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## DELIVERABLE

### D8.5 – STAR’s Contributions to Clusters and Associations-Final version

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## Executive Summary

In the deliverable at hand, we provide a report on the progress of the STAR’s Contributions to Clusters and Associations during the whole project period M01-M36 presenting the liaisons and collaborations established, and activities undertaken. This deliverable is the second of two deliverables within the Task and is closely connected and developed in parallel with the Deliverable D8.3 "Dissemination and Communication Activities-Final version".

The present deliverable focuses on the collaboration with the other ICT-38 projects funded by the European Commission, the collaboration with AI4EU/AI4Europe and the STAR contribution to clusters and associations.

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## Definitions, Acronyms and Abbreviations

Acronym/ Abbreviation	Title
<b>AI</b>	Artificial Intelligence
<b>CPS</b>	Cyber Physical System
<b>DIH</b>	Digital Innovation Hub
<b>DoA</b>	Description of Action
<b>EC</b>	European Commission
<b>EU</b>	European Union
<b>H2020</b>	Horizon 2020
<b>SDO</b>	Standards Developing Organisation
<b>VDIH</b>	Virtualized Digital Innovation Hub
<b>WP</b>	Work Package

# 1 Introduction

## 1.1 Purpose and Scope

The deliverable at hand has been prepared in the context of Work Package 8 "Dissemination, Exploitation and Standardization" and is associated with Task 8.2 "Contributions to Clusters and Associations".

Task 8.2 is dedicated to the project’s active presence and participation in activities organized by clusters and associations that are relevant to the project’s outcomes. STAR actively participated in the activities of EU level associations and alliances like EFFRA, BDVA and AIOTI, and also liaises with several national manufacturing associations and initiatives in the countries of the project partners. The WP8 is a horizontal Work Package within the project work plan and as such is connected to all other activities.

The present deliverable is the second of the two deliverables within the Task and is closely interrelated and developed in parallel with Task 8.1 "Dissemination and Communication Activities", Task 8.3 "Pre-normative Research and Standardization Activities", Task 8.4 "Exploitation and Business Planning", Task 8.5 "Business Modelling and Sustainability Planning" and Task 8.6 "Collaboration with other ICT-38-2020 projects".

This document, produced at the end of the project, provides the report of the implemented work. The purpose of this manuscript is to document the STAR contributions to Clusters and Associations as also collaborations with the ICT-38 projects and other own communities of relevant stakeholders and the outcomes of these synergies. We provide the overview for the whole project duration, paying however specific attention to the period from M19 (July 1st, 2022) to M36 (December 31st, 2023) that was not included in the previous deliverable D8.4<sup>1</sup> and reports specifically on the tasks undertaken by the partners.

## 1.2 Document Structure

The Sections of the present deliverable are organised in the following manner.

After the introductory Section 1, Section 2 provides a report on the Liaisons and Collaborations with other relevant activities, in particular:

- Collaboration with ICT-38-2020,
- Collaboration with AI4EU/AI4Europe,
- Collaboration with other projects and initiatives in Digital mManufacturing and AI,
- Contributions to Clusters and Associations,
- Other collaborations and own communities of users and developers.

Section 3 concludes the document.

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<sup>1</sup> D8.4 STAR’s Contributions to Clusters and Associations-Initial version

## 2 Liaisons and Collaborations

In this section of the deliverable, we describe the liaisons and collaborations with the different clusters and associations. An important element in this plays the collaboration with other ICT-38 projects with whom a series of activities have been implemented. In detail, all related activities are presented in the following sub-sections.

### 2.1 Collaboration with ICT-38-2020

The EC deems that in order to widely deploy state-of-the-art AI technologies integrated with advanced manufacturing technologies and systems, specific attention has to be given to standardisation, synchronising EU and Member States activities, and to international collaboration [REF-01].

STAR is one of the Research and Innovation Actions (RIA) projects that were funded under the H2020-ICT-38-2020 call, and thus is a member of the AI-MAN (ICT-38) Projects Cluster. The AI-MAN Cluster is supported by EFFRA and the Connected Factories project and aims at exploiting synergies between the projects in the Cluster and increasing their impact. It is comprised by STAR and eight more projects, including:

- [AI-PROFICIENT](#) (Artificial Intelligence for improved PROduction effICIency, quality and maintenance – 957391)
- [ASSISTANT](#) (leArning and robuSt deciSIon SupporT systems for agile mANufacTuring environments – 101000165)
- [COALA](#) (COgnitive Assisted agile manufacturing for a LABOR force supported by trustworthy Artificial Intelligence – 957296)
- [EU-Japan.AI](#) (Advancing Collaboration and Exchange of Knowledge Between the EU and Japan for AI-Driven Innovation in Manufacturing – 957339)
- [knowEdge](#) (Towards AI powered manufacturing services, processes, and products in an edge-to-cloud-knowEdge continuum for humans [in-the-loop] – 957331)
- [MAS4AI](#) (Multi-Agent Systems for Pervasive Artificial Intelligence for assisting Humans in Modular Production Environments – 957204)
- [TEAMING.AI](#) (Human-AI Teaming Platform for Maintaining and Evolving AI Systems in Manufacturing – 957402)
- [XMANAI](#) (Explainable Manufacturing Artificial Intelligence - 957362)

These projects share common research interests and conduct research in similar topics and therefore collaborate in research, transfer knowledge and share experiences with each other, while at the same time collaborating in jointly disseminating and communicating project results.

In the next section we list the joint activities implemented during the project duration, provide the details for the activities in the period M19-M36, with more details about the joint activities in the period M01-M18 being included in the deliverable D8.4.

#### 2.1.1 Featuring on the AI4Manufacturing website and LinkedIn page

STAR news, events and developments have been shared with the AI4Manufacturing Cluster via the Cluster dedicated website: <https://ai4manufacturing.com/> and LinkedIn page: <https://www.linkedin.com/company/ai4manufacturing>.

## 2.1.2 Jointly organised thematic workshops

In total, five online workshops were organised together with the AI-MAN (ICT-38) Projects’ Cluster:

- [AI-MAN workshop on Explainable Artificial Intelligence in Manufacturing](#) / October 11<sup>th</sup> 2021
- [AI-MAN workshop on Ethical and Legal Issues](#) / November 25<sup>th</sup> 2021
- [AI-MAN workshop on Human-Centred Manufacturing in the Industry 5.0 Era](#) / March 14<sup>th</sup> 2022
- [AI-MAN workshop on Data & Models Interoperability for AI Systems](#) / 17<sup>th</sup> November 2022
- [AI-MAN workshop on Standardisation for AI in Manufacturing: AI4Manufacturing Cluster Projects Initiatives and Experiences](#) / 20<sup>th</sup> December 2023

More details about the first three workshops are available in the deliverable D8.4.

### 2.1.2.1 4th AI-MAN Online Workshop: "Data & Models Interoperability for AI Systems in Manufacturing"

The 4<sup>th</sup> AI-MAN workshop took place on 17<sup>th</sup> November 2022.



*Figure 1: ICT-38-2020, Banner of workshop on Data & Models Interoperability for AI Systems in Manufacturing, November 17<sup>th</sup> 2022*

The agenda was the following:

10:30 - 10:35 Introduction to the Workshop

10:35 - 10:55 "Manufacturing data, information, and knowledge made actionable", Bart Mayers, H2020 ASSISTANT

10:55 - 11:15 "On a Generalized Framework for Time-Aware Knowledge Graphs" Franz Krause, H2020 Teaming.AI

11:15 - 11:35 "XMANAI foundations for Explainable and Interoperable AI", Michele Sesana, H2020 XMANAI

11:35 - 11:55 "Using Asset Administration Shell for modelling and deploying Planning Agents in a Smart Factory 4", Vasilis Siatras, H2020 MAAS4AI

11:55 - 12:00 Discussion - Workshop Closing

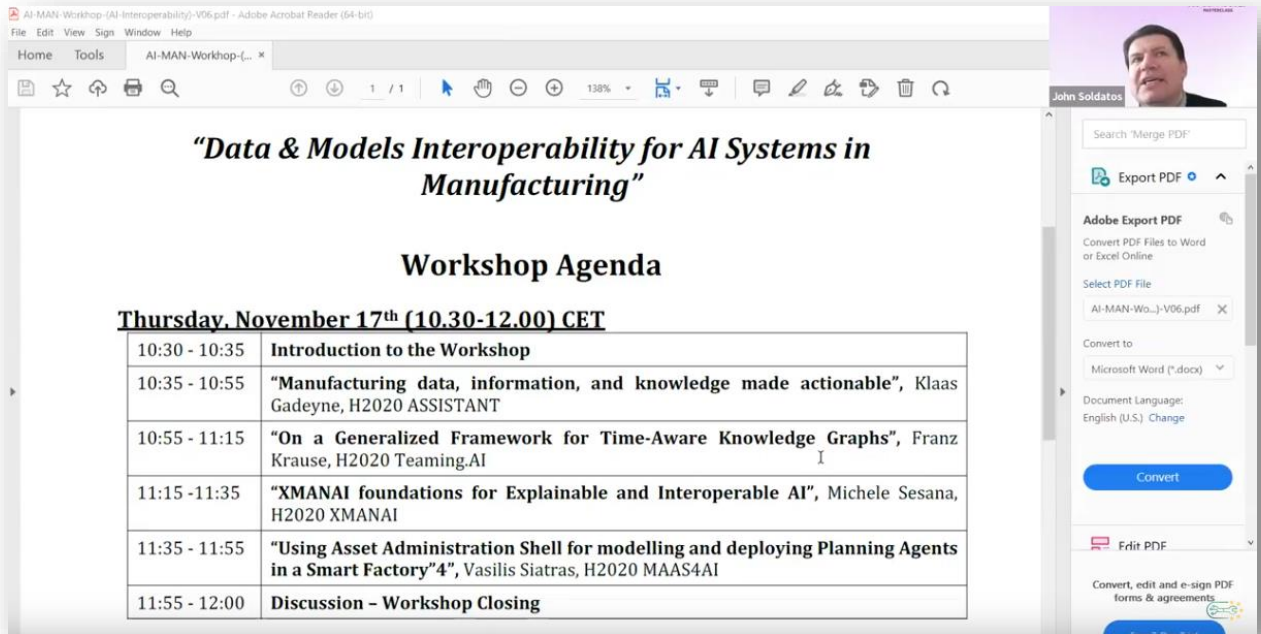


Figure 2: ICT-38-2020, Dr John Soldatos (STAR Technical Manager, Netcompany-Intrasoft) introducing the Workshop on Data & Models Interoperability for AI Systems in Manufacturing, November 17<sup>th</sup> 2022

In total, there were 50 registrations and 33 attendees.

### 2.1.3 5th AI-MAN Online Workshop: "Standardisation for AI in Manufacturing: AI4Manufacturing Cluster Projects Initiatives and Experiences"

The 5th AI-MAN workshop on "Standardisation for AI in Manufacturing: AI4Manufacturing Cluster Projects Initiatives and Experiences" workshop organised by the AI-MAN cluster of EU projects on AI in Manufacturing took place on Wednesday, December 20<sup>th</sup>, 2023, at 15:00 – 17:00 CET.

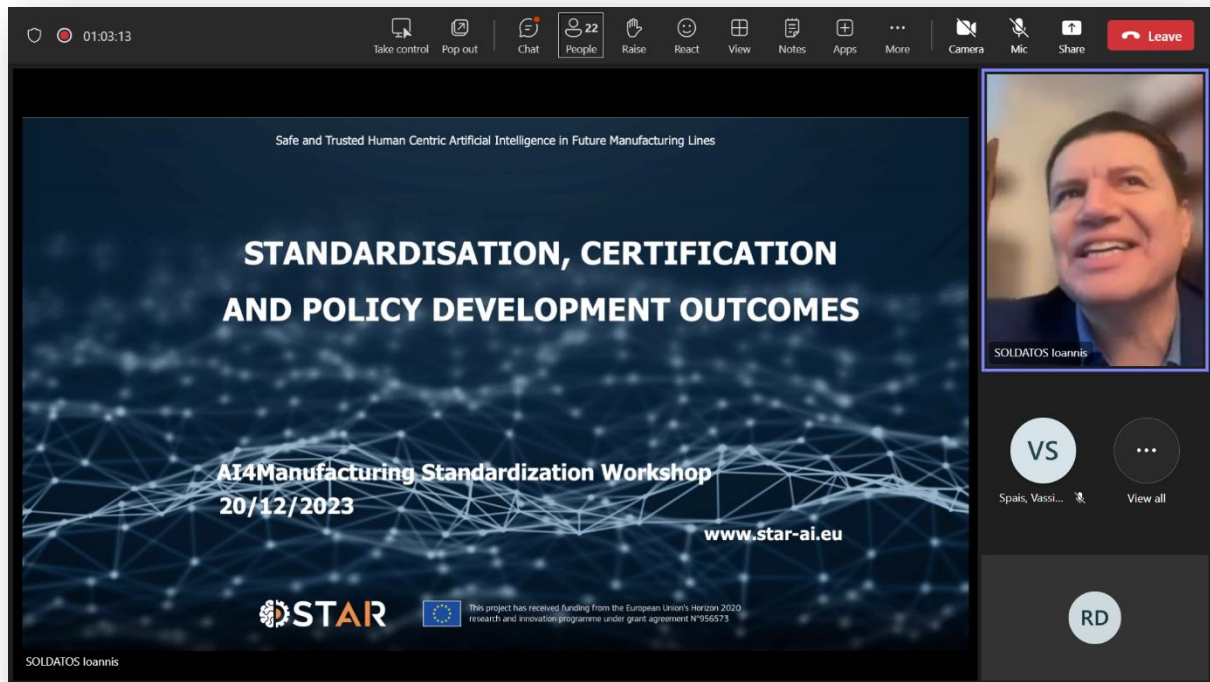


*Figure 3: ICT-38-2020, Banner of workshop on Standardisation for AI in Manufacturing: AI4Manufacturing Cluster Projects Initiatives and Experiences, December 20<sup>th</sup>, 2023*

This workshop focused on the standardisation elements of the AI4Manufacturing (ICT-38) Cluster projects. Each project presents its standardisation activities and share knowledge & best practices.

The agenda was the following:

- 15:00 - 15:05 Introduction to the Workshop
- 15:05 - 15:25 "Standardisation Activities of the H2020 AI PROFICIENT Project"
- 15:25 - 15:45 "Standardisation Activities of the Knowledge Project"
- 15:45 - 16:05 "Standardisation Activities of the STAR Project"
- 16:05 - 16:25 "Standardisation Activities of the Teaming.AI Project"
- 16:25 - 16:45 "Standardisation Activities of the XMANAI Project"
- 16:45 - 17:00 Discussion - Questions - Answers



*Figure 4: ICT-38-2020, Dr John Soldatos (STAR Technical Manager, Netcompany-Intrasoft) presenting STAR in the Workshop on Standardisation for AI in Manufacturing: AI4Manufacturing Cluster Projects Initiatives and Experiences, December 20<sup>th</sup> 2023*

In total, there were 34 registrations and 22 attendees.

#### 2.1.4 Co-organised sessions

STAR, in cooperation with other ICT-38 projects (namely, COALA, XAMANAI, Teaming AI) co-organised a session on "AI for Manufacturing: Opportunities and Challenges" during the Data Week Conference organised by the BDVA/DAIRO on 25-27/05/2021.

A workshop was co-organised by STAR and the ICT-38 projects in collaboration with AI4EU/AI4Europe in order to discuss the collaboration activities. This workshop took place online on May 17<sup>th</sup>, 2022.

#### 2.1.5 Joint Open Access Book

The ICT-38-2020 Cluster projects joint their forces to issue a 27 Chapters’ Open Access book titled "Artificial Intelligence in Manufacturing: Enabling Intelligent, Flexible and Cost-Effective Production Through AI".

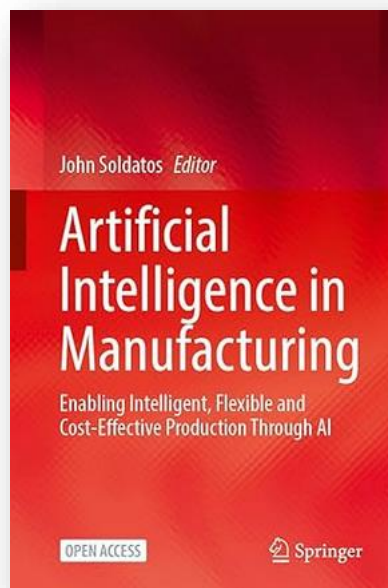
This book presents a rich set of innovative solutions for artificial intelligence (AI) in manufacturing. The various chapters of the book provide a broad coverage of AI systems for state-of-the-art flexible production lines including both cyber-physical production systems (Industry 4.0) and emerging trustworthy and human-centered manufacturing systems (Industry 5.0). From a technology perspective, the book addresses a wide range of AI paradigms such as deep learning, reinforcement learning, active learning, agent-based systems, explainable AI, industrial robots, and AI-based digital twins. Emphasis is put on system architectures and technologies that foster human-AI collaboration based on trusted interactions between workers and AI systems. From a manufacturing applications perspective,

the book illustrates the deployment of these AI paradigms in a variety of use cases spanning production planning, quality control, anomaly detection, metrology, workers’ training, supply chain management, as well as various production optimisation scenarios.

The book is now under production by the publisher (Springer) and is planned to be published in February, 2024. It will be released online and in hard copy.

The book is available as pre-announcement here: <https://www.amazon.com/Artificial-Intelligence-Manufacturing-Intelligent-Cost-Effective/dp/3031464516>

The production of the book has been coordinated by the STAR Technical Manager (Dr John Soldatos), who appears also as an editor of the book.



*Figure 5: Cover of the ICT-38-2020 Cluster Open Access Book*

### 2.1.6 Further collaboration

STAR provided its materials and the Assessment Service of the deliverable D7.6 Safety and Security Certification Programme for AI Services in Manufacturing-Initial version to the cluster members for their feedback.

## 2.2 Collaboration with AI4EU/AI4Europe

As part of Task 7.5 "Integration and Continuous Collaboration with AI4EU" Continuous collaboration and joint dissemination activities were planned to be organised with the AI4EU, and, in a later stage, with the AI4Europe projects. The detailed update on these actions is presented in the deliverable D7.9 [REF-07], while more information about the collaboration activities with the AI4EU during the first two years of the projects (M01-M24) have already been provided in the deliverables D7.8 [REF-06] and D8.4 [REF-05]. The collaboration initially with AI4EU and AI4Europe is currently related mainly to the provision of information and material to the AIoD platform. This relates also to the fact that since STAR has developed its own marketplace most developments are first included in the own marketplace and thereafter in AIoD. Nonetheless, STAR collaborated with AI4EU for the development of an API that would enable third-party marketplaces to access the metadata of the assets of the AI4EU platform.

This is described in detail in Deliverable D7.9 “Report on Integration and Collaboration with AI4EU-Final version”

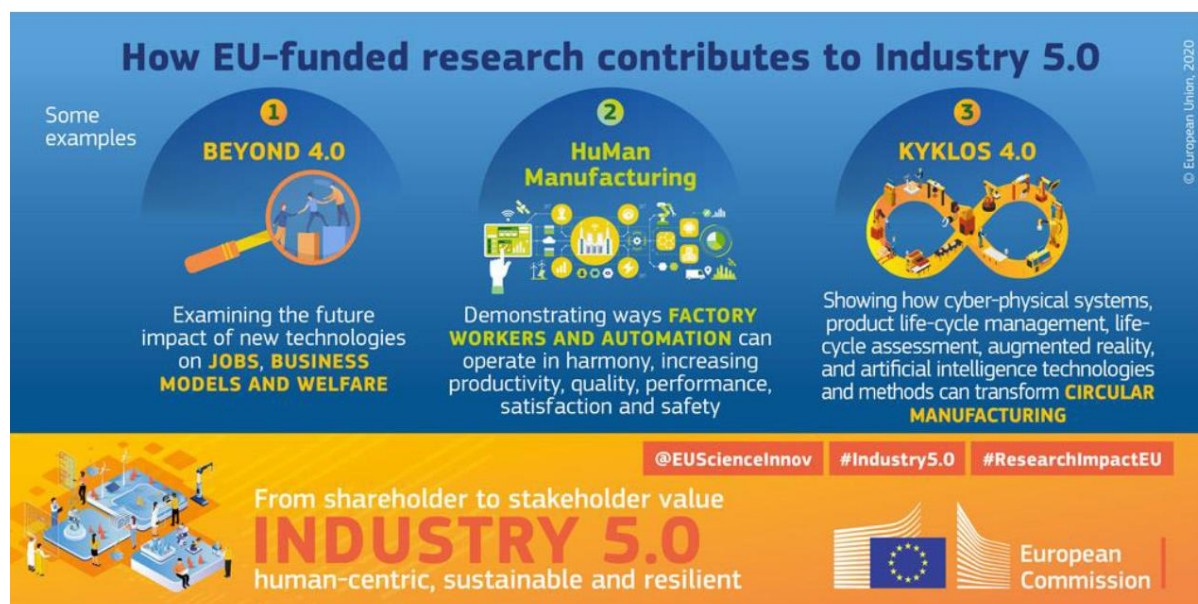
## 2.3 Collaboration with other projects and initiatives in digital manufacturing and AI

STAR established close links with some other H2020 projects and initiatives in digital manufacturing and AI. These projects are mentioned in the following sub-sections.

### 2.3.1 Collaboration with KYKLOS 4.0 Innovation Action

At the present time and as identified in the Europe 2020 strategy, manufacturing enterprises face key challenges related to safety, sustainability and inclusive growth. The Industry 5.0 paradigm (see [EC page](#)) aims at evolving Industry 4.0 towards a more human-centric resilient and sustainable manufacturing.

In this perspective, the [KYKLOS 4.0](#) H2020 Innovation Action (in the Digital Manufacturing Platforms cluster) plays an important role, also recognised by the EC (see picture below).



The incorporation of new ICT at various levels (workers, machines and other resources on the shopfloor, and business processes along the whole supply chain) and the application of AI-based technologies will help not just optimizing the production and the technological level in production lines, but also to improve the WISE conditions of the workplaces (Wellbeing Inclusiveness Safety and Ergonomics). STAR WP5 technologies could for instance lead to significantly improve safety within industrial plants and to optimize AI systems to acquire knowledge in order to take timely and safe decisions in dynamic and unpredictable environments.

GFT as a partner of STAR but also of the KYKLOS 4.0 Innovation Action (in which GFT plays an important role in terms of both technology provider and exploitation on the market) have set a common collaboration framework in this sense.

Both STAR and KYKLOS 4.0 aim at providing an Ecosystem which creates and supports the configurations, methodologies, production techniques, decisions and actions at all different levels and stages of the equipment manufacturing value chain so as to achieve multiple goals:

increased energy efficiency, decrease of raw material through to the second use of parts or material perfectionate on-demand manufacturing, meet the Industry 4.0 objectives of operational excellence and safety in production lines and, overall, serving in creating digital skilled enterprises.

Projects like STAR, KYKLOS 4.0, as well as other EU financed projects in Industry, assume a main role in driving the transition of companies towards a more effective use of AI technologies, Data and ICT. Both projects can contribute to this general aim by demonstrating, in a realistic, measurable, and replicable way the transformative effects and impacts of innovative technologies within the Manufacturing Framework.

### 2.3.2 Collaboration with KITT4SME Innovation Action

The EU-funded [KITT4SME](#) project is providing European SMEs and mid-caps with scope-tailored and industry-ready hardware, software and organisational kits delivered as a modularly customisable digital platform that can seamlessly introduce artificial intelligence in their production systems.

Worth mentioning here is that KITT4SME has adapted the Fatigue Monitoring System (output from STAR) to be applied with a different middleware based on FIWARE.

### 2.3.3 Collaboration with CIRCULAR TwAIIn Innovation Action

The EU-funded [CIRCULAR TwAIIn](#) project aims to develop an innovative AI platform for circular manufacturing value chains that utilises digital twin technology to offer stakeholders end-to-end sustainability as well as the adaptability to remain competitive in the coming Industry 5.0.

CIRCULAR TwAIIn is providing and extending the Human-Digital Twin Core Infrastructure, which is the output from STAR and to applying it in Circularity industrial scenarios in the Battery re-manufacturing domain. In these, human workers need to interact with risky artefacts (e.g. charged batteries) in the operations of disassembly and de-charging.

### 2.3.4 Liaison with ADRA-e CSA

STAR has established a liaison with the EU-funded [ADRA-e](#) (AI, Data and Robotics ecosystem) project. ADRA-e supports the AI, Data and Robotics Association and Partnership to create the conditions for a sustainable European ecosystem, working to boost Europe’s excellent research centres, innovative start-ups, a world-leading position in robotics and competitive manufacturing and services sector.

STAR has been invited to the upcoming ADRA-e project meetings, where information about the results and the best practices from the STAR project and the AI4Manufacturing cluster will be shared.

### 2.3.5 TALON & EvenFlow – SAFEXPLAIN

STAR has collaborated with the cluster of Human-01-01 projects through the [EvenFlow](#) project which is coordinated by Netcompany-Intrasoft, and the [TALON](#) project where Netcompany-Intrasoft is a partner. These projects have common topics with STAR in human-centered interactions with industrial systems and in explainable Artificial Intelligence.

TALON & EvenFlow participate in the 9 projects on Trusted AI under the [SAFEEXPLAIN](#) umbrella.

### 2.3.6 STAND4EU project

The [STAND4EU](#) project is diligently working to create a web portal that supports standardisation activities, covering a wide spectrum of experiences, ranging from showcasing how the implementation of standards has supported industrial innovation to illustrating examples where R&D has actively influenced the work of standardisation committees, as well as current and future challenges faced by standardisation.

The STAND4EU representative participated to the ICT-38-H2020 cluster workshop on Standardisation on 20 December 2023, coordinated by Dr John Soldatos (STAR Technical Manager) and got informed on the projects’ concepts, major results and standardisation interests/efforts. The importance of liaising with the STAND4EU project was mentioned. STAR, therefore, keeps close contact with the STAND4EU project representative providing the requested inputs.

## 2.4 Contributions to Clusters and Associations

STAR has had an active presence in the activities organised by clusters, associations, Working Groups and initiatives relevant to the project. STAR established relationships in the field of Manufacturing and in the ICT domains under the challenge of “AI for Manufacturing” and actively scans the ecosystem.

The STAR consortium partners have liaised and maintained close contact and collaborations with several related communities, providing the opportunity to disseminate project’s results to the interested stakeholders. A list of Clusters / Associations / Initiatives / Communities is presented in the table below. In addition, some further details are provided for selected Clusters / Associations / Initiatives.

Table 1: Clusters STAR partners liaised with and activities undertaken

Name of Cluster/Association/Initiative/Community relevant to STAR	Type (Cluster/Association/Initiative/Community/Other)	Coverage	URL	Contributing partners	Relevant to STAR working groups/task forces within these initiatives (where relevant)	Relevant activities STAR partners participated/plan to participate	Other means of dissemination (newsletters, white papers, publications, etc.)
<b>EUROPEAN / INTERNATIONAL</b>							
EFFRA		European	<a href="https://www.effra.eu/">https://www.effra.eu/</a>	<b>GFT, INTRA, PCL</b>	<ul style="list-style-type: none"> <li>- Zero Defect Manufacturing Cluster</li> <li>- Predictive Maintenance Cluster</li> <li>- Digital Manufacturing Platforms (DMP) Cluster</li> </ul>	<ul style="list-style-type: none"> <li>- STAR participates in Connected Factories events (e.g. 18/02/2022 and 13/06/2022)</li> <li>- Sound participation at the manufacturing Partnership day 2023</li> </ul>	STAR is included in the EFFRA Innovation Portal. Twitter account integrated into the project page News/events/developments shared via EFFRA Innovation Portal
European Technology Platform Manufuture		European	<a href="http://www.manufuture.org/">http://www.manufuture.org/</a>	<b>PCL</b>	- Zero Defect <u>Manufacturing</u>		
AI4EU	Project, Community	European	<a href="https://www.ai4eu.eu/ai4eu-platform">https://www.ai4eu.eu/ai4eu-platform</a>	<b>THALES, INTRA</b>		Provision of information and material to the AIoD platform Development of an API that would enable third-party marketplaces to access the metadata of the assets of the AI4EU platform.	Publishing in the monthly newsletter and the website
BDVA/DAIRO	Association		<a href="http://www.bdva.org/">http://www.bdva.org/</a>	<b>INTRA, GFT</b>	SMI group Smart Manufacturing	Participation in the Data Week and EBDVF events	Publishing in the newsletter
AIOTI	Associations		<a href="https://aioti.eu/">https://aioti.eu/</a>	<b>UNP, ALEGAL</b>	WG11 Smart Manufacturing		
DFA - Digital Factory Alliance	Association	European	<a href="https://digitalfactoryalliance.eu">https://digitalfactoryalliance.eu</a>	<b>UNP, UPRC, RUG, JSI</b>	Dissemination & Exploitation	<ul style="list-style-type: none"> <li>- Promoting the use of STAR results for advanced digital manufacturing practices via the DFA Innovation Catalogue</li> <li>- Selected events / workshops</li> </ul>	Dissemination of STAR results via the DFA Innovation Catalogue ( <a href="https://digitalfactoryalliance.eu/innovation-catalogue-2/">https://digitalfactoryalliance.eu/innovation-catalogue-2/</a> )

IoT-Catalogue	Community	European	<a href="https://www.iot-catalogue.com">https://www.iot-catalogue.com</a>	<b>UNP</b>	Dissemination & Exploitation	Promoting STAR results for the IIoT community via the IoT-Catalogue	
CEN TC319 and ISO/TC251	Standardisation Committee	International	<a href="https://standards.cen.eu/dyn/www/f?p=204:110:0:::FSP_PROJECT:66070&amp;cs=1D4A690A78F6E574DD06FB169EA931911">https://standards.cen.eu/dyn/www/f?p=204:110:0:::FSP_PROJECT:66070&amp;cs=1D4A690A78F6E574DD06FB169EA931911</a> <a href="https://www.iso.org/committees/604321.html">https://www.iso.org/committees/604321.html</a>	<b>RuG</b>	CENT/TC319 WG9 - Maintenance - Maintenance within Asset Management, WG2 Maintenance Engineering; ISO/TC251 DIS55013 - Guidance on the management of data assets; TG2 - Decision Making	Participation in ISO/CEN meetings	
European Alliance for Industrial Data, Cloud & Edge	EU Alliance for EU industry on cloud and edge technologies	International	<a href="http://EuropeanAllianceforIndustrialDataEdgeandCloud.europa.eu">European Alliance for Industrial Data, Edge and Cloud (europa.eu)</a>	<b>ALEGAL</b>	Relevant for strategic investment roadmap, platform for exchange on issues of cloud governance for example relating to the public procurement of cloud services, etc.	ALEGAL is addressing and defining strategic investment roadmaps to enable the next generation of highly secure, distributed, interoperable and resource efficient computing technologies	
ISO TC 307	Standardisation, Working Group	International	<a href="https://www.iso.org/committees/6266604.html">https://www.iso.org/committees/6266604.html</a>	<b>UBITECH</b>	Blockchain and Distributed Ledgers for Secure Data Sharing in Manufacturing Environments	Participation in ISO meetings	Presentation of STAR Blockchain-related activities
<b>NATIONAL</b>							
Plattform Industrie 4.0	Platform	Germany	<a href="https://www.plattform-i40.de/PI40/Navigation/EN/Home/home.html">https://www.plattform-i40.de/PI40/Navigation/EN/Home/home.html</a>	<b>DFKI</b>	THALES working group, DFKI-EI, Safety and security in industrial, human action recognition in confronting the Robots.	Interior Meeting, WP6 managing. Managing the Pilots and also evaluation and testing phase. Providing the Service platform for technology providers.	DFKI will use its SmartFactoryKL facilities for demonstration of STAR’s results to other participants and stakeholders
ENGINEERING & TOOLING CLUSTER	Association	Portugal	<a href="https://www.toolingportugal.com/">https://www.toolingportugal.com/</a>	<b>IBER</b>	IBER working group	Innovation Workshop	Newswire & Newsletter
Portuguese ICT & Electronics Cluster	Association	Portugal	<a href="http://www.tice.pt">www.tice.pt</a>	<b>UNP</b>	Chair the IoT Working Group exploring the take-up of IoT/AI for Industrial applications ( <a href="http://www.tice.pt/pt-pt/grupos-de-trabalho/iot">www.tice.pt/pt-pt/grupos-de-trabalho/iot</a> )	Selected events / workshops / seminars promoted by TICE.pt	Newsletter and National Communications

KNOWLEDGE AND INNOVATION COMMUNITY		Greece	<a href="https://kics.gr">https://kics.gr</a>	<b>UPRC</b>	KNOWLEDGE AND INNOVATION COMMUNITY of Piraeus	Selected events / workshops "Contemporary Challenges and Opportunities in Artificial Intelligence, IoT, and Maritime Sector"	
General Secretariat of Research & Technology (GSRT)		Greece	<a href="http://www.gsrt.gr/central.aspx?sId=119I428I1089I323I488743&amp;JScript=1">http://www.gsrt.gr/central.aspx?sId=119I428I1089I323I488743&amp;JScript=1</a>	<b>UPRC</b>		Selected events / workshops	Newsletter and National Communications
Association of industrialists of Attica and Piraeus		Greece	<a href="http://www.svap.gr/">http://www.svap.gr/</a>	<b>UPRC</b>		Internal Presentation	Newsletter and National Communications
Technical Chamber of Greece (TEE-TCG)		Greece	<a href="http://portal.tee.gr/portal/page/portal/TEE/TCG">http://portal.tee.gr/portal/page/portal/TEE/TCG</a>	<b>UPRC</b>	TCG represents 13 areas of engineering, we focused on Electrical and Electronic Engineering	Internal Presentation - Meeting, communicating STAR results for Industry 4.0	National Communications
Drachten Innovation Cluster (ICD)	Industry 4.0 - oriented cluster	Regional (NL)	<a href="https://www.icdrachten.nl/en/">https://www.icdrachten.nl/en/</a>	<b>PCL, RUG</b>	The ICD is a group of high-tech companies in the North of Netherlands strongly employed I4.0 technologies (3D printing, remote sensing, big data, robotics, visual intelligence) and increasingly adopting AI.	- Participation in quarterly meetings and raising awareness about STAR outcomes - Co-organisation of the STAR interactive AI co-creation workshop "Enabling and evaluating Safe, Secure and Ethical AI in manufacturing" on 5th April 2023	Presentation and Posters of Philips pilot and project results
AI Hub North Netherlands	Hub	Regional (NL)	<a href="https://www.aihub-noord.nl/en/">https://www.aihub-noord.nl/en/</a>	<b>PCL, RUG</b>	Hub for entrepreneurs, knowledge institutions, organisations and governments	Co-organisation of the STAR interactive AI co-creation workshop "Enabling and evaluating Safe, Secure and Ethical AI in manufacturing" on 5th April 2024	
NLAIC	Artificial Intelligence Alliance	Netherlands	<a href="https://nlaic.com/">https://nlaic.com/</a>	<b>RuG</b>	A. Building blocks: - Human Centric AI - Research and Innovation B. Table linking Application groups and possible projects - Predictive maintenance	Participation to NLAIC workshops and meetings	

					- Autonomous systems - Education		
ComPVter	Association	Italy	<a href="https://www.compvter.it/">https://www.compvter.it/</a>	<b>R2M</b>	Training and Education	Selected events / workshops	CoderDojo and other events

## 2.4.1 European Factories of the Future Research Association (EFFRA)

EFFRA is a not-for-profit, industry-driven association promoting the development of new and innovative production technologies. It is the official representative of the private side in the 'Factories of the Future' public-private partnership.

As the STAR project is part of the Factories of the Future PPP, it has been included on the [EFFRA Innovation Portal](#) and integrated its Twitter account on the project page to gain more visibility. STAR keeps sharing important and interesting news using our account in the Innovation Portal.

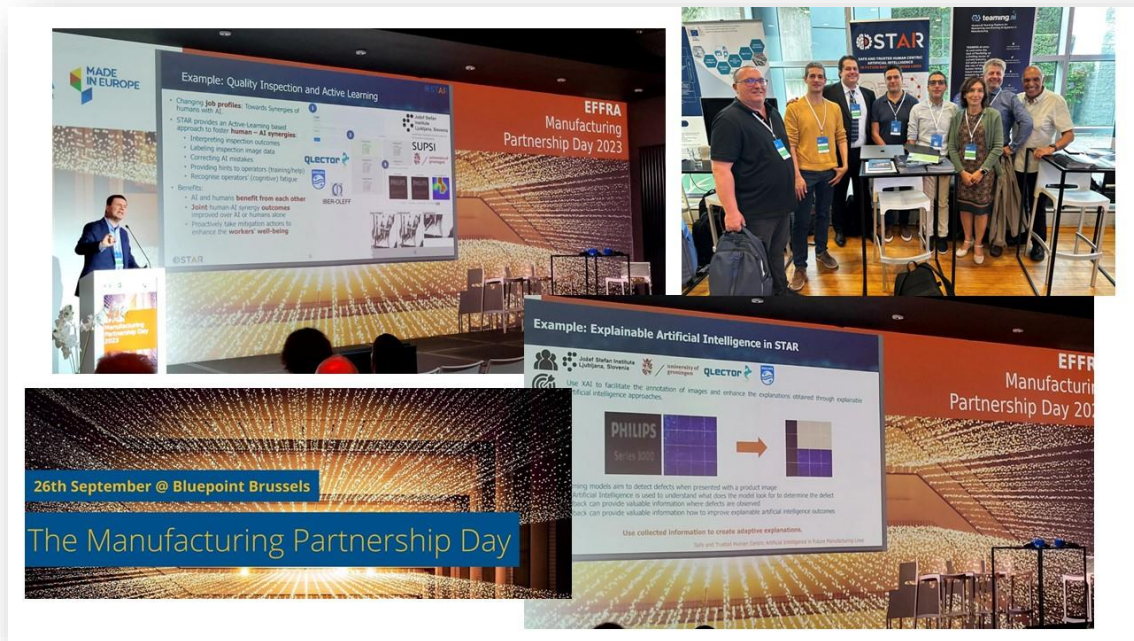
### 2.4.1.1 The Manufacturing Partnership Day 2023

STAR had a sound participation in The Manufacturing Partnership Day, which took place on the 26th of September 2023 in Brussels. The event co-organised by the European Factories of the Future Research Association (EFFRA), and Factories of the Future and Made in Europe projects brought together these communities and showcased ongoing projects' work.

It was a rich day full of stimulating presentations and exchanges, where participants had the possibility to learn more about Made in Europe and Factories of the Future projects and network with like-minded manufacturing innovation and research professionals.

STAR showcased the state of play of the project with a presentation made by the project Technical Manager Dr. John Soldatos (Netcompany-Intrasoft) and displayed its new 8-page brochure featuring the project's results and the STAR book at a stand in the event's exhibition. Visitors to the stand had the possibility to discuss with the STAR experts (representatives of several STAR partners) the latest project developments and the general state-of-the-art in the field of AI in manufacturing.

The STAR video shown at the event is available on our YouTube channel: <https://www.youtube.com/watch?v=IhNB5I6KYjw>.



*Figure 6: Snapshots from the STAR participation to The Manufacturing Partnership Day 2023*

STAR collaboration activities with EFFRA and its community for the period M01-M18 have been described in details in the deliverable D8.2[REF-04].

### 2.4.2 Big Data Value Association (BDVA) and its evolution to AI, Data, Robotics Partnership (DAIRO)

The Big Data Value Association (BDVA), is an industry-led organisation representing large businesses, small and medium-sized enterprises (SMEs), and research organisations in Europe. It represents the private part in the contractual Public Private Partnership (PPP) on Big Data Value with the European Commission, which represents the public side. The overall goals, main technical and non-technical priorities, and a research and innovation roadmap for the BDV PPP is represented by the Strategic Research and Innovation Agenda (SRIA) defined over the last years and published by the BDVA.

BDV PPP is also aligned with the Digital Single Market (DSM) Strategy, promoted by the European Commission, especially in the specific pillar about “Developing the European Data Economy”.

STAR partners Netcompany-Intrasoft and GFT are both members of the BDVA and actively participate in its activities. STAR’s results have been shared with the BDVA/DAIRO community in various occasions including the DataWeek and the EBDVF conferences, where STAR has been presented.

The Working Group on Smart Manufacturing Industry (SMI) is analysing the digital transformation of the Manufacturing domain that the increasing adoption of Big Data is inducing. In a structured approach, the SMI group is analysing the Smart Manufacturing Industry along three main dimensions (also referenced as Grand Scenarios) where Big Data applications have their focus in a B2B model. GFT participates in the BDVA SMI Working Group

and can represent STAR in the WG activities, especially the Data Week 2023 in Lulea and the European Big Data Value Forum 2023 in Valencia.

STAR contributions to several earlier BDVA-led events have been presented in the deliverable D8.2 [REF-04].

STAR has been regularly sharing its news, events and developments with the BDVA community also through the [BDVA website](#) and weekly digest sent to the BDVA members.



Figure 7: Article about STAR mini-courses and a new blog post at the [BDVA website](#)

### 2.4.3 Alliance for Internet of Things and Edge Computing Innovation (AIOTI)

AIOTI targets to lead, promote and collaborate in IoT and Edge Computing, as well as other converging technologies, providing IoT and Edge Computing deployment for European businesses. Cooperating with other global regions, the Alliance aims to ensure removal of

barriers to development of the IoT and Edge Computing market while preserving European values, including privacy and consumer protection.

STAR partner UNPARALLEL acted as the Chair/Co-chair of the Manufacturing Working Group facilitating the implementation of IIoT, Edge and AI digital technologies for Smart, Sustainable and Resilient Manufacturing. In this role, UNPARALLEL promoted STAR and the technologies developed in the project to the relevant audiences, namely the AIOTI Manufacturing Working Group members that include large industrial stakeholders such as SIEMENS, industrial integrator/vendor SMEs and also research/academic institutions.

#### 2.4.4 Digital Factory Alliance (DFA)

The Digital Factory Alliance, born under the umbrella of the EU-Funded projects, aims at modernising and digitalising the assets of the factories of the future, with the strong conviction that these actions will have a critical influence in the way these factories will be operated and managed in the years to come, by promoting the use of Artificial Intelligence Technologies and Data Intelligence to strive for Zero X Manufacturing Environments.

STAR has been represented (through its partners) in the selected relevant events and workshops. It is worth noticing here that the use of STAR results for advanced digital manufacturing practices has been promoted via the DFA Innovation Catalogue (<https://digitalfactoryalliance.eu/innovation-catalogue-2/>) facilitated by UNPARALLEL.

#### 2.4.5 European Alliance for Industrial Data, Edge and Cloud

The European Alliance for Industrial Data, Edge and Cloud aims to foster the development and deployment of next generation edge and cloud technologies. The STAR partner ALEGAL is one of the first members active in deploying the roadmap to prepare horizontal and technology specific investment roadmaps on cloud and edge. Being part of this alliance is beneficial for STAR since the objective of the alliance is to serve the needs of EU businesses and public administrations that process sensitive categories of data and has the objective to increase Europe's leadership position on industrial data.

The European Alliance for Industrial Data, Edge and Cloud works on the following non-exclusive list of tasks:

- bringing relevant actors together to prepare and update horizontal and technology specific investment roadmaps on cloud and edge;
- providing recommendations to ensure the coherent integration of investments with those foreseen for the deployment of common European data spaces in relevant areas;
- advising the Commission on requirements and standards for cloud services, including for public procurement.

#### 2.4.6 National and Regional Associations and Initiatives

STAR also liaised with national and regional manufacturing associations and initiatives in the countries of the project partners. They are listed in the Table 1 in the beginning of the section 2.4.

It is worth mentioning here that with the two regional associations, namely the [Drachten innovation Cluster \(ICD\)](#) and the [AI Hub North Netherlands](#) STAR co-organised its interactive AI co-creation workshop "Enabling and evaluating Safe, Secure and Ethical AI in

manufacturing" on 5<sup>th</sup> April 2023, which gathered gathered more than 40 experts and attendees interested in the field ([link](#) for more information).

## 2.5 Other collaborations and own communities of users and developers

### 2.5.1 Manufacturing leaders’ business networks

To engage with relevant stakeholders’ developing/integrating AI components and solutions, the business networks of the manufacturing leaders of the consortium (e.g., PHILIPS, SIEMENS, IBER) which comprise hundreds of AI solution integrators have been mobilised. Furthermore, the project liaised with the business networks of manufacturers and pilot integrators that participate in the project and define the project’s pilot use cases and their potential business models.

Philips engaged within the STAR project as a pilot use-case leader to explore the concepts of integrating AI components and solutions within its production facilities. To get most out of the technologies developed in the STAR project they were shared broadly in the Philips organization. Philips engages in multiple private public partnerships (PPP). The developments and progress of all these projects are shared on a monthly bases to make sure the activities in the project were kept aligned with the development goals of Philips. On quarterly bases the main stakeholders in the organisation are informed about the progress of the technology development. In this way, decision makers, project managers and subject matter experts on vision, robotics and AI can get acquainted with the technologies in an early stage of the development and can start thinking about how and where the technology can be applied. In the last phases of the STAR project, two updates were given for all interested Philips employees and external parties. The first update was at the PPP marketplace where all colleagues were given the opportunity to learn about the technologies developed PPP projects. The second instance was an interactive presentation to about 60 project managers and engineers who are responsible for implementing new production platforms in our factories. They were informed in detail about the STAR project and where and how it can be applied in practise. At both presentations people were impressed by the findings of the STAR project and we’re looking forward to seeing the actual implementation of the technologies.

STAR outcomes will feed the discussion to actively engage with the SIEMENS business units in the area of digital industries and smart infrastructure. STAR concepts and achievements have been promoted and discussed during the annual internal Data Analytics and Artificial Intelligence conferences where the most prominent results in the technology application are presented and commented together with the community. Since the investment on these project topics will continue, STAR results will be aligned with IPR experts in order to identify improved products/services and promote patent filing and publications to specialized conferences or journals.

During the STAR project, the Smartfactory at DFKI in Kaiserslautern, Germany, served as the pilot where technologies were tested, validated, and evaluated. Existing industrial companies are reluctant to transition from their traditional systems to AI-powered systems. The Smartfactory functions as a platform for Industrie 4.0, further emphasizing its significance in advancing and integrating cutting-edge technologies into industrial processes. Furthermore, Smartfactory aims to employ state-of-the-art AI technologies to address concerns related to the safety and trustworthiness of AI methods. The objective is to enhance worker assistance

quality in operations demanding high reliability and accurate decision-making, particularly in the dynamic and complex industrial environment where robots and workers collaborate. Smartfactory, equipped with two significant testbeds and diverse technologies, is actively researching, integrating, and validating various AI approaches across different industrial aspects. Moreover, the successful deployment of components into the demonstrator will mark the commencement of a new phase in the role of visibility, and explainability of AI within the industry. Consequently, this stands as a pivotal aspect of Smartfactory's research focus. Our dissemination activities will highlight the impact of AI on the production line. STAR and its results have been promoted towards the Portuguese Engineering & Tooling Cluster, which integrates the tooling and plastics industries from Portugal, as well as towards the national and international industrial community through IBER.

STAR has been promoted in the 10 years CoderDojo anniversary of the ComPVuter association in Pavia, Italy. In particular, the Worker Training Platform was presented to the members of the association and other participants of the event.

### 3 Conclusion

The deliverable at hand presents STAR’s Contributions to Clusters and Associations following the path that was thoroughly defined and described in the Communication and Dissemination plan of the project.

The STAR consortium recognises the importance of dissemination, communication and engagement activities and also the importance of the creation of a link between STAR and the relevant European alliances and initiatives as are the cluster of the ICT-38 funded projects as well as other relevant projects, the European Factories of the Future Research Association (EFFRA), the AI4EU/AI4Europe and the Big Data Value Association (BDVA) and its evolution to AI, Data, Robotics Partnership (DAIRO) to name a few. The work performed by STAR during the project course in collaboration with these Clusters and Associations contributes to the creation of an ecosystem around smart manufacturing. Moreover, STAR leveraged from the knowledge and technological advancement exchange participating to different relevant working groups, events and activities of these clusters, associations and projects. At the same time, STAR had a chance to disseminate its work to the relevant audiences. On the other hand, especially in the second half of the project when the concrete results became apparent, specific attention has also been paid to liaising with the business networks of the manufacturers and pilot integrators of the consortium.

## References

Reference	Name of document
[REF-01]	<a href="https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/ict-38-2020">https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/ict-38-2020</a>
[REF-02]	STAR website. <a href="http://www.star-ai.eu">www.star-ai.eu</a> . Retrieved 2022-06-25.
[REF-03]	STAR Deliverable D8.1 "Dissemination and Communication Plan"
[REF-04]	STAR Deliverable D8.2 "Dissemination and Communication Activities-Initial version"
[REF-05]	STAR Deliverable D8.4 "STAR’s Contributions to Clusters and Associations-Initial version"
[REF-06]	STAR Deliverable D7.8 "Report on Integration and Collaboration with AI4EU-Initial version"
[REF-07]	STAR Deliverable D7.9 "Report on Integration and Collaboration with AI4EU-Final version"