



TaRDIS

D1.1: Project Plan

Revision: v.2.0

Work package	WP 1
Task	1.1, 1.2, and 1.3
Due date	31/03/2023
Submission date	31/03/2023
Deliverable lead	NOVA
Version	2.0
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Abstract	This deliverable provides a comprehensive overview of the various management procedures that will be necessary to ensure the successful completion of the project.
Keywords	Project Management, Management Procedures, Risk Management, Project Communication

Document Revision History

Version	Date	Description of change	List of contributor(s)
V1.0	24/02/2023	Final draft	NOVA
V2.0	27/03/2023	Reviewers comments	MARTEL

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Nature of the deliverable:	R	
Dissemination Level		
PU	<i>Public, fully open, e.g. web (Deliverables flagged as public will be automatically published in CORDIS project's page)</i>	✓
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* R: Document, report (excluding the periodic and final reports)

DEM: Demonstrator, pilot, prototype, plan designs

DEC: Websites, patents filing, press & media actions, videos, etc.

DATA: Data sets, microdata, etc.

DMP: Data management plan

ETHICS: Deliverables related to ethics issues.

SECURITY: Deliverables related to security issues

OTHER: Software, technical diagram, algorithms, models, etc.

EXECUTIVE SUMMARY

The following document is Deliverable 1.1 Project Plan of the TaRDIS Project, funded by the European Union's Horizon Europe research and innovation programme under grant agreement Number 101093006.

This document aims to showcase the different management procedures to be applied during the project's lifetime. The entirety of the content described here is defined, also, in the Consortium Agreement to be signed by all TaRDIS partners. However, the handbook intends to be a quicker reference guide, for the benefit of all partners.

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ABBREVIATIONS

AP	Associated Partners
CA	Consortium Agreement
CFS	Certificates on the Financial Statements
DoA	Description of the Action
EC	European Commission
EEAB	External Expert Advisory Board
EU	European Union
GA	General Assembly
GrA	Grant Agreement
IR	Internal Report
IRP	Internal Reporting Period
KPI	Key Performance Indicator
PC	Project Coordinator
PM	Person Month
PMT	Project Management Team
PR	Periodic Report
R	Report
SC	Technical Steering Committee
WP	Work Package
WPL	Work-Package Leader

1 THE TARDIS PROJECT SCOPE

1.1 OBJECTIVES, RESULTS, AND KEY PERFORMANCE INDICATORS

TaRDIS's primary goal is to significantly ease the complexity and reduce the effort of building correct and efficient heterogeneous swarms. This overall goal is articulated in 5 specific objectives (O) and 18 project results (PR) with key performance indicators (KPIs), as follow:

O.1 Novel programming model for heterogeneous swarms

To develop a language-independent, event-driven programming model that offers distribution abstractions and decentralised machine learning primitives. The event-driven model addresses the complexity and scale by allowing a system to be built in a compositional way and allowing the use of efficient local reasoning techniques. The programming model for distribution provides a declarative way of expressing distributed systems concerns (e.g., device capability, physical and network location, data model, privacy model) while hiding the underlying details and complexity of these primitives. The decentralised machine learning framework leverages the distribution primitives to ensure that data for training and inference are available where they are needed. TaRDIS' programming model and the decentralised machine learning framework embody a new correct-by-design software development approach that captures the lifecycle of heterogeneous swarm applications and provides methods to support, not only the development of novel applications but their maintenance and safe evolution. This provides a unique basis for the creation of intelligent heterogeneous swarm applications with minimal effort and strong guarantees of correctness and efficiency. With the data for training and inference in their needed places, a matching framework will support decentralised machine learning primitives, allowing the design of distributed AI applications with minimal development effort.

R1.1 Event-based programming model implemented over mainstream languages.

R1.2 APIs for distribution, data management, and AI/ML.

R1.3 Guidelines for using TaRDIS with mainstream software development methodologies.

KPI1.1 Expressivity of the language primitives covers the needs of use cases (at least 80% of the use cases code base is expressed using TaRDIS' languages and toolbox).

KPI1.2 Event-driven model effectively captures swarms' complexity and scale (80% of industrial partners' devices are supported on a large-scale setting of up to 5000 devices).

KPI 1.3 Decrease median development time by 25%.

O.2 Development environment for correct-by-design heterogeneous swarms

To build a development environment with embedded semantic analyses to achieve a correctness-by-design approach. Towards that goal, we develop novel verification techniques and tools to analyse decentralised systems and check properties of their behaviour. We leverage behavioural types to statically analyse components' code to determine its compliance with properties of interest and assumptions concerning target execution environments. Properties under study include conformance with the desired interaction protocol, data security, application invariants, and liveness (ensuring that some desired state is eventually reached). When too conservative, static analyses are complemented by dynamic validation and enforcement techniques.

R2.1 Type-based analyses for checking properties relevant in heterogeneous swarms.

R2.2 Compositional analyses for checking properties of communication, security, and data integrity.

R2.3 Verification of the protocols for distribution and data management.

R2.4 Implementation and integration of the analyses techniques into the TaRDIS development environment.

KPI2.1 Implementation and integration of analysis techniques for communication, security, and data integrity in at least 2 mainstream languages.

KPI2.2 Verification of at least 70% of the communication, security, and data integrity properties determined during use case requirements analysis.

KPI2.3 Formal verification of 80% of TaRDIS runtime protocols.

O.3 Decentralised intelligence for heterogeneous swarms

To develop schemes to support decentralised intelligence for the purposes of heterogeneous swarms. The decentralised and distributed architecture of TaRDIS points towards Federated Learning (FL) and Swarm Learning (SL) where data and Machine Learning (ML) models remain at the edge. ML techniques need to be re-designed to keep data and computation local, for better availability and confidentiality control, requiring minification of ML services. It is also essential that such approaches become context-aware, energy-aware, and security-aware, rather than just being data-aware, and hence optimally designed from a holistic perspective. TaRDIS decentralised ML will be applied to manage and continuously adapt both the TaRDIS runtime and deployed applications.

R3.1 Techniques, algorithms, and models to support swarm intelligence.

R3.2 Open source implementation of decentralised algorithms for FL and SL.

R3.3 Contextual MLOps solutions for swarm intelligence.

R3.4 Dynamic peer-to-peer resource orchestration for the computing continuum.

KPI3.1 Use TaRDIS ML to autonomously manage system operations (used by 50% of use cases).

KPI3.2 Improved edge orchestration (15% faster response time, 20% faster event processing throughput).

KPI3.3 Reduced transmission overhead by 20% (wrt FedAvg).

KPI3.4 Model reduction/compression increased by 15% (compared to NN model coding with ISO/IEC 15938-17 - NNR).

KPI3.5 Reduced model training time by 25% (compared to current KubeFlow training operator's implementation)

O.4 Runtime support for distributed heterogeneous swarms

Development of decentralised algorithms and protocols for supporting the TaRDIS programming model at runtime. Mechanisms for distribution include communication primitives and decentralised membership abstractions. For distributed data management, decentralised protocols and partial data replication provide the fundamental data access requirements of dynamic heterogeneous swarms. These abstractions will also be provided as standalone components of the TaRDIS toolbox, which includes a configurable distributed middleware for executing protocols on swarms; a distributed datastore supporting tuneable partial replication across the continuum from swarm devices to data centres; and data flow tools to assist in

managing the execution of applications. This toolbox also exposes adapters for integration of other tools and libraries such as libp2p, Cassandra, and Kafka.

R4.1 Configurable middleware supporting the TaRDIS programming model.

R4.2 Distributed data stores with tunable partial replication.

R4.3 Data flow tools for coordination and management of applications.

R4.4 Integration with toolchains and pipelines used in the heterogeneous swarms' community.

KPI4.1 Decentralised membership service (80% of industrial partners' devices are supported on a large-scale setting of up to 5000 devices).

KPI4.2 Distributed data storage service, supporting partial replication (80% of industrial partners' devices are supported on a large-scale setting of up to 5000 devices).

KPI4.3 Adapters for external tools and libraries used by industrial partners (50% of middleware systems).

O.5 Interoperable execution environment

To ensure a high level of interoperability of TaRDIS distribution runtime we support a significant number of different devices and programming languages by formally specifying the protocols developed by the consortium such that different and interoperable implementations might be produced both by the consortium and the community at large. To deal with the fact that different devices have different capabilities we ensure a modular toolbox where the different components can be combined or executed in isolation. We specify and implement adapters that will empower developers to integrate well known and existing tools and systems in our ecosystem, which is essential to improve the adoption of the results generated by TaRDIS.

R5.1 Open and extensible development environment supporting the TaRDIS' methodology and toolbox.

R5.2 Interoperable and extensible open source toolbox for supporting the distribution and management of heterogeneous swarms.

R5.3 Execution, runtime, and deployment environment in heterogeneous dynamic environments.

KPI5.1 Industrial partners' devices are supported by the TaRDIS toolbox (80% of devices).

KPI5.2 Programming languages used by industrial partners are supported by the TaRDIS toolbox (50% of languages).

KPI5.3 TaRDIS toolbox support for integration with external middleware/systems, e.g. Kafka, Actyx (50% of middleware/systems).

1.2 IMPLEMENTATION WORK PLAN

1.2.1 WPs structure

WP1 provides efficient means for the management and coordination of TaRDIS execution, from establishing the internal communication mechanisms and the time management of the tasks to monitoring the project quality standards and the project's innovation strategy. WP2 is the foundation of the project work plan. It is concerned with the elicitation of the functional requirements for the TaRDIS development environment, and the programming abstractions required for building intelligent heterogeneous swarms. This work package will use a broad

range of methods to capture the relevant stakeholders' needs and explore domains beyond the use case scenarios. WP2 will receive feedback from developing each use case baseline in WP7. The technical work packages WP3-WP6 will address the architecture and programming requirements identified in WP2. WP3 defines the programmer models, the APIs that support the programming model, and the development environment that will integrate the tools developed in the other technical work packages (WP4-WP6). WP4 deals with providing verification techniques of relevant properties and checking the safety of ML-derived swarm orchestrations. WP5 deals with decentralised ML operations towards three incremental goals, a framework of decentralised ML Ops, a first expansion for optimising swarms' deployment and orchestration, and a second expansion for resource-aware learning. WP6 deals with providing communication, membership, and data management primitives that support the programmer model and cover the operational requirements of all the use cases. WP7 undertakes the evaluation activities concerning the technical achievements of the project. The validation is performed, initially on the emerging and then on the refined TaRDIS toolbox. WP8 is the innovation hub of the project, where all the results and outcomes (research, technological, business-driven, etc.) are monitored and collected to maximise the impact creation of the project. WP8 receives input from and interacts with all WPs.

1.2.2 Timeline of activities

The Gantt chart shown in Figure 1 shows the four phases of the project. Phase 1 is concerned with the requirements analysis and ends on M06 (WP2 and WP7). Phase 2 is an initial iteration for building a proof of concept of the TaRDIS programmer model and supporting frameworks ending in M18 (WP3-WP6). Phase 3 concerns the second iteration, ending in M30, extends and consolidates the TaRDIS prototype and validates the use cases (WP3-WP7). Phase 4 involves minor adjustments to the TaRDIS prototype guided by the feedback between the technical WPs. To foster collaborations, build a common language, and fast adaptation there are planned in-person plenary synchronisation meetings every six months.

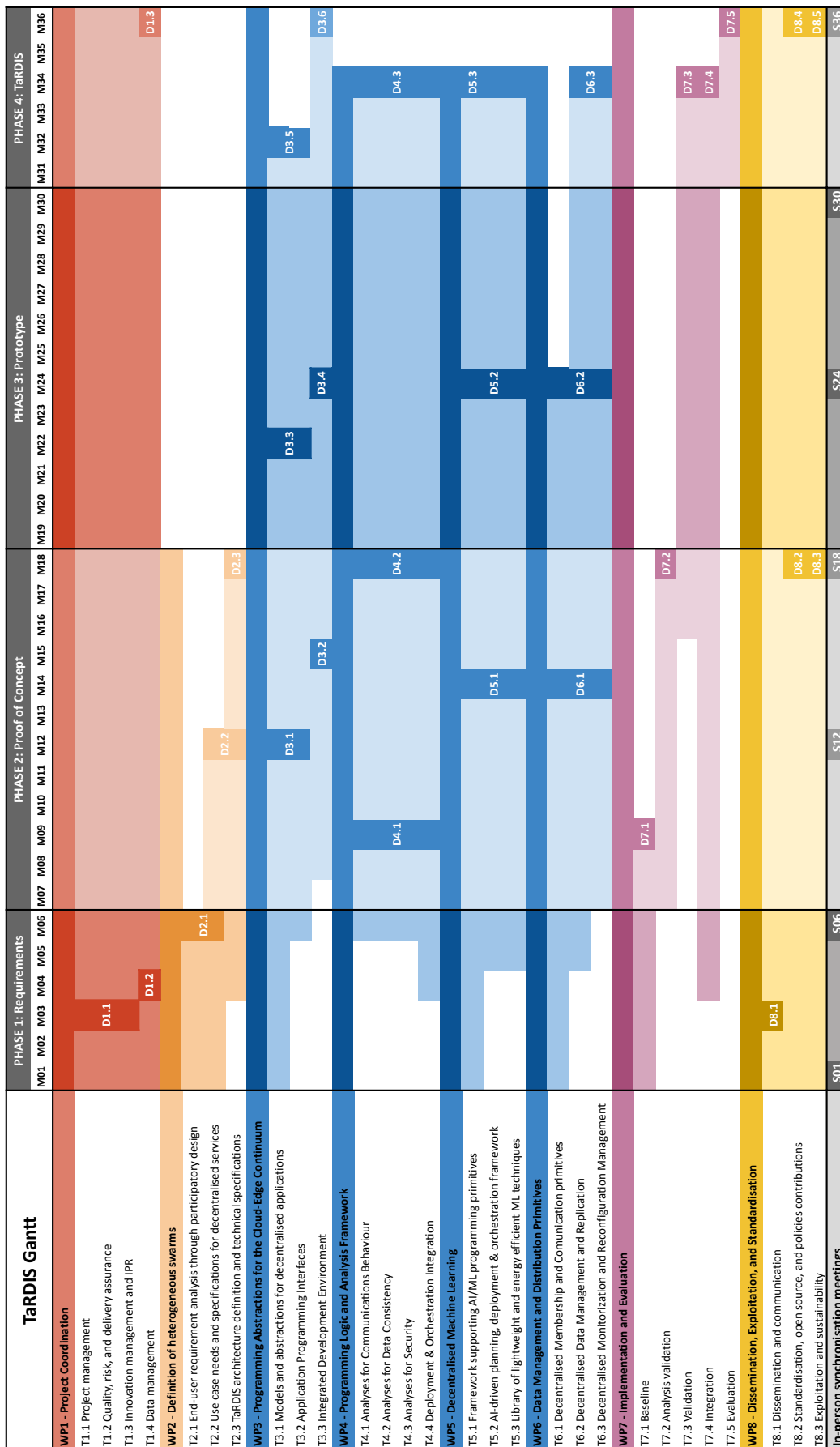


Figure 1: TaRDIS Gantt chart.

1.2.3 List of milestones and deliverables

Each of four project phases ends with a project milestone: MS1 on M06, MS2 on M18, MS3 on M30, and MS4 on M36.

Table 1: List of milestones.

Milestone No	Milestone name	Related WPs	Date	Means of Verification
MS1	Requirements	WP2, WP7	M06	D2.1
MS2	Proof of Concept	WP2 – WP7	M18	D2.2–3, D3.1–2, D4.1–2, D5.1. D6.1, D7.1–2
MS3	Prototype	WP3 – WP7	M30	D3.3–4, D5.2. D6.2
MS4	TaRDIS	WP3 – WP7	M36	D3.5–6, D4.3, D5.3. D6.3, D7.3–5

Table 2: List of deliverables.

D. No.	Deliverable name	WP	Partner	Type	Diss	Month
D1.1	Project plan	WP1	NOVA	R	PU	M03
D8.1	Dissemination and communication strategy and plan	WP8	MTL	R	PU	M03
D1.2	Data management plan	WP1	NOVA	DMP	SEN	M04
D2.1	Report on the initial requirements analysis from co-design	WP2	TID	R	PU	M06
D4.1	Report on the desirable properties for analysis	WP4	ICL	R	PU	M09
D7.1	Report on the expected improvements and quality procedures	WP7	ATC	R	PU	M09
D2.2	Report on overall requirement analysis	WP2	EDP	R	PU	M12
D3.1	Report on the 1st iteration of the application model and APIs	WP3	DTU	R	PU	M12
D5.1	Initial report on distributed AI and AI-based orchestration	WP5	UNS	R	PU	M14
D6.1	Report and prototype of the 1st iteration of the platform	WP6	NOVA	R + DEM	PU	M14
D3.2	First release of TaRDIS development environment	WP3	CMS	DEM	PU	M15

D. No.	Deliverable name	WP	Partner	Type	Diss	Month
D2.3	Report on architecture specification and eval. methodology	WP2	CMS	R	PU	M18
D4.2	Report on the initial analyses' toolset	WP4	ICL	R	PU	M18
D7.2	Report on preliminary validation of the toolbox	WP7	ACT	R	PU	M18
D8.2	Exploitation and sustainability strategy and plan	WP8	CMS	R	SEN	M18
D8.3	Outreach activities mid-term report	WP8	TID	R	PU	M18
D3.3	Report on the 2nd iteration of the application model and APIs	WP3	DTU	R	PU	M22
D3.4	Second release of TaRDIS development environment	WP3	CMS	DEM	PU	M24
D5.2	Second report on Distributed AI and AI-based orchestration	WP5	UNS	R	PU	M24
D6.2	Report and prototype of the 2nd iteration of the platform	WP6	NOVA	R + DEM	PU	M24
D3.5	Report on the final iteration of the application model and APIs	WP3	DTU	R	PU	M32
D4.3	Report on the final analyses' toolset	WP4	ICL	R	PU	M34
D5.3	Final report on distributed AI and AI-based orchestration	WP5	UNS	R	PU	M34
D6.3	Report and prototype of the final iteration of the platform	WP6	NOVA	R + DEM	PU	M34
D7.3	Report on development of the use cases with TaRDIS toolbox	WP7	ACT	R	PU	M34
D7.4	Report on the final validation of the toolbox and guidelines	WP7	NKUA	R + DEM	PU	M34
D1.3	Final report on the data management of the project	WP1	NOVA	DMP	PU	M36
D3.6	Final release of TaRDIS development environment	WP3	CMS	DEM	PU	M36
D7.5	Evaluation report	WP7	NOVA	R	PU	M36
D8.4	Exploitation and sustainability roadmap	WP8	CMS	R	PU	M36
D8.5	Outreach activities final report	WP8	TID	R	PU	M36

2. PROJECT MANAGEMENT

2.1 MANAGEMENT BODIES AND ORGANISATION

The management bodies established by the Project are responsible for making management decisions, implementing management actions and their interrelation.

The management bodies include:

- The General Assembly (GA);
- The Coordinator (PC);
- Steering Committee (SC);
- Work Package Leaders (WPLs);
- External Expert Advisory Board (EEAB).

2.1.1 The General Assembly

The General Assembly is the ultimate decision-making body of the consortium. It is made up of one representative of each Partner and one representative of each Associated Partner and is chaired by the Coordinator.

The General Assembly is free to act on its own initiative to formulate proposals and take decisions following the procedures set out through the CA. The following duties are part of the GA's remit:

- To track the progress and results of the project, assuring they meet contractual obligations;
- Identifies risks and defines contingency plans;
- Financial monitoring to obtain timely and complete control of the financial situation of the project; and
- Proposes changes to CA.

More specifically, the following breakdown of decisions is meant to be taken exclusively by the GA:

- Decide upon any proposal made by the Project Management Team for the allocation of the Action's budget in accordance with the GA, and review and propose budget reallocations to the Parties;
- Proposals to the parties for the project (?) review and/or amendment of the terms of the Grant Agreement;
- Decide upon material changes to the Action Plan;
- Decide upon proposals from for the plan off the use and dissemination of results;
- Proposal to the parties for modifications or withdrawals to Attachment 1 of the CA (Background included, as applicable);

- Addition to Attachment 3 of the CA (List of third parties for simplified transfer according to Section 8.3.2 of the CA);
- Proposals to the Parties for the accession of a new Party to the Consortium and approval of the settlement on the conditions of the accession of such a new Party;
- Proposals to the Parties for the withdrawal of a Party from the Consortium and the approval of the settlement on the conditions of the withdrawal;
- Identification of a substantial breach by a Party of its obligations under the CA or the GrA;
- Declaration, remedies and termination of a Defaulting Party;
- Proposals to the Funding Authority for a change of the Coordinator if made a Defaulting Party; and
- Proposals to the Funding Authority for suspension or termination of all or part of the Action.

2.1.2 The Coordinator

The coordinator is the intermediary between the consortium and the funding authority (i.e. the European Commission), as well as performs all tasks assigned to it, as per the contents of the Grant Agreement and of the Consortium Agreement.

In particular, the Coordinator and the supporting project managerial team shall:

- Monitor compliance of the Partners (and APs) in line with their obligations as set out in the GrA and CA;
- Keep the address list of Partners and other contact persons updated and available;
- Collect, review and submit reports, deliverables (including relevant financial statements) as well as any specific documents requested by the EC;
- Examining the collected reports and assessing compliance with the work plan. If necessary, propose modifications or adjustments to be submitted to the General Assembly; and
- Reporting the collected information to the GA.
- Prepare agendas and chair the General Assembly meetings, propose decisions and draft the necessary meeting minutes, as well as the relevant action plan to follow through;
- Transmit, promptly, documents and information connected with the Project to any partners;
- Administer, and distribute the pre-financing from the European Commission;
- Provide, upon request, the Partners with official copies or originals of documents that are in the sole possession of the Coordinator when such copies or originals are necessary for the Partners.

2.1.3 Steering Committee

The Steering Committee is the supervisory body for the execution of the Project, which shall report to and be accountable to the General Assembly.

The Steering Committee (SC) is composed of the Coordinator, the WP leaders, and the representatives of the Parties and Associated Parties appointed to it by the General Assembly. The Coordinator shall chair all meetings of the SC unless decided otherwise. The SC responsibilities include:

- Coordinate and assist WP leaders on technical and scientific issues;
- Assessing compliance with the work plan (at the project level). If necessary, propose technical and resource allocation adjustments to reach the project objectives;
- Assessing the quality of the WP work, deliverables and milestones;
- Handling resource/skills balance within the WP subject to agreement by the GA;
- Reporting the collected information to the GA.

2.1.4 Work package leaders

Each Work Package is led by the Work Package Leader (WPL) responsible for making the day-to-day technical and management decisions that have an impact on their respective Work Packages. The WP Leader's responsibilities include:

- Leading and coordinating the task activities involved in the WP, through Task Leaders;
- Initial quality check of the WP work, deliverables and milestones;
- Handling resource/skills balance within the WP subject to agreement by the GA;
- Assessing compliance with the work plan. If necessary, propose modifications or adjustments;
- Highlighting to the SC, any potential threats to the technical implementation of the project (at the WP level); and
- Reporting progress to the GA, raising amendments, issues and red flags as needed.

The following table outlines the individual WP leaders:

Table 3: The individual WP leaders.

WP no.	WP Leader
WP1	Carla Ferreira / carla.ferreira@fct.unl.pt
WP2	Aravindh Raman / aravindh.raman@telefonica.com
WP3	Alceste Scalas / alcsc@dtu.dk
WP4	Nobuko Yoshida / nobuko.yoshida@cs.ox.ac.uk
WP5	Dragana Bajovic / dbajovic@uns.ac.rs
WP6	João Leitão / jc.leitao@fct.unl.pt
WP7	Roland Kuhn / roland@actyx.io
WP8	Amrita Prasad / amrita.prasad@martel-innovate.com

2.1.5 External Expert Advisory Board

The External Expert Advisory Board (EEAB) will include EU experts with high expertise in heterogeneous swarms, that will follow up on the global project objectives/results to provide practical recommendations to project partners. They will also be part of the dissemination channels of project results. They will meet with the project consortium once a year, mainly virtually.

EEAB will be composed by:

- Marc Shapiro (Sorbonne Université)
- Yiannis Psaras, Protocol Labs
- Mira Mezini, Technical University of Darmstadt
- Mário Figueiredo, Universidade de Lisboa
- Mirko Viroli, Università di Bologna

This board will be steered by the General Assembly and shall assist and facilitate its decisions.

The Coordinator will ensure that a non-disclosure agreement is executed between all Parties and each EEAB member.

By way of exception to Section 6.4.4 of the CA, the Parties hereby mandate the Coordinator to execute, in their name and on their behalf, a non-disclosure agreement (hereafter “NDA”) with each member of the EEAB, to protect Confidential Information disclosed by any of the Parties to any member of the EEAB. The NDA for the EEAB members is enclosed in Attachment 5 of the CA. The mandate of the Coordinator comprises solely the execution of the NDA in Attachment 5 of the CA.

The Coordinator shall write the minutes of EEAB meetings and submit them to the General Assembly. The EEAB members shall be allowed to participate in General Assembly meetings upon invitation, without having any voting rights.

2.2 MANAGEMENT INFORMATION AND PROCEDURES

The scale of the TaRDIS project requires specific mechanisms to ensure coordination between partners, to successfully achieve the project's objectives. This will be based on the following, recurring, events:

- **General Assembly Meetings** – To be held, at least, every six months and also any extraordinary meetings, at the written, duly justified, request of any partner. These will be held to discuss major advances and progress of the project, across all WPs. If and when needed, more specific “per-WP” sessions will be held.
- **Bi-weekly Management Team Meetings** – These are held by the SC, on a fixed date every two weeks with the aim of getting a status review of each WP as well as the overall project status and discussing any potential issues or difficulties.

2.2.1 Representation in the meetings

2.2.2 Preparation on the meetings

2.2.2.1 Convening meetings

The Coordinator, being the chairperson of both Consortium bodies, shall convene the meetings of the GA and the SC.

	Ordinary meeting	Extraordinary meeting
General Assembly	At least once a year	At any time upon request of the Steering Committee or 1/3 of the Members of the General Assembly or at the request of the Coordinator.
Steering Committee	At least quarterly	At any time upon request of any Member of the Steering Committee, or at the request of the Coordinator.

2.2.2.2 Notice of a meeting

The chairperson of a Consortium Body shall give written notice of a meeting to each Member of that Consortium Body as soon as possible and no later than the minimum number of days preceding the meeting as indicated below.

	Ordinary meeting	Extraordinary meeting
General Assembly	Face-to-face meetings: 45 calendar days Virtual meetings: 21 calendar days	Face-to-face and virtual meetings: 10 calendar days
Technical Steering Committee	Face-to-face meetings: 14 calendar days Virtual meetings: 7 calendar days	Face-to-face or virtual meetings: 7 calendar days

2.2.2.3 Sending the agenda

The chairperson of a Consortium Body shall prepare and send each Member of that Consortium Body an agenda no later than the minimum number of days preceding the meeting as indicated below.

General Assembly	Face-to-face meetings: 21 calendar days, 10 calendar days for an extraordinary meeting. Virtual meetings: 7 calendar days, 5 calendar days for an extraordinary meeting.
Steering Committee	Face-to-face and virtual meetings: 7 calendar days, 6 calendar days for an extraordinary meeting.

2.2.2.4 Adding agenda items

Any agenda item requiring a decision by the Members of a Consortium Body must be identified as such on the agenda.

Any Member of a Consortium Body may add an item to the original agenda by written notice to all of the other Members of that Consortium Body up to the minimum number of days preceding the meeting as indicated below.

General Assembly	Face-to-face and virtual meetings: 14 calendar days, 7 calendar days for an extraordinary meeting.
Steering Committee	Face-to-face or virtual meetings: 2 calendar days.

2.3 DECISION PROCESS

2.3.1 Voting rules and quorum

The General Assembly shall not deliberate and decide validly in meetings unless two-thirds (2/3) of its Members are present or represented (quorum).

If the quorum is not reached, the chairperson of the General Assembly shall convene another ordinary meeting within 15 calendar days. If in this meeting the quorum is not reached once more, the chairperson shall convene an extraordinary meeting which shall be entitled to decide even if less than the quorum of Members is present or represented.

Each Member present or represented in the meeting shall have one vote.

A Party may not vote on its identification by the General Assembly to be in Substantial breach and on its declaration to be a Defaulting Party nor shall their presence account for the necessary quorum. A Party which the General Assembly has declared according to Section 4.2 of the CA to be a Defaulting Party may not vote, nor shall their presence account for the necessary quorum.

The Coordinator may not vote on decisions regarding a proposal to the Granting Authority for a change of the Coordinator.

Decisions shall be taken by a majority of two-thirds (2/3) of the votes cast.

2.3.2 Veto rights

A Partner which can show that its own work, time for performance, costs, liabilities, intellectual property rights or other legitimate interests would be severely affected by a decision of the General Assembly may exercise a veto concerning the corresponding decision or relevant part of the decision.

The exercise of the veto shall be supported by a written justification by the Partner exercising a such veto. The written justification will be made available to all Partners.

When the decision is foreseen on the original agenda, a Partner may only veto such a decision during the meeting.

In case of the exercise of veto, the Parties shall make every effort to resolve the matter which occasioned the veto to the general satisfaction of all Parties within 15 calendar days.

If the Parties cannot reach an agreement to solve the matter which occasioned the veto, the Coordinator will take the matter into consideration of the Project Officer to mediate an agreement between all Parties within 15 calendar days following the abovementioned period.

A Partner may neither veto decisions relating to its identification to be in Breach of its obligations nor to its identification as a Defaulting Party. The Defaulting Partner may not veto decisions relating to its participation and termination in the consortium or the consequences them.

A Partner requesting to leave the consortium may not veto decisions relating thereto.

2.3.3 Minutes of meetings

The chairperson shall produce minutes of each meeting which shall be the formal record of all decisions taken. They shall send draft minutes to all Members within 10 calendar days of the meeting.

The minutes shall be considered as accepted if, within 15 calendar days from receipt, no Party has sent an objection to the chairperson concerning the accuracy of the draft minutes by written notice.

The chairperson shall send the accepted minutes to all the Members, who shall retain copies of them.

3. PROJECT COLLABORATION AND INFORMATION EXCHANGE

This section sets the communication framework and tools for TaRDIS used internally among the Partners (**internal communication**) but also externally between the Consortium and the EC, or other involved stakeholders and bodies (**external communication**). It provides the relevant guidelines, means, roles, plans for relevant meetings and other forms of communication. These are defined and established early enough in the project, and they are regularly re-visited and maintained as necessary to keep them up to date and effectively support the communication and collaboration throughout the lifetime of the project.

3.1 COMMUNICATION TOOLS AND CHANNELS

3.1.1 External communication

3.1.1.1 Communication with the EC

The Coordinator is responsible to ensure smooth communication with the EC, which will be ensured mostly by e-mails or scheduling online meetings where necessary.

The following material constitutes the basis of document exchanges with the EC:

- The Periodic Progress Reports (PPRs) at the set reporting periods (M18 and M36);
- Concise versions of the PPRs in the event of intermediate / technical reviews beyond the official ones, not including financial information that regards the consumed budget from the partners;
- Planned or requested Deliverables and reports;
- Any additional material, reports, presentations, etc requested by the EC.

3.1.1.2 Communication with the External Expert Advisory Board members

As described in the DoA, the EEAB members will: Contribute by the periodical review of the progress and results of the project from a variety of angles and provide advice on ongoing and future work; Provide support for the implementation of the pilot use cases and the assessment of relevant results; Provide guidance in relation to the business planning and exploitation of the project assets; Collaborate and exchange ideas with other prominent experts and through the offered networking opportunities online and offline; Be invited to expert panels and/or thematic workshops, in particular the workshops / events planned by TaRDIS; Be given exposure through the TaRDIS and the EC media channels – blogs, interviews, etc; Be invited to participate in the project events (remotely via conf calls).

Towards these engagement activities the Consortium will provide:

- A dedicated mailing list where the members of the EEAB, and of the Coordinator.
- A protected documents repository where the EEAB members and the Consortium have access to safely exchanged material and documents.
- A private channel for direct communication among the EEAB members and the GA members in the protected messaging platform of the project.

3.1.1.3 Communication with public and community

For external communications, the consortium already established its own website, [TaRDIS](#), and communication tools that include social media, contact form, newsletters, relevant social / community building platforms, etc, that are described in detail in the *D8.1 Dissemination and communication strategy and plan*. For relevant aspects of the work, the partners shall produce high quality presentations and digital material / news items, announcements for publication in the online presence means.

3.2 COLLABORATION TOOLS AND PROCESSES

3.2.1 Documents' repository

The Google Drive tool is set up and maintained by the coordinator to support the exchange of working documents and ideas for brainstorming, as well as keeping an action plan of activities. This platform provides a digital workspace to support the electronic communication and cooperation between project team members. The platform supports the team to share project files, exchange and co-edit files, share information and organize discussions across members of the consortium.

3.2.2 Files naming

To ease the collaboration and communication of the partners while exchanging documents, reports deliverables and other types of files, a common document identification paradigm should be followed, especially for the final documents uploaded in the project repository, as presented below:

TaRDIS _<document name>_<date>_<company/person>_<version>_.extension

<date> : dd.mm.yyyy, e.g. 13.03.2023

<document name> short document name, e.g. D1.1 Project Plan

<version>: increasing number with decimals

<company/person>: consortium partner acronym e.g. NOVA or sender initials e.g. CF for Carla Ferreira

e.g. "TaRDIS_D1.1_Project Plan_13.03.2023_NOVA_V5.pdf"

3.2.3 Documents template

For the effective, clear, and better organised communication and collaboration, a number of templates have been made available early enough in the project, and regard the:

- Deliverables.
- Presentations.

These templates are presented in the Appendix A of the current report. Additional ones will be produced based on the needs of the project.

4. DELIVERABLES PREPARATION

For the proper and on-time preparation of the official documentation of the project outcomes (Deliverables and PPRs) while implementing them under a quality assurance framework, TaRDIS sets a set of processes and guidelines to be followed by the Consortium. These guidelines are presented in the current section.

4.1 TYPES AND DISSEMINATION LEVELS

The entire list of the deliverables that are planned to be produced and submitted to the EC, describing / documenting / consisting of the outcomes of the project is presented in the Part A of the DoA Section 1.2.3 of the current project plan. In general, the following types of deliverables are expected to be produced by TaRDIS, as these are defined also in the GrA:

- R: Document, report (excluding the periodic and final reports)
- DEM: Demonstrator, pilot, prototype, plan designs
- DEC: Websites, patents filing, press & media actions, videos, etc.
- OTHER: Software, technical diagram, etc.
- DMP: Data Management Plan.

For each Deliverable the level also of the dissemination is defined with the options of:

- PU: Public, fully open, e.g. web;
- CL: Classified, information as referred to in Commission Decision 2001/844/EC;
- CO: Confidential to TaRDIS project and Commission Services.

4.2 PREPARATION PROCESS

The preparation process defines the exact steps and time-plan up to the day of submission for the planned deliverables, involving the roles of Deliverable Leader (DL), Contributors (contributing partners), Reviewers (the 2 partners that internally review the deliverable), and the PC. For each deliverable, two partners are defined as Reviewers, based on their expertise. The next diagram (Figure presents these steps along with the timing and involved roles.

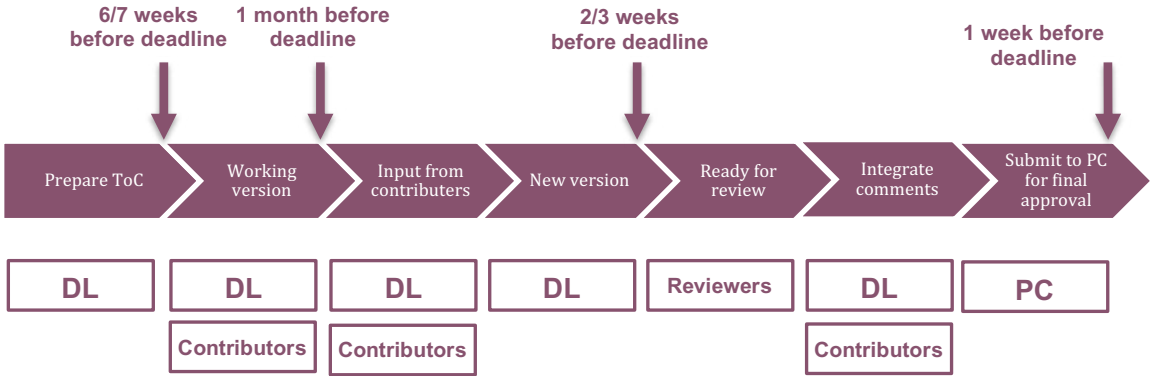


Figure 2: Deliverables preparation process.

5. REPORTING

5.1 PERIODIC REPORTS (PER EC REQUIREMENTS)

The pre-financing and periodic reports (PR) include technical and financial parts. The technical part includes an overview of the action implementation according to the GrA. It must be prepared using the template available in the Portal Periodic Reporting tool.

The financial part of the additional pre-financing report includes a statement on the use of the previous pre-financing payment. The financial part of the periodic report includes:

- The financial statements (individual and consolidated; for all beneficiaries/affiliated entities);
- The explanation of the use of resources (or detailed cost reporting table, if required) indicating the corresponding WP and the corresponding Task;
- The certificates on the financial statements (CFS) (if required). The financial statements must detail the eligible costs and contributions for each budget category.

All eligible costs and contributions incurred should be declared, even if they exceed the amounts indicated in the estimated budget.

Amounts that are not declared in the individual financial statements will not be considered by the granting authority.

The Periodic Reporting schedule is the following:

Table 4: Periodic report schedule.

PR no.	Month from	Month to	Deadline
1	1	18	60 days after the end of the reporting period
2	19	36	60 days after the end of the reporting period

5.2 INTERNAL REPORTING PROCEDURES

The TaRDIS project, considering the complexities of its financial implementation, will set up an internal reporting stage, to complement and allow for more efficient preparation of the periodic reports to the EC. These will occur every 6 months, for each Partner, covering the financial components of the project.

Each Partner must submit their internal report (IR) to the TSC and WP leader no later than 10 calendar days after the end of each internal reporting period. The Internal Reporting deadlines may be found in the table below. 40 calendar days before the end of the internal reporting period, the Coordinator team will send a reminder to the Partners. 10 calendar days before the deadline for the IR submission, Partners who have not submitted the IR will be reminded once more by the Coordinator team.

The reports will be assessed by the Technical Steering Committee (TSC) and WP leader and comments on them may be expected by the Partners 15 calendar days after submission.

Table 5: The Internal Reporting Period schedule.

Report to the CO	Month	Internal Reporting Period		Internal Reporting Deadline
		Start	End	
1	6	01/01/2023	30/06/2023	10/07/2023
2	12	01/07/2023	31/12/2023	10/01/2024
3	18	01/01/2024	30/06/2024	10/07/2024
4	24	01/07/2024	31/12/2024	10/01/2025
5	30	01/01/2025	30/06/2025	10/07/2025
6	36	01/07/2025	31/12/2025	10/01/2026

6. PAYMENTS

Transfers will be performed by the Coordinator to the Partners after receipt of payments from the Granting Authority without undue delay.

Partners will be notified of the date and composition of the amount transferred to their bank account.

The prefinancing payment was 5 001 887.00 € and the contribution to the Mutual Insurance Mechanism (312 617.94 €) was kept back from this amount and paid to the Mechanism.

The prefinancing was distributed to the Partners according to their granted amount:

Table 6: Pre-financing amounts per Partner (80% minus 5% to MIM)

Partner	Max Grant Amount	Pre-financing
NOVA	1 139 957,50 €	854 968,12 €
DTU	792 128,75 €	594 096,56 €
UNS	421 625,00 €	316 218,75 €
NKUA	495 750,00 €	371 812,50 €
EDP	353 125,00 €	264 843,75 €
ACT	1 181 387,50 €	886 040,62 €
GMV	558 576,25 €	418 932,19 €
CMS	648 726,25 €	486 544,69 €
TID	661 082,50 €	495 811,87 €

Interim payments will be paid to Partners according to costs accepted by the Granting Authority.

The Coordinator is entitled to withhold any payments due to a Partner identified by the General Assembly to be in Breach of its obligations under the Consortium Agreement or the Grant Agreement.

7. RISK MANAGEMENT

The Coordinator, considering the information collected from WPLs, will maintain close monitoring of the risks identified at the proposal stage, as well as identifying potential new ones as the project progresses.

To that effect, a risk assessment table is included below, referencing the same structure as the one prepared at the proposal stage. Furthermore, a risk log and report will be maintained, as part of the management and coordination activities of WP1.

Table 7: Project risks with likelihood (Prob), severity (Imp), and mitigation measures (scale: Low, Medium, High).

Description of risk	WPs	Mitigation measure
Project management risks		
Partner leaving consortium. (Prob: L, Imp: H)	All	The consortium has overlapped expertise among partners. If the remaining partners cannot replace the leaving partner, the consortium will seek an alternative new partner. In this case, an amendment of the GrA is required.
Partner cannot achieve assigned goals. (Prob: L, Imp: M)	All	All partners have experience in successful projects. Overlapping expertise and previous collaborations can allow other consortium partners to complement or substitute underperforming partners.
Resources are underestimated. (Prob: M, Imp: M)	WP1	Early identification due to regular monitoring. The PC, WP leaders, and partner representatives will ensure constant interaction and communication exists. Rearrange resources among partners or re-plan work if needed.
Technical risks		
Requirements for the toolkit are incomplete. (Prob: M, Imp: M)	WP2	Technical partners will closely cooperate with industrial partners, to identify the exact requirements of TaRDIS. Partners' experience on other successful projects is expected to help with a complete technical specification.
Diverse expectations lead to broad requirements. (Prob: M, Imp: M)	WP2	Intensive coordination and communication between the use cases owners and technology partners involved in WP1, especially during the initial period of the project.
Programming model too complex. (Prob: M, Imp: M)	WP3	Interface TaRDIS applications with external (black box) components. Developers have the flexibility in choosing which parts of their applications are developed "inside" the TaRDIS model, and which parts are external.
Analyses cannot be fully automated. (Prob: M, Imp: M)	WP4	Partners developing analyses are key contributors to WP2, ensuring the information for full automation is available. Semi-automatic analysis using programmers' inputs will be used if full automation is not possible.

Communication analyses are not compositional. (Prob: L, Imp: M)	WP4	Planned work extends compositional techniques. Where compositionality cannot be achieved, the tooling will ensure that this is clear, and communicate the limitations of the relevant analyses.
AI needs are not fully specified by the use cases. (Prob: M, Imp: L)	WP2 WP5	During use case requirements analyses (WP1) WP4 contributors will work with use case providers to best algorithmic matches from the state-of-the-art, including refinements and advances to best align with the use case needs.
Insufficient data for ML algorithms development. (Prob: M, Imp: L)	WP5	Model development can be done on partner's premises to mitigate the risks to data privacy. For AI-based orchestration we use stochastic approximation to deal with system optimisation in the presence of noisy and/or uncertain data.
Communication primitives unsuitable for data store. (Prob: L, Imp: M)	WP6	We will develop specific communication protocols and integrate them into a general-purpose framework that simplifies its use in TaRDIS runtime.
Lack of realistic data for reconfiguration evaluation. (Prob: H, Imp: M)	WP5	We will rely on data generated through simulation, and possibly extend subsets of realistic data obtained.
Loss of deployment target. (Prob: L, Imp: M)	All	If a deployment target ceases to be viable (e.g., a factory shuts down), partners commit to search a replacement target and, if too late in the project, to finish the implementation to validate software tools, without deploying the results.
Stakeholders do not commit with D & E & C actions. (Prob: M, Imp: L)	WP8	Dissemination plan will help partners to start promoting the project properly. In case this risk happens, a more aggressive strategy will be set up, engaging more members of the industrial partners to promote the project outcomes.
External project risks		
Change of project requirements. (Prob: M, Imp: L)	WP2 - WP7	Project coordination will ensure permanent interaction between all partners and WPs leaders. It is planned to have in-person plenary meetings every six months. Therefore, changes in requirements can be addressed efficiently and fast.
Development of competing technologies. (Prob: M, Imp: M)	All	Technologies intended to be designed in the project may become available by other projects or organisations. Such events will be reported early, and possible reassignment of PMs by the PC.

7.1 RISK MANAGEMENT PROCESS

The management should be able to address and harmonize different aspects emerging from the various planned activities. To this end, risk management is a high priority and is organized as follows:

- 1. Risk Identification:** during the start of the project, a risk assessment is conducted to identify the risks associated with both the business and technical aspects of the research.

8. INNOVATION MANAGEMENT AND IPR

Dissemination and use of knowledge produced within the project are subject to the conditions outlined in both the GrA and the CA and can be summarized as follows:

- **Ownership:** Partners who own a specific result or knowledge will take adequate and effective measures to safeguard it before disseminating, publishing, or utilizing it. The CA includes provisions concerning access rights to the background and results, both to ensure the successful execution of the project and to support the project's open-source distribution strategy.
- **Publication and Communication:** Partners may publish information on the knowledge generated in the project, subject to the conditions set out in the GrA and CA, provided that the publication does not compromise the protection of that knowledge. Any public dissemination, publication, or communication of knowledge must be approved in advance by the consortium according to the procedures outlined in the CA.
- **Open science practices:** To cope with the Open Science Practices, TaRDIS follows the guidelines set forth by the EU. Publications on project results and processes are made available in open-access, according to a project-wise open-access publication strategy defined in the CA. In particular, the consortium adopts the green open access model to make journal and conference publications publicly available. This implies that a pre-print or a post-print of papers will be available through well-known, highly reliable, perpetual archival sites, such as arXiv, Scribd, etc., under public copyright licences (e.g., "CC BY"). The original paper versions will be freely available on the publisher's site for conferences and journals offering the gold open access model. In all cases, the project website provides all the details to retrieve official or pre-/post-print versions of scientific publications.

Even though the expected technological results from TaRDIS have a relative low maturity level (expected TRL is either 5 or 6), it is important to detect as early as possible innovative exploitable assets produced within the project. To that end a directory of results is made available in the project documents repository. This directory enumerates all assets related to the project work, specifically the project results, and clearly indicates the owner, nature, status, dissemination, and protective measures for each item. It is accessible to all partners and is regularly updated.

APPENDIX A

DOCUMENTS TEMPLATES

Deliverables template

DX.X: Deliverable Title
Sub-title here if needed/appropriate

Work package	WP: WP001
Task	Task: Task001
Due date	2024-01-01
Submission date	2024-01-01
Deliverable type	Report
Version	1.0
Authors	John Doe, Jane Smith
Reviewers	John Doe, Jane Smith
Address	Project TaRDIS
Keywords	AI, ML, Security

Version	Date	Description of change	List of work/packages
1.0	2024-01-01	Initial version for review	WP001, Task001

www.project-tardis.eu

DISCLAIMER

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Material name	Material description	Material license
Public	Publicly available in a peer-reviewed journal or public repository	CC-BY-NC-ND 4.0
Open	Openly available under the conditions of an Open Access License	CC-BY-NC-ND 4.0
Confidential	Confidential under the conditions of an NDA	Proprietary
Proprietary	Proprietary software or hardware	Proprietary
Trade Secret	Trade Secret under the Commission Decision 2008/491/EC	Proprietary
Confidential	Confidential under the Commission Decision 2008/491/EC	Proprietary
Confidential	Confidential under the Commission Decision 2008/491/EC	Proprietary

EXECUTIVE SUMMARY

Summaries are useful for people who have neither the time nor the inclination to read a lengthy document but who want to learn the primary points quickly and then decide whether they need to read the entire version.

A summary should be short enough to be economical and long enough to be clear and comprehensive. Don't sacrifice meaning for brevity. A short, sparsely summary will take more of a reader's time than a somewhat longer but clear one.

It should stand alone (hence do not refer to section numbers or WPs).

- It focuses on results (findings, conclusions, and recommendations).
- It typically provides some motivation for why the problem is interesting.
- It typically mentions the research methodology.
- It does NOT need to provide a section-by-section summary.

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LIST OF FIGURES

FIGURE 1: THIS FIGURE IS TAKEN FROM OC REPORT 9

LIST OF TABLES

TABLE 1: CAPTION FOR THE TABLE 10

TABLE 2: CAPTION FOR THE TABLE 10

TaRDIS | D1.1: Deliverable Title (V x.x)

ABBREVIATIONS

IP Internet Protocol
TCP Transmission Control Protocol
...

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TaRDIS | D1.1: Deliverable Title (V x.x)

SECTION: ABOUT TEXT AND TITLES

GUIDANCE:
Deliverables should not refer to project-internal matters such as WPs.

1.1 FIRST SUBSECTION
Body text
• First level bullet
• Second level bullet
• Third level bullet...

1.2 SECOND SUBSECTION
• Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec a diam lectus. Sed sit amet ipsum mauris.

1.2.1 Sub-subsection
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec a diam lectus. Sed sit amet ipsum mauris. Maecenas congue ligula ac quam viverra nec consectetur ante hendrerit. Donec et mollis dolor. Praesent et diam eget libero egestas mattis sit amet vitae augue. Nam tincidunt congue enim, ut puris lorem laoreet congue.

1.2.1.1 Sub-sub-subsection
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec a diam lectus. Sed sit amet ipsum mauris. Maecenas congue ligula ac quam viverra nec consectetur ante hendrerit. Donec et mollis dolor. Praesent et diam eget libero egestas mattis sit amet vitae augue. Nam tincidunt congue enim, ut puris lorem laoreet congue.

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TaRDIS | D1.1: Deliverable Title (V x.x)

SECTION: ABOUT FIGURES, TABLES AND REFERENCES

2.1 ABOUT FIGURES
About figures please remember to:
• Center them
• Full figure caption (similar to their cross-reference to text):
• Caption font size should be 10 pt min.
• Caption should be centered as well

If the picture is taken from some other sources this should be added!

Figure 1: This figure is taken from IEEE paper

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TaRDIS | D1.1: Deliverable Title (V x.x)

2.2 ABOUT TABLES
About tables remember to:
• Center them
• Use a table caption (similar to their cross-reference to text):
• Caption font size should be 10 pt min.
• Caption should be centered as well

If the Table is taken from some other sources this should be added

Hereby a table example:

Table 1: Caption for the table

Column 1	Column 2	Column 3
Content cell	Content cell	Content cell
Content cell	Content cell	Content cell
Content cell	Content cell	Content cell
Content cell	Content cell	Content cell

Table 2: Caption for the table

Column 1	Column 2	Column 2
Content cell	Content cell	Content cell
Content cell	Content cell	Content cell

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TaRDIS | D1.1: Deliverable Title (V x.x)

3 ABOUT REFERENCES

For what concerns the references, please, insert them as numbered "cross-reference" as indicated below [1] and listed in the dedicated "REFERENCES" see REFERENCES.

Please insert them as arabic (only 1, 2, 3, ... number format). For example, reference to [1] and reference to [2]. If you want to refer again to a reference that was already inserted earlier in the text, you can use the insert "Cross-reference" function and select "Insert". Then select the right reference and click "Insert". For example, here we refer again to the first reference [1].

The use of arabic allows you to insert references at any place at any time. Reordering happens automatically (which is not the case when using numbered items and to hence a big not supported functionality). The main disadvantage of using arabic is that they do not support brackets automatically. Another disadvantage is that arabic always appears at the very end of the document. If arabic are added at the end of the document, they will be inserted before the references. Fortunately, arabic are rarely used in deliverables.

In order to **obtain references between square brackets**, you should follow the steps below:

- Square brackets need to be typed manually for each reference that is inserted. The easiest way to do so, is to hit type the brackets and then insert the arabic in between the brackets.
- When the deliverable is in a final stage (meaning that no more references need to be added), the square brackets needs to be added manually at the end of the document in the References section.
- Please also insert a tab between the closing bracket and the reference text in order to obtain a clean alignment of the references. This is not really user-friendly, but unfortunately there is no better alternative.
- Be careful to insert references when the document is in "track changes" mode. Track changes may create an numbering when copying & pasting text including references.
- Do NOT use "numbered list" for adding references. This approach will show references in the list in a non-sorted way.

Notice that also cross-references among sections and references to pictures and tables should be inserted as cross-references to numbered items so that when shifting around things in the document, the links will be automatically updated when saving it.

Sometimes for URLs you may want to use the footnote option rather than the reference option as explained below.

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TaRDIS | D1.1: Deliverable Title (V x.x)

4 CONCLUSIONS

Guidance: This section should conclude the work done and outline next steps.

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TaRDIS | D1.1: Deliverable Title (V x.x)

REFERENCES

[1] Author, Title, Date...
[2] Author, Title2, Date...
[3] URL...
[4] ...

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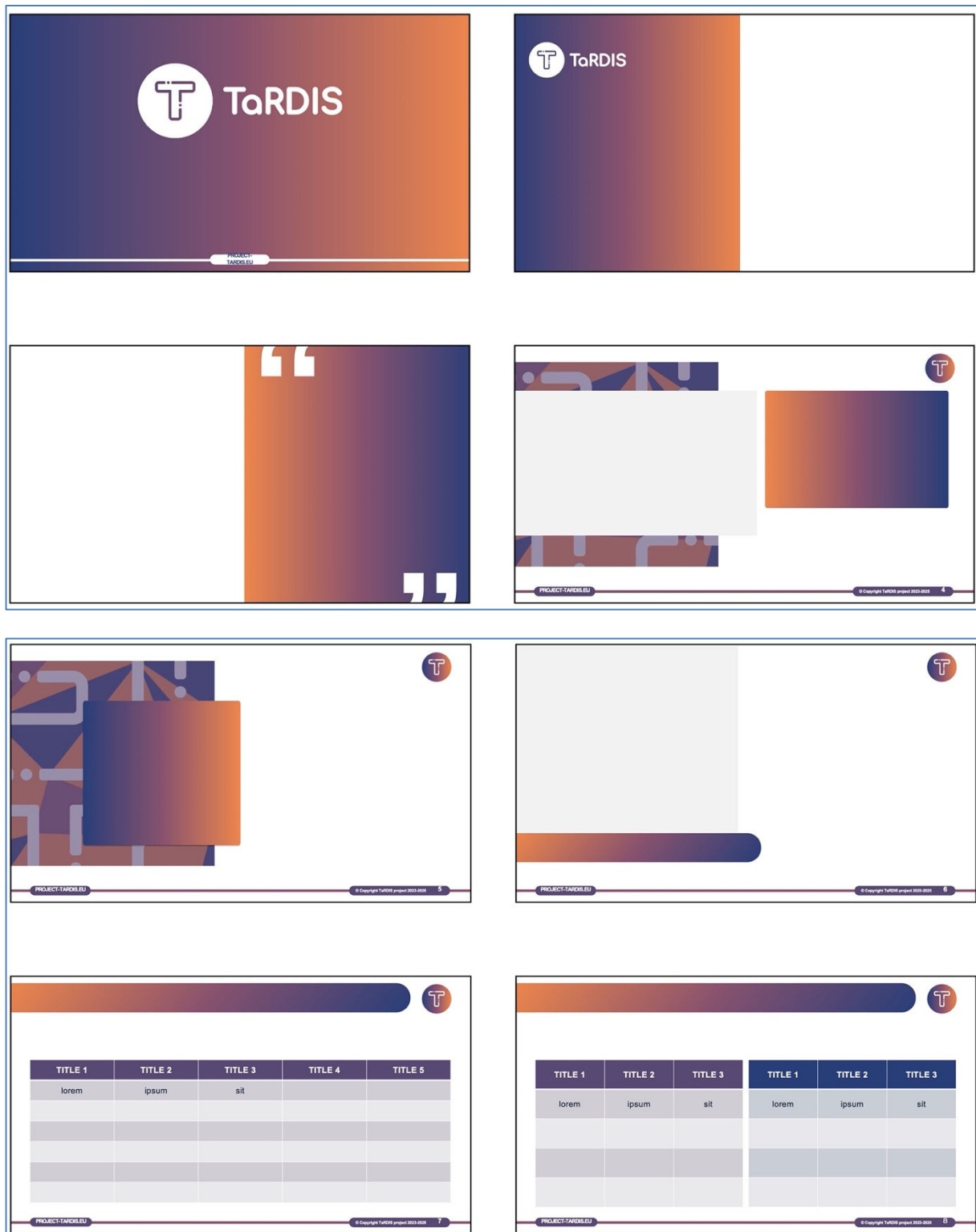
TaRDIS | D1.1: Deliverable Title (V x.x)

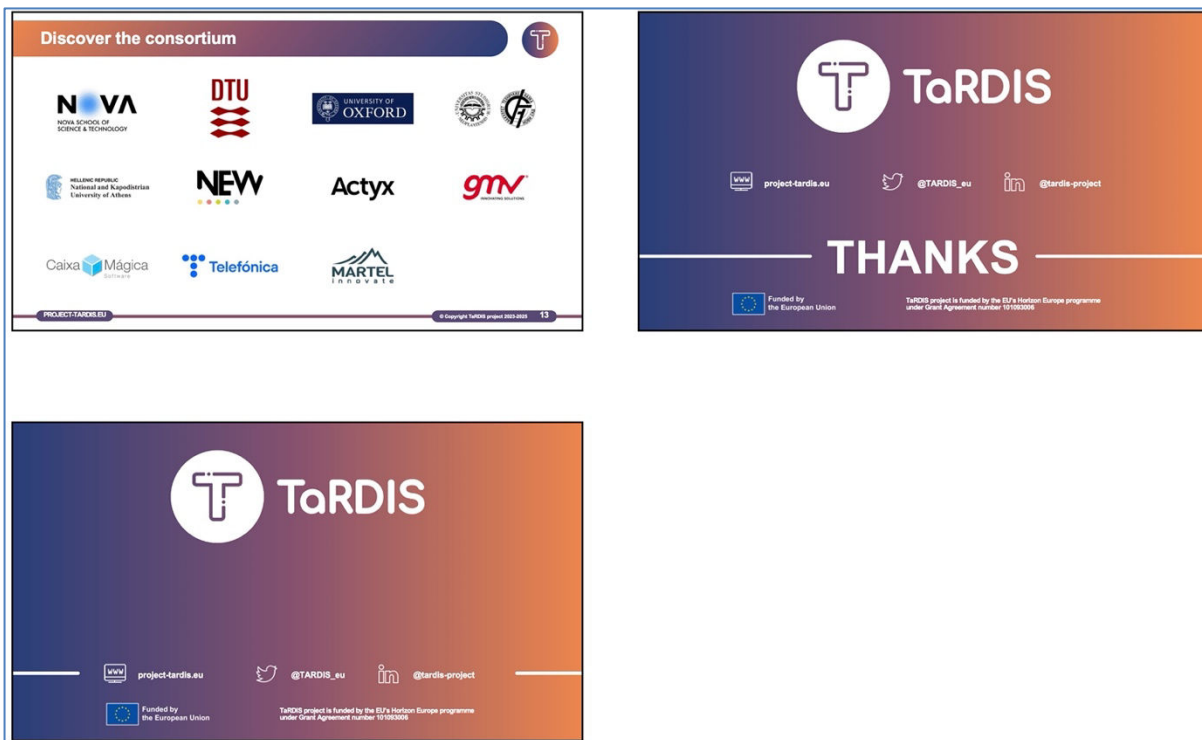
APPENDIX A

Anything that is related but not core to the deliverable can go into appendix.

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Presentation template





TEMPLATE OF THE FINANCIAL INTERNAL REPORT

Overview

TaRDIS Financial Internal Report

PROJECT TITLE: Trustworthy and Resilient Decentralised Intelligence for Edge Systems

PROJECT ACRONYM: TaRDIS

GRANT AGREEMENT NO: 101093006

PROJECT DURATION: 1st January 2023 - 31st December 2025 (36 months)

INTERNAL REPORTING PERIOD (IRP): 1 1st January 2023 - 30th June 2023 (6 months)

PARTNER NAME:

PARTNER NUMBER:

Direct costs		Indirect costs		Total costs		EU contribution		Effort		
A. Personnel costs		B. Subcontracting costs	C. Purchase costs		D. Other cost categories	E. Indirect costs	EU contribution to eligible costs		PM's used	0.00
A.1 Employees (or equivalent)	A.2 SME owners without salary	B. Subcontracting	C.1 Travel and subsistence	C.2 Equipment	C.3 Other goods, works and services	D.2 Internally provided goods and services	E. Indirect costs	Funding rate %	Maximum EU contribution	Requested EU contribution
Actual Unit costs	Unit costs	Actual costs	Actual costs	Actual costs	Actual costs	Actual/Unit costs	25% Flat-rate			
0.00 €		0.00 €	0.00 €	0.00 €	0.00 €	0.00 €	0.00 €	100%	0.00 €	0.00 €

Partner effort

TaRDIS Financial Internal Report

INTERNAL REPORTING PERIOD (IRP): 1 1st January 2023 - 30th June 2023 (6 months)

PARTNER NAME: 0

PARTNER NUMBER: 0

IRP1		IRP2		IRP3		IRP4		IRP5		IRP6	
PM allocated	PM reported in this IRP	PM allocated	PM reported in this IRP	PM allocated	PM reported in this IRP	PM allocated	PM reported in this IRP	PM allocated	PM reported in this IRP	PM allocated	PM reported in this IRP
0	0	0	0	0	0	0	0	0	0	0	0

Total PM allocated	0
Total PM in previous IRP	0
Total PM reported in this IRP	0
PM remaining	0

Partner costs

Work Package	Personnel costs	Subcontracting costs	Travel and subsistence	Equipment	Other goods, works and services	Internally invoiced goods and services	Indirect costs	Total costs
1	- €	- €	- €	- €	- €	- €	- €	- €
2	- €	- €	- €	- €	- €	- €	- €	- €
3	- €	- €	- €	- €	- €	- €	- €	- €
4	- €	- €	- €	- €	- €	- €	- €	- €
5	- €	- €	- €	- €	- €	- €	- €	- €
6	- €	- €	- €	- €	- €	- €	- €	- €
7	- €	- €	- €	- €	- €	- €	- €	- €
8	- €	- €	- €	- €	- €	- €	- €	- €
Total	- €	- €	- €	- €	- €	- €	- €	- €

Explanation of resources

Work Package	Personnel costs	Subcontracting costs	Travel and subsistence	Equipment	Other goods, works and services	Internally invoiced goods and services	Indirect costs	Total costs
1	- €	- €	- €	- €	- €	- €	- €	- €
2	- €	- €	- €	- €	- €	- €	- €	- €
3	- €	- €	- €	- €	- €	- €	- €	- €
4	- €	- €	- €	- €	- €	- €	- €	- €
5	- €	- €	- €	- €	- €	- €	- €	- €
6	- €	- €	- €	- €	- €	- €	- €	- €
7	- €	- €	- €	- €	- €	- €	- €	- €
8	- €	- €	- €	- €	- €	- €	- €	- €
Total	- €	- €	- €	- €	- €	- €	- €	- €

APPENDIX B

KICK-OFF MEETING

The following describes the kick-off meeting of the TaRDIS project, funded by the European Union's Horizon Europe research and innovation programme under grant agreement Number 101093006.

This document aims to demonstrate that the Kick-off Meeting (KoM). The KoM agenda and the consortium members who participated (in person or online) are shown below along with a photo of this KoM.

Meeting place and participants

Meeting Place

- In-person venue: NOVA School of Science and Technology, Campus da Caparica, Portugal
- Zoom link for on-line participation: <https://videoconf-colibri.zoom.us/j/92132687505>

Meeting Time

- 17th January 2023 09:00 H WEST – 18th January 2023 17:45 H WEST

Participants

- NOVA: Carla Ferreira, João Leitão, João Costa Seco, Bernardo Toninho, António Ravara, Cláudia Soares, Miguel Goulão, Pedro Akos Costa, Ana Ribeiro, Luis Caires, João Resende
- DTU: Alceste Scalas, Sebastian Mödersheim
- UNS: Silvia Ghilezan, Miroslav Popovic, Miroslav Zarić, Ivan Prokić, Ivan Kaštelan, Miloš Simić, Miodrag Djukic
- NKUA: Panos Trakadas
- EDP: Rafael Oliveira Rodrigues, Manuel Pio Silva, Tiago Teles
- ACT: Roland Kunh
- GMV: Giovanni Granato, María Manzano (remote)
- CMS: Carlos Coutinho, Miguel Tavares
- TID: Aravindh Raman (remote)
- Associated partners
 - Martel: Amrita Prasad
 - Oxford: Nobuko Yoshida

Agenda

Tuesday, 17th January

Time	Agenda
09:00 - 09:15	Welcome 1st day
09:15 - 09:35	TaRDIS overview (Carla Ferreira)
09:35 - 10:30	Partner introduction (5 minutes presentation per partner)
10:30 - 11:00	Coffee break
11:00 - 11:30	Project administration (Carla Ferreira)
11:30 - 12:30	WP2 Definition of heterogeneous swarms (Aravindh Raman)
12:30 - 13:30	Lunch
13:30 - 14:30	WP3 Programming Abstractions for the Cloud-Edge Continuum (Alceste Scalas)
14:30 - 15:30	WP4 Programming Logic and Analysis Framework (Nobuko Yoshida)
15:30 - 16:00	Coffee break
16:00 - 17:00	WP5 Decentralised Machine Learning (Cláudia Soares)
17:00 - 17:45	WP6 Data Management and Distribution Primitives (João Leitão)
17:45 - 18:00	Technical talk - Decentralised machine learning (Panagiotis Trakadas)
20:00	TaRDIS Dinner

Tuesday, 18th January

Time	Agenda
09:00 - 09:15	Welcome 2nd day
09:15 - 09:45	Use Case #1: Multi-level smart charging (Rafael Oliveira Rodrigues)
09:45 - 10:15	Use Case #2: Privacy-preserving learning through decentralised training in smart homes (Aravindh Raman)
10:15 - 10:45	Use Case #4: Highly resilient factory shop floor digitalisation (Roland Kuhn)
10:45 - 11:00	Coffee break
11:00 - 11:30	Use Case #3: Distributed navigation concepts for LEO satellite constellations (Giovanni Granato)
11:30 - 12:30	WP7 Implementation and Evaluation (Roland Kuhn)
12:30 - 13:30	Lunch
13:30 - 14:30	WP8 Dissemination, Exploitation, and standardisation (Amrita Prasad)
14:30 - 15:00	Technical talk - Behavioural types (António Ravara & Ivan Prokić)
15:00 - 15:30	Technical talk - Distributed data management (Nuno Preguiça)
15:30 - 16:00	Coffee break
16:00 - 16:30	Technical talk - Decentralised machine learning (Cláudia Soares)

16:30 - 17:30	Summary of actions and planning of next meetings
17:30	17:45 End of meeting