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SoliDAIR

Solid, rapid and efficient adoption of Data, AI & Robotics applications in production

Deliverable D5.1: Plan for the dissemination and exploitation

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Project Abstract

SoliDAIR aims to accelerate the uptake of Artificial Intelligence (AI) and Robotics in European manufacturing, using Data as an enabler. It will co-develop and demonstrate tailored solutions to digitalise and automate visual inspection and physical testing, enable predictive quality control and process optimisation. The SoliDAIR project tackles the problem of AI & Robotics systems not being extensively used in the production industry, because it is not clear whether they are safe and when or why they will fail, by researching, developing and testing methods that are as solid and trustworthy as possible to be adopted by the European industry, while being cost-efficient to develop and replicate.

New methods and tools will be developed by research and technology providers, which leverage the current state of the art in visual AI, AI for process data, and smart & collaborative Robotics. The developed technologies will be applied and demonstrated in 4 industry use cases to prove their functionality and applicability in real production environments. The objective is to improve production processes through digitalised and automated quality control for high volume, high rate and flexible manufacturing. The developed methods shall be efficiently and easily adaptable and replicable, so they can be easily applied to new use cases outside the consortium.

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Public Summary

This summary provides a comprehensive and detailed overview of the SoliDAIR's plan for the dissemination and exploitation, which encompasses various aspects, ensuring effective communication and impact within the industry and beyond. The plan delves into the following topics:

- **Methodology**

It outlines the methodology employed in the dissemination plan, emphasizing the significance of collaboration, open science, and social impact. It describes the clear framework for the dissemination process and highlights its alignment with the overall project objectives.

- **Linkage Between Dissemination and Exploitation**

The interconnection between dissemination and exploitation activities is explored in this chapter. It illustrates how effective communication enhances the project's potential for commercialization and broader implementation of research results.

- **Consortium's Outreach**

This part introduces the consortium partners and their respective expertise and contributions to the project. It highlights the significance of their outreach and networks, underscoring their pivotal role in engaging with similar EU projects and initiatives and promoting the project's findings.

- **Dissemination Tools and Activities**

This part outlines the various dissemination tools and activities chosen to effectively communicate the project's research outcomes. It details presentations, publications, newsletters, social media, and other means used to reach diverse target audiences.

- **Monitoring Impacts of Dissemination**

This part focuses on monitoring and evaluating the impacts of dissemination efforts. It outlines methods for assessing the success of the dissemination plan, tracking the reach and effectiveness of communication activities.

This Plan for the dissemination and exploitation (PDE) plan will be continuously updated until the end of the project, when the final version will be released (M36).

1 Introduction

1.1 Rational of this deliverable

Plan for the dissemination and exploitation (D5.1) plays a crucial role in the project to promote project results and share best practices and key messages.

The strategy aims at achieving maximum impact with controlled spending by selecting channels that are the most effective in reaching out to the target groups and building upon multipliers. These will be invited to share the core messages, good practices and ultimately the results of the project using their own communication channels and tools.

Since the beginning of the implementation phase, WP5 will promote the project's objectives and activities and, as soon as they become available, its results.

All partners, led by Fraunhofer IPA, will play a role in communication, dissemination and exploitation in their respective areas, within their own network, and with their own means. I2M as WP5 leader with support of FHG and all project partners, will elaborate and lead the strategy and give inputs to all partners.

The success of the SoliDAIR project relies not only on groundbreaking research and innovation but also on effectively disseminating project results and engaging with stakeholders to achieve widespread impact.

Main SoliDAIR target groups are listed below:

- Manufacturing industries – **discrete product manufacturing**;
    - o Automotive industry (challenges represented by BROSE, CIE and BOSCH)
    - o Industrial SMEs

- Technology providers – **solutions development services, modular and customisable solutions and software tools** based on SoliDAIR technologies and methods;

- Scientific community – further advancements of **AI, data and robotics technologies**;

- Academic and training bodies – development of relevant skills (**solutions design and development**).

Dissemination Levels:

- Internal dissemination (UC owner): within their organisations, BRO, CIE, AUT, BOS, will disseminate the results of their own UC and use them for the further replication of the AI systems on other products, applications or production lines. It is expected that replications or new implementations of the UCs will be initiated after the end of the project (multiplier varies depending on the company, as defined in the business cases). See "3.2 Individual exploitation plans" for more details.

- External dissemination (manufacturing, processing industry, AI providers, research community, policy makers and public): outreach activities have been identified, based on the type of the result disseminated and target groups. Particular attention will be paid to a strategically planning of the engagement of stakeholders, in all partner countries as well as EU wide, throughout the project run.

The dissemination and exploitation strategy is meant to be flexible and can be adapted to the partners' and projects' needs. The success of the project will significantly depend on strengthening the cooperative relationship within the partnership, as well as on the capacity to activate synergies.

The Dissemination Strategy's goals and activities are included in WP5 whose specific objectives are:

- O5.1: Raising awareness about AI, Data, Robotics solutions in manufacturing among all relevant stakeholders
- O5.2: Networking, exchange of results, promoting good practices and replications of the UCs about AI, Data and Robotics solutions in manufacturing
- O5.3: Ensuring proper IPR policies allowing a joint exploitation of the results while avoiding conflicts among partners
- O5.4: Support training and upskilling of workers & educational curricula

The successful dissemination of project information and engagement with stakeholders are essential components of the SoliDAIR initiative.

In this endeavour, three distinct tasks play pivotal roles:

- Task 5.1 – Communication & Dissemination
- Task 5.2 – Networking with relevant EU projects and EU platforms for exchange of results
- Task 5.3 – Exploitation activities and replication of the results
- Task 5.4 – Training and upskilling of workers & educational curricula

Each of these tasks contributes to ensuring the widespread recognition and acceptance of AI, data and robotics solutions in manufacturing.

Table 1: Deliverables' timeline

No.	Deliverable Name	Leader	Type	Dissemination Level	Due date (months)
D5.1	Plan for the dissemination and exploitation	I2M	Report	Public	M6
D5.2	Dissemination and exploitation of results activities report	I2M	Report	Public	M36
D5.3	Research Ownership list	I2M	Report	Public	M36

It is important to note that this D&E plan is considered a **living document** and a **first draft**. It will serve as a basis for the final report (D5.2, see Table 1) in M36. The data provided in this deliverable will be used to guide partners in the revision process of the PDE (Plan for the dissemination and exploitation). At the end of the SoliDAIR projects' lifetime, the final report will include an updated and **final version** of the PDE that will allow the European Commission to assess the impact of the project.

Attainment of the objectives and explanation of deviations

The objectives related to this deliverable have been achieved and as scheduled for this initial stage of the SoliDAIR project. Risks for WP5 have been identified at the beginning of the project and will be reported in a dedicated deliverable. The indicators and tools for monitoring the achievement of objectives have been clearly defined and a risk assessment process will identify and address potential risks, playing a crucial role in safeguarding the project's success and ensuring the attainment of its objectives.

2 The Consortium

The consortium partnership members of the SoliDAIR project allow outreach to a diverse range of stakeholders, including academic and research institutions, industrial partners and technology providers. Engaging with these stakeholders will enable effective dissemination of project findings, foster collaboration, and promote the adoption of innovative energy storage solutions for waterborne transport.

2.1 Outreach

Maximizing the market uptake of the SoliDAIR solutions relies on a robust industrial consortium, comprising various key stakeholders. Technology & solution providers such as AUT, UGS, SISW, along with component & product manufacturers like BRO, CIE and BOS, form a strong industrial backbone. Additionally, the consortium boasts the support of influential RTOs, including FHG, VIF and THL and innovation management partners such as I2M and FHG.

The outreach of stakeholders based on the partnership members can be categorized into specific key areas:

a. **Research technology organizations**

- Fraunhofer IPA (FHG)
- Virtual Vehicle Research GmbH (VIF)
- TWI Hellas (THL)

These institutions represent stakeholders from the scientific and manufacturing community and can contribute to knowledge exchange, collaboration on research activities, and dissemination of project results within the academic sphere. Outreach to these kind of stakeholders leads to knowledge exchange, collaborative research, and sharing project results with academic and research communities.

Fraunhofer IPA (FHG): Fraunhofer Institute for Manufacturing Engineering and Automation IPA is one of the Fraunhofer-Gesellschaft's largest institutes. The Fraunhofer Gesellschaft, based in Germany, itself is the world's leading applied research organization. Fraunhofer IPA, based in Stuttgart, was founded in 1959 and employs round about 700 fulltime workers. The entire field of manufacturing industry and production is covered by its different technological expertise. Main lead topics are amongst other Artificial intelligence (AI) in manufacturing, Digital transformation and Robot technologies and services. Machine vision is one important application field of its AI research, which is strongly supported by its competences in the field of explainable AI.

Virtual Vehicle Research GmbH (VIF): The Virtual Vehicle Research GmbH is Europe's largest R&D center for virtual vehicle technology with 300 employees. Research priority is the linking of numerical simulations and hardware testing, which leads to a powerful HW-SW whole system design and automation of testing and validation procedures. Following this focus on industry-related research VIRTUAL VEHICLE is the innovation catalyst for future vehicle technologies. The international partner network of VIRTUAL VEHICLE consists of around 100 national and international industrial partners (OEMs, Tier 1 and Tier 2 suppliers as well as software providers) as well as over 40 national and international scientific institutions. We enable our clients to achieve a decisive technological lead, thanks to our innovative power, our effective integration in the European research platform, our global and close cooperation with

the best universities and corporate R&D departments, and ultimately thanks to our scientific excellence. We create value by shaping the digitalisation of vehicle development and by connecting the virtual and real worlds. The foundation for this is our team of highly qualified and committed staff.

TWI Hellas (THL): TWI Hellas is a wholly-owned Greek-based subsidiary of TWI, an independent research and technology organisation with physical offices in the UK, Europe, South East Asia, India, the Middle East, Central Asia and the USA. The team specialises in the fields of advanced robotics, artificial intelligence, cloud, and digital engineering. It develops state-of-the-art technologies for volume-efficient data processing, model-driven data analysis, and large-scale data management to deliver state-of-the-art Machine Learning algorithms, next-generation Human Machine Interfaces and digital simulation models (Digital Twins). Last but not least, to maximise the technological impact of collaborative R&D and industrial projects while boosting their smooth introduction to the market, TWI Hellas has assembled a dedicated team for market analysis, project management, dissemination and exploitation.

b. **Technology providers, component & product manufacturers and innovation management partners**
- AUTFORCE Automations GmbH (AUT)
- UG Systems GmbH & Co. KG (UGS)
- Siemens Industry Software NV (SISW)
- Brose Fahrzeugteile SE & Co. Kommanditgessellschaft, Bamberg (BRO)
- Fundación CIE I+D+I (CIE)
- Bosch Sanayi ve Ticaret A.S. (BOS)
- I2m Unternehmensentwicklung GmbH (I2M)

AUTFORCE Automations (AUT): AUT has been a leader in industrial automation since the year 2000. Specializing in testing systems and industrial software, we have 68 experts across Austria and Germany. We provide testing systems for both development and production. Through our test benches, customers can identify production errors, document quality deviations, validate quality criteria, classify products, and simulate product lifetimes. Our test benches are driven by autfactory, our test bench software. With autfactory, we can control and regulate test benches, optimize test processes and shorten development cycles for new products.

UG Systems (UGS): On the way to technological leadership for individual test environments in Europe UG SYSTEMS has enjoyed success with innovative test automation concepts since 2008. With the constantly growing team, UGS has been established as a globally acting provider of test systems. Today, theit technological focal points open pioneering solution strategies for them.

Siemens Industries Software (SISW): SISW is a global technology powerhouse that brings together the digital and physical worlds to benefit customers and society. The company focuses on intelligent infrastructure for buildings and decentralized energy systems, on automation and digitalization in the process and manufacturing industries, and on smart mobility solutions for transportations.

Brose Fahrzeugteile (BRO): Brose is the fourth-largest family-owned automotive supplier. Every second new car worldwide is equipped with at least one Brose product. The company's intelligent solutions for vehicle access and interiors provide greater comfort and flexibility.

Innovative concepts for thermal management increase efficiency and contribute to environmental and climate protection. Brose's systems understanding enables new functions in all kinds of vehicles – whether on four or two wheels. Including the joint venture Brose Sitech, the company employs more than 32,000 people at around 68 locations in 24 countries. In 2022, the Brose Group generated turnover of around 7.5 billion euros.

Bosch (BOS): The Bosch brand is far more than the sum of its products. It has grown out of a long history, a business culture and strategy and our values. Bosch stands for quality, inspiring products, responsibility and global partnership in all areas – externally and internally. Our both development departments are responsible from Common Rail-Injector and nozzle. Besides, the responsibility is shared between Bursa and development departments in Stuttgart. We have the world-wide responsibility of the Commonrail-Injectors CRI1.x, CRI2.x till 2000bar and CRI3.x for platform development including for numerous Injector-customers projects. We are part of development network for injectors together with Feuerbach, Linz, Wuxi, Yori and Bangalore. We have own test and investigation centrum for nozzles and Injectors with test lab and workshop area with high sophisticated test equipment. In addition, recently we started to develop Electric Air Compressors for Fuel Cell Engines.

Fundación CIE I+D+i (CIE): CIE is a technical centre (one of the 10 R&D centre in CIE Automotive), dedicated to develop new product and processes considering CIE's multitechnological approach and production capabilities for the automotive industry. CIE Automotive is a component manufacturer for the automotive industry, supplying all types of single components and subassemblies for all the areas of the vehicle, directly to OEMs and through Tier 1s for engine, transmission, chassis, interior, body, applications, different materials (steel, aluminium, plastic) and manufacturing processes (stamping, tube forming, welding, plastic injection, aluminium HPDC, forging, machining). Through a team of high skilled engineers, CIE combines several manufacturing technologies as stamping, HPDC, forging, plastic injection, iron casting, machining processes and roof systems development for products that will/could be produced in the corresponding divisions of CIE.

I2m Unternehmensentwicklung (i2m): i2m is a technology development and management consultancy focusing on technology development for automotive, industry/machinery as well as the pharma and energy sectors. Bringing results of basic research as well as concept development with national and international partners from industry and research, with a cooperative approach, to market maturity is one of the strengths of i2m. The resulting products and services have strong competitive advantages and are characterized by reduced development costs and short development times.

3 Methodology

The SoliDAIR project aims to achieve its impact objectives through an effective dissemination, exploitation, and communication strategy. The methodology of dissemination in the SoliDAIR project is aimed at maximizing impacts by focusing on active stakeholder engagement and disseminating tangible exploitable results to the relevant audience at the right time. Figure 1 outlines the interdependence of (including the differences between) dissemination, communication and exploitation activities. Focusing on dissemination and exploitation, dissemination strategy's aim is to make the project results and outputs accessible, while exploitation strategy implies achieving the expected impact by successfully exploiting project results.
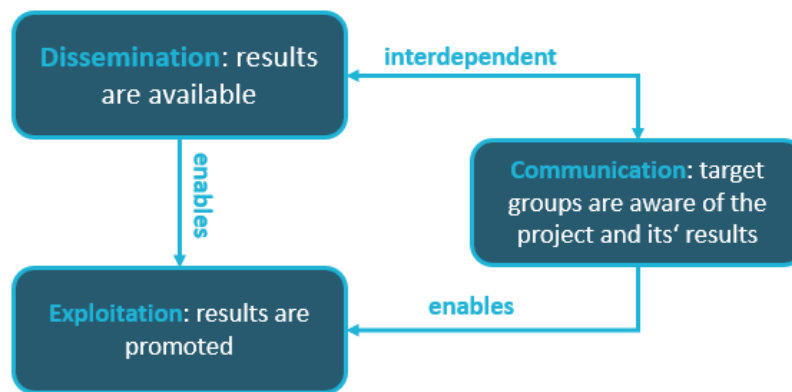

Figure 1: Dissemination, communication and exploitation approach

3.1 Definitions

Target audience: a group of people to whom messages are addressed.

Stakeholders: can be defined as people, groups or organizations having an active role because of their interest in the activities of the project, e.g., European Commission, Funding Agencies and others.

Networks: can be defined as a list of contacts that, even if they do not have an active role in the programme, can contribute to the wide communication and dissemination of activities. Networks can be of different types. They can be political, administrative, and union networks, for instance, linked to opinion leaders, media, and social media influencers. Building upon the experience accumulated by the partners and their memberships and networks listed in Table 4, the SoliDAIR project always has numerous contacts with a wide range of scientific networks.

End-users: a group of persons benefitting from projects' results.

3.2 Dissemination and Exploitation strategies

SoliDAIR will employ the following approach towards objectives achievement:

Step 1: Identify Stakeholders, Exploitable Results, Milestones, and Target Groups

The first target group for the exploitable results is the SoliDAIR stakeholder group (SG). A list of relevant stakeholders will be established. Potential target groups (TG) and their potential representatives have been summarized in Table 2.

A stakeholder group (SG) will be identified and put together from these TGs by I2M with the support of all partners, and the mentioned SG will be compiled from the business areas of the existing project partners. The networks of the project partners will be particularly utilised, as

the first inputs from them are required in WP2 (T2.1), to define whether and in what terms the deployed technologies & methods and the UC systems overall (WP3, 4) are acceptable for adoption by the industry partners.

Table 2: SoliDAIR's Target groups

Target groups	Potential representatives
Manufacturing industries	VW, BMW, Stellantis, Magna, Benteler, Continental, BASF, Lafarge, Bayer, Vetter Pharma, Boehringer Ingelheim Pharma Holcim, etc.
Technology providers/enablers and innovative SMEs offering solutions	LeftshiftOne, IBM, GE, ABB, KUKA Schneider, Capgemini, IVISYS, Deevio, etc.
Research and academic community	Field of AI, robotics, automation and manufacturing control systems
EU platforms and networks	ADRA, AI4Europe, EIT Manufacturing, Made in Europe, euRobotics, CLEPA, DIHs, etc.
Educational and training institutions and standardisation bodies	CEA, IEEE etc.

Step 2: Identify Appropriate Timeline and Link Milestones and Results

The consortium has established a coherent communication, dissemination, and exploitation timeline that links expected results to specific dates in time along the timeline. The WP leaders and UC owners are responsible for disseminating the results at the indicated dates and times to ensure timely communication.

Step 3: Key Messages and Dissemination and Communication Tools

SoliDAIR will create key messages tailored to each target group, communicating the benefits and vision of the project and linking them to the innovations and results developed in different work packages. Clear messages will be disseminated through newsletters, press releases, and other means, with variations depending on the target audience.

Dissemination tools have been selected based on the specific goals and target audience, including presentations at external events, technical publications, articles, networking events, virtual events, print media, interactive events, roadshows, and more.

Step 4: Implement Activities

Dissemination activities have started from Month 1 of the project and will continue throughout the project duration. The success of dissemination activities will be evaluated monthly to ensure that the measures are effective, reaching their aims, and executed on time. Monitoring of dissemination activities will be part of the executive board's monthly conference calls. Dissemination and communication measures are summarized in Table 3 below:

Table 3: Dissemination and communication measures

Project Website (KPI ≥ 1.000 unique annual visitors). A project website is created and will maintain downloadable short explanatory information, press releases, photos, videos, project flyer(s) and regular updates about the project.
Press materials. To consolidate the SoliDAIR project image, a project identity is created and all dissemination materials (flyer, general presentation, press release, newsletter, etc.) will follow the same style.
Social media and newsletters (KPI ≥ 15 annual posts/year and biannual newsletters). SoliDAIR is promoting the efforts undertaken by the consortium in various social media

channels such as Twitter, LinkedIn, YouTube. Newsletters will be available to all subscribers on a half-yearly basis.

Publications in scientific journals and relevant magazines (KPI ≥ 10 publications). Scientific publications in the field of AI, Robotics, sensors and image processing, for example in Journal of Artificial Intelligence Research; Journal of Sensors and Sensor Systems; Expert Systems; Journal of Intelligent Manufacturing; Journal of Manufacturing Science and Engineering; Engineering Applications of Artificial Intelligence; Journal of Manufacturing Systems; International Journal of Material Forming; International Journal for Numerical Methods in Engineering; Autonomous Robotics; International Journal of Robotics Research.

Participation at conferences and industry fairs (KPI ≥ 10 conferences) to disseminate SoliDAIR findings and conduct direct conversations with the target audiences. Key conferences are: IEEE International Conference on Robotics and Automation (ICRA); International Conference on Artificial Neural Networks (ICANN); AI Know, Graz, Austria; BMVC – British Machine Vision Conference; ERK - International Electrotechnical and Computer Science Conference; AIG - Automation in Industry and Economy Conference; AI in manufacturing; AI Systems Summit: Industry 4.0; EFFRA - European Factories of the Future Research Association; ESAFORM, COMPLAS, COUPLED, WCCM, ECCOMAS, MMLDT; GSVF – Graz Symposium Virtual Vehicle. Fairs: Control, Stuttgart (Germany); Vision, Stuttgart (Germany), Automatica Munich (Germany); IFAM - International trade fair for automation and mechatronics.

3.3 Individual Exploitation plans

The foreseen exploitation plan and interest of each partner are presented below.

Component & product manufacturers

BRO will integrate the developed solution into its production line to detect defects and to support process optimization. The integration of the production line workers into the requalification process will lead to reduced effort for maintenance and retraining of the AI approach, while maintaining the necessary detection performance. The transferability of the AI solution will facilitate adoption to new products and production lines so that scaling effects are guaranteed. Furthermore, BRO will contribute with its experience and developed guidelines to new standards.

CIE will develop an AI- based production parameter optimization for aluminium casting and machining, as well as a robotic artificial vision technology to speed up quality control. CIE will implement these technologies initially in a Spanish plant, initially for one part number and then for a family of parts (adding flexibility and reconfigurability). If these technologies prove successful, CIE's vision is to expand them for every family of parts they produce and replicate them in other aluminium casting plants of the group, in Spain, Romania, India, Mexico, and Brazil.

BOS will assess how AI strategies and systems can benefit the high-volume, high-rate production process for high precision components such as injectors that have potential bottlenecks in the line. It is aimed to analyse and exploit relevant outcomes achieved (e.g. data pre-processing methods, algorithms developed). Furthermore, BOS will strive to implement suitable solutions that assure the quality in the prediction as much as measurement so that can be used in various applications in the high-volume, high-rate production processes in the current context and also in other facilities.

AI providers & Technology, solution and service providers

AUT is a high-growth innovative SME, that will incorporate the trained models and human-computer-interfaces into its Manufacturing Execution System. It will offer advanced automation

solutions with AI and data models to manufacturing clients in the automotive and other sectors, strengthening its market position in a rapidly growing field.

UGS will incorporate the trained models and human-computer-interfaces into its standard-software. This will create a stronger asset in terms of marketing and efficiency. UGS expects to run a campaign in the production industry and acquire new customers in the area of high-volume production. The addition to the software codebase is expected to yield a reduction in necessary manpower of 10% and a premium of 5% of the license cost.

SISW will exploit the project outcomes through its commercial multi-physics simulation platform Simcenter Amesim, robotics, and their engineering business activities. SISW will use the insights gained into advanced AI models, and how simulation and physical testing together can be used in an efficient way to train and validate them, thereby unfolding additional market opportunities. Upgrades will be introduced within the Amesim software platform, and as new services for clients.

I2M will incorporate the methodology for human-machine-interaction as well as the blueprints for AI projects into its methodology-framework for consulting. The increased replicability for projects and the increased quality of HMIs will create a USP in the market for consulting in large-scale AI projects and enable I2M to grow its customer base.

Research & technology organizations and universities

FHG as non-profit organisation will use the project results in a non-commercial form. The main achievements for FHG will be in the field of synthetic data and explainable AI (xAI). Deeping the knowledge and creating new software solutions will be the core benefit. Also, the extension of networks across Europe in the academic and industry world will lead to further wealthy scientific exchange after the project´s end. The project will help FHG in the future to acquire new scientific projects in the field of AI for sustainable, circular, resilient and agile manufacturing. The developed solutions will directly and significantly improve FHG's offers addressed to and financed by the industry.

VIF will explore deep-learning-based anomaly detection algorithms in high-volume, high-rate production process. The project will strengthen the competitiveness of VIF in the field of AI and how digital twins could support generation of lacking data. The project will help to acquire new contracts and attract new customers from automotive and rail industry.

THL will develop the expansion of its adoption in other CIE production cells and factories around the world. The key capability of inspecting borehole located defects make it stand out from other systems. THL will also seek alongside CIE to establish the best vehicle to further market this solution beyond CIE owned plants, taking into account CIE competition. The knowledge gained through the Data-Efficient AI training and validation will aid THL in reliably generating synthetic data for other inspection applications in infrastructure maintenance.

3.4 Management of IPR

General: The protection of results and IPR is a crucial point for SoliDAIR´s consortium partners, especially for the industrial partners. The Consortium Agreement (CA) has been set up and signed by all partners before project initiation in which (amongst other things) the following aspects are addressed: Background; Results; Access rights and Dissemination. a) Background: all background is considered confidential unless otherwise indicated. Product data will be made available to the AI providers, as requested. b) Dissemination: All work related to the use cases and related data (e.g. impact analyses), as well as the specific processes followed for their creation are strictly confidential and restricted to the project consortium, unless otherwise agreed in writing. The SoliDAIR CA is based on the DESCA model, which

proved to be useful in previously coordinated FP7 and H2020 projects. IPR management will be responsibility of the IPR Advisor (represented by I2M), supported by the Project coordinator. In details, the IPR Advisor will 1) identify the data generated by SoliDAIR, in the form of generated knowledge, technological or methodological developments, products, data etc., and separate confidential and public results prior to any dissemination activity 2) clarify ownership claims, exploitation intentions and appropriate exploitation routes.

Open access to scientific publications: project partners will commit to Open Access Publishing and will prioritize and promote Open Access to their publications. At the beginning of the project, the consortium has decided on preferred repositories such as European Open Science Cloud (EOSC) for publications coming out of the project following the green open access principle.

3.5 Joint collaboration with similar EU projects, initiatives and sharing of best practices

Within the objectives of the project the interaction with other project acting in the same/similar domain in order to exchange know-how, experiences and best practices are encouraged. In order to achieve the above, the consortium is establishing all the needed mechanisms to create synergies with similar projects that will be adopted for the whole project implementation. The planned and first collaborations are summarized in the Table 4 below.

Table 4: Planned outreach and networking activities for SoliDAIR

Connections with ADRA and other associations	Dissemination of results with EU associations in the field of AI, Data and Robotics, which can support the SoliDAIR solutions for fostering manufacturing in Europe at large, is an important aspect. FHG is a member of euRobotics, which is one of the four founders of ADRA (AI, Data and Robotics Association). The goals of SoliDAIR are perfectly in line with the aim of trustworthy, safe and robust AI, Data and Robotics[1]. Therefore, direct connections to euRobotics will be used to spread the results of SoliDAIR in the AI, Data and Robotics community. The consortium has already participated in an ADRA event[2] and plans to hold bilateral talks with ADRA responsible persons and participation in upcoming events. Additionally, other relevant associations have been identified, where SoliDAIR partners are already associated: BOS, SISW, FHG are members of EFFRA (Made-in-Europe partnership). Since FHG, BOS, CIE are partners in EIT Manufacturing, the SoliDAIR project can get access in this important network to receive valuable input and spread the project results. Furthermore, FHG is associated to the European Association for Artificial Intelligence (EurAI). EurAI organises ECAI, the European Conference on AI, and ACAI, the EurAI Advanced Course on AI. FHG will use especially these venues to promote the results of SoliDAIR in close collaboration with the EurAI board in order to reach an EU-wide impact. A Letter of Support has been received by ADRA, CLEPA and EIT Manufacturing.
Target groups	EU Associations & platforms, policy makers (**KPI ≥ 5 active collaborations** established between SoliDAIR and above-mentioned associations/initiatives)
Cohesion activities with the co-programmed partnership on AI, Data and Robotics	The project will develop from the very beginning a series of cohesion activities with relevant EU projects related to partnership on AI, Data and Robotics, and other topics relevant to SoliDAIR. The goal is an exchange of knowledge and relevant assets. **FHG** is a partner of the project AI4EUROPE, and **SIEMENS AG (via SISW)** is a partner of the project ADRA-e, both funded under the call CSA HORIZON-CL4-2021-HUMAN-01-02. **Letter of Support** from AI4EUROPE received. **THL** is a partner of two projects funded under the call HORIZON-CL4-2021-DIGITAL-EMERGING-01-09: Grinner and TUBERS.

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[1] *https://adr-association.eu/about-us/*

[2] *Launch Event: showcasing the future of innovation in AI, Data, and Robotics,22/02/2024, https://www.youtube.com/watch?v=RXL_8BgYU2Y*

Target groups	Scientific community, manufacturing and processing industry, AI providers, professionals, research community (**KPI ≥ 4 active collaborations with projects**)
Use of connection to the Digital Innovation Hub (DIH) networks	The **FHG** department "Robot and Assistive Systems" is DIH and is concerned with the development of robot systems and automation solutions for industry and also for the services sector. Through this DIH additional expertise and equipment in the field of robotic could be partially accessed. **VIF** is also a DIH "(Virtual Vehicle R&D Center) for the automotive and rail industries", located in Graz, Austria. The centre focuses on the advanced virtualization of development. An essential element is the linking of numerical simulations and hardware testing, which leads to a powerful HW-SW system design.
Target groups	Scientific community, manufacturing and processing industry, AI providers, professionals, research community (**KPI ≥ 5 contacts with DIHs**)
Use of EU data platforms for exchanging results	**FHG** has direct contact with the AI4Europe platform, which is an AI on-demand Platform that facilitates experimentation, knowledge sharing and the development of state-of-the-art solutions and technologies. This open, impartial, and collaborative Platform fits very much to the aims of SoliDAIR and will be quite useful for spreading the results. **FHG** will be used as an anchor point for an intensive exchange. The Digital Industrial Platform for Robotics will be used related to the "Robotics & AI" technologies dissemination, as well as open EU repositories such as the European Open Science Cloud. A GitHub marketplace for re-useable assets with a low entry barrier for re-use (e.g. Python-packages/PiP) established in the project will be established by FHG, as an established technology for sharing of software assets. Other platforms identified will also be taken advantage of. Exchange results will come mainly out of WP2.
Target groups	Scientific community, manufacturing and processing industry, AI providers, professionals, research community (**KPI ≥ 4 platforms, KPI Github: ≥ 200 total downloads; ≥ 50 assets for sharing**)
Other events organised by the project partners	Training sessions and workshops on the subject of Robotics and AI will be organised to disseminate the project results and to determine other industrial processes, onto which the technology could be rolled out. Internal innovation days on cross-business projects, international technology days will be organised by **BRO**. **VIF** will organise PhD days, offering the brightest talents of its PhD Cooperation program and also other students the chance to present their works to a broader audience. In close cooperation with international universities and research institutions, the format creates a stage for young scientists and their ideas for future mobility. Additionally, the "Beyond AI"-Summer School will be organised by **VIF** and TU Graz.
Target groups	Research community, industry, General Public (**KPI: 600-700 expected participants** from all stakeholder groups and around Europe).

This list of activities is a starting point, it will be quarterly reviewed and updated in SoliDAIR SB meetings and reported in final version of the PDE.

4 Dissemination tools

4.1 Project corporate identity

An attractive and strong project corporate identity is crucial to ensure better visibility and to create a coherent and highly recognisable image of the project. The corporate identity uses a set of graphic elements to easily identify the SoliDAIR Project. The overall aim was to create a coherent and highly recognisable image of the project to support communication and dissemination measures, such as publications and all kinds of written as well as visual communication about on-going and completed research activities.

    a) Project logo

The design of the logo was guided by the following principles:

- Uniqueness and appealing design

- Blue and dark grey colour combination, as those two colours are often associated with the terms AI, Data and Robotics; with blue symbolizing intelligence, trust and reliability, easily associated with technology and grey symbolizing modernity, precision and technology, easily associated with robotic machinery and equipment.

Figure 2: SoliDAIR project logo

This SoliDAIR logo (see Figure 2) will be used in all communications (written deliverables, presentations, fact sheet, newsletter, social media, etc.) to increase project visibility.

    b) Branded templates

Common templates for written deliverables (MS Word, see format of this report), Minutes of Meeting and SoliDAIR presentations (MS PowerPoint) have been created. In order to have a consistent brand identity, the design of the templates follows the same style. This is visualised in Figure 3 and Figure 4.

Figure 3: SoliDAIR presentation template
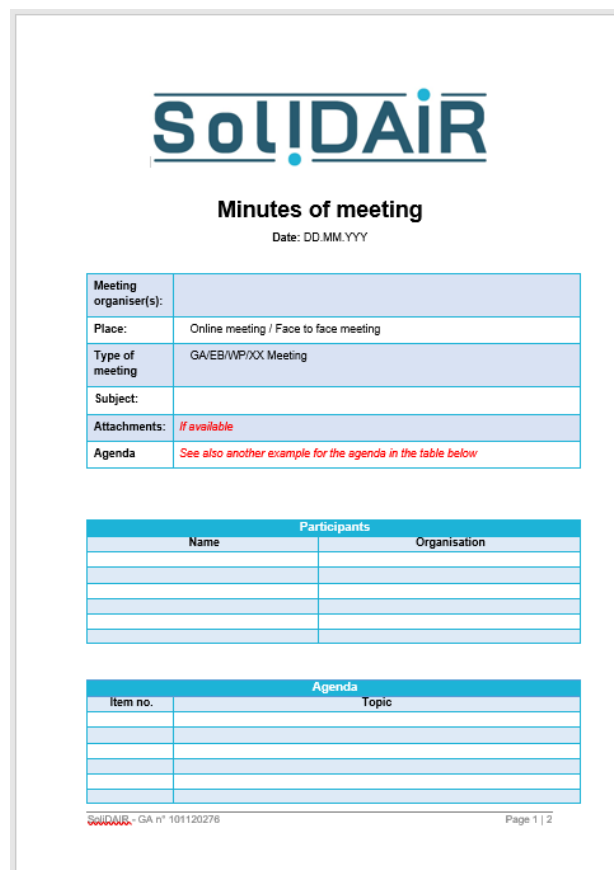
Figure 4: SoliDAIR MoMs template

4.2 Social media

To establish the social media presence on e.g. LinkedIn (linkedin.com/company/solidair-eu-project/) a web campaign will be developed. Results and activities regarding SoliDAIR project will be therefore disseminated as social media channels represent an important way to be in touch with the relevant community.

i2m has set up the social media for SoliDAIR project and will be responsible for editing and for carrying out updates on a regular basis. All partners will support the social media campaign of the project (input, posts sharing, promotion etc.).
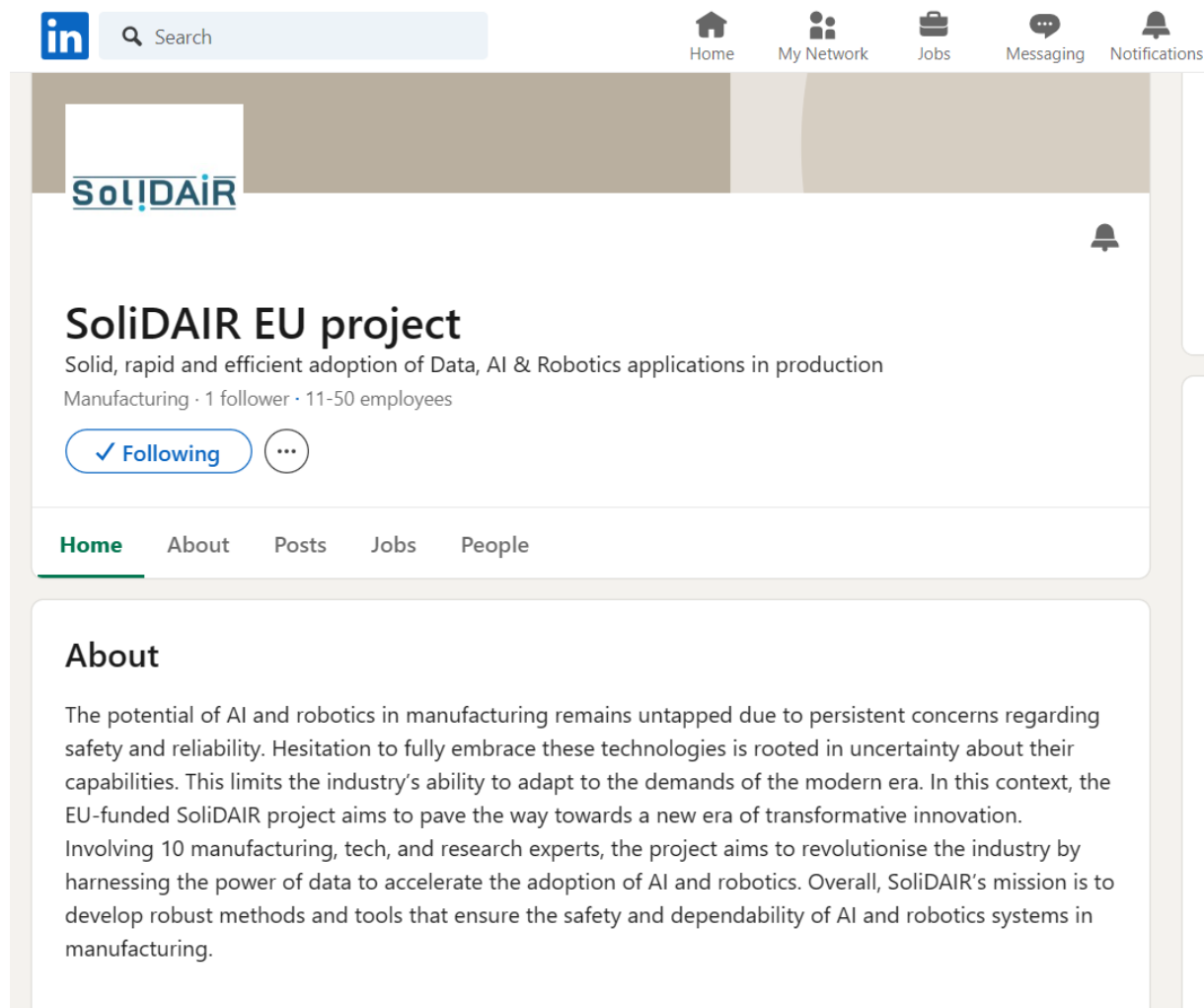
Figure 5: SoliDAIR's LinkedIn page

4.3 Project website

The official project website (www.solidair-project.eu) will be launched at the end of M6, and it follows the EU recommendation regarding usability and accessibility. SoliDAIR website will remain available to the public for at least 2 years after the end of the project.

i2m is responsible for editing and for carrying out website updates on a regular basis, including timely uploading of project results, papers published, deliverables released or news items to be reported. All partners will contribute to maintain the project website providing relevant input such as participation at events, papers and articles, information on the progress of work, dissemination activities etc. Moreover, all partners are encouraged to include a mention and a link to the project website (www.solidair-project.eu) from their own organisation's website.

Figure 6: SoliDAIR's website homepage

4.4 General project presentation

To effectively communicate the goals and outcomes of the project, two types of project presentations will be created by M10: one tailored for the general public (non-technical) and the other for experts in the field of manufacturing (technical). These presentations will be designed to convey understandable and well-structured messages about the project. The project presentations will be made easily accessible on the project website, allowing all partners to utilize them when presenting the project at internal and external events. It is strongly encouraged that partners adapt the content of these presentations to suit the target audience and specific events, ensuring that the information is relevant and engaging.

The general project presentation consists of several key sections, including context and mission, expected impact, main technologies, and an overview of the consortium. This presentation will be updated throughout the project as results become available.

i2m will coordinate the activities for the creation of the project presentation, supported by the coordinator (FHG) and all partners by providing relevant inputs and graphical pictures.

4.5 Flyer or Fact sheet

To increase the visibility of the project among specific target group and encourage people to subscribe to the project newsletter, a project flyer or fact sheet will be created in M10 and will be widely disseminated to the contacts of the partners and on request. The flyer will have an attractive appearance and contain details on the project objectives, scope, targets and foreseen outcomes.

The flyer will be made available on the website and all partners are encouraged to share the project flyer via organisation webpage, social media and by email to their network. Main sections of the project factsheets will include project summary, objectives, expected impact and consortium. The flyer will be updated once relevant results can be made public.

i2m will coordinate the activities for the creation of the project flyer, supported by the coordinator (FHG) and all partners by providing relevant inputs and graphical pictures.

4.6 Newsletters

To keep the stakeholders informed of the progress of the project, relevant and interesting news will be communicated to all subscribers through a circulating newsletter. The timing of the publication will be decided based on relevant results of the project (half-yearly). The newsletter will be prepared by i2m with the inputs received from the partners and distributed via Mailchimp. Each newsletter should be designed to engage the audience and provide valuable insights into the project's progress, achievements, and contributions towards a greener and

more sustainable industry. It is essential to keep the newsletters informative, visually appealing, and easy to understand for a diverse readership, including industry professionals, researchers, policymakers, and the general public.

4.7 Publications

To further promote the research outputs, SoliDAIR will undertake all necessary efforts to translate research outputs and to submit them in the scientific journals.

The project scientific dissemination will be supported by publications in peer reviewed journals and conferences. In the Table 5, an initial list is presented, containing the names of the potential journals and magazines that will be targeted. This list is by no means exhaustive and will be further enhanced throughout the project, aiming at tackling relevant journals and maximising the impact.

The first publications are planned for year 2025.

Table 5: List of potential journals/magazines

Journal of Artificial Intelligence Research
Journal of Sensors and Sensor Systems
Expert Systems
Journal of Intelligent Manufacturing
Journal of Manufacturing Science and Engineering
Engineering Applications of Artificial Intelligence
Journal of Manufacturing Systems
International Journal for Numerical Methods in Engineering
International Journal of Material Forming
Autonomous Robotics
International Journal of Robotics Research

4.8 Conferences

SoliDAIR will organise and/or participate in various public events to facilitate consultations, promote knowledge exchange and disseminate project information. These events serve as valuable opportunities to engage with the wider community, raise awareness about the activities and outcomes of SoliDAIR and foster public interest in the project. Some of the key conferences are: IEEE International Conference on Robotics and Automation (ICRA), International Conference on Artificial Neural Networks (ICANN); AI Know, Graz, Austria, BMVC – British Machine Vision Conference; ERK - International Electrotechnical and Computer Science Conference; AIG - Automation in Industry and Economy Conference; AI in manufacturing; AI Systems Summit: Industry 4.0; EFFRA - European Factories of the Future Research Association; ESAFORM, COMPLAS, COUPLED, WCCM, ECCOMAS, MMLDT; GSVF – Graz Symposium Virtual Vehicle. Fairs: Control, Stuttgart (Germany); Vision, Stuttgart (Germany), Automatica Munich (Germany); IFAM - International trade fair for automation and mechatronics.

First SoliDAIR presentation to the general public has already been done in February 2024 – participation at an ADRA launch event for all new EC projects that started end of 2023 or early 2024. There, all projects had the opportunity to present the roles of the various actors of the AI

landscape supported by the EC (ADRA, AI network of excellence centres, AI-on demand platform, TEF, EDIHs…) and FHG had the opportunity to pitch **SoliDAIR** to the community.[3]

Participations in further conferences and presentation of the first results is planned for end of 2024 and 2025.

Workshops

In addition to the dissemination efforts mentioned earlier, the SoliDAIR project will also undertake various activities to engage stakeholders and promote knowledge sharing. These activities include organizing workshops with the Stakeholders' Group as well as a final project event.

As the project is currently in its initial stages, the specific requirements and target audience for these events will be further defined and outlined with the beginning of the Task 5.2 Networking with relevant EU projects and EU platforms for exchange of results (M6, led by FHG). Both requirements and target audience will be defined in view of the relevant topics in these particular stages of the project.

The workshops with the Stakeholders' Group and the Final project event serve as important platforms for engaging stakeholders, fostering collaboration, and sharing project outcomes. These activities aim to facilitate meaningful interactions and exchange of knowledge with key stakeholders involved in the project.

I2M will keep track of all the dissemination and communication activities carried out and will deliver them in an overview report D5.2 in M36. A tracking tool has been created and can be found in projects' SharePoint (see Figure 7).

Figure 7: Screenshot of the SoliDAIR outreach tracking tool

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[3] *Launch Event: showcasing the future of innovation in AI, Data, and Robotics,22/02/2024, https://www.youtube.com/watch?v=RXL_8BgYU2Y*

5 Monitoring and verification tools

The monitoring of dissemination activities is a regular and integral part of our project's implementation. The monitoring process is conducted periodically, and the progress and outcomes are recorded in a specific template designed by WP5 leader, as a Reporting log. This *Dissemination Record Template* serves as a comprehensive record to track the dissemination efforts effectively made by each partner. In particular, each partner will be asked to track following aspects:

Table 6: Dissemination activities tracking tool - format

Dissemination Record Template
Tracking all types of dissemination activities conducted (organizing or presenting in a conference/workshop/social media, etc..) where stakeholders have been informed about the project
Tracking of scientific or non-scientific publications, thesis/dissertation publications, articles in magazines
List of interesting events from 2023 – 2025, where SoliDAIR partners could attend
List of potential journals and magazine, where partners could publish SoliDAIR results

In evaluating the success of dissemination efforts, quantitative indicators that gauge the reach and impact of activities have been identified during the proposal phase preparation. These indicators are carefully selected to measure the effectiveness of the dissemination process, including metrics such as the number of publications, media coverage, website traffic, social media engagements, conference presentations, and workshops conducted. These quantitative indicators provide valuable insights into the extent to which our project's results and findings are being disseminated to our target audience and beyond. Each of these indicators is designed to track the dissemination activities' effectiveness and reach in terms of providing information, engaging stakeholders, and disseminating research findings throughout the project's duration and measure the success of the dissemination efforts to ensure that the project's goals for communication and outreach are achieved.

Monitoring activities will be conducted at regular intervals, with assessments taking place periodically. By implementing proactive measures and maintaining open communication, SoliDAIR aims to overcome any risks that may arise and maintain steady progress towards its goals.

These risks encompass various aspects of the dissemination process, including communication within the consortium, strategy development, outbound communication efforts, and stakeholder engagement. By actively monitoring and addressing these risks throughout the project's duration, SoliDAIR aims to ensure the effectiveness and success of its dissemination activities.

The monitoring measures include:

- **Regular Reporting**: Establish a reporting schedule to track the progress of dissemination activities and provide updates on the status of each activity and its performance against the established KPIs.

- **Stakeholder Engagement**: Monitor the engagement of stakeholders during the dissemination process. Evaluate the level of interest and feedback received from stakeholders to assess the effectiveness of the communication efforts.

- **Feedback Mechanisms**: Implement feedback mechanisms to gather input from target audiences. This could be through surveys, focus groups, or direct communication channels to assess the effectiveness and relevance of the dissemination materials and activities.
- **Partner Contributions**: Track the contributions of each project partner to the dissemination plan. Ensure that all partners are actively engaged in their designated tasks and fulfilling their responsibilities.

5.1 Impact assessment

In order to monitor dissemination activities and ensure its major impact, it is relevant also to mention general impacts that the SoliDAIR project will measure with various tools and indicators since they will affect also the success of project results promotion. These tools will indeed help to assess the project's effectiveness and the extent of its contributions to the intended outcomes, including promotion of project results through dissemination activities. Here are some of the key tools and indicators used to measure project impacts and that can be considered relevant also for the success of the promotion of project results under WP5 dissemination activities:

1. **Key Performance Indicators (KPIs):** KPIs are specific, measurable metrics that track the project's progress and success in achieving its objectives. They provide quantitative data to evaluate performance. Examples of KPIs in the SoliDAIR project include automated visual inspection for car door modules, automated inspection cell for aluminium cast parts, predictive quality control for injectors, predictive quality control / AI recommender system, etc.
2. **Publications and Citations:** The number and quality of publications, including academic papers and technical reports, serve as indicators of the project's scientific impact and contribution to the research community.
3. **Policy Adoption and Integration:** The adoption of SoliDAIR project results in policies or regulations related to manufacturing demonstrates the project's impact on shaping the industry's future.
4. **Cost-Benefit Analysis:** Assessing the cost-effectiveness of the project's solutions compared to traditional approaches can indicate their economic impact and potential for widespread adoption. The economic viability (cost-benefit) will be evaluated for each UC during demonstration.

6 Conclusions

Effective dissemination is the linchpin that connects the project's breakthroughs and advancements to the target stakeholders, including industry and technological professionals, policymakers, researchers, and the public. By disseminating comprehensive information about potential innovative solutions to improve energy efficiency, and upscaling proven solutions the SoliDAIR project engages with diverse stakeholder, fostering collaboration and knowledge exchange. As a result, awareness, understanding, and acceptance of the project's outcomes are heightened, which ultimately contributes to the realization of impact objectives. Dissemination and exploitation are interdependent and mutually reinforcing processes and they will be interlinked to all WPs: the dissemination of research findings realized during the project implementation will not only foster awareness but also attract interest and potential collaborators. This, in turn, enhances the prospects for effective exploitation and the successful deployment of project results in real-world scenarios. Identifying and engaging stakeholders from different target groups, directly links to multiple impact objectives. By building strong stakeholder networks and identifying early adopters of SoliDAIR technologies, the project ensures that the innovations and solutions gain traction in the industry.

The dissemination and communication activities of the project, plays a critical role in achieving several impact objectives. By engaging with stakeholders, the project maximizes the impact of its research findings. Through this engagement, the SoliDAIR project ensures that its solutions are adopted, accepted, and integrated into the manufacturing industry.

To conclude, the following table summarizes the abovementioned interlinkages between WP5 and other WPs and illustrates how *Dissemination and Exploitation activities* will be strictly linked to the success of project implementation in order to ensure an effective stakeholder engagement plan and promotion of project results:

Table 7: Summary of Dissemination, Exploitation & Communication measures

Exploitation
Manufacturers: Industrialising the demonstrated systems (use cases) within the partner industries and internal replication across factories globally **Technology providers**: Patenting and exploitation of new technologies (AI models, software, HMIs), as well as AI/Robotics-enabled systems
Dissemination & Communication
• ≥ 5 active collaborations with EU networks, incl. ADRA. • ≥ 4 collaborations with projects, incl. AI4Europe • ≥ 5 contacts to DIHs • ≥ 4 data platforms to share public results • ≥ 10 Scientific publications and ≥ 10 participation at conferences • ≥ 10 events organized, ≥ 600 participants • Online, presence & social media
Engagement and replication
100+ manufacturing companies (large and SMEs) and 20+ AI, Data & Robotics technology and solution providers directly engaged to replicate the results, by the project consortium, through EU networks

References

1. GRANT AGREEMENT Project 101120276 – SoliDAIR

2. RIA Proposal acronym: SoliDAIR

    Topic: HORIZON-CL4-2022-DIGITAL-EMERGING-02-05: AI, Data and Robotics for Industry optimisation

    Type: Type 1 - Focused projects, involving the user industry and technology providers

    Focus: Production

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#	Partner	Partner full name
1	FHG	FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV
2	BRO-B	BROSE FAHRZEUGTEILE SE & CO. KOMMANDITGESELLSCHAFT
3	CIE	FUNDACION CIE I+D+I
4	BOS	BOSCH SANAYI VE TICARET AS
5	AUT	AUTFORCE AUTOMATIONS-GMBH
6	SISW	AUTFORCE AUTOMATIONS-GMBH
7	UGS	UG SYSTEMS GMBH & CO. KG
8	THL	TWI ELLAS ASTIKI MI KERDOSKOPIKI ETAIREIA
9	VIF	VIRTUAL VEHICLE RESEARCH GMBH
10	I2M	I2M UNTERNEHMENSENTWICKLUNG GMBH

LEGAL DISCLAIMER

Abbreviations and Definitions

Term	Definition
AI	Artificial Intelligence
CA	Consortium Agreement
DESCA	Development of a Simplified Consortium Agreement
DIH	Digital Innovation Hub
EOSC	European Open Science Cloud
EU	European Union
HEU	Horizon Europe
HMI	Human-Machine Interface
IPR	Intellectual Property Rights
KPI	Key Performance Indicator
PDE	Plan for the dissemination and exploitation
RTO	Research and technology Organisation
R&D	Research and Development
SG	Stakeholders Group
SME	Small and medium-sized enterprise
TG	Target Group
UC	Use case
USP	Unique Selling Point
WP	Work package

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