of the aspects that DIVINE addresses have been identified. An indicative list is presented in Table 14 and will be further extended throughout the project.

Table 14: List of scientific journals to be targeted for DIVINE publications.

Journal	Publisher	Access Type	Scope
Nature Sustainability (https://www.nature.com/natsustain/)	Nature	Hybrid	Social, engineering and policy dimensions of sustainability
Smart Agricultural Technology (https://www.sciencedirect.com/journal/smart-agricultural-technology)	Elsevier	Open Access	Smart systems for agricultural planning and production

Agricultural Systems (https://www.sciencedirect.com/journal/agricultural-systems)	Elsevier	Hybrid	Agricultural systems
Agricultural Water Management (https://www.sciencedirect.com/journal/agricultural-water-management)	Elsevier	Open Access	Agricultural water management science, economics, and policy
Agriculture Communications (https://www.sciencedirect.com/journal/agriculture-communications)	Elsevier	Open Access	Agriculture science
Artificial Intelligence in Agriculture (https://www.sciencedirect.com/journal/artificial-intelligence-in-agriculture)	Elsevier	Open Access	AI in agriculture, food, and bio-system engineering
Computers and Electronics in Agriculture (https://www.sciencedirect.com/journal/computers-and-electronics-in-agriculture)	Elsevier	Hybrid	Hardware, software, electronics, and control systems in agriculture
Information Processing in Agriculture (https://www.sciencedirect.com/journal/information-processing-in-agriculture)	Elsevier	Open Access	Information processing technologies in agriculture
Journal of Agriculture and Food Research (https://www.sciencedirect.com/journal/journal-of-agriculture-and-food-research)	Elsevier	Open Access	Agricultural and food sciences
Precision Agriculture (https://www.springer.com/journal/11119)	Springer	Hybrid	Advances in precision agriculture
Agronomy for Sustainable Development (https://www.springer.com/journal/13593)	Springer	Hybrid	Agriculture, food, and environment
Journal of Biosystems Engineering (https://www.springer.com/journal/42853)	Springer	Hybrid	Engineering in applied agricultural, food, and livestock systems
Agriculture and Human Values (https://link.springer.com/journal/10460)	Springer	Hybrid	Values within contemporary agricultural and food systems
AgriEngineering (https://www.mdpi.com/journal/agriengineering)	MDPI	Open Access	Engineering science of agricultural and horticultural production
Agriculture (https://www.mdpi.com/journal/agriculture)	MDPI	Open Access	Agriculture interdisciplinarity
Agronomy (https://www.mdpi.com/journal/agronomy)	MDPI	Open Access	Agronomy and agroecology
Sustainability (https://www.mdpi.com/journal/sustainability)	MDPI	Open Access	Technical, environmental, economic, and social sustainability
Remote sensing (https://www.mdpi.com/journal/remotesensing)	MDPI	Open access	Remote sensing science
Sensors (https://www.mdpi.com/journal/sensors)	MDPI	Open Access	Sensors and their applications
IEEE Transactions on AgriFood Electronics (https://ieee-cas.org/publication/ieee-transactions-	IEEE	Hybrid	Circuits and systems applied to the AgriFood

agrifood-electronics)			chain of value
Journal of the Science of Food and Agriculture (https://onlinelibrary.wiley.com/journal/10970010)	Wiley	Hybrid	Agriculture and food studies
Modern Agriculture (https://onlinelibrary.wiley.com/journal/27514102)	Wiley	Open Access	Innovations in agricultural science
Journal of Agricultural Economics (https://onlinelibrary.wiley.com/journal/14779552)	Wiley	Hybrid	Agricultural economics
Frontiers in Agronomy (https://www.frontiersin.org/journals/agronomy)	Frontiers	Open Access	Agronomy
International Journal of Agricultural Policy and Research (https://journalissues.org/ijapr/)	Journal Issues	Open Access	Agricultural Science
Journal of Agricultural Engineering (https://www.agroengineering.org/jae)	AIIA	Open Access	Engineering for agriculture, food, forestry and biosystems

Moreover, all these journals may make calls for papers in the frame of specific special issues. So, we check periodically their websites and document in a shared spreadsheet the respective calls identified (if there are any). Since this list is much longer than the previous one, we indicatively present only a small part of it in Figure 31.

Title	Journal	SubmissionDeadline	Link
Digital Technology for Smart Agriculture	Sustainability MDPI	21/11/2023	https://www.mdpi.com/journal/sustainal X7F8L3ND77
Machine Learning in Sustainable Agriculture	Sustainability MDPI	22/11/2023	https://www.mdpi.com/journal/sustainal 9F1787PSO3
Advanced Technologies in Sustainable Agriculture 4.0	Computers and Electronics in Agriculture Elsevier	30/12/2023	https://www.sciencedirect.com/journal/ ronics-in-agriculture/about/call-for-pape ologies-in-sustainable-agriculture-4-0-f oring-harvesting-and-preservation
Artificial Intelligence and Key Technologies of Smart Agriculture	Sensors MDPI	31/12/2023	https://www.mdpi.com/journal/sensors/ EMT07O
Computer Vision for Agriculture and Smart Farming	AgriEngineering MDPI	31/12/2023	https://www.mdpi.com/journal/agriengir es/computer_vision_agri
The Informization of Agriculture	Sustainability MDPI	31/12/2023	https://www.mdpi.com/journal/sustainal AO3UD7789F
Agricultural Cybernetics	Computers and Electronics in Agriculture Elsevier	31/01/2024	https://www.sciencedirect.com/journal/ ronics-in-agriculture/about/call-for-pape metics-a-new-methodology-of-analysis or-modern-agricultural-production-syste
Sensors Integration in Agricultural Farm Mechanization and Food Processing Operations	Sensors MDPI	31/01/2024	https://www.mdpi.com/journal/sensors/ 4X4PFW
The Future of Artificial Intelligence in Agriculture	AgriEngineering MDPI	30/04/2024	https://www.mdpi.com/journal/agriengir es/06HZ1QDL8W
Precision Agriculture and Sensors Systems Part B	Sensors MDPI	3/08/2024	https://www.mdpi.com/journal/sensors/ 4C6T63
Crop and Animal Sensors for Agriculture 5.0	Sensors MDPI	30/11/1023	https://www.mdpi.com/journal/sensors/ _ani_agri

Figure 31: Screenshot of potential special issues to be targeted for DIVINE publications.

Additionally, dozens of related scientific conferences have been identified as targets for publishing articles in their proceedings since the beginning of the project. An indicative list of these conferences is presented in Table 15.

Table 15: List of scientific conferences to be targeted for DIVINE publications.

Conference	Submission Deadline	Dates	Location
Past targeted scientific conferences			
13th International Conference on Environmental and Agricultural Engineering (ICEAE 2023) (https://www.iceae.org/2023.html)	10/04/2023	9-11/06/2023	Bangkok, Thailand (Hybrid)
14th European Conference on Precision Agriculture (ECPA 2023) (https://www.ecpa2023.it/)	10/01/2023	2-6/07/2023	Bologna, Italy
IEEE International Conference on Omni-layer Intelligent Systems (IEEE COINS 2023) (https://coinsconf.com/2023/)	07/04/2023	23-25/07/2023	Berlin, Germany (Hybrid)
IEEE Conference on Communications and Network Security (IEEE CNS 2023) (https://cns2023.ieee-cns.org/)	12/06/2023	2-5/10/2023	Orlando, Florida, USA
9th IEEE World Forum on the Internet of Things (WF-IoT 2023) (https://wfiot2023.iot.ieee.org/)	30/07/2023	12-27/10/2023	Aveiro, Portugal
IEEE Conference on Standards for Communications and Networking (IEEE CSCN 2023) (https://cscn2023.ieee-cscn.org/)	18/09/2023	6-8/11/2023	Munich, Germany
21st ACM Conference on Embedded Networked Sensor Systems (Sensys 2023) (https://sensys.acm.org/2023/)	29/06/2023	13-15/11/2023	Istanbul, Türkiye
IEEE Symposium on Computational Intelligence in Agriculture (SSCI-CIAg 2023) (https://attend.ieee.org/ssci-2023/ieee-symposium-on-computational-intelligence-in-agriculture-ciag/)	15/08/2023	5-8/12/2023	Mexico City, Mexico
IEEE Symposium on Computational Intelligence in Remote Sensing (SSCI-CIRS 2023) (https://attend.ieee.org/ssci-2023/ieee-symposium-on-computational-intelligence-in-remote-sensing-ieee-cirs/)	15/08/2023	5-8/12/2023	Mexico City, Mexico
IEEE International Conference on Big Data (IEEE BigData 2023) (https://bigdataieee.org/BigData2023/)	03/09/2023	15-18/12/2023	Sorrento, Italy
IEEE 20th International Conference on Distributed Computing in Smart	29/01/2024	29/04-01/05/2023	Abu Dhabi, United Arab

Systems and Internet of Things (DCOSS-IoT2024) (https://dcoss.org/)			Emirates
ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN 2024) (https://ipsn.acm.org/2024/)	31/10/2023	13-16/05/2024	Hong Kong, China
6th International Conference of International Commission of Agricultural and Biosystems Engineering (CIGR 2024) (https://www.cigr.org/node/855)	29/02/2024	19-23/05/2024	JEJU Island, Korea
European Conference of Networks and Communications (https://www.eucnc.eu/)	26/02/2024	3-6/06/2024	Antwerp, Belgium
International Conference on Localization and GNSS (ICL-GNSS 2024) (https://ieee-aess.org/event/conference/2024-international-conference-localization-and-gnss)	15/02/2024	5-7/06/2024	Antwerp, Belgium
Future targeted scientific conferences			
14th International Conference of Environmental and Agricultural Engineering (ICEAE 2024) (https://www.iceae.org/index.html)	25/04/2024	7-9/06/2024	Bangkok, Thailand (Hybrid)
International Conference of EurAgEng (AgEng 2024) (https://eurageng.eu/events/ageng-2024)	15/05/2024	1-3/07/2024	Athens, Greece
44th IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2024) (https://www.2024.ieeeigarss.org/)	12/01/2024	7-12/07/2024	Athens, Greece
16th International Conference on Precision Agriculture (ICPA 2024) (https://www.ispag.org/icpa)	01/06/2024	21-24/07/2024	Manhattan, Kansas USA
IEEE International Conference on Omni-layer Intelligent Systems (IEEE COINS 2024) (https://coinsconf.com/)	14/04/2024	29-31/07/2024	London, United Kingdom (Hybrid)
17th IEEE International Conference on Internet of Things (iThings 2024) (https://ieee-cybermatics.org/2024/ithings/)	15/04/2024	19-22/08/2024	Copenhagen, Denmark
IEEE SENSORS 2024 (https://2024.ieee-sensorsconference.org/)	11/06/2024	20-23/10/2024	Kobe, Japan

8th International Conference on Food and Agricultural Engineering (ICFAE 2024) (https://www.icfae.org/)	20/07/2024	6-8/12/2024	Hong Kong, China
15th European Conference on Precision Agriculture (ECPA 2025) (https://ecpa2025.upc.edu/)	30/11/2024	29/06-3/07/2025	Barcelona, Spain

3.1.8.2 Scientific articles

During the first 18 months of the project, a few publications have been made in scientific journals or presented in scientific conferences and published in their proceedings or have been submitted for publication. An overview of these articles is presented in Table 16. More scientific articles are currently being prepared and will be submitted for publication during the next period of the project.

Table 16: Overview of DIVINE scientific publications.

Publication	Authors	Journal/ Conference	Status
Plant Disease Identification Using Machine Learning Algorithms on Single-Board Computers in IoT Environments (https://doi.org/10.3390/electronics13061010)	George Routis (ICCS), Marios Michailidis (ICCS), Ioanna Roussaki (ICCS)	Electronics MDPI	Published
CredSSI: Enhancing Security and Privacy with Self-Sovereign Identities Approach	Alvaro Fernandez (VICOM), Lander Segurola (VICOM), Lucia Munoz (VICOM), Daniel Paredes (VICOM)	BRAIN 2024	Presented
Addressing Agricultural Data Management Challenges with the Enhanced TRUE Connector	Sergio Comella (ENG), Delia Milazzo (ENG), Mattia Giuseppe Marzano (ENG), Giulia Antonucci (ENG), Susanna Bonura (ENG), Angelo Marguglio (ENG)	Statistics and Data Science (SDS) Conference 2024	Accepted
Adaptation of diffusion models for remote sensing imagery	A. Ettari, A. Nappa, M. Quartulli, I. Azpiroz, G. Longo	2024 IEEE International Geoscience and Remote Sensing Symposium	Accepted
Open-source Tools and Supports to Advance Data Interoperability in the Agriculture Domain	Kieran Sullivan (SETU) et al.	IEEE COINS 2024	Submitted
Multiple augmentation Deep Learning models for High Resolution NDVI estimation	M. Zabala, I. Azpiroz, P. Gonzalez, M. Maiza	IEEE COINS 2024	Submitted

3.1.9 Conferences, workshops and other events

Apart from publishing key research findings in scientific conference proceedings, DIVINE can be featured in various research, agricultural, technical, policymaking, business- or industry-related events. As the Covid-19 pandemic's impact has notably diminished over the past two years, physical events have been resumed. Nevertheless, numerous events continue to adopt a hybrid or virtual format. Consequently, DIVINE is being showcased in both physical and virtual events. Moreover, based on the respective KPIs defined in the proposal of the project, DIVINE will be presented in at least 5 European and/or international events and in at least 5 business events.

3.1.9.1 Identification of targeted conferences, workshops and other events

To this end, numerous conferences, workshops, and other events addressing various topics have been identified as potential targets to showcase DIVINE's work. A non-exhaustive list of such events is presented in Table 17 and will be continuously updated. It is worth noting that scientific conferences listed in Table 15 also belong to this category.

Table 17: List of conferences, workshops, and other events of interest.

Event	Date	Location	Description
Past targeted events			
EU "R&I in Agricultural data – achieving synergies, mapping achievements, knowledge gaps and potentials" workshop	16-17/11/2022	Brussels, Belgium	Technical workshop jointly organised by DG AGRI, DG CNCT and DG RTD
Fieragricila TECH 2023 (https://www.fieragricola.it/fieragricola-tech-en/)	1-2/02/2023	Verona, Italy	The Veronafiere event promoting innovation in agriculture.
WFO General Assembly 2023 (https://www.wfo-oma.org/wfo_news/wfo-ga-2023-all-you-need-to-know-about-the-event-program/)	21-23/05/2023	Sun City, South Africa	WFO gathering of its members (participants: 69 national farmers' organisations worldwide)
EU AgriResearch Conference (https://agriculture.ec.europa.eu/events/2023-eu-agriresearch-conference-2023-05-31_en)	31/05-01/06/2023	Brussels, Belgium	A conference organised by DG AGRI aiming at identifying research and innovation priorities to shape the future EU agricultural research and

			agenda.
9th FIWARE Global Summit 2023 (https://www.fiware.org/event/fiware-global-summit-2023/)	12-13/06/2023	Vienna, Austria	A leading Open-Source conference for entrepreneurs, public administrations, academia, developers, start-ups, and technologists.
Data Week 2023 (https://bdva.eu/events/data-week-2023/)	13-15/06/2023	Lulea, Sweden	Gathering of the Big Data and Data Driven AI R&I community in Europe.
ICT Spring 2023 (https://thebox.lu/en/events/ict-spring-2022/)	29-30/06/2024	Luxembourg	A European tech conference that unites professionals from various fields.
WFO Gymnasium 2023 (https://www.wfo-oma.org/wfo_news/towards-sustainable-food-systems-gymnasium-students-convene-with-agriculture-experts-at-engaging-debate-ahead-of-unfss2/)	3-4/07/2023	Virtual	A 2-day digital technical session as part of the 3rd edition of the WFO Gymnasium High-Level Capacity Building Program.
AGRA 2023 International fair (https://meet4business-agra-2023.b2match.io/page-3841)	30-31/08/2023	Gornja, Slovenia	The biggest agricultural B2B event in Slovenia.
Irish National Ploughing Championship 2023 (https://www.npa.ie/)	19-21/09/2023	Ratheniska, Ireland	The largest outdoor agricultural show in Europe, including exhibitions, demonstrations, trade stands, livestock shows, etc.
SmartAgriHubs Synergy Days 2023 (https://www.smartagrihubs.eu/latest-	04-05/10/2023	Thessaloniki, Greece	Gathering of representatives

events/synergy-days-2023)			from 25 EU projects in the field of digital agriculture.
European Big Data Value Forum (EBDVF 2023) (https://european-big-data-value-forum.eu/2023-edition/)	25-27/10/2023	Valencia, Spain	BDVA's flagship event on "Data and AI in action: Sustainable impact and future realities".
4th Gaia-Xcelerate Summit 2023 (https://gaia-x.eu/event/gaia-x-2023-summit/)	9-10/11/2023	Alicante, Spain	An event about progress made by Gaia-X towards a more connected and trustworthy future.
EU Agri-Food Days 2023 (https://agriculture.ec.europa.eu/eu-agri-food-days_en)	5-8/12/2023	Brussels, Belgium	An international event organised by DG AGRI that brings together farmers, policymakers, business leaders, analysts, and experts to foster dialogues on agriculture, market trends, food, sustainability and digital innovation. It encompasses the EU Agricultural Outlook Conference and the Agri-Digital Conference.
Swiss Expo 2024 (https://swiss-expo.com/en/home/)	17-20/01/2024	Geneva, Switzerland	A leading cattle breeding event.
AGRITECH 2024 (https://ce-sejem.si/en/fairs/agritech/)	1-4/02/2024	Celje, Slovenia	A Slovenian fair for agricultural and forestry technology.
GLOBAL FOOD FORUM (https://www.farm-europe.eu/evenement/global-	13-14/02/2024	Brussels, Belgium	Event discussing EU' s farming

food-forum-2024/)			situation and agricultural challenges.
BIOFACH 2024 (https://www.biofach.de/en/all-about-the-exhibition/preview)	13-16/02/2024	Nuremberg, Germany	The world's leading trade fair for organic food.
Data Spaces Symposium 2024 (https://www.data-spaces-symposium.eu/)	12-14/03/2024	Frankfurt, Germany	The world's leading event on data spaces co-organised by DSBA and DSSC. Part of Data Week 2024 will also take place on the first day of this event.
European R&I Days 2024 (https://projects.research-and-innovation.ec.europa.eu/research-innovation-days)	20-21/03/2024	Brussels, Belgium	This event brings together policymakers, researchers, stakeholders, and the public to debate and shape the future of R&I in Europe.
Future targeted events			
Food 4 Future World Summit 2024 (https://www.expofoodtech.com/)	16-18/04/2024	Bilbao, Spain	The leading congress of food technology.
10th Panhellenic Congress on the Development of Greek Agriculture (https://www.c-gaia.gr/en/save-the-date-10th-panhellenic-congress-on-the-development-of-greek-agriculture/)	25-26/04/2024	Kalamata, Greece	Debates, workshops, and presentations on the most recent developments on CAP design and implementation.
EU Green Week Conference (https://green-week.event.europa.eu/brussels-conference-29-30-may-2024_en)	29-30/05/2024	Brussels, Belgium	Debate on what is needed to make the EU more water resilient.
WFO General Assembly 2024 (https://www.wfo-oma.org/wfo_news/wfo-2024-general-assembly-fao-opens-its-doors-to-the-world-farmers/)	17-21/06/2024	Rome, Italy	WFO gathering of its members (81 national farmers'

			organisations worldwide invited to participate).
Irish National Ploughing Championship 2024 (https://www.npa.ie/)	17-19/09/2024	Ratheniska, Ireland	The largest outdoor agricultural show in Europe, including exhibitions, demonstrations, trade stands, livestock shows, etc.
9th FIWARE Global Summit 2023 (https://www.fiware.org/event/fiware-global-summit-2024/)	18-19/09/2024	Naples, Italy	A leading Open-Source conference for entrepreneurs, public administrations, academia, start-ups, and technologists.
European Researchers' Night 2024 (https://marie-sklodowska-curie-actions.ec.europa.eu/event/2023-european-researchers-night)	27/09/2024	EU	A Europe-wide public event that displays the diversity of science and its impact on citizens' daily lives in fun, inspiring ways.
Women in Agribusiness Summit 2024 (https://www.womeninag.com/)	24-26/09/2024	Denver, Colorado	Empowering women in agribusiness.
World Agri-Tech Innovation Summit (https://worldagritechinnovation.com/)	30/09-01/10/2024	London, United Kingdom	A networking event to accelerate the transition to sustainable and resilient agri-food systems.
European Big Data Value Forum (EBDVF 2024) (https://european-big-data-value-forum.eu/)	2-4/10/2024	Budapest, Hungary	BDVA's flagship event.
SmartAgriHubs Synergy Days 2024 (https://www.smartagrihubs.eu/synergy-days)	14-15/10/2023	Barcelona, Spain	Connecting the digital innovators of the EU agri-food sector.

Agriflanders 2025 (https://www.agriflanders.be/en/)	16-19/01/2025	Ghent, Belgium	The largest Flemish agricultural and horticultural fair.
Fruit Logistica (https://www.fruitlogistica.com/en/)	5-7/02/2025	Berlin, Germany	A global trade fair for the fresh produce industry.
World Agri-Tech Innovation Summit (https://worldagritechusa.com/)	18-19/03/2025	San Francisco, USA	A global event bringing together agri-food business, OEMs, food brands, growers, tech providers and investors.
WFO General Assembly 2025	TBD (May or June 2025)	TBD	WFO gathering of its members (around 80 national farmers' organisations worldwide will be invited to participate)

3.1.9.2 Participation in conferences, workshops and other events

Throughout the first half of the project, DIVINE partners have participated in many different in-person and virtual events, disseminating the project's activities and preliminary results, and engaging with various stakeholders' groups, depending on the type of each event. All these events, conferences, and workshops have been documented in a dedicated shared spreadsheet, that is continuously being updated. The full list of the events where DIVINE has been featured during M01-M18 is given in Table 18.

Table 18: Conferences, workshops, and other events featuring DIVINE.

Event	Dissemination Type	Partner(s)
Data Week 2022 (Virtual event, 01/06/2022) organised by BDVA (https://data-week-2022.b2match.io/)	Invited Speech	ICCS, ENG, FE
IoT Week 2022 (Dublin, Ireland, 20-23/06/2022) organised by IoT Forum (https://iotweek.org/iot-week-2022-dublin/)	Presentation of DIVINE	ICCS
Irish National Ploughing Championship 2022(Ratheniska, Laois, Ireland, 20-22/09/2022, https://www.npa.ie/)	Featuring DIVINE on the SETU stand and engaging with many people from the approximately 100k visitors in total	SETU
SETU Agri Sparks 2022 (Waterford, Ireland, 20/10/2022,	Presentation of agri-data	SETU

https://www.setu.ie/events/agri-sparks-2022)	projects including DIVINE to 100-150 attendees	
WIT Internal Research Seminar (Waterford, Ireland)	Presentation of DIVINE to approximately 50 researchers	SETU
EU R&I in Agricultural data – achieving synergies, mapping achievements, knowledge gaps and potentials workshop (Brussels, Belgium, 16-17/11/2022) organised by DG AGRI, DG CNCT and DG RTD	Presentation of DIVINE and networking with related RIAs	ICCS, FE
125th OGC Member Event (Frascati, Italy, 22/02/2023, https://www.ogc.org/ogc-events/125th-ogc-member-meeting-dubai/)	Presentation of EU projects including DIVINE to approximately 400 people	IDSA
IDSA Tech Talk – The TRUE Connector (Virtual event, 30/03/2023, https://www.youtube.com/watch?v=I7X78wvBMe0&list=PLjtVEFHmKqTvy6dw-kcpapuEDPSR1ANVd&index=5)	Presentation of the TRUE connector which is part of the DIVINE ecosystem to 112 online attendees	IDSA, ENG
AgriDataSpace Conference (Virtual event, 31/03/2023, https://agridataspace-csa.eu/)	Presentation of DIVINE to the AgriDataSpace consortium and other stakeholders	FE
IDSA Tech Talk – Semantic Interoperability (Virtual event, 06/04/2023, https://www.youtube.com/watch?v=P76cuW4Uh_8&list=PLjtVEFHmKqTvy6dw-kcpapuEDPSR1ANVd&index=4)	Presentation of the semantic interoperability approach that is adopted within DIVINE to 98 online attendees	IDSA
IDSA Tech Talk – IDS Reference Architecture Model (Virtual event, 20/04/2023, https://www.youtube.com/watch?v=vyhGrT2pEOg&list=PLjtVEFHmKqTvy6dw-kcpapuEDPSR1ANVd&index=3)	Presentation of the IDS RAM, the standard for sovereign data sharing, which is adopted in DIVINE, to 125 online attendees	IDSA
IDSA Tech Talk – Legal Interoperability (Virtual event, 04/05/2023, https://www.youtube.com/watch?v=D7RCfVE8aAo&list=PLjtVEFHmKqTvy6dw-kcpapuEDPSR1ANVd&index=3)	Presentation of legal interoperability aspects that are considered within DIVINE	IDSA
WFO Annual Meeting 2023 (Sun City, South Africa, 21-23/05/2023, https://www.wfo-oma.org/wfo_news/wfo-ga-2023-all-you-need-to-know-about-the-event-program/)	Engaging with participants in the DIVINE booth	WFO
EU AgriResearch Conference (Brussels, Belgium, 31/05-01/06/2023), organised by DG AGRI, (https://agriculture.ec.europa.eu/events/2023-eu-agriresearch-conference-2023-05-31_en)	Promoting DIVINE and fostering collaboration with related projects	ICCS, FE
WGO Gymnasium (Virtual event, 03/07/2023, https://www.wfo-oma.org/wfo_news/towards-sustainable-food-systems-gymnasium-students-convene-with-agriculture-experts-at-engaging-debate-ahead-of-unfss2/)	Presentation of DIVINE to the WFO Gymnasium students	WFO, IDSA, FE, ENG
IEEE COINS 2023 (Berlin, Germany, 23-25/07/2023,	Presentation of DIVINE in	ICCS

https://coinsconf.com/2023/)	the Smart Agriculture Vertical Track	
AGRA 2023 International fair (Gornja Radgona, Slovenia, 30/08/2023) organised by Pomurski Sejem https://meet4business-agra-2023.b2match.io/page-3841)	Presentation of DIVINE to approximately 50 attendees	ITC
Irish National Ploughing Championship (Ratheniska, Laois, Ireland, 19-21/09/2023, https://www.npa.ie/)	Presentation of the Irish DIVINE pilot to approximately 250 attendees (mostly farmers)	UCD
SmartAgriHubs Synergy Days 2023 (Thessaloniki, Greece, 4-5/10/2023, https://www.smartagrihubs.eu/latest-events/synergy-days-2023)	Pitch presentation of DIVINE; Engaging with stakeholders in the DIVINE booth and networking with related projects	ICCS, NP
IEEE WF-IoT 2023 (Aveiro, Portugal, 12-27/10/2023, https://wfiot2023.iot.ieee.org/topical-track-computing-and-data-processing)	Presentation of DIVINE ADSE in the Computing and Data Processing Topical Track	DIGI
EBDVF 2023 (Valencia, Spain, 25-27/10/2023, (https://european-big-data-value-forum.eu/2023-edition/)	Presentation of the DIVINE ADSE	ICCS, ENG
Demonstrational event on the Future of digitalisation of farms (Volcja Draga, Slovenia, 24/11/2023)	Presentation of DIVINE and publication in manuals distributed to participants	ITC, KGZS
EU Agri-Food Days (Brussels, Belgium, 8/12/2023) organised by DG AGRI (https://agriculture.ec.europa.eu/eu-agri-food-days_en)	Engaging with visitors in the DIVINE booth	ICCS, FE
COP28 – UNCCC (Dubai, United Arab Emirates, 30/11-12/12/2023, https://www.cop28.com/)	Distributing DIVINE brochures and engaging in discussions about DIVINE with visitors in the WFO booth	WFO
Slovenian Governmental Consultation Event (Ljubljana, Slovenia, 19/01/2024) organised by the Slovenian Ministry of Digital Transformation	Presentation of DIH AgriFood Dataspace and DIVINE activities to an audience of approximately 100 people	ITC
Agritech fair (Celje, Slovenia, 01/02/2024) organised by the VECER newspaper (https://ce-sejem.si/en/fairs/agritech/)	Presentation of DIH AgriFood Dataspace and DIVINE activities to approximately 75 visitors	ITC
ITC event on Digitalisation in Agriculture (Maribor, Slovenia, 14/02/2024)	Presentation of DIVINE to approximately 35 people	KGZS, ITC
3rd Conference: Health in our Hands (Murska Sobota, Slovenia, 28/02/2024) organised by the Slovenian Ministry of Agriculture	Presentation of DIVINE to approximately 50 participants	KGZS, ITC

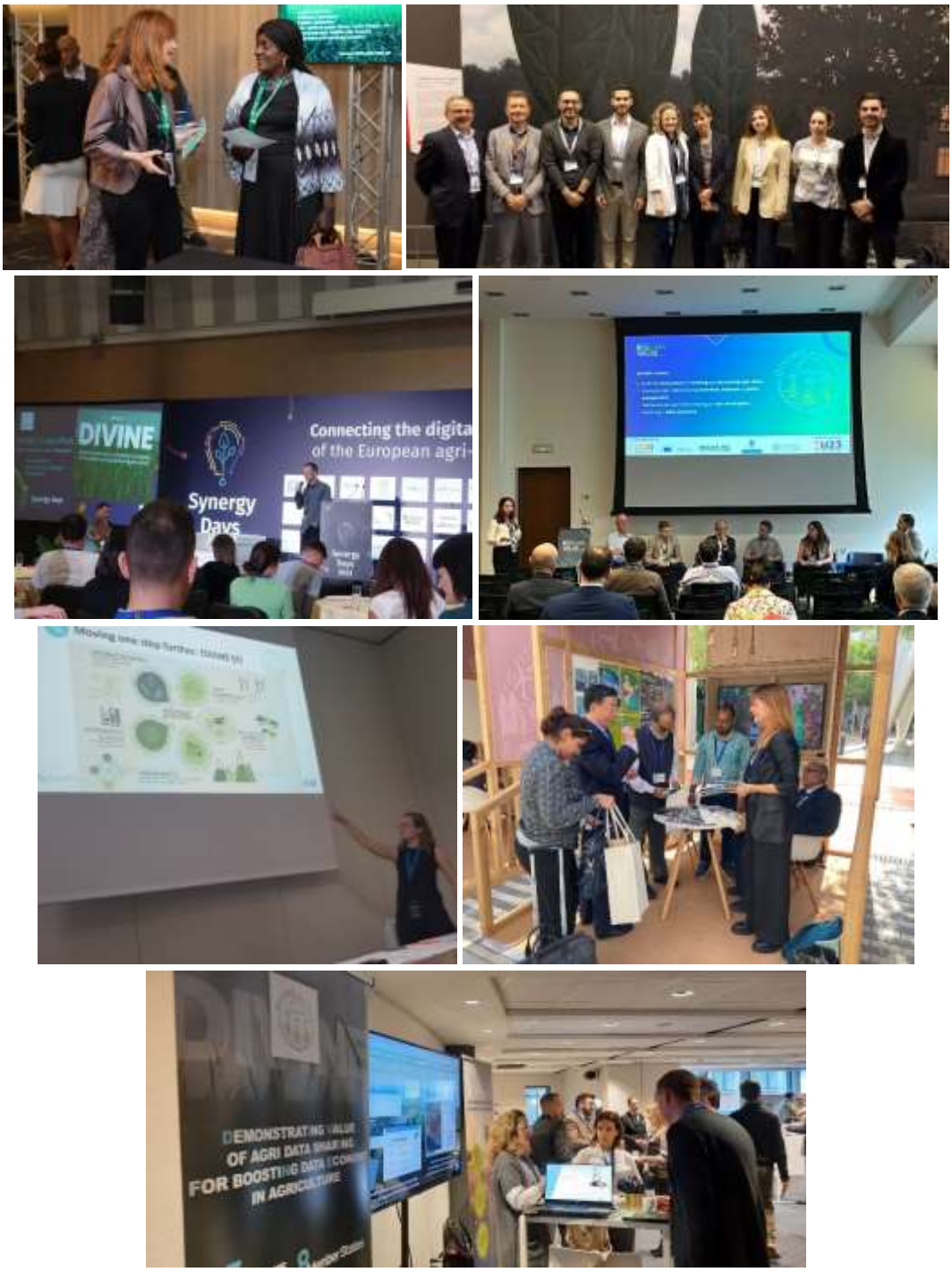

Figure 32: Photographic material from DIVINE's participation in several events.

3.1.10 Internal planning and reporting tools

As indicated in the global outreach and dissemination plan, since the first year of the project, a monitoring process has been established alongside a set of suitable monitoring tools. In this respect, all the global outreach and dissemination activities described above are documented with the help of two different tools, one dedicated to internal planning and one dedicated to internal reporting.

3.1.10.1 Internal planning tool

An Excel spreadsheet, as shown in Figure 33, has been shared with the DIVINE consortium to document new potential dissemination targets identified, including academic journals, special issues, conferences, campaigns, or other events of interest. Thus, this spreadsheet serves as a tool for internal planning of our next global outreach and dissemination activities. This live document is being periodically updated by all the DIVINE partners. Until now, as presented in the previous sections, dozens of journals, special issues, conferences, and other events have been identified and documented in this tool. As the project progresses more and more registrations will be added to the respective lists.

	Title	AccessType	Publisher	Link
1	Smart Agricultural Technology	Open Access	Elsevier	https://www.sciencedirect.com/journal/smart-agricultural-technology
2	Agricultural Systems	Contains open acces	Elsevier	https://www.sciencedirect.com/journal/agricultural-systems
3	Agricultural Water Management	Open Access	Elsevier	https://www.sciencedirect.com/journal/agricultural-water-managemer
4	Agriculture Communications	Open Access	Elsevier	https://www.sciencedirect.com/journal/agriculture-communications
5	Artificial Intelligence in Agriculture	Open Access	Elsevier	https://www.sciencedirect.com/journal/artificial-intelligence-in-agricult
6	Computers and Electronics in Agriculture	Contains open acces	Elsevier	https://www.sciencedirect.com/journal/computers-and-electronics-in-
7	Information Processing in Agriculture	Open Access	Elsevier	https://www.sciencedirect.com/journal/information-processing-in-agri
8	Journal of Agriculture and Food Research	Open Access	Elsevier	https://www.sciencedirect.com/journal/journal-of-agriculture-and-food
9	Precision Agriculture	Hybrid	Springer	https://www.springer.com/journal/11119
10	Agronomy for Sustainable Development	Hybrid	Springer	https://www.springer.com/journal/13593
11	Journal of Biosystems Engineering	Hybrid	Springer	https://www.springer.com/journal/42853
12	AgriEngineering	Open Access	MDPI	https://www.mdpi.com/journal/agriengineering
13	Agriculture	Open Access	MDPI	https://www.mdpi.com/journal/agriculture
14	Agronomy	Open Access	MDPI	https://www.mdpi.com/journal/agronomy
15	IEEE Transactions on AgriFood Electronics	Hybrid	IEEE	https://ieee-cas.org/publication/ieee-transactions-agrifood-electronics
16	Journal of the Science of Food and Agricultu	Contains open acces	Wiley	https://onlinelibrary.wiley.com/journal/10970010
17	Modern Agriculture	Open Access	Wiley	https://onlinelibrary.wiley.com/journal/27514102
18	Frontiers in Agronomy	Open Access	Frontiers	https://www.frontiersin.org/journals/agronomy

Journals | Special Issues | Conferences | Other Events | Campaigns | Sheet2 | +

Figure 33: Screenshot of the DIVINE dissemination internal planning tool.

3.1.10.2 Internal reporting tool

Similarly, an Excel spreadsheet, as shown in Figure 34, has been shared with all the partners of the DIVINE consortium to document all the global outreach and dissemination activities that they have conducted. These may include posts on social media, publications in scientific journals, conference proceedings, and mass media, announcements on websites, and participation in certain events to disseminate DIVINE's activities and outcomes, among others. All DIVINE partners are expected to contribute to this spreadsheet by sharing their own updates and activities. As described in the previous sections, multiple global outreach and dissemination activities have been carried out during the first 18 months of the project and more will follow during the upcoming period.

#	Partner(s)	Title	Date	Location	OrganizedBy	Audience (t
1	ICCS, ENG, FE	Data Week 2022	1/06/2022	Virtual	BDVA	
2	ICCS	IoT Week 2022	20-23/06/2022	Dublin, Ireland	IOTForum	
3	ICCS, FE	EU *Research and Innovation	16-17/11/2022	Brussels, Belgium	DG AGRI, DG CNECT, GD	
4	IDSA	OGC Member Event (125th)	22/02/2023	Frascati, Italy	OGC	400 (approx
5	IDSA, ENG	IDSA Tech Talk - TRUE Conr	30/03/2023	Virtual	IDSA	112 (online
6	FE	AgriData Space Conference	31/03/2023	Virtual	AgriData Space	
7	IDSA	IDSA Tech Talk - Semantic In	4/06/2023	Virtual	IDSA	98 (online)
8	ALL	Meeting with Commission and	19/04/2023	Virtual	DG AGRI	
9	IDSA	IDSA Tech Talk - IDS RAM	20/04/2023	Virtual	IDSA	125 (online)
10	IDSA	IDSA Tech Talk - Legal Interc	5/04/2023	Virtual	IDSA	62 (online)
11	WFO	WFO General Assembly	21-23/05/2023	Sun City, South Africa	WFO	face to face
12	ICCS, FE	EU AgriResearch Conference	31/05-01/06/2023	Brussels, Belgium	EU	
13	ICCS	IEEE COINS 2023	Jul-23	Berlin, Germany	ICCS	~300
14	ITC	AGRA 2023 International fair	30/08/2023	Gornja Radgona, Slovenia	Pomurski Sejem	estimated 50
15	ICCS, NP	Synergy Days 2023	Oct-23	Thessaloniki, Greece	ICCS, NP	
16	DIGI	IEEE WF-IoT 2023	12-27 Oct 2023	Aveiro, Portugal	IEEE	~500
17	ICCS, ENG	EBDVF 2023	25-27/10/2023	Valencia, Spain	EBDVF	
18	FE, ENG, IDSA	WFO Gymnasyum	7/03/2023	Virtual	WFO	21 active y

Social Media Posts | Journal Articles | Conference Papers | Other Events | Mass Media Publications

Figure 34: Screenshot of the DIVINE dissemination internal reporting tool.

3.2 Standardisation activities

Regarding standardisation, our first step was to develop the respective strategy and workflow plan, as presented in Section 2.2. In line with this plan, many initial standardisation activities related to the first phase “Standardisation plan and scouting” (M01-M12) have been successfully conducted during the first year of the project, while activities related to the ongoing second phase “Targeted approach” (M12-M24) have also been initiated. More such activities will be carried out during the next six months.

To elaborate, during the first year of the project, apart from the development of the standardisation plan, some standards and standardisation bodies, organisations, and related initiatives in the scope of DIVINE have been identified as potential targets, as listed in Section 2.2.2. Moreover, two modules developed within DIVINE, the Dataspace Protocol and the Agricultural Information Model (AIM), have been selected to be standardised, and the respective activities have been initiated and are currently in progress.

Continuing with the first half of the second year of the project (M13-M18), these selected two modules are being prepared for standardisation, following all the necessary steps, and engaging with the respective standardisation bodies, organisations, and initiatives, aiming at extending pre-existing published standards and create new ones. Finally, all the involved partners are working on preparing a fertile ground for the anticipated publication of these standards during the upcoming months.

3.2.1 Dataspace Protocol standardisation

International Data Spaces Association (IDSA) plays a pivotal role in shaping the future of data spaces through the standardisation of the Dataspace Protocol. The advancement towards creating a universally recognised standard for data exchange processes is critical for ensuring data quality, trust, and adherence to rights and obligations across various ecosystems. This effort is not only

essential for the seamless operation of modern businesses but also for fostering innovation and economic growth on a global scale.

A significant milestone in this journey has been the official registration of ISO/IEC AWI 20151: Cloud computing and distributed platforms, Dataspace concepts and characteristics, within the TC/SC work program at ISO/IEC JTC1 SC38. This development underscores the international recognition of the need for a standardised framework that governs the creation, operation, and management of data spaces. The forthcoming standard, ISO/IEC AWI 20151, is set to provide industries and governments with comprehensive guidelines for implementing trusted data sharing solutions, thereby ensuring that data spaces meet the highest standards of security, interoperability, and efficiency.

IDSA has been at the forefront of these efforts, laying the foundational work with key technical documentation such as the Dataspace Protocol, the IDS Reference Architecture Model, and the IDSA Rulebook. While these documents offer invaluable guidance for the implementation of data spaces, they precede the establishment of a formal international standard. ISO/IEC AWI 20151 aims to bridge this gap by formalising the concepts, definitions, key characteristics, and optional features of data spaces.

In anticipation of the publication of ISO/IEC AWI 20151 next year, IDSA is committed to forming the Standardization Working Group in 2024. This strategic initiative is designed to gather leading experts, facilitate collaboration, and tackle the complex challenges associated with international standardisation. The work being undertaken in the Eclipse Dataspaces Working Group (namely, the specification committee) to further refine the Dataspace Protocol specification underscores the commitment to ensure that the Dataspace Protocol not only standardises the data exchange process but also paves the way for its recognition as an ISO standard.

The standardisation of the Dataspace Protocol represents a significant step forward in establishing a secure, interoperable, and efficient data ecosystem. By aligning with international standards, we are ensuring that data spaces can be universally adopted, thereby maximizing their potential to foster innovation, enhance competitiveness, and contribute to economic growth.

Additionally, the DIVINE project's adoption of the Dataspace Protocol represents a significant milestone in its implementation journey. This collaboration serves as an important case study for the IDSA. By closely observing DIVINE's application of the Dataspace Protocol, IDSA can gather invaluable feedback and insights, which are crucial for the continuous improvement and refinement of the protocol. This feedback loop is essential for ensuring that the Dataspace Protocol remains at the forefront of data exchange technology, catering to the evolving needs of data ecosystems across various industries. The DIVINE project, therefore, plays a pivotal role in the practical validation and enhancement of the Dataspace Protocol, contributing significantly to its development as a standardized solution for trusted data sharing worldwide.

3.2.2 Agricultural Information Model standardisation

Various efforts take place for the adoption of Agricultural Information Model as a standard by the Open Geospatial Consortium. Due to the innovative approach in modelling methodology within DEMETER, the AIM model poses a challenge for the consensus-based standardization process, both in terms of accepting its content and structure. There is still limited familiarity with such an

architecture of groups of modules comprising the domain models that also refer to a number of different models outside the scope of AIM. Nonetheless, AIM adopts and slightly modifies the methodology of the OGC/W3C Sensor, Observation, Sample, Actuator/Semantic Sensor Network (SOSA/SSN) cross-domain model to its needs, positioning it as a natural extension of this model into domain-specific concerns.

The respective Standards Working Group (SWG) works under the Agriculture Domain Working Group (DWG), adhering to OGC procedures for establishing new standards. During the previous year, a draft charter for the SWG was formulated and made available for public review in close collaboration and consultation with OGC staff, the Agriculture DWG, and various stakeholders. Following standard procedure, the charter was discussed and approved during the Agriculture DWG's 125th Member Meeting on Feb 20th, 2023. Subsequently, it was brought to the OGC Technical Committee for adoption, leading to an electronic vote that resulted in the acceptance of the charter.

At the same time and on top of the aforementioned procedures that were needed for the promotion as standard, considerable technical groundwork has been laid regarding the adaptation of the model to the templates and existing standards so that the membership to OGC is granted. This is the point where DIVINE and AIM+ take a step forward, as the extension of the model to adopt the relevant policies and regulations is of crucial importance not only for the technical preparation to be promoted as standard, but also for the model to contain these necessary alignments regardless. Last but not least, the next release of the AIM+ will contain additional terms, concepts and modules that will also be compliant with the OGC guidelines and enhance the efforts of AIM being promoted to an OGC standard.

3.3 External collaboration activities

In this section, the activities conducted during the first 18 months of the project in the frame of Task 7.3 “Collaboration with related projects” will be described.

Since the very first months of the project, the external collaboration strategy and workflow plan have been developed, and the tools as well as the DIVINE partners’ connections to be exploited have been determined, as described in Section 2.3. In line with this strategic plan, many external collaboration activities related to the first phase “External collaboration plan and scouting” (M01-M12) have been conducted during the first year of the project, achieving some preliminary goals while activities related to the second phase “Targeted approach” (M12-M24) have also been initiated and are currently ongoing. More such activities will be carried out during the next six months.

More specifically, during the first year of the project, apart from the development of the external collaboration plan, numerous related projects of interest have been identified and approached through specific networking events, social media, and other means. In this way, some initial connections and communication channels have been established. Moreover, some initial discussions have taken place to explore collaborative opportunities.

During the first half of the second year of the project, we followed a more targeted approach, identifying shared aspects and goals of DIVINE with other projects, mapping the respective tasks and outcomes, and identifying tools and services developed by other projects that could be reused and

extended within DIVINE. In this respect, several meetings with associated projects' consortia have taken place, planning more future joint activities to achieve our shared goals. Of course, the initial set of related projects has been significantly extended through specific networking events and other dissemination activities and will be further extended during the upcoming months.

3.3.1 Related projects

During the first 18 months of the project, as indicated in Table 19, more than 40 related projects have been identified. All these projects share a vision similar to DIVINE's goal, which is to transform the agricultural field via smart digital technologies, data-driven approaches, and novel governing models and policies. Most of them are EU funded actions (mainly HE or H2020 RIA, IA or CSA) and some of them are national initiatives mainly from the countries that are represented in the DIVINE consortium. However, national projects from other countries, regional/local projects as well as international projects that exceed the EU borders are also considered.

The aim is to approach these initiatives and create synergies to accelerate innovation and address common challenges towards achieving our shared goals. To this end, for each related project identified, we have distinguished some specific aspects and outcomes of interest with respect to the DIVINE's main objectives. Moreover, to ensure robust connections and impactful communication, in each case we have defined one or more liaisons between DIVINE and the other project, that is usually a partner of both projects' consortia. All these details accompany the relevant projects that have been identified in the reported period and are listed in Table 19.

Table 19: List of identified related projects and initiatives.

Project	Level, funding and duration	Relevant work/results	Primary Liaison(s)
IoF2020 – Internet of Food and Farm 2020 (https://www.iof2020.eu/)	EU H2020-IA, Jan 2017 – Mar 2021	Data (semantic and syntactic) interoperability solutions and models in the context of agricultural data sharing. IoF2020's results are useful in the frame of WP2, WP3 and WP5.	NP
SFIB – Smart Farming Innovation Brokers (https://itc-cluster.com/project/smart-farming/)	Erasmus+, Sep 2018 – Aug 2021	Smart farming innovation brokers: fostering the digital innovation hubs approach to increase modern farming potential. SFIB's results are considered within WP6 and WP7.	KGZS, ITC
Nefertiti – Networking European Farms to Enhance Cross Fertilisation and Innovation Uptake through Demonstration (https://nefertiti-h2020.eu/)	EU H2020-CSA, Jan 2018 – Sep 2022	Demo farms to enhance knowledge exchanges and innovation uptake on 10 major agricultural challenges in Europe. Nefertiti's results are primarily used by WP5 and WP7.	SETU
OchraVine Control – Implementation of integrated and innovative Precision Agriculture management	EU MSCA, Jan 2018 – Oct 2023	Developing a Decision Support System for collecting real time information and effectively predict, monitor and reduce the incidence of	NP

strategies to reduce the occurrence of ochratoxins along the vine value chain products (https://www.ochravine.eu/)		Ochratoxin A in vine grape-wine. OchraVine's results are useful in terms of WP4 and WP5.	
SmartAgriHubs – Connecting the dots to unleash the innovation potential for digital transformation of the European agri-food sector (https://www.smartagrihubs.eu/)	EU H2020-IA, Nov 2018 – Nov 2022	Digital transformation in the agricultural sector, embedded at regional level via innovation. SmartAgriHubs' results are primarily used in WP4 and WP7.	SETU
FAIRshare – Farm Advisory digital Innovation tools Realised and Shared (https://www.h2020fairshare.eu/)	EU H2020-CSA, Nov 2018 – Oct 2023	Innovating digital tools for sustainable agriculture. Relevant mainly for WP5 (PILOTS) of DIVINE.	KGZS
CYBELE – Fostering Precision Agriculture and Livestock Farming through Secure Access to Large-Scale HPC-Enabled Virtual Industrial Experimentation Environment Empowering Scalable Big Data Analytics (https://www.cybele-project.eu/)	EU H2020-IA, Jan 2019 – Mar 2022	Demonstrating farming transformation through HPC, Big Data, cloud computing, and IoT. Results are mainly relevant to WP2 and WP4.	SETU, ICCS, ENG
NIVA – A New IACS Vision in Action (https://www.niva4cap.eu/)	EU H2020-IA, Jun 2019 – Nov 2022	Capitalising on extracted requirements for data sharing policies and technologies for the needs of new CAP indicators monitoring. NIVA's results are primarily used in WP2, WP3 and WP5.	NP, SETU
OPEN DEI – Aligning Reference Architectures, Open Platforms and Large Scale Pilots in Digitising European Industry (https://www.opendei.eu/)	EU H2020-CSA, Jun 2019 – Dec 2022	Comparing reference architectures and enabling a unified data platform to create large scale pilots and contribute to a digital maturity model to build a data ecosystem and to strive for standardisation. OPEN DEI's results are of particular interest for WP2, WP3 and WP5.	ENG
agROBOfood – Business-Oriented Support to the European Robotics and Agri-food Sector, towards a network of Digital Innovation Hubs in Robotics (https://agrobofood.eu/)	EU H2020-IA, Jun 2019 – Feb 2024	Connecting robotic technologies with a dynamic agri-food network of DIHs. Results are mainly relevant to WP7.	SETU
IPM Decisions – Stepping-up	EU H2020-	Providing Decision Support Systems	ENG, NP

IPM decision support for crop protection (https://www.ipmdecisions.net/)	RIA, Jun 2019 – May 2024	for integrated pest management. The results of IPM Decisions are mainly interesting for WP4 and WP5.	
DEMETER – Building an Interoperable, Data-Driven, Innovative and Sustainable European Agri-Food Sector (https://h2020-demeter.eu/)**https://h2020-demeter.eu/**	EU H2020-IA, Sep 2019 – Aug 2023	Demonstrating benefits from interoperability in various agri sectors. DEMETER's results are primarily exploited by WP3 and WP4.	SETU (coordinator), ICCS, ENG, ITC, VICOM, WFO
ATLAS – Agricultural Interoperability and Analysis System (https://www.atlas-h2020.eu/)	EU H2020-IA, Oct 2019 – Jul 2023	Open digital service platform as ecosystem for data-driven agriculture. ATLAS's results are useful for WP5.	SETU
STARGATE – Resilient Farming by Adaptive Microclimate Management (https://www.stargate-h2020.eu/)	EU H2020-RIA, Oct 2019 – Sep 2023	Integrating data on sustainable productivity and microclimate features to provide a better model for policymakers. STARGATE's outcomes are particularly useful for WP3, WP4 and WP5.	NP
Farm Manager (https://itc-cluster.com/project/farm-manager/)	EU EIP, Nov 2019 – Nov 2022	Development of a modern analytical systems for farm advisory support through development of an online system for business decision-making process on farms. Farm Manager's results are of interest for WP4, WP5 and WP6.	KGZS (coordinator), ITC
DIY4U – Open Innovation Digital Platform and Fablabs for Collaborative Design and Production of personalised/customised FMCG (https://www.sintef.no/projectweb/diy4u/)	EU H2020-IA, Nov 2019 – Apr 2023	Development of Digital Twin for an Open Innovation Digital Platform in the Fast-Moving Consumer Good (FMCG). DIY4U's results are exploited in WP2 and WP3.	ADSC
EUHubs4Data – European Federation of Data Driven Innovation Hubs (https://euhubs4data.eu/)	EU H2020-IA, Sep 2020 – Feb 2024	Fostering collaboration between data-driven initiatives in EU towards the creation of common EU data spaces. EUHubs4Data is of particular interest for WP3.	UCD, IDSA
ENVISION – Monitoring of Environmental Practices for Sustainable Agriculture Supported by Earth Observation (https://envision-h2020.eu/)	EU H2020-IA, Sep 2020 – Nov 2023	Offering robust and cost-efficient solutions for continuously and systematically monitoring of the agricultural land. ENVISION's work is primarily linked to WP2 and WP3.	ITC
Ploutos – Data-driven sustainable agri-food value	EU H2020-IA, Oct 2020 –	Data driven sustainable innovative agri-food value chains. Ploutos is	ITC, KGZS

chains (https://ploutos-h2020.eu/)	Sep 2023	primarily relevant to WP7.	
MEF4CAP – Monitoring and Evaluation Frameworks for the Common Agricultural Policy (https://mef4cap.eu/)	EU H2020-CSA, Oct 2020 – Jan 2024	Exploiting the extracted inventory of future data needs for Monitoring and Evaluation in the context of new CAP. MEF4CAP's results are exploited in WP2 and WP3.	NP
AgriBIT – Artificial intelligence applied to precision farming by the use of GNSS and integrated technologies (https://h2020-agribit.eu/)	EU H2020-IA, Jul 2021 – Jun 2024	Delivering data-driven services (also by use of BDA) for improved precision agriculture solutions to farmers. AgriBIT's work is primarily linked with WP5 and WP7.	ENG
PAPILLONS – Plastic in Agricultural Production: Impacts, Lifecycles and LONg-term Sustainability (https://www.papillons-h2020.eu/)	EU H2020-RIA, Jun 2021 – May 2025	Demonstrating the impact of micro-nano plastics in agricultural soils and food system. Relevance is primarily in terms of WP7.	FE
ZeroW – Systemic Innovations Towards a Zero Food Waste Supply Chain (https://www.zerow-project.eu/)	EU H2020-IA, Jan 2022 – Dec 2025	Prototype development of agriculture data space. ZeroW is particularly interesting in the frame of WP3 and WP5.	SETU, DIGI
TRUSTyFOOD – Stakeholders-driven pathways for blockchain implementation in the agri-food sector (https://www.trustyfood.eu/)	EU HE-CSA, Jul 2022 – Jun 2025	Shading light on the current partial and fragmented picture of BCT applications in the agri-food domain. TRUSTyFOOD's work is primarily linked to WP7.	WFO
QuantiFarm – Assessing the impact of digital technology solutions in agriculture in real-life conditions (https://quantifarm.eu/)	EU HE-RIA, Jul 2022 – Dec 2025	Supporting the deployment of digital agriculture technology solutions as key enablers for enhancing the sustainability performance and competitiveness of the agricultural sector. QuantiFarm's work is primarily related to WP3 and WP6.	NP, KGZS
Data4Food2030 – Pathways towards a fair, inclusive and innovative Data Economy for Sustainable Food Systems (https://data4food2030.eu/)	EU HE-RIA, Sep 2022 – Aug 2026	Discovering the value of data economy in European food systems. Data4Food2030 is primarily interesting for WP6.	ITC
AgriDataSpace – Building a European framework for the secure and trusted data space for agriculture (https://agridataspace-csa.eu/)	EU HE-CSA, Oct 2022 – Mar 2024	Paving the way for a European data space for agriculture that facilitates data sharing, processing, and analysis in a secured, trusted, transparent and responsible manner. AgriDataSpace's work is mainly linked to WP2, WP3, WP6 and WP7.	ICCS
BioMonitor4CAP – Advanced biodiversity monitoring for	EU HE-RIA, Dec 2022 –	Providing new results-based policies in the European agricultural	FE

results-based and effective agricultural policy and transformation (https://www.biomonitor4cap.eu/en/)	Nov 2026	landscape. BioMonitor4CAP's outcomes are useful for WP6.	
Green.Dat.AI – Energy-efficient AI-ready Data Spaces (https://greendatai.eu/)	EU HE-IA, Jan 2023 – Dec 2025	Channelling the potential of AI towards the goals of European Green Deal, by developing novel Energy-Efficient Large-Scale Analytics Services, ready-to-use in industrial AI-based systems, while reducing the environmental impact of data management processes. Relevant mainly for WP3 (DATASPACE) of DIVINE.	ITC
FAME – Federated decentralised trusted dAta Marketplace for Embedded finance (https://www.fame-horizon.eu/)	EU HE-RIA, Jan 2023 – Dec 2025	Developing and validating common methodologies and tools to facilitate the sharing of best practices and lessons learnt to support the collaboration within the community of CCAM stakeholders needed for the organisation and evaluation of large-scale demonstration and future scale-up to the impacts of complete CCAM solutions. FAME's work is mainly relevant to WP3.	VICOM
ScaleAgData (https://scaleagdata.eu/en)	EU HE-RIA, Jan 2023 – Dec 2026	Upscaling agricultural sensor data for improved monitoring of agri-environmental conditions. ScaleAgData's work is maily related to WP3, WP4, WP5 and WP6.	NP, ICCS
Tools4CAP – Innovative Toolbox empowering effective CAP governance towards EU ambitions (https://www.tools4cap.eu/)	EU HE-CSA, Jan 2023 – Dec 2026	Supporting and monitoring the national CAP Strategic Plans 2023-2027. Tools4CAP's work is primarily of relevance to WP3 and WP6.	NP
agrifoodTEF – Test and Experiment Facilities for the Agri-Food Domain (https://www.agrifoodtef.eu/)	EU DIGITAL Simple Grant, Jan 2023 – Dec 2027	Supporting the assessment and validation of third-party AI and Robotics solutions in real-world conditions aiming to maximise impact from digitalisation of the agricultural sector. agrifoodTEF is mainly related to WP3.	ENG
AgriDataValue – Smart Farm and Agri-environmental Big Data Space (https://agridatavalue.eu/)	EU HE-RIA, Feb 2023 – Jan 2029	Growing an innovative platform for smart farming. AgriDataValue's work is mainly related to WP3 in terms of development of semantic interoperability mechanisms for an agriculture data space and to WP7	IDSA

		for dissemination of the project findings through establishing partnerships with other projects/consortia.	
WATSON – A holistic framework with Anticounterfeit and intelligence-based technologies that will assist food chain stakeholders in rapidly identifying and preventing the spread of fraudulent practices (https://watsonproject.eu/)	EU HE-RIA, Mar 2023 – Feb 2026	Preventing food fraud through digital and intelligence-based technologies. WATSON's work is mainly linked to WP3 and the development of AIM+.	UCD, ICCS
Farmtopia – Democratising digital farming through smart solutions for small farms (https://farmtopia.eu/)	EU HE-IA, Sep 2023 – Aug 2026	Fostering co-creation of Agricultural Digital Solutions (ADSs) to ensure they solve real problems and fit the needs of small farms. Relevant mainly for WP5 (PILOTS) of DIVINE.	NP (coordinator), ITC
SoilWise – An open access knowledge and data repository to safeguard soils (https://soilwise-he.eu/)	EU HE-IA, Sep 2023 – Aug 2027	Fostering soil wisdom, advancing agriculture, and building a legacy of greener, healthier soils. SoilWise's work is primarily relevant to WP3 and WP6.	NP
DS2 – Data Space, Data Share (https://www.dataspace2.eu/)	EU HE-RIA, Jan 2024 – Dec 2026	A modular software infrastructure to connect data sources (Data Spaces/data silos/data lakes) together for cross-sectoral data sharing. DS2 is relevant mainly for WP3 (DATASPACE) and WP5 (cross-pilot collaboration) of DIVINE.	ITC, DIGI
AgriDISCRETE – Digitalisation in Agriculture and Forestry through Data Security (https://www.teagasc.ie/rural-economy/rural-economy/agri-food-business/research/agridiscrete-project/)	Irish project funded by the Irish Ministry for Agriculture, 2020 - 2021	Exploring data-related issues in dairy and forestry sectors. AgriDISCRETE's results are of particular interest for WP7.	SETU
LIFE farm4more (https://www.farm4more.ie/)	Irish-Austrian project co-funded by the Irish Department of the Environment, Climate and Communications and Life	Implementing a suite of technologies, strategies, and techniques to achieve climate mitigation in animal protein production. Farm4more's work is primary linked to WP5.	UCD (coordinator)

EKOGEN – Economics of farming with the support of geospatial analysis (https://itc-cluster.com/project/ekogen/)	Slovenian project funded by the Republic of Slovenia and EU Regional Development Fund, Jul 2020 – Jul 2022	Addressing the burning issue of farming economics with the development of an advanced tool for farm management. EKOGEN's results are considered within WP2, WP3 and WP7.	ITC
AG-NAV	Irish project funded by The Department of Agriculture, Food and the Marine, Project due to start in 2023 with 2-year duration.	The objective of this project is to develop an accessible, user-friendly digital platform that robustly assesses the economic, environmental and social sustainability of all major farming systems in Ireland, and provide a decision support tool that allows users to determine the impact of a range of recommended management practices. Results are relevant to WP4.	SETU

Apart from the projects listed in Table 19, some additional projects have been identified as related to the vision of DIVINE and there are ongoing efforts to approach them and potentially pursue future collaborations with them. These projects include WATERAGRI – Water Retention and Nutrient Recycling in Soils and Streams for Improved Agricultural Production EU H2020 RIA (https://wateragri.eu/), LINKDAPA – Linking multi-source data for adoption of precision agriculture EU H2020 project (https://www.eitfood.eu/projects/linkdapa-linking-multi-source-data-for-adoption-of-precision-agriculture-2020), ROBS4CROPS – Robots for protecting crops EU HE-IA (https://www.robs4crops.eu/), FAIRiCUBE – FAIR information cube EU HE-IA (https://fairicube.nilu.no/), EU-FarmBook – Supporting knowledge exchange between all AKIS actors in the EU HE-RIA (https://eufarmbook.eu/), AD4GD – All Data 4 Green Deal EU HE-IA (https://ad4gd.eu/), STELAR – Spatio-Temporal Linked data tools for the AgRi-food data space EU HE-IA (https://stelar-project.eu/) and CODECS – Maximising the CO-benefits of agricultural Digitalisation through conductive digital ECoSystems EU HE-RIA (https://www.horizoncodecs.eu/).

3.3.2 EU networking events

As described in Section 3.1.9.2, throughout the reported period (M01-M18), DIVINE has been featured or presented in many in-person and virtual events, conferences, workshops, etc. Representatives from other related projects have also participated in many of them, allowing the establishment of initial communication channels and setting the basis for a common understanding. Four events stand out as they particularly fostered networking with related initiatives, enabling the creation of new bonds and strengthening the already developed ones. These include:

- **EU R&I in Agricultural data – achieving synergies, mapping achievements, knowledge gaps and potentials workshop:** This technical workshop was jointly organised by DG AGRI, DG CNCT and DG RTD in Brussels, Belgium from November 16th to 17th, 2022. Its main objectives were to take stock of R&I achievements in the field of agricultural data; map planned R&I activities in the field of agricultural data and achieve synergies between projects; and identify R&I needs to exploit the potential of data and data technologies for agriculture and policy monitoring. Representatives from DIVINE, ICCS as the project coordinator and FE as WP6 leader, attended this workshop, presented the DIVINE project, and initiated collaboration with related projects.
- **EU AgriResearch Conference 2023:** This event was organised by DG AGRI, in Brussels, Belgium from May 31st to June 1st, 2023 (https://agriculture.ec.europa.eu/events/2023-eu-agriresearch-conference-2023-05-31_en). DIVINE was represented by the project coordinator (ICCS), who took the chance to promote the main activities and expected outcomes of the project and initiate collaboration with related projects, such as the AgriDataSpace Horizon Europe CSA. The session on "Digital and Data technologies in agriculture: R&I for sectoral transformation" was of particular interest, providing valuable insights into the main research and innovation needs and opportunities in the agriculture sector as well as the respective barriers and challenges in place that need to be addressed. It was concluded that the implementation of a Common European Agricultural Data Space is of utmost importance and DIVINE has already started preparing related outputs to support this initiative.
- **SmartAgriHubs Synergy Days 2023:** This event corresponded to an impactful gathering of various representatives from 25 EU initiatives in the field of digital agriculture. It was organised by the SmartAgriHubs H2020 IA in Thessaloniki, Greece from October 4th to 5th, 2023, (https://www.smartagrihubs.eu/latest-events/synergy-days-2023). DIVINE was represented by NP, who presented the project's visionary goals and activities, and seized the opportunity to amplify collaboration with other related EU-funded projects, including but not limited to AgriDataSpace, Data4Food2030 and QuantiFarm. The project's booth attracted numerous stakeholders and digital innovators of the EU agrifood sector, who had the chance to get informed about the project's mission to boost the data economy in agriculture and revolutionise the agricultural sector by leveraging the power of agri-data.
- **EU Agri-Food Days 2023:** This international event was organised by DG AGRI in Brussels, Belgium form December 5th to 8th, 2023 (https://agriculture.ec.europa.eu/eu-agri-food-days_en). It brought together hundreds of farmers, policymakers, business leaders, analysts, and experts from around the world to discuss the future of European agriculture, market trends, food security, sustainability, and digital innovation in the agrifood sector, fostering dialogues and inspiring transformative ideas among diverse stakeholders in the agricultural and food industry. On the last day, in the frame of EU Agri-Digital Conference, which was part of the larger event, DIVINE was featured. ICCS and FE represented the project, showcasing the transformative power of agri-data and sharing insights into our continuous efforts to boost the data economy in agriculture through digital interventions and innovative policies. The project's booth became a hub of engagement with diverse stakeholders, also fostering collaboration with other related EU projects, such as Farmtopia.

3.3.3 Joint activities

After establishing initial connections with selected identified related projects through networking events or other communication and dissemination activities, some preliminary joint actions have been conducted. More specifically, during the first 18 months of the project, some bilateral discussions and virtual meetings have taken place with several related projects. The focus of these meetings was to identify common paths, deviations, and potential overlaps, aiming at aligning targeted activities, complementing some other actions and potentially produce joint outputs to achieve the ultimate goal of transforming the agricultural sector in Europe.

Through these discussions, it became clear that relevant projects would benefit from reusing and extending tools, methodologies, and practices developed by other similar initiatives. By keeping pre-existing approaches in mind and working in parallel in a collaborative way with concurrent actions, instead of trying to re-invent the wheel, R&I results are expected to be accelerated. In this respect, specific tools provided by other projects that could facilitate certain tasks of DIVINE or amplify their impact have been identified. These tools are planned to be integrated into the DIVINE ecosystem and validated within the 4 real-world DIVINE pilots. On the other hand, other related projects are also interested in using tools and services developed within DIVINE. So, throughout the reported period (M01-M18), a series of discussions have taken place to explore these possibilities.

Some indicative actions in support of collaboration and exchange of knowledge and technology between DIVINE and other related projects are the following:

- **Extending technical modules of DEMETER:** Since the first months of the project, it has been decided to extend the DEMETER's AIM and knowledge extraction modules via the work that is being performed in WP3 and WP4, respectively. This is an ongoing process that will be completed by the end of the project.
- **Validation of AgriDataSpace framework:** Since the beginning of the project, one in-person and two virtual meetings have taken place with the AgriDataSpace CSA project consortium to consolidate joint actions. During these bilateral discussions it has been decided to build on the framework proposed by AgriDataSpace and go one step further, by validating it in the 4 real-world DIVINE pilots.
- **Joint presentation of DIVINE and DEMETER in IEEE COINS 2023:** Joint work, coordinated by ICCS, has been performed representing both DEMETER and DIVINE projects in the vertical track of Smart Agriculture in the IEEE COINS 2023 conference, which was held in Berlin, Germany from July 23rd to 25th, 2023.
- **Participation in SmartAgriHubs Synergy Days 2023:** DIVINE was featured in the Synergy Days event organised by the SmartAgriHubs H2020-IA project, that was held in Thessaloniki, Greece from October 4th to 5th, 2023. There, together with other 24 EU projects in the field of smart agriculture, our representatives from NP engaged directly with related stakeholders, contributing to one of the largest exhibitions of EU projects in the field. After the success of this event, DIVINE will participate in the next edition of SmartAgriHubs Synergy Days which is scheduled for October 2024.

- **Promotion of the ATLAS Equipment Centre Webinar:** DIVINE has promoted the Equipment Centre Webinar organised by the ATLAS H2020 RIA on June 16th, 2023, through its social media networks. With small actions like these related EU initiatives help each other reaching larger audiences and increasing the impact of their dissemination activities.
- **Alignment of identity providers for data spaces with FAME:** Some bilateral discussions between DIVINE and FAME have taken place to explore the potential of aligning the identity providers for data spaces compatible with the Electronic Identification, Authentication and Trust Services (eIDAS2) framework.
- **Exploration of DIVINE's ADSE connectivity by ILVO:** A collaboration with ILVO has been initiated to explore the connectivity of the agri-data spaces that DIVINE supports.
- **Potential reuse of AIM+ by AgriDataValue and WATSON:** Two Horizon Europe projects, AgriDataValue and WATSON, have contacted the DIVINE consortium as they are interested in reusing the AIM+, which is under development within the DIVINE project.

3.3.4 Internal reporting tool

All the related projects that have been identified and the respective joint actions that have been conducted, as listed in Sections 3.3.1 and 3.3.3, respectively, have been reported in a dedicated shared Excel spreadsheet. There, as illustrated in Figure 35, for each related project, we document its level (international, European, national or local), its funding scheme, its relevant work or results with respect to DIVINE, the primary WPs or tasks of DIVINE that will exploit this work or results, the primary link to it (usually a partner that participates in both consortia) and the meetings or common actions that are conducted.

	ProjectTitle	Level	Funding	URL	Relevant work/results	Primary WPs/Tasks that will use results	Primary link to initiative
1	Demeter	European	H2020-IA	https://h2020-demeter.eu/	Demonstrated benefits from interoperability in various agri sectors	WP3, WP4	ICCS, ENG, ITC, VICOM
2	SmartAgriHubs	European	H2020-IA	https://www.smartagrihubs.eu/	Digital transformation in the agri sector, embedded at regional level via innovation hubs	WP4, WP7	WIT
3	Nefertiti	European	H2020-CSA	https://nefertiti-h2020.eu/	Demo farms to enhance knowledge exchangers and innovation uptake on 10 major agri challenges in Europe	WP5, WP7	WIT
4	AgriDISCRETE	National (Ireland)	Irish Ministry for Agriculture	https://www.teagasc.ie/rural-economy/rural-economy/agri-food-business/research/agridiscrete-project/	Food, and the Marine; exploring data-related issues in dairy and forestry sectors	WP7	WIT (coordinator)
5	ATLAS	European	H2020-IA	https://www.atlas-h2020.eu/	Open digital service platform as ecosystem for data-driven agriculture	WP5	WIT
6	ZeroW	European	H2020-IA	https://www.zerow-project.eu/	Prototype development of agriculture data space	WP5	WIT
8	AgriBit	European	H2020-IA	https://h2020-agribit.eu/	by use of BDA) for improved precision agriculture solutions to farmers	WP5, WP7	ENG
9	OPEN DEI	European	H2020-CSA	https://www.opendei.eu/	Compare reference architectures and enable a unified data platform to create large scale pilots and contribute to a digital maturity model to build a data ecosystem and to strive for standardisation	WP2, WP3, WP5	ENG

Figure 35: Screenshot of DIVINE collaboration internal reporting tool.

This spreadsheet serves as an internal reporting tool of external collaboration activities and it is periodically updated by all the DIVINE partners, primarily leveraging their own set of related projects and memberships to relevant consortia.

3.4 KPI monitoring

Finally, in this section, and particularly in Table 20, we outline the progress that has been made during the first 18 months of the project towards achieving our global outreach, dissemination, standardisation, and external collaboration goals with respect to specific measurable KPIs that are defined in the proposal of the project. While we are still at the midpoint of the project, it is noteworthy that several KPIs intended for achievement by the end of the project have already been met or are nearing fulfilment. This early attainment underscores the project's progress and highlights the effectiveness of current strategies and efforts.

Table 20: Progress towards KPIs during M01-M18.

KPI	Progress Report	Overall Status
Project logo, leaflet, and brochure	DIVINE logo and brochure have been produced since the first months of the project.	Accomplished
More than 800 followers on social media	By the end of M18, DIVINE has gained more than 1450 followers in total on its social media platforms, exceeding by far the baseline of 800 followers.	Accomplished
More than 200 posts on social media	By the end of M18, more than 180 posts have been made about DIVINE. During the next 18 months of the project, we plan to continue posting with the same pace or with even higher frequency. So, it is safe to say that by the end of the project the baseline of 200 posts will have been exceeded, as well.	In progress
Project website available at M06, continuously updated	DIVINE's website has been available to the public since the first 6 months of the project and is being continuously updated, mainly by adding new content to the "News" section but also to other sections when needed periodically.	Accomplished
Website daily presence: 20	Throughout the first 18 months of the project, the website has obtained an average of 20 users per day.	Accomplished
More than 30 registered users to the newsletter	The first edition of the DIVINE's newsletter has been made available through the project's website and has been also promoted through the communication and dissemination channels of the consortium partners. Moreover, it has been forwarded to the wide network of Copa Cogeca by personal emails. Thus, dozens or even hundreds of people and organisations have received it. During the next period, it is foreseen to provide a registration form through the project's website to measure the reach of the newsletter in this way, as well.	In progress
More than 5 publications on traditional media	Until today (end of M18), one article has been published in an Irish farmers' magazine and another one is under preparations to be published in the short term. Entering the second half of the project, more mature results will be available soon to be shared with the public via traditional media. So, more publications on traditional media are planned to be made in the upcoming months and achieve the respective KPI.	In progress
Publication of at least	During the first 18 months of the project, one article has	Accomplished

3 articles, of which at least 2 scientific	been published in a farmers' magazine, another one has been published in a scientific journal and three more have been accepted for presentation in scientific conferences and will be soon available via the respective conference proceedings.	
Presentation of results in at least 5 EU and/or international events (conferences, seminars, and workshops)	By the end of M18, the preliminary results of the DIVINE project have been presented in more than 15 European and international events, including conferences, workshops, webinars, and other in-presence and virtual events.	Accomplished
Presentation of results in at least 5 business events	Until today, DIVINE has been presented in 5 clearly business or multifaceted events that include the business perspective. As the project progresses, and especially during the third phase of the global outreach and dissemination plan, our efforts will be focused on the exploitation of the project's results. In this respect, during the last year of the project, its results will be presented in many more business events.	Accomplished
Organising 2 EU workshops for analysis purposes	DIVINE plans to organise 2 European workshops during its second period (M19-M36) to demonstrate the value of agri-data sharing and the potential of the agricultural data economy, sharing insights from its 4 real-world pilots.	Not initiated
Organising 3 training seminars	Three training seminars will be organised by user partners, involving advisors, farmers, policymakers, and food producers, during the second period of the project (M19-M36).	Not initiated
3 working groups aiming at creating open discussions with key experts in Data Economy for agriculture	DIVINE foresees to form 3 working groups during its second period (M19-M36). Each one of them will be responsible for the dissemination of one of the main key messages K3.1, K3.2, and K3.3. The dissemination of these messages has been initiated during the current ongoing second phase of the global outreach and dissemination plan. In the second half of this phase (M19-M24), these groups will be formed and initiate further open discussions with key experts in the agricultural data economy.	Not initiated

4 Next steps and challenges

During the next 18 months of the project, various global outreach, dissemination, standardisation, and external collaboration activities are planned in line with the respective strategies that have been presented in Sections 2.1, 2.2, and 2.3. This second half of the project corresponds to part of the second phase (M19-M24) and the entire third phase (M24-M36) of each one of the individual global outreach and dissemination, standardisation, and external collaboration plans. So, when strategizing our next steps, we take into consideration the discrete focus of each one of these phases to ensure the maximisation of global outreach, dissemination, standardisation, and external collaboration's impact.

It is worth noting that all these future activities in the frame of T7.2 and T7.3 will be documented in one internal document which is due in M27 and in the final deliverable D7.6 "Overarching report on global outreach, dissemination, standardization, external collaboration, MAA and IPR protection activities" that is due in M36, in the end of the project.

4.1 Next steps and challenges in global outreach and dissemination

According to the global outreach and dissemination plan, during the next 6 months, activities related to the second phase "Targeted approach" (M12-M24) will be continued to achieve the particular goals of this phase. Then, during the last year of the project, activities related to the third and last phase "Public outreach and support to uptake" (M24-M36) will be conducted, aiming at complementing the previous activities and achieving the overarching objectives of global outreach and dissemination.

4.1.1 Next steps

To elaborate, during the next period (M19-M36), dissemination will largely revolve around the exploitation and uptake of DIVINE's results and innovative solutions even beyond its lifecycle. These activities will be aligned with the exploitation strategy and plans presented in D7.2 "Market analysis, business plan and exploitation activities – Release 1". To this end, all the global outreach and dissemination activities will aim to expand the initial network of stakeholders and attract key players in the market and in the target users' ecosystem, to eventually maximise the project's impact.

In this respect, all the dissemination channels and tools that have been built during the first period of the project will be leveraged, including the project's social media accounts, website, newsletter, production and distribution of printed and digital promotional materials, public deliverables and public-friendly outlines, mass media and scientific publications, and the participation in targeted events as well as the organisation of a few DIVINE flagship events.

All the key messages defined in Section 2.1.3.2, will be disseminated throughout the last period of the project. As we move on to the last year of DIVINE, particular emphasis will be given to KM3.1 "Demonstration of data economy potential", KM3.2 "Digital and data technologies uptake", and KM3.3 "Data-driven policymaking value". In this frame, 3 working groups will be formed to create open discussions around each one of these KMs with key experts in the agricultural data economy field. Finally, KM4 "Exploitation actions" will also be a central point of dissemination endeavours especially during the last year of the project.

More specifically, the following global outreach and dissemination activities are planned for the second and last period of the project (M19-M36):

- **Social media:** Throughout the first period of the project (M01-M18) it has been proven that social media played a significant role in promoting DIVINE's objectives, activities, and preliminary results to all the targeted audience groups. Therefore, maintaining active social media accounts and frequently posting interesting and appealing content will be prioritised during the second period of the project, as well.
  As the project progresses, more and more mature results and pilots' insights will be available for dissemination. So, posting will continue following the social media-dedicated calendar, to ensure that the project's stakeholders' network will be kept updated about important activities, insights, and milestones throughout the next 18 months.
  Regarding X, LinkedIn, and Facebook, a broad spectrum of content will be created, including "info shots" sharing pilots' insights, invitations to participate in certain events that DIVINE will organise or be featured in, raising awareness about related world days and campaigns, like the World Environment Day, the World Agriculture Day, etc., making related calls to action as well as promoting other dissemination materials, such as videos, articles, etc. To maximise engagement, significant effort will be put to make these posts appealing to the audience by including eye-catching infographics, photos, videos, etc.
  Regarding YouTube, at least two videos are planned to be uploaded to the project's YouTube channel during the next 6 months. The first one outlines the vision, the objectives, the 4 pilots, the innovations, and the expected outcomes of DIVINE and has been produced since the first year of the project. After updating it to reflect more recent activities, it will be uploaded to the DIVINE's YouTube channel. The second video will encapsulate interviews with some key partners of the consortium delving into more details of the DIVINE pilots and ADSE. This may spark off a series of more videos dedicated to different pilots and technical components.
  Moreover, during the next months, we aspire to extend our followers' base. Since the initial baseline of 800 followers has been exceeded by far, we aim at reaching the double number of followers (1.6k followers) in total by the end of the project, targeting key stakeholders in the smart agriculture domain.
- **Website:** As it has been proven during the first year of the project, the website plays an equally important role in the dissemination of the project's results and engagement with stakeholders and interested third parties.
  So, during the second period of the project (M19-M36), the website, and particularly, its "News" section, will be continuously updated, to keep the relevant stakeholders updated. Similarly, the "Results" section will be populated with the key findings of the project as soon as they become available.
  Moreover, some new features and/or pages are planned to be added to the website during the next months. Firstly, the public deliverables of the project and some public-friendly outlines of their content will be uploaded to a dedicated section on the website, as soon as they become accepted by the EC. Similarly, some links to the scientific publications of the project will be provided in another dedicated section. Finally, it is planned to provide a

registration form for the project's newsletter, enabling users to request to receive the periodic newsletter of the project via email.

- **Newsletter:** Until the end of the project, 4 more editions of the project's newsletter will be published. The next edition will be published by the end of next month and will encompass updates on progress made during the last 6 months (M13-M18), including insights from the first round of the pilots and from the deliverables that are due in M18. As the project progresses, the newsletter editions will include more targeted updates to increase engagement with the main groups of stakeholders.

  A registration form for the newsletter will be included soon in the project's website to initiate forwarding DIVINE's latest updates directly to interested parties via email. Moreover, all the editions of the newsletter will be promoted through the project's and the consortium partners' social media. Similarly, the newsletter will be disseminated to certain dedicated portals, such as Copa Cogeca and AMITOM, to reach a much wider audience of stakeholders in the agrifood sector.
- **Printed and digital promotional materials:** Different types of both printed and digital materials will continue to support various DIVINE global outreach and dissemination activities until the end of the project.

  More specifically, more appealing infographics will be produced targeting specific groups of stakeholders to ensure that key messages will be conveyed in an efficient way to them. For example, special visualisations about the added value of the project can be created for farmers without technical details to ensure that they will be easily understood.

  Moreover, at least one video will be recorded containing interviews with some key partners of the consortium delving into more details of the DIVINE pilots and the proposed approach. This may be decomposed into more videos, each one of them dedicated to different pilots and farming industries or to different technologies and tools.

  Finally, more copies of the DIVINE brochures, as well as other promotional items, including pens, bags, etc. will be printed and distributed in upcoming events where DIVINE will be featured. The DIVINE brochure might also be updated (if necessary) to make sure that more recent information is included.
- **Mass media publications:** In the next few months, a new article outlining the Irish pilot of the DIVINE project will be published by UCD in the Irish Farmers Journal, which has a weekly readership of approximately 379,400 people.

  Additionally, as the project progresses and more mature results will be available soon, more mass media publications will be pursued during the next 18 months to disseminate the respective key findings to larger audiences.
- **Scientific publications:** Publishing scientific articles in academic journals and conference proceedings constitute a dissemination activity that has been initiated during the second phase of the global outreach and dissemination plan and will be intensified during the third phase and the last year of the project, as more research findings will be available then to be shared with the research community.

  Until today three scientific articles have been published or accepted for publication and two more have been submitted for publication, one to a scientific journal and one to the IEEE

COINS 2024 conference. Further scientific articles are currently being prepared and will be submitted for publication during the next period (M19-M36).

- **Participation and presentation in future events:** One of the most impactful groups of global outreach and dissemination activities corresponds to the presentation of DIVINE in various types of events, including conferences, workshops and seminars with diverse purposes and targeted audiences. Therefore, DIVINE will continue to be featured in various in-person and virtual events until the end of the project. Some scheduled events for the next period (M19-M36) include:
    - WFO Annual Meeting 2024: Representatives from the DIVINE project will attend as speakers the WFO Annual Meeting (General Assembly) scheduled to occur at FAO Headquarters in Rome from June 17th to 21st, 2024. This presence will provide an excellent opportunity to disseminate the project's outcomes and achievements.
    - IEEE COINS 2024: DIVINE will be featured in the vertical track of Smart Agriculture in the IEEE COINS 2024 conference that will be held from July 29th to 31st in London, United Kingdom.
    - Irish National Ploughing Championship 2024: Our Irish partners will promote DIVINE's activities and outcomes at their stand during the Irish National Ploughing Championship 2024 which is the largest outdoor agricultural show in Europe and will take place from September 17th to 19th in Ratheniska, Ireland.
    - SmartAgriHubs Synergy Days 2024: DIVINE will participate in the next edition of the SmartAgriHubs Synergy Days that will be held from October 14th to 15th in Barcelona, Spain, fostering networking with digital innovators of the EU agri-food sector.
    - WFO Annual Meeting 2025: Dissemination of DIVINE project's results is planned at the WFO Annual Meeting that will be held in May or June of 2025, ensuring broader exposure within the farmer community.
    - WFO representation in Global Policy Processes: Dissemination efforts may be extended to key global policy processes to ensure broad visibility of the DIVINE project.

  Of course, this list is not exhaustive and more events from Table 15 and Table 17 will be targeted during the next months. Similarly, more conferences, workshops and other events of interest will be identified to extend these tables.

  Finally, it is worth noting that WFO, as the leading farmers' organisation, of the project's consortium will exploit both its internal and external channels to showcase the progress and results of the DIVINE project and increase its visibility.
- **Organising DIVINE events:** Apart from the events that will feature DIVINE, the DIVINE project will organise its own events to showcase its innovative work and demonstrate the value of agri-data sharing based on insights gained from its 4 real-world pilots. These events are planned for the second and last period of the project, as they require mature results ready to be presented and a community of relevant stakeholders already built to participate in the discussions.

  To elaborate, 2 European workshops will be organised in collaboration with main stakeholders and end users for analysis purposes. Additionally, 3 training seminars will be organised by user partners, involving advisors, farmers, policy makers and food producers.

The exact format, the targeted audience and the information that will be shared in these events have yet to be decided.

All these future activities (events, publications, etc.) will be documented in the internal reporting tool, which is dedicated to dissemination, as discussed in Section 3.1.10.2. Similarly, newly identified events, scientific journals, special issues, conferences, etc. of interest, will be documented to the respective internal planning tool of dissemination activities, which has been introduced in Section 3.1.10.1.

4.1.2 Challenges

Global outreach and dissemination activities of an R&I project, like DIVINE, is not as straightforward as it may seems. To ensure the maximisation of the impact of these activities, we must address several challenges related to engaging with the targeted groups of stakeholders using the right tools and channels.

Firstly, as outlined in Section 2.1.2, there are many diverse targeted audience groups that should be approached through the global outreach and dissemination activities of the project. These groups of stakeholders are characterised by different needs, backgrounds, and perspectives. To successfully engage with them, we need to understand and take carefully into consideration the particular interests and characteristics of all these groups. To this end, tailor-made approaches need to be followed for each group to increase engagement. Some initial customised strategies have already been developed during the first period of the project and further customisation, if needed, will take place during the second period of the project, in collaboration with Task 7.4 “Governance of MAA activities and stakeholder mobilisation”.

In this respect, technical documents and reports, while valuable, are insufficient for meaningful dissemination without appropriate pre-processing. Timely availability of information material suited for both online and face-to-face dissemination is crucial. For instance, key research findings should be transformed into concise, public-friendly messages for dissemination via social media, while project results summaries in accessible language should be provided to non-technical stakeholders such as farmers and agricultural organisations.

Spanning across 8 countries and 4 pilot sites, with dissemination extending to even more countries globally, DIVINE faces the challenge of conveying messages effectively across diverse regions. Adaptation of our global outreach and dissemination strategy may be needed to meet the specific needs of stakeholders in each region. This may entail translation of messages and collaboration with local stakeholders, including farmers, agricultural organisations, government agencies, etc. to foster trust and understanding.

Moreover, maintaining stakeholder interest throughout the project's duration poses another significant challenge. In this respect, dissemination activities must be continuous, with a focus on generating appealing promotional materials and content for social media and regularly updating the project’s website and newsletter.

Finally, global outreach and dissemination pose inherent risks as they require inputs and updates from all the consortium partners as well as collaborative efforts to jointly disseminate the project’s

results. Partners' availability, scheduling constraints and other participation conditions for external events pose another significant challenge in effectively showcasing the project's vision, activities, and outcomes. To overcome these challenges, unwavering commitment is required by all the DIVINE partners to achieving the project's goals.

4.2 Next steps and challenges in standardisation

Regarding standardisation and according to the respective plan that has been proposed since the beginning of the project, during the next 6 months, activities related to the second phase "Targeted approach" (M12-M24) will be continued aiming at achieving the particular goals of this phase. Then, during the last year of the project, activities related to the third phase "Publishing standards and uptake" (M24-M36) will be conducted, complementing the previous activities to eventually, achieve the overall standardisation goals of the project.

4.2.1 Next steps

During the second and last period of the project (M19-M36), two selected DIVINE modules, the Dataspace Protocol and the AIM, will undergo all the necessary steps to be standardised. In this respect, the responsible partners, IDSA and ICCS, respectively will be in contact with the related standardisation bodies and will lead efforts towards creating a fertile ground for publishing these standards, by highlighting interoperability and other opportunities arising from standardising these two modules. At all times, it is imperative to ensure that farmers' needs and solutions are properly considered in the standardisation processes. To elaborate:

- Regarding the standardisation of the Dataspace Protocol, IDSA will form the Standardisation Working Group in 2024, in anticipation of the publication of ISO/IEC AWI 20151 next year. During the next months of the project, IDSA will closely observe DIVINE's application of the Dataspace Protocol, gathering feedback and useful insights for the continuous improvement and refinement of the Dataspace Protocol.
- About AIM+, the next steps concern the integration of the appropriate terms and concepts so that the model adopts and complies with the respective policies and regulations implied by various stakeholders, like regulations about agricultural data sharing imposed by the Commission for instance. Additionally, new modules will be developed to cover the needs of the DIVINE pilots, and these should naturally follow the guidelines imposed by OGC so that AIM+ will be promoted as a standard.

4.2.2 Challenges

Standardisation activities may pose several challenges. By its nature, it is very challenging to continuously review and try to improve standards to address emerging challenges and opportunities in agricultural data management.

Regarding the standardisation of the Dataspace Protocol, three main challenges are foreseen:

1. Technical Heterogeneity: The diversity in existing data infrastructure across different organisations could pose significant challenges. Aligning these varied systems with the

Dataspace Protocol might require more complex adaptations than anticipated, leading to delays.

2. Adoption Resistance: Stakeholders might show resistance to adopting the new standard due to compatibility issues with legacy systems or perceived limitations in the protocol's design. Overcoming such resistance may require effort in demonstrating the protocol's value.
3. Evolving (cross-border) Data Privacy Regulations: Changes in data privacy laws and regulations (especially for cross-border data sharing) could impact the protocol's compliance requirements. Staying ahead of these changes and incorporating them into the standard could be challenging and might require frequent updates to the protocol.

Regarding AIM+, no major challenges are foreseen at this point since there is ongoing work on the technical procedures that are necessary for the promotion of the model as an OGC standard. The only tricky procedure could be the integration of the appropriate concepts and even domain models to effectively deal with data access APIs, such as the OGC APIs.

4.3 Next steps and challenges in external collaboration

According to the external collaboration plan of the project, during the next 6 months, activities related to the second phase “Targeted approach” (M12-M24) will be continued aiming at achieving the particular goals of this phase. Then, during the last year of the project, activities related to the third phase “Joint actions and future collaborations” (M24-M36) will be conducted to complement and extend the previous activities and eventually, achieve the overall external collaboration goals of the project.

4.3.1 Next steps

Over the next 18 months of the project, we will be methodically moving from an explorative phase, where we actively seek out related projects and explore collaborative opportunities with them, towards an exploitative phase, where we focus and capitalise on collaborations that seem promising. Of course, efforts to extend the collaboration network will continue but greater emphasis will be given to organising joint activities, scheduling meetings with associated projects to strategize our next steps, disseminating the project’s results to larger audiences and fostering their exploitation by other projects in the frame of both ongoing and future collaborations.

Our priority is to strengthen bonds and communication with collaborating projects and expand our joint actions. To this end, during the next months, more workshops, seminars, and other joint events will be scheduled. In this way, we will contribute to the establishment of a strong network of key players-projects in the field. Moreover, the organisation of larger joint events is expected to attract the interest of more stakeholders in the market, promoting our common goals and sharing our approaches to achieve them. Indicatively, some joint activities have already been planned for the short term:

- We are organising with the consortium of the TRUSTyFOOD HE-CSA a joint debate on innovation and digitalisation in agriculture in the upcoming WFO Annual Meeting, which is going to be held from June 17th to 21st in Rome, Italy.

- We will participate, together with dozens of other projects in the field of smart agriculture, in the SmartAgriHubs Synergy Days 2024, which is organised by the homonym completed H2020 IA and will take place from October 14th to 15th in Barcelona, Spain.
- We also plan to organise a joint webinar on agri-data spaces with other projects funded under the same topic.
- DIVINE events, including the two EU workshops and the three training seminars that are foreseen, will also be supported by affiliated projects to reach a larger audience of stakeholders as well as to help DIVINE, in a collaborative way, to reach its full potential of transforming the European agricultural sector with innovative data-driven and digital interventions.

Additionally, DIVINE will continue to be in contact with DEMETER and AgriDataSpace as well as with other projects which offer tools and frameworks that will be reused or extended by DIVINE. Similarly, discussions with other projects, like AgriDataValue and WATSON, that have expressed their wish to reuse AIM+ developed by DIVINE, will take place to offer guidance and ensure that all the interested parties will get the most out of the provided tools and services.

Moreover, while our primary goal during the latter period of the DIVINE project is to consolidate existing collaborations and intensify joint efforts with identified related projects, we will continue looking for new partnerships with related projects, and particularly newly launched initiatives. We plan to approach these projects by participating in common events, inviting representatives from their consortia to join DIVINE events as well as through social media and other outreach and dissemination tools and channels.

Finally, all the aforementioned activities, including the identification of new related projects as well as the organisation of joint activities and events will continue to be documented in the respective shared spreadsheet, that has been introduced in Section 3.3.4.

4.3.2 Challenges

External collaboration with related projects may bring numerous benefits, including accelerating innovation and facilitating exploitation of the project's results among others. However, several challenges may arise in the process.

First, communication may be impeded due to different priorities and lifecycle misalignment. Although related projects most of the times share common goals and objectives, they may be at a different stage of their lifecycle and some of them may also be completed. This may lead to divergent priorities and interests and consequently, to a lack of motivation for collaborative activities or to ineffective communication. Therefore, it is very important to establish robust communication channels, balance different interests and priorities of affiliated projects, and ensure the commitment of all the parties, even beyond the lifecycle of the projects.

Seamless collaboration with related projects may further be impeded by potential competitive dynamics. Related projects may compete against each other with respect to additional funding, market share, investments, and recognition in the community of the relevant stakeholders. It is of

utmost importance to cultivate an environment of mutual support, trust, and a collaborative culture to elevate all together the data economy in agriculture.

Even with such a collaborative culture established, external collaboration activities remain highly challenging, as they inherently require cooperation and alignment of actions between several different projects and consortia with diverse backgrounds. Again, it is imperative to ensure the long-term commitment of all partners to make a lasting impact even beyond the official lifecycle of the involved projects.

Finally, external collaboration may be hindered due to the lack of interoperability in terms of technical, semantic, organisational, or legal aspects across different projects' modules and components. To this end, standardisation efforts will facilitate external collaboration. Moreover, Intellectual Property Rights (IPR) and ownership issues may complicate collaborative endeavours, especially when sharing proprietary technologies, data, or research findings. In this respect, guidance and support from Task 7.5 "Management and protection of IPR" will streamline the respective synergistic activities.

5 Summary and Conclusions

The current report constitutes the deliverable D7.3 “Global outreach, dissemination, standardisation and external collaboration plan and activities” of the DIVINE project. This deliverable presents the work carried out in Tasks 7.2 “Global outreach, dissemination and standardisation” and 7.3 “Collaboration with related projects” during the first 18 months of the project.

Global outreach, dissemination, standardisation, and external collaboration activities play a vital role in increasing the project’s impact and supporting it to achieve its goals. To this end, since the beginning of the project, a comprehensive strategic plan has been developed for each one of these cardinal activities. The respective strategies are presented in the current report, outlining the objectives, defining the main categories of stakeholders in each case, and proposing a workflow plan and timeline for the entire duration of the project.

Overall, in line with the proposed strategies and plans, as reflected in the current document, significant progress has been made regarding global outreach, dissemination, standardisation, and external collaboration during the first 18 months of the DIVINE project. First, regarding global outreach and dissemination, the project’s visual brand identity and various promotional materials have been created, the social media accounts and the website have been established, the newsletter, mass media and scientific publications have also been initiated and last but not least, DIVINE has been featured in various conferences, workshops and other events. Regarding standardisation, two selected DIVINE modules, the Dataspace Protocol and the AIM, are currently undergoing standardisation processes. Finally, regarding external collaboration, partnerships with related projects have been established and some preliminary joint activities have been conducted.

All these activities have already propelled DIVINE towards achieving several of its KPIs while we are still at the midpoint of the project’s lifecycle. Further activities are planned to be conducted during the next 18 months to ensure that DIVINE will achieve its overarching objectives. Some next global outreach, dissemination, standardisation, and external collaboration activities, aligned with the proposed strategic plans, are also outlined in this report.

Finally, as these tasks demand active engagement and contributions from all the partners, the success of the respective preliminary activities during the first half of the project is largely attributed to the commitment of all the partners of the consortium and the unobstructed communication and collaboration among them.

6 References

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