Autonomous and Self-organized Artificial Intelligent Orchestrator for a Greener Industry 4.0

Deliverable

D1.1-Project Administrative, Technical & Data Management Handbook

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D1.1 Project Administrative, Technical & Data Management Handbook			
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1.0	30/03/2023	ENG	Ready for submission

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Definitions and acronyms

AI	*Artificial Intelligence*
CA	*Consortium Agreement*
CFS	*Certificates on the Financial Statements*
DIH	*Digital Innovation Hub*
DMP	*Data Management Plan*
DoA	*Description of Action*
DT	*Digital Twins*
EC	*European Commission*
EU	*European Union*
IoT	*Internet of Things*
IPR	*Intellectual Property Rights*
GA	*Grant Agreement*
ICT	*Information and Communications Technology*
GA	*Grant Agreement*
KPI	*Key Performance Indicator*
PPE	*Personal Protection Equipment*
PC	*Project Coordinator*
QA	*Quality Assurance*
SME	*Small and Medium Enterprises*
TC	*Technical Coordinator*
ToC	*Table of Contents*
UI	*User Interface*
UX	*User Experience*
WP	*Work Package*

Disclaimer

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Executive Summary

The Project Administrative, Technical & Data Management Handbook has been written by the Coordination team and task leaders of WP1, and agreed upon the whole Consortium. It contains all related information for running the TALON project, including the communication and information flows, the project's adopted approach to quality and risk management activities, a detailed list of all the tools, processes, methodologies and structures put in place and adopted by all Consortium partners. These will aim at:

- ensure both high and consistent quality standards are maintained in project activities and outcomes,
- monitor and mitigate potential risks, while defining how to deal with materialized risks and emergency situations,
- provide high-level guidelines for routinary activities, such as calls and meetings (mainly frequency and management), deliverables submission process and quality review procedures,
- define the roles and responsibilities of each Consortium member along the Project lifecycle,
- describe the Project repository, its structure and how it should be used,
- inform the Consortium about the administrative and financial reporting to EC, and the addition of internal reporting to continuously monitoring of the Project status,
- facilitate the communication between project partners and the Commission,
- set up a high-level strategy to evidence and increase the innovative potential of TALON, that should serve as a guideline for all partners and mainly for technical and exploitation/dissemination activities.

Main references for the deliverable are the Grant Agreement and its annexes, the Consortium Agreement and further decisions undertaken within the Consortium. This handbook should be used by the TALON partners as reference manual during the implementation of the project activities. A variety of hints, guidelines and best practices are described to ensure that the Consortium runs smoothly and without problems. All Consortium members are invited to carefully read the deliverable, and to follow the procedures here described for the whole duration of TALON. The Coordination team, on the other hand, commits assuring D1.1 will be always up-to-dated, and coherent with the actual Project progress and management.

In the deliverable there are many references to Project Repository documents that can be reached only by Consortium members.

1. Introduction

The main aim of this deliverable (D1.1-Project Administrative, Technical & Data Management Handbook) is to elaborate in detail all aspects of the TALON Project as approved: Description of Work Packages, Tasks and Deliverables, Financial Management, Management and Quality Plan, Risk Assessment & Contingency Plans, Internal and External Communication Strategy. This document will also include management tools and guidelines to be used during the Project's implementation.

In addition, the document provides a detailed allocation of tasks, responsibilities, and timescales, as well as an overview of the project phases, internal communication structures to guarantee smooth and efficient management of the project. At the same time, it describes the mechanisms used during the project implementation to ensure high quality of project deliverables, activities, and on how to manage project risks and challenges.

Section 2 gives general information about the project (objectives, consortium, work plan).

Section 3 presents roles and responsibilities of the partners, Project Management bodies, procedures for decision making, dispute resolution, project monitoring and technical monitoring.

Section 4 provides a guideline to submit deliverables.

Section 5 shows the procedures to be carried out among partners in exchanging information.

Sections 6 and 7 constitute the TALON's Quality Plan and the Quality and Risk Plan, which describes:

- General quality control measures and actions, quality control of documentation, quality systems and quality control board such as deliverable peer review & control.
- The internal quality control of the whole project, including reporting and monitoring, and possible corrective and preventive actions.
- Identification of potential risks and related mitigation measures, as well as the necessary contingency plans towards eliminating them.

Section 8 provides TALON Partners with guidelines, rules and instructions stated for the administrative and financial reporting.

Finally, Section 9 focuses on the monitoring of the ethics aspects of the project.

Concerning the data management plan, the document mentions the information reported in the deliverable D1.2 (DMP).

2. General information

2.1 Project Overview

The expected diversity of services, use cases, and applications in I5.0 require a flexible, adaptable, and programmable AI architecture that optimises the edge vs cloud AI to maximise the performance of the overall system. In this context, TALON aims at enabling automated flexible, adaptable, programmable, explainable and energy efficient edge artificial intelligence (AI) networking by developing three complementary technologies in an integrated and innovative way:

- TALON designs a new AI orchestrator that boosts dynamic scalability by coordinating infrastructures of different computational/communication resources, while offering high data and energy efficiency (EE); thus, creating Greener AI networks (Pillar I);
- TALON employs blockchain and AI to transform beyond I5.0 into intelligent platforms and introduce new service models and applications under a privacy and security umbrella (Pilar II);
- TALON exploits the opportunities emerging for edge networking to provide almost-zero latency and high-computational capabilities near sensors (Pilar III); and
- TALON uses digital twins (DTs) to boost AI explainability, trustworthiness and transparency by visualization the AI decision making process and combining it with human-in-the-loop (HIL) approaches (Pilar IV).

To realize this novel system concept, TALON proposes an innovative edge-to-cloud (E2C) AI architecture, which combines the benefits of AI, edge and cloud networking, as well as blockchain and DTs, optimized by means of:

- New key performance indicators (KPIs) that translates the AI benefits into insightful metrics;
- A novel theoretical framework for the characterization of the E2C AI;
- Blockchain used to deliver personalised and perpetual protection based on security, privacy and trust mechanisms;
- AI approaches for automatically and co-optimizing edge and cloud resources as well as the AI execution nodes;
- Semantic AI to significantly reduce the learning latency and enhance reusability; and
- DTs that visualize the AI outputs and together with HIL approaches boosts the networks explainability and trustworthiness.

Based on TALON innovations, 4 prototypes accompanied by their corresponding functions will be implemented: (i) an AI orchestrator, (ii) a resource mobility manager, (iii) edge computing nodes, and (iv) DT-based learning. Building on the prototypes, TALON deploys four (4) testbeds: i) Automatic unnamed arial and terrestrial vehicle (UATV) Coordination, ii) I5.0 automatic and planning, iii) Augmented reality (AR)/VR for training & maintenance, and iv) Human-robot-collaboration (HRC) to ability TALON's ability to satisfy the stringent requirements of diverse use cases.

2.2 TALON Consortium

The TALON consortium incorporates: (a) 3 (three) leading European universities (UPV, IHU, and UL), covering all TALON research aspects, ranging AI-Orchestration, SD-Fabric, Mobility Management, Blockchain, and Theoretical Modelling, (b) 4 (four) multinational technology and software industry and technology providers with some of them being also demonstrators specialised in trusted execution, UATVS, Manufacturing, AR/VR, and Robotics, (c) 7 (seven) European RTD performing SMEs, having multidisciplinary expertise in the technological areas of: AI, Blockchain, DTs, XAI, and Theoretical Modelling, and (d) 1 (one) well-known Research Institutions, with vested interest in examining the potentials of sophisticated DTs, Blockchain, Anonymisation, and Robotics. The TALON consortium also includes the Kingston University as associated partner. The TALON consortium brings together the expertise necessary to realize this ambition and vision.

Table 1. Consortium members

PARTNER	SHORT NAME	COUNTRY
ENGINEERING - INGEGNERIA INFORMATICA SPA	ENG	IT
ERICSSON TELECOMUNICAZIONI SPA	TEI	IT
METAMIND INNOVATIONS IKE	MINDS	EL
NETCOMPANY-INTRASOFT SA	INTRA	LU
DIETHNES PANEPISTIMIO ELLADOS	IHU	EL
ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS	CERTH	EL
UNIVERSITE DU LUXEMBOURG	UL	LU
UNIVERSITAT POLITECNICA DE VALENCIA	UPV	ES
EIGHT BELLS LTD	8BELLS	CY
GIOUMPITEK MELETI SCHEDIASMOS YLOPOIISI KAI POLISI ERGON PLIROFORIKIS ETAIREIA PERIORISMENIS EFTHYNIS	UBITECH	EL
SIDROCO HOLDINGS LIMITED	SID	CY
INNOCUBE I.K.E.	IC	EL
FACTOR INGENIERIA Y DICOLETAJE SL	FACT	ES
EXOS SOLUTIONS SL	EXOS	ES
PROBOTEK IKE	PROBO	EL
KINGSTON UNIVERSITY HIGHER EDUCATION CORPORATION	KU	UK

The following figure shows consortium and associated partner in relation to the project value chain.

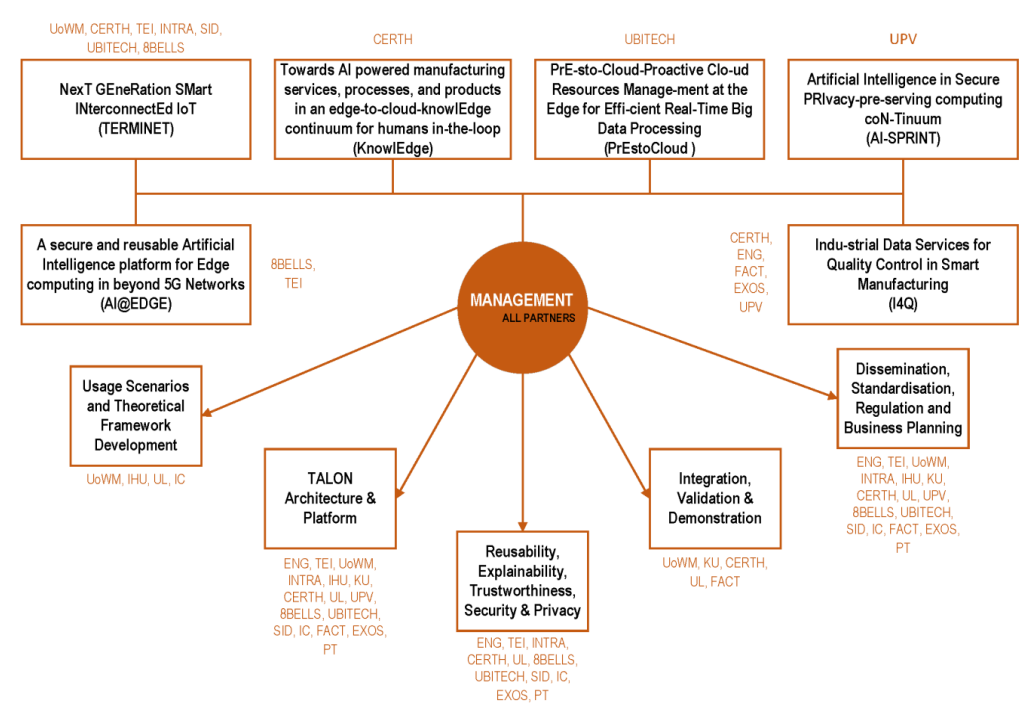

Figure 1. Consortium interaction.

2.3Work Plan

2.3.1 Work packages

The Project workflow is orchestrated around 7 Work Packages, as indicated in the following table.

Table 2. Work Package list

No	WP. Title	LP Short Name	PM	Start	End
1	Project, Innovation & Data Management	ENG	57.0	M1	M36
2	Usage Scenarios & Theoretical Framework Development	UBITECH	97.0	M1	M30
3	TALON Architecture & Platform	ENG	134.0	M1	M33
4	Reusability, Explainability, Trustworthiness, Security & Privacy	SID	73.5	M4	M35
5	Integration, Validation & Demonstration	INTRA	172.3	M18	M36
6	Dissemination, Standardisation, Regulation & Business Planning	8BELLS	62.0	M1	M36
7	Ethics requirements	ENG	0	M1	M36

The full list of tasks for each WP as well as their lead beneficiary is reported in Annex I – WP and tasks list. The relation among the WPs is depicted in the following PERT chart.

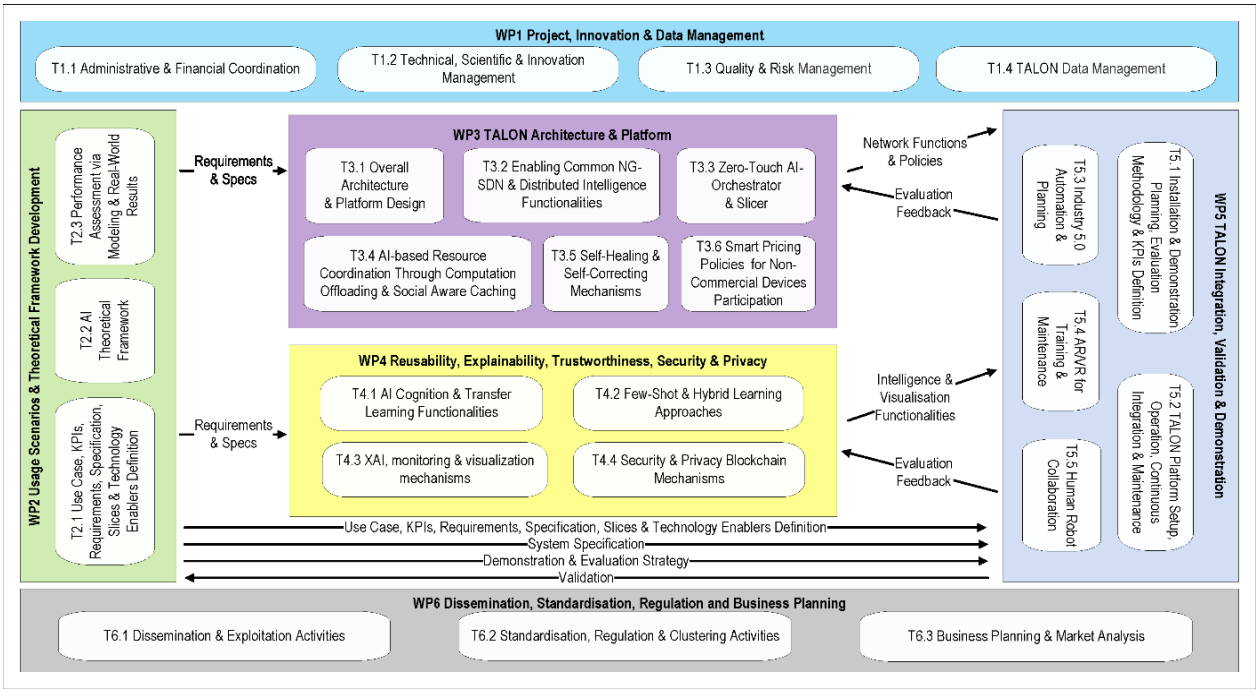

Figure 2. TALON project PERT chart

2.3.2 Milestones

Full list of TALON milestones is reported in the following table.

Table 3. TALON Milestones.

#	Milestone name	Lead Beneficiary	Related WP(s)	Due date	Means of verification
#1	Availability of the Use Case, KPIs, Requirements, Specification, Slices and Technology Enablers Definition Report to be met by the TALON project	UBITECH	WP2	M10	D2.1
#2	Availability of TALON's Architecture & Platform Design Blueprint	ENG	WP3	M12	D3.1
#3	Availability of the early Initial Reusability, Explainability, Trustworthiness Report	SID	WP4	M17	D4.1
#4	Availability of the Installation & Demonstration Planning, Evaluation Methodology & KPIs Definition Report	INTRA	WP5	M20	D5.1
#5	First, early release of TALON Integrated platform	INTRA	WP3,WP4, WP5	M22	D5.2
#6	Availability of TALON Demonstrators	INTRA	WP5	M25	D5.3
#7	Availability of the Dissemination, Standardisation, Regulation and Business Report	8BELLS	WP6	M36	D6.2

#8	Final release of TALON Integrated platform	INTRA	WP3,WP4, WP5	M36	D5.4

2.3.3 GANTT

Figure 3 shows the GANTT of TALON. For rendering reasons some data have been removed (WP/Task title and lead beneficiary, milestones name). The full version is available in the Project Repository.

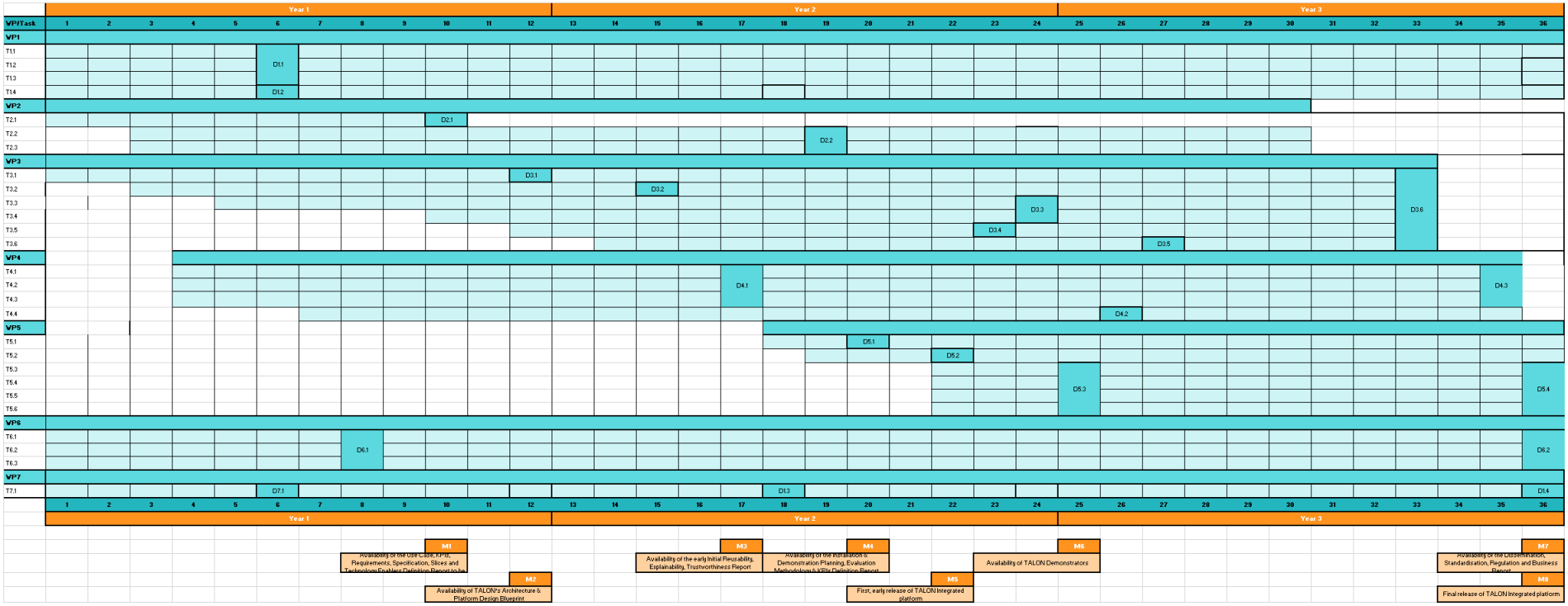

Figure 3. TALON GANTT

2.3.4 Budget and effort

The Project total costs have been estimated to be 3 769 382.50€, and the funding rate is 100%.

This section summarizes the TALON Project personnel resources, measured in person-months. Other Project resources, such as development tools, code repository, the Project communication infrastructure, or any supporting means are described in later sections of the document.

Figure 4 reports an overview of the total effort allocation according to the work breakdown structure of the Project. The WP effort matches the effort stated in the GA. The effort of WP Leaders is evidenced in grey. ENG will keep an updated version of the effort and budget dedicated to each WP/partner in the Project Repository.

Participant	WP1	WP2	WP3	WP4	WP5	WP6	WP7	Total Person-Months
1 - ENG	24.00	2.00	27.00	12.00	5.50	3.00		73.50
2 - TEI	0.50	5.00	2.00	5.00	19.00	3.00		34.50
3 - MINDS	12.50	6.00	4.00	6.50	5.00	3.50		37.50
4 - INTRA	6.50	4.00	6.00		24.00	0.50		41.00
5 - IHU	0.50	4.00	10.00	4.00	7.00	4.00		29.50
6 - CERTH	0.50	5.00	2.00	3.00	11.50	3.00		25.00
7 - UL	0.50	4.00	9.00	8.00	5.50	0.50		27.50
8 - UPV	0.50	5.00	14.00	9.00	6.00	0.50		35.00
9 - 8BELLS	0.50	4.00	13.00		3.00	12.50		33.00
10 - UBITECH	*7.50*	*21.00*	*9.00*		*4.00*	*1.50*		*43.00*
11 - SID	1.00	6.00	8.00	18.00	3.50	1.50		38.00
12 - IC	0.50	5.00	18.00		1.00	9.00		33.50
13 - FACT	0.50	6.00			23.00	4.50		34.00
14 - EXOS	0.50	8.00			16.00	9.00		33.50
15 - PROBO	0.50	6.00	8.00		23.00	4.00		41.50
16 - KU	0.50	6.00	4.00	8.00	15.30	2.00		35.80
Total Person-Months	57.00	97.00	134.00	73.50	172.30	62.00	0.00	595.80

Figure 4. Effort per Work Package and per partner.

3. Project Management

3.1 Management structure and procedures

As per Consortium Agreement (CA), the organizational structure of the Consortium shall comprise the following Consortium Bodies:

The General Assembly (GA) consists of representatives of each partner organisation and will constitute the highest decision board. It has the overall responsibility of all technical, financial, legal, administrative, and ethical issues. It monitors and assesses the project's progress and make amendments, where necessary.

The Coordinator is the Legal Entity acting as the intermediary between the Parties and the Funding Authority. The Coordinator shall, in addition to its responsibilities as a Party, perform the tasks assigned to it as described in the GA and this CA. The Coordinator will provide: a) a Project Management Office (PMO) who will be responsible for the administrative and financial management of the project, including the day-to-day micro-management of all project's activities, under the guidelines. It will ensure the timely and in-budget achievement of project results, the timely submission of deliverables, the preparation of cost and progress reports, the preparation of the Project Handbook, and in general the adherence to agreed processes and procedures within the project; b) a Financial Officer (FO), who will be engaged in financial management.

The Scientific & Technical Committee (STC): under the control of and in compliance with the decisions of the GA, STC is responsible for the planning, execution and controlling of the project, as regards issues of both scientific & technical nature and shall be in charge of the project progress. STC is chaired by the Scientific Coordinator (SC), while the Technical Coordinator (TC) will be the vice-chair of the committee, and encompass the role of the WP Leaders (WPL) who will coordinate, monitor, and assess the progress of the WP as a self-contained entity. STC meetings will be held on a bi-monthly basis to monitor the project progress.

Sustainability Board (SB): All Parties will nominate a Market Evolution and Sustainability Representative to represent them in the Sustainability Board for sustainability matters. The SB goals include monitoring market evolution and steering the general dissemination and exploitation actions within TALON accordingly, to maximize the exploitation potentials and sustainability of project results.

The following table shows the organization chart of TALON:

Table 4. TALON organization chart

Role	Name	Organization
Project Coordinator	Susanna Bonura	ENG
Technical Coordinator	Sofia Karagiorgou	UBI
Scientific Coordinator	Panagiotis Sarigiannidis, Ilias Siniosoglou	MINDS
Quality Assurance	Ilias Siniosoglou	MINDS
Risk Manager	Ilias Siniosoglou	MINDS
Communication Manager	Shukri Bassoumi	EXOS
Dissemination Manager	Alexandros-Apostolos Boulogeorgos	IC
Exploitation and Innovation Manager	Alfedo Giménez	FACT
TALON Technology Adopters Focus Group Liaison	Kostantinos Kyranou	SID
Head of Sustainability Board	Davide Dalle Carbonare	ENG
Head of Advisory Board Liaison	Konstantinos Kyranou	SID
Ethics Reference	Luca Bolognini	EA

3.2 Decision making process

The General Assembly is the decision-making body of the consortium. Each General Assembly Member is authorised to deliberate and decide on all matters listed in Section 6.3.1.2. of the CA.

The General Assembly shall be free to act on its own initiative to formulate proposals and take decisions in accordance with the procedures set out herein. In addition, all proposals made by the other Consortium Bodies shall also be considered and decided upon by the General Assembly.

The General Assembly can only take the following actions, all decisions to be made in accordance with the terms of the GA and this CA:

- decide upon the allocation of the Action's budget in accordance with the GA, and review and propose budget reallocations to the Parties;
- decide upon proposals to the Parties for the review and/or amendment of the terms of the GA;
- decide upon material changes to the Action Plan;
- decide upon the plan for use and the Dissemination of Results;
- decide upon proposals to the Parties for modifications or withdrawals to Attachment 1 (Background included);

- decide upon any addition to Attachment 3 (List of third parties for simplified transfer according to Section 8.3.2 of this CA);
- decide upon the proposed accession of a new Party to the Consortium and approval of the settlement on the conditions of the accession of such a new Party;
- decide upon the request for the withdrawal of a Party from the Consortium and the approval of the settlement on the conditions of the withdrawal;
- decide upon identification of a substantial breach by a Party of its obligations under this CA or the GA;
- decide upon declaration, remedies and termination of a Defaulting Party;
- decide upon proposals to the Funding Authority for a change of the Coordinator if made a Defaulting Party;
- decide upon proposals to the Funding Authority for suspension or termination of all or part of the Action.

The chairperson of the General Assembly shall prepare the meetings, propose decisions and prepare the proposals for the General Assembly according to Section 6.3.1.2 of the CA.

When taking decisions, the General Assembly shall try to find consensus amongst the General Assembly Members. The General Assembly shall be responsible for the proper execution and implementation of its decisions. The General Assembly shall monitor the effective and efficient implementation of the Action. In addition, the General Assembly shall collect information at least every 6 months on the progress of the Action, examine that information to assess the compliance of the Action with the Action Plan and, if necessary, propose modifications of the Action Plan.

The General Assembly can only do the following, all to be done in accordance with the terms of the GA and the CA:

- make proposals for allocation of the Action's budget in accordance with the GA, review and propose budget reallocations to the Parties;
- manage the Action;
- propose procedures and tools for the marking and handling of information exchanged between Parties in the performance of the Action;
- decide upon measures in the framework of controls and audit procedures
- to ensure the effective day-to-day coordination and monitoring of the progress of the technical work affecting the Action as a whole;
- decide upon the technical roadmaps with regard to the Action;
- propose the plan for using and Disseminating the Results;
- make proposals on a Defaulting Party and decide to assign the Defaulting Party's tasks to one or more specific Legal Entity(ies) (preferably chosen from the remaining Parties);
- support the Coordinator in preparing meetings with the Funding Authority and in preparing related data and deliverables; and
- prepare and implement the content and timing of press releases and other external communications by the Consortium or proposed by the Funding Authority in respect of the procedures of Article 17 of the Grant Agreement.

In the case of abandoned or revised tasks as a result of a decision of the General Assembly, the General Assembly shall rearrange tasks and budgets of the Parties concerned. Such rearrangement shall take into consideration the legitimate commitments taken prior to the decisions, and which cannot be cancelled.

3.2.1 Voting rules and quorum (from CA)

Each Consortium Body shall not deliberate and decide validly unless two-thirds (2/3) of the Members of that Consortium Body are present or represented (**"Quorum"**).

If the Quorum is not reached, the chairperson of the Consortium Body shall promptly convene another meeting within 15 calendar days. If in this second meeting the Quorum is not reached, then this second meeting shall be entitled to decide even if less than the Quorum of Members is present or represented.

Each Member of a Consortium Body present or represented in the meeting shall have one vote. Defaulting Parties may not vote. Decisions in the General Assembly shall be taken by a majority of two-thirds (2/3) of the votes cast, except for accession of a new party and any change of any Party's Share, where unanimous vote of all Members is required.

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

3.2.2 Veto rights (from CA)

A Party which can show that its own work, time for performance, costs, liabilities, Intellectual Property Rights, Access Rights, Share, Sensitive Information or Legitimate Interests would be adversely affected by a decision of a Consortium Body may exercise a veto with respect to the corresponding decision or relevant part of the decision.

A Party may veto such decision within 15 calendar days after the draft minutes of the meeting have been sent. In case of exercise of veto, the Members of the related Consortium Body shall make good faith efforts to resolve the matter which occasioned the veto in a way which minimizes disruption to the Action.

A Party may not veto decisions relating to it being in substantial breach of its obligations or to its identification as a Defaulting Party. The Defaulting Party may not veto decisions relating to its participation and termination in the Consortium or the consequences of them.

3.3 Dispute resolution

The Parties shall reasonably endeavour to settle their disputes amicably. If, however, no settlement of any dispute under this CA has been possible to achieve, after the Parties' reasonable endeavours to settle such dispute(s) amicably, the provisions of Section 12.8.2 of CA shall be applicable to any such dispute's settlement. The Parties concerned may instead elect unanimously to seek to resolve by mediation any dispute under CA.

3.4 Project monitoring

A set of procedures has been set up to grant the success of the Project, including the fulfilment of the objectives as defined in GA, the respect of the timing as depicted in the Gannt (Figure 3) and the consumption of the predefined resources (see also Figure 4).

Further monitoring activities (related with reporting – internal and to the EC) are described in Section 8.

3.5 Technical monitoring

The main goal of this process is to oversee all the tasks and metrics needed to ensure that the technical goals of the Project have been achieved. The Technical Coordinator (TC) is in charge of this process. The technical monitoring will be performed against the Project technical goals that will be defined in WP3-WP5 by their respective WP Leaders. Each technical WP Leader in fact, will be requested to fill the following KPI template and to maintain it updated for the TALON duration. Any possible deviation from the KPIs list should be communicated to the Technical Manager immediately. The evolution of this KPIs will be reported through the periodic reports as well.

A Technical KPIs Table intended to assemble and measure the progress made by WP3-5 will support the technical progress monitoring as part of the TALON Quality Plan and Technical Monitoring, and will be completed by each WP Leader with the support of the respective Task Leaders.

Each WPs defines (operational) goals complemented with (quantified when possible) measures for measuring the progress towards technical goals realization, which is to be understood as a measurement of the progress towards the achievements and, when applicable, corrective actions taken. The KPIs will be defined at the start of technical WPs and then monitored and updated during monthly WP1 calls.

3.5.1 Technical KPI table

The Technical KPIs Table is reported in Table 5.

Table 5. Technical KPIs Table template

WP#	**WPX**	**WP Title**	**Title**			**Date**
	Objectives of the WP		**Measures (quantified)**			
1.						
2.						
3.						
Start Month:	MXX	**End Month:**	MXX	**Overall progress of the WP in %**	#	

The columns Objectives of the WP and Measures should be completed with the knowledge that the Consortium has at M6 of Project lifetime.

At the end of each internal reporting period, two more columns will be added for the purpose of the control and monitoring (Status and Corrective actions) by the TC. Also, a % should be provided so that the Consortium can have a clear picture of the progress in relation with the total.

An indication on how to fill each column is given as follows:

1. Objectives of the WP: Provide the WP objectives as per GA. If the WP Leader wishes to refine the goals, as long they do not deviate from the GA and leave the goal clearer, it is allowed to do so.
2. Measures (quantified – not generic): Define how the success towards the defined objectives will be measured, if possible by using quantified measures. The measures ought to be clear and not leave room for interpretation of what is expected.

The Technical Manager will ensure that each WP Leader will define a set of Technical KPIs at the beginning of the Project and reviews and evaluates them at the end of each internal reporting period. In case no new KPIs arise, at least the update of the previously identified KPIs is mandatory.

4. Deliverables

Deliverables are an important outcome of the Project, and hence, are required to meet a set of strict quality standards. Next paragraphs will accurately describe all the aspects of the process that will lead to deliverables submission.

4.1 Editing workflow, peer reviewers and internal audit

Full list of deliverables is reported in Annex II - Deliverable list, while a complete view including deliverables deadlines and appointed internal reviewers is available in the TALON Project repository.

The deliverable should be aligned with the design and best practices that have been defined in the Deliverable template available in the Project Repository.

The workflow for deliverables from the beginning to the submission as follows (**Errore. L'origine r iferimento non è stata trovata.**):

1. Deliverable ToC should be defined and agreed by all interested partners within 2 months from the actual deliverable submission date. The consolidated ToC should have clear assignments for Chapters/Sections to the responsible partner, e.g.,

   4 Deliverables (ENG)

2. Deliverable leader may organize as preferred internal versions.
3. Integrated version for internal peer review, that should be three weeks before actual submission. Once the deliverable is ready for peer review, the lead beneficiary should upload it on a dedicated folder of the Project repository the deliverable (named as per Section 4.2) and alert via email the internal reviewers.
4. Internal reviewers have one week to review in Track Changes the deliverable, directly on the rev version of the document on SharePoint and to provide their feedback to the deliverable leader, by filling the Deliverable Review Template (see Section 4.2) and upload the review document on the same SharePoint folder. If the deliverable is rejected, the PC and the deliverable lead beneficiary should be contacted by the peer reviewer, and a common strategy to mitigate and align on needed actions to get a deliverable in agreement with TALON specifications should be agreed upon.
5. If the deliverable is accepted, the deliverable leader has one week to address the comments, upload the final version of the deliverable both in .docx and in .pdf on the Project repository and to inform the Quality Manager and the Coordination Team. If the deliverable is rejected instead, deliverable lead beneficiary should go back to bullet 3 above.
6. The QA has 5 days to provide its approval to the Coordinator and deliverable leader.
7. Submission date (as per GA): the Coordinator uploads the pdf version of the deliverable on the portal.

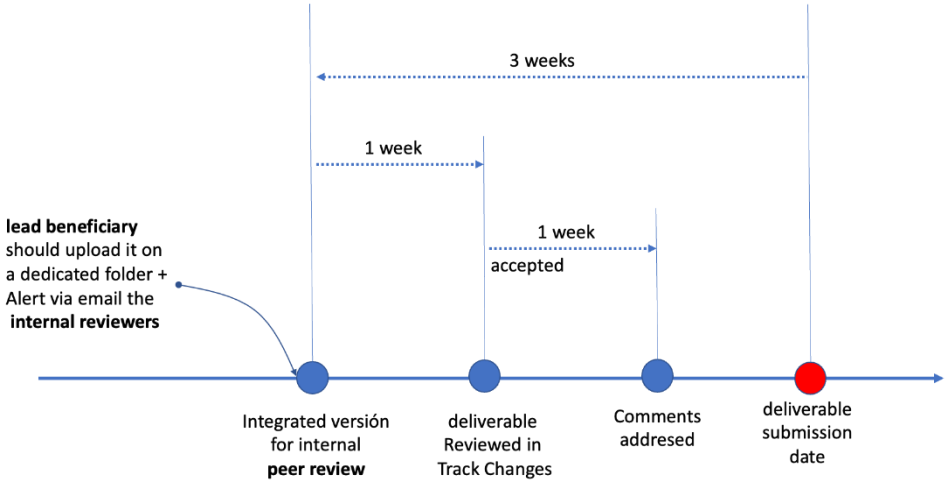

Figure 5. Timing for editing deliverables

Considering weekends and holidays the indications above may vary, what is important is that all partners involved in a deliverable (contributors, peer reviewers, quality assurance, Coordinator) are noticed in advance on the actual scheduling of the deliverable from the deliverable responsible.

Responsibilities:

1. Coordinator: high level monitoring of deadlines, actual submission of the deliverable on the portal, updates the Deliverable list and uploads the submitted pdf on the repository.
2. Deliverable leader: ToC, quality and timely contributions, harmonization of the integrated versions (language, format as per template, cross-references, captions etc.), deliverable compliance with the defined template, immediate communication of any possible issue to the Coordinator.
3. Peer reviewers: should highlight the consistency of the deliverable on itself and with respect to what is defined in the GA. They may also provide comments and suggestions. Track changes should be adopted. The actual corrections of misleading sentences are demanded to deliverable leader, eventually an idea through a comment can be left. A detailed guide for peer reviewers is available in the Project Repository.
4. Quality Assurance (QA): should verify the template is respected, all captions/references/cross-references are correctly linked. It is not due to QA the correct formatting of the document.

4.2 Naming convention and peer review guidelines

1. Deliverable lead beneficiary and contributors: please **rename the deliverable file** adding the partner's short name to ease authors locating and storing your contribution. Filename convention is as follows (variable parts in yellow). Please remove filename 'unfriendly' characters such as '&', '/', etc. and keep the filename short for very long titles (for the filename only, in titles, headers etc. the name must be *exactly* as in the GA):

   TALON_D[X.Y]_[Title_of_deliverable]-v[i.j]_[PARTNER or STATUS].docx

   For example:

   TALON_D1.1_Project_Handbook-v0.1_ENG.docx

TALON_D1.1_Project_Handbook-v1_FINAL.docx

2. The objective of a review is to improve the deliverable and have the best version possible, meaning a shared success for the whole Project team. The peer review should be performed on the _rev version of the deliverable, e.g., TALON_D1.1_Project_Handbook-v0.1_rev.docx directly on SharePoint.

   When reviewing please the reviewer should keep Word Comments to a minimum and not use them to have in-document discussions (email, online, calls etc. should be preferred in this case). Comments should be short, to the point and useful for the author(s).

   In place of word comments, it is a consolidated practice to use 'in-line' comments/placeholders marked with the yellow "Text Highlight" tool as follows:

   [This is an example of a placeholder/temporary text to be updated or to be addressed: PARTNER, please check and updated as needed]

   [PARTNER: please add a short paragraph recalling outcomes from D3.1]

   Notice how this works very well because unlike Word comments it immediately and visually highlights a section which needs further work/attention and is easily spotted.

3. Systematic errors/typos (e.g., wrong spelling of a word throughout the document, wrong name, etc.), should not be corrected by internal reviewers, instead they should be clearly signalled at the first instance in the document and the authors have to be invited to take care of it via a search and replace.

4. Major/recurring formatting changes should not be included in reviews (e.g. bullet point marker, font colour, header, etc.), as per bullet above a comment to authors is preferred.

5. Table of Contents, List of Figures and List of Tables should not be changed in the _rev version, these should always be generated automatically by the maintainer of the document. *If* Word automatically records track changes such as spelling language, Table of Contents and other automatic fields, try to turn these off or to accept/reject these changes before sending the document.

The document internal review should be logged in the dedicated Review Template, in particular, apart from the reviewer data (Name and Organization), two tables have to be filled (Table 6 and Table 8). The pdf format of the Review document has to be uploaded on the SharePoint folder of the deliverable by the reviewers and the deliverable lead beneficiary should be notified via email. Naming convention for Review document is:

TALON_Review_D[X.Y]_[PARTNER].pdf

Table 6. Criteria Table

Criteria	**Score (1-5))**	**Comment** (please specify the section, the page and all details needed to authors to enhance their work)
Content		
Correctness		
Completeness		

Where:

Content: Ensure that the content is appropriate and meets the intent. Verify the document meets the requirements specified in the GA.

Correctness: Ensure the deliverable is technically correct, clear, consistent, and testable or verifiable (if appropriate). Although typographical errors found during the analysis will be identified, the emphasis of the review is technical issues, not editorial issues.

Completeness: Ensure the topic is covered in a comprehensive fashion and no sections are incomplete.

While the scores are meant as per Table 7.

Table 7. Scores description

Score	Description
1	Highly insufficient Completely out of scope, the deliverable has major issues with respect to what has been stated in GA, or with respect to technological guidelines. The document presents lacks in terms of methodology followed or is not comprehensible. The work that has to be done is considered to require an effort > 3 weeks.
2	Insufficient Strong changes needed, the overall approach seems correct, but there are some weak points considering the overall strategy/approach that can be easily identified and changed. The estimated effort to address the comments is expected to be around 2 weeks.
3	Sufficient Minor changes needed, some technical aspects should be better evaluated/explained, the overall understanding of the document is good, but some section need a better focus. The needed changes should be done within a week.
4	Good Minor changes recommended, in general the document is well written, comprehensive and adheres with the GA, the reviewer suggests some minor changes to be set in order to reach a score of 5.
5	Excellent, the criterion is fully met.

Table 8. Outcome Table

Outcome	Please check the appropriate box (X)	Comment
Approved *(If there are minor contingencies upon your approval, please indicate this in the comments)*		
Rejected *(Please provide a clear explanation on why the deliverable does not meet the standard requirements)*		If one of the Criteria scores less than 3, the deliverable has to be rejected. Deliverable lead beneficiary and Project Coordinator should be immediately alerted.

4.3 Types and formats

There are four different document categories in TALON:

1. Documents for the EC: these documents include Deliverables, Interim and Final Reports and Financial Statements.
2. PowerPoint presentations for internal and external use: e.g., for Project meetings, reviews, presentations during workshops, exhibitions, conferences, etc.
3. Word documents for internal use: e.g., agendas, minutes, peer reviews, technical contributions, other contributions, etc.
4. Excel sheets for internal use: e.g., periodical financial/administrative reports to check the status of the Project with respect to the planned schedule and budgeted resources, lists of members of Project boards and their contact information, lists of participants in Project meetings, etc.

The recommended file format for the Project documentation is the Office Open XML (i.e., .docx, .pptx, .xlsx), with the selected option to maintain the compatibility with the previous file formats, if possible. The Project Coordinator and the Communication Manager will provide specific templates to be used by the Partners for all document types. The templates will be stored in the private area of repository and will contain basic structural and stylistics sample guidelines to follow for producing the specific document. Reports and Deliverables should have a consistently styled cover sheet and structure, based on the template. All pages should be numbered, and the document identification number should be included in the footer. Furthermore, they should abide to the following rules:

- Have a list of abbreviations in alphabetical order used within the deliverable,
- Have a table of contents, a list of tables and of figures,
- Start with a one-page Executive Summary,
- Include a References section at the end of the document,

- Include all technical details and other information in Annexes.

English is the official language in Horizon Europe projects, therefore all the documents must be written in British English, using the appropriate grammar rules and a formal language. Some dissemination material (such as press releases, newsletters, fliers, etc.) can be considered as an exception for this rule and can be translated to other relevant languages for the Project.

5. Project communication

5.1 Mailing lists

To facilitate the communication in the different working teams, a set of mailing lists have been created from the beginning of the Project. The TALON mailing lists and a brief usage description is reported in.

Table 9. TALON mailing lists

Mailing list	Intended usage
grp_talon@eng.it	Communication of interest for the whole Consortium (e.g. a meeting…). All contacts are included in that mailing list.
grp_talon_wp[X]@eng.it	One for each work package (1-6). Communications that target only the interest of a certain WP.
grp_talon_sb@eng.it	Communications related to sustainability board.
grp_talon_admin@eng.it	Communication related to administrative business (e.g., financial reporting etc).
grp_talon_team-engineering@eng.it	Communication that should reach the coordination team. ENG people are included in the mailing list.

Which contacts are included in which mailing list can be verified at every time in Project repository. The mailing lists are hosted and managed by ENG as Coordinator.

To add someone to the mailing list send an email to grp_talon_team-engineering@eng.it

ENG will grant access to Project repository (see also Section 5.2) and mailing lists as requested.

To remove someone from the mailing list send an email to grp_talon_team-engineering@eng.it specifying the contact to be removed. If the contact is removed from all mailing lists, also the access to Project repository will be revoked.

5.2 Project Repository

As anticipated in the previous section, a shared SharePoint repository has been set up. All contents of interest for the Project should be stored there.

It provides the support needed by the documentation storage, review process, information sharing, and work in groups by all partners in order to achieve the common goals of the Project. All relevant information for TALON is to be stored in this repository, including contractual documents (GA, CA), amendments, review-related documentation, reporting documentation, contact details, templates, working documents of deliverables, internal working documents, agendas, minutes, presentations etc.

Moreover, final versions of all deliverables are to be uploaded there.

The repository has six main folders and is structured has follows (Table 10).

Table 10. SharePoint folders content highlight

Folder name	Content description
Management	Includes standard documentation as Deliverable registry, Gannt and effort, Partner List, Work package list. It is feed and maintained by ENG.
Meetings	Meeting agenda, presentations; minutes and relevant information should be included here. Documentation of each meeting should be stored in a folder named as: <AAAA.MM.DD> - <Meeting name>.
MISC	Three main subfolders are present: Contacts and mailing lists: to verify the contact of the people involved in the Project and to which mailing lists they subscribed. Recommended readings: contains presentations, documents on topics relevant for the Project. Templates: includes Deliverable, Presentation, Minutes and Agenda templates.
Proposal	Includes the history of the Project from the beginning, and it is structured by steps (one folder for each step), namely: Submitted GA CA (if needed) Amendment
Submitted deliverables	Organized by WP all submitted deliverables both in Word and in pdf format will be stored here.
Work packages	One folder for each WP. It is responsibility of the WP Leaders the organization and maintenance of the respective folder.

Overall, the responsibility to manage and keep updated the Project repository is on the coordination team (ENG), although the organization of each WP folder is on to the WP Leader.

To add someone visibility on Project repository the procedure is the same as per the mailing list, i.e., once the coordination team receives a request to add/remove someone from the mailing list, the same is applied to Project repository.

5.3 Internal communication

Mailing lists are the principal mean of interpersonal communication in TALON. The objectives of the mailing lists are to provide an easy and fast way to communicate to the Project members, keeping track record of communication and archives of the information exchanged. Appropriate uses of mailing lists include scheduling meetings, forwarding documents or other information, and general questions and answers.

Some best practices include:

1. Subject: each email MUST always start with "[TALON]" followed by the real subject of the email. The subject should be a clear indication of the content, responses to the email should keep the topic.

   Ex:

   [TALON] WP1 – D1.1 version for reviewers

   [TALON] Update on Templates

2. The body should include clear responsibilities and expected dates. It is recommended to use bold for the responsible partner and the eventual deadline assigned.

   E.g.:

   - ***UBI*** *to share the first integrated version with reviewers within 10th* ***of March,***
   - ***INTRA*** *and* ***ENG*** *to provide their feedback within 10th* ***of March.***

3. Attachments: it is recommended to avoid attachment as much as possible, instead a link to the Project repository is preferred.

5.4 External communication

The Coordinator is the Legal Entity acting as the intermediary between the Parties and the Funding Authority. All formal exchanges of information with the European Commission should therefore be handled through the ENG coordination team.

5.5 Meetings

Meetings are used to report and certify the status of the Project or the work packages, debating special Project issues, as well as for decision making. E-mail and teleconferences shall be used as main options for solving issues on an operative day-to-day basis.

WP-meetings are held on a bi-weekly basis. Plenary meeting is organized monthly. Both are setup as teleconference meetings.

After the meeting the organizer is responsible to provide meeting minutes and upload them on Project repository. Both an Agenda and a Minutes templates are available in the Project Repository and should be adopted. Meeting calendar invites as well as minutes' and agendas' names must have the same headlines [TALON] in the meeting description to identify the source of the meeting and WP or TASK, since they are very useful to quickly identify topics.

Meetings presentations should be in the Project Power Point template and should be uploaded on the folder of the respective meeting at maximum the day before the meeting, included all relevant information requested as per the agenda.

From the CA, meetings of that Consortium Body are organized according the frequency indicated in the following table:

Table 11. GA meetings scheduling

	Ordinary meeting	*Extraordinary meeting*
General Assembly	*At least once a year*	*At any time upon written request of 1/3 of the General Assembly Members*

The coordinator shall give notice in writing 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 equal to 21 calendar days (10 calendar days for an extraordinary meeting) for General assembly meetings and 7 calendar days for other Consortium Bodies. Any Member of a Consortium Body may add an item to the original agenda provided all Members of a Consortium Body are present or represented and a majority of two thirds of the Members agree to add an agenda item.

Meetings of each Consortium Body may also be held remotely by means of communications whereby all members can hear and speak to each other.

Any decision may also be taken without a meeting if the Coordinator circulates to all Members of the Consortium Body a written document setting out the decision being requested, which is then agreed to in writing by the number of representatives equal to the defined majority of all Members of the Consortium Body. Such document shall include the deadline for responses, but such deadline shall be at least fifteen (15) calendar days after such document is sent.

5.6 Calls

Microsoft Teams will be the official tool for conferences. ENG may set up all routinary calls.

To assure a proper communication process, periodic teleconference meetings should be scheduled on regular basis, the recommendation is to set up by weekly calls for active WPs, each WP Leader may vary the frequency based on current Project needs (weekly or monthly). At least one call per month should take place.

The agenda for the teleconferences should be provided by the conference chair via email. The minutes of the conference should be elaborated and circulated to all participants by the conference leader. The conference leader will be also in charge of uploading the minutes to the repository.

5.7 Project Reviews

Three reviews are described in Grant Agreement:

1. Technical review at M12: technical check not linked to a periodic report
2. First reporting period al M19: advanced draft of the periodic report must be available two weeks before the review date.
3. Final review meeting at M36: advanced draft of the periodic report must be available two weeks before the review date.

Actual dates will be agreed by the Coordinator with the PO and with the Consortium members.

6. Quality Management

6.1 Monitoring and controlling methodology

During its lifetime, the TALON project will output a number of outcomes through its respective tasks, such as deliverables and milestones that each member of the consortium contributes to the output of each task will be regulated by the corresponding WP leaders within a bi-monthly periodicity. However, the periodicity may alter depending on the project's progress or the difficulty of a particular phase. Nevertheless, TALON's Quality Provisioning and Risk Management aims to lay down the foundations on which the work process and production of the project will be optimised, while minimising possible risk factors. **Errore. L'origine riferimento non è stata trovata.** outlines the fundamental hierarchy o n which the TALON project operates on.

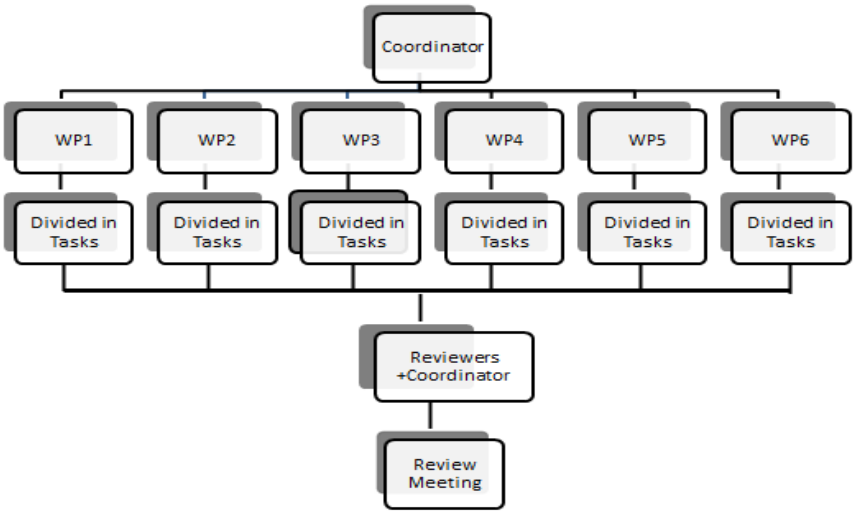

Figure 6.Project Management scheme

Based on the provided hierarchical scheme, the way that the information and the outcomes will be collected, processed, and finalised is reflected in the following steps:

- **Submitting a collection of information.** TALON Project Manager will use SharePoint to send the information needed to the management of each WP and to share the progress of each WP, tasks and most importantly the progress of deliverables in order to preserve quality.
- **Contacting the WP partners for information.** Each partner engaged in a WP will be asked by the WP leader to complete information on the WP. This technical work will be evaluated on the regular meetings of the respective WP and following the directions of the WP leader. Each partner will give WP leader technical details in order to describe the job in advance.
- **Reviewing and updating of the information received.** Each WP leader will review the different information collected from the internal tasks and will update or extend them.
- **Sending the WPs outcome to Project Manager.** Each WP leader is obligated to send the WP outcomes to the Project Coordinator.

- **Consolidating the information received.** Project Coordinator is responsible to verify, check the information received from the WP leaders and if necessary, provide the necessary feedback.
- **Review in virtual meeting.** Based on the outcomes of each WP the final versions of the WP tasks will be presented to the scheduled regular meeting.

In the following figure all the above information is illustrated.

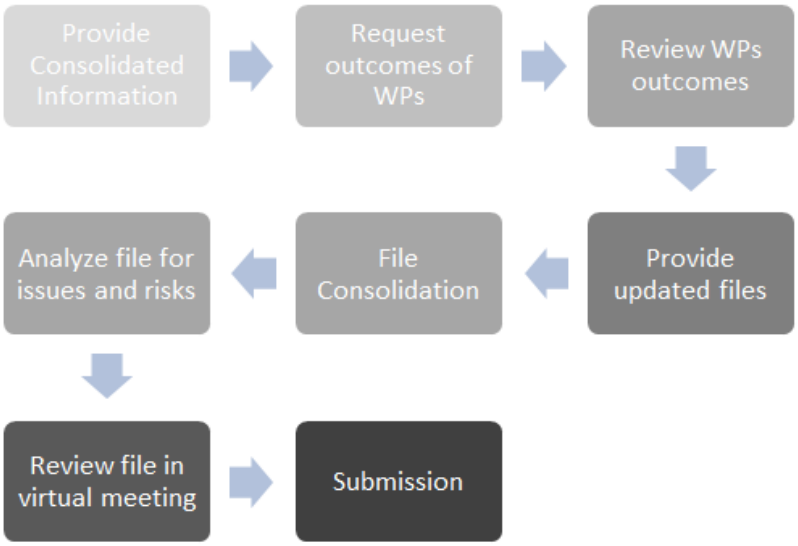

Figure 7.Submission Planning

The following diagram illustrates the deadlines that must be set since there is a lot of information to acquire for carrying out each of these steps. All partners must adhere to the set timelines for the project to go successfully.

As presented in figure 3, there are four main categories of submission planning:

- The project coordinator will contact the WP Leaders ten days prior to the review meeting to remind them of the required from the respective WP. Consequently, each WP leader must ask each Task Leader for information on the related tasks.
- Participants must email details of their tasks to the relevant WP Leaders seven days prior to the monthly internal meeting. WP Leaders will notify the participant of the missing contribution or ask for further information if any participant fails to submit their information on time or if the information submitted by the participant is insufficient.
- All WP Leaders are required to deliver the finished WP outputs to the Project Coordinator four days prior to the monthly internal meeting. Further information will be asked if any WP Leader fails to submit their information by the deadline or if the information, they submit is insufficient.

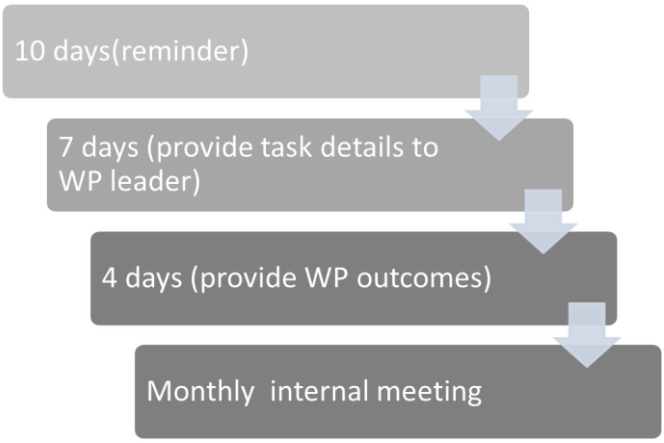

Figure 8.Deadlines for the project management monitoring

In order to ensure the proper and timely provision of the variety of deliverables produced by the TALON project, it is important for every partner responsible for a WP or task to follow the described methodology. In particular, every WP leader is responsible for the WP outcomes such as tasks, deliverables, meetings, risk management. Additionally, all partners of each WP have to contribute to the corresponding WP and upload the files of the deliverables in the shared repository, in this instance the SharePoint repository.

6.2 Deliverable quality assurance methodology

Deliverables Quality Assurance process and responsibilities have been described in section 4.1 and section 4.2.

6.3 Project Quality Management

In order to sustain a desired high level of quality, all necessary activities and tasks must be managed accordingly. This encompasses formulating a quality strategy, coming up with and carrying out quality assurance and planning, as well as quality control and improvement. Based on this, TALON's Quality Management Plan is divided into three process groups: Quality Planning, Quality Assurance, and Quality Control.

Quality Planning (QP) is the group of processes that will identify which quality standards are relevant to the project, and how to satisfy them, in order to achieve project's goals. Moreover, QP provides an exact definition of project's quality, and the metrics and processes on how to measure TALON's components' quality.

Quality Assurance (QA) is the group of processes of verifying that the deliverables meet the specified requirements and focuses on preventing defects. It is an important part of quality management as it helps to identify and correct possible deviations, improving the project's performance.

Quality Control (QC) is the process of verifying that the deliverables meet the specified quality standards. It involves inspecting, testing, and verifying that the deliverables are of the required quality

before they are delivered by defining mechanisms to guarantee the quality and the on-time delivery of all project deliverables.

Continuous monitoring of the TALON project's progress is important for identifying and fixing any inefficiencies. This is a crucial responsibility for both partners and external stakeholders, who must understand and follow the processes and quality management of the project to ensure its successful implementation. In order to establish the robust quality management, assurance and control, a certain management method is required, for this reason, the Total Quality Management methodology was chosen.

Total Quality Management (TQM): TQM is a management approach that focuses on continuous improvement, customer satisfaction, and the involvement of all employees in the quality improvement process [1]. It emphasizes on the use of data and analysis to identify opportunities for improvement and to track progress over time. TQM is particularly useful for projects that involve multiple departments or teams.

Total Quality Management is contained of three principles:

Involvement: It involves all business activities and calls for total participation from every partner.

Customer Set Standards: All the outcomes of the TALON Project such as deliverables, WP outcomes and WP tasks should all conform to the EC requirements

Monitoring and Control: The quality of each deliverable should be monitored and controlled for optimum results.

Total Quality Management can be divided into four categories such as: plan, do, check and act. The most important stage of complete quality management is planning. Partner's issues and concerns that need to be resolved must be presented at this phase. They must list the many difficulties they encounter in carrying out the tasks and investigate the underlying causes of those difficulties. Partners should conduct the necessary research and gather pertinent data to aid in problem-solving. Additionally, partners provide a solution to the problems identified in the planning phase during the doing phase. To address the difficulties faced during the deliverable composition, strategies are developed and put into practice. In this stage, the efficacy of strategies and solutions is also evaluated. Also, in order to verify the efficacy of the procedures and gauge the results, individuals actually compare data from the before and after phases during the checking phase. Finally, the partners document the results and prepare for the next task.

6.4 Quality Assurance

6.4.1 Purpose of Quality Assurance

Quality Assurance (QA) is defined as all the efforts that needs to be carried out in order to ensure that the outcomes and deliverables of the project meet the agreed requirements. Specifically, QA aims to prevent mistakes, defects, delays on delivery and deviations of the deliverables during all the project phases. QA is where the procedures, mechanisms and processes that were set during Quality Planning are implemented, measuring the defined metrics in order to have a clear picture of the current status of a deliverable, or a process, and make certain decisions, or take actions, if a deviation is observed. In simple words, while Quality Planning usually takes place at the start of the project, Quality Assurance takes place throughout project's lifecycle implementing everything that was defined in Quality Planning.

6.4.2 Tools & Techniques

The following list contains certain tools and techniques that are globally used with main goal the quality assurance of the outcomes of a project. Striving to optimise the quality assurance and quality management of the outcomes of the project, TALON will adopt key features of the tools and methods described below.

Flowcharts [2], which provide a clear picture of what a process look like and, simultaneously, document the workflow of processes in order to identify possible breakdowns.

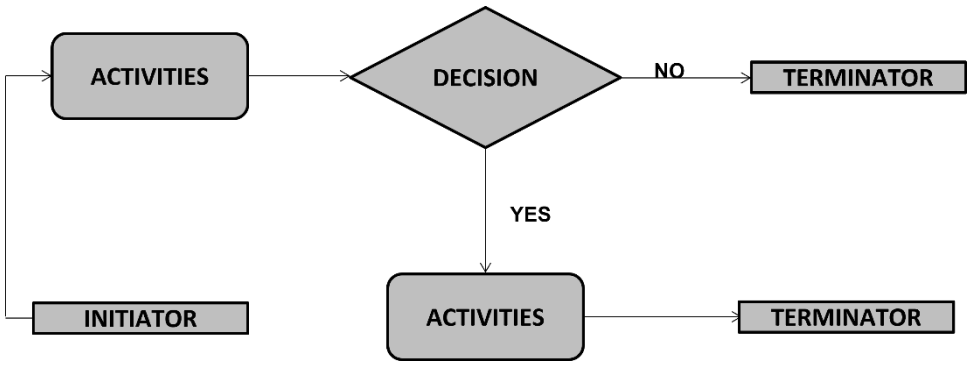

Figure 9.Flowchart scheme

Cause and Effect (Fishbone, or Ishikawa) Diagrams [3], which can help find the root cause of a possible quality deviation.

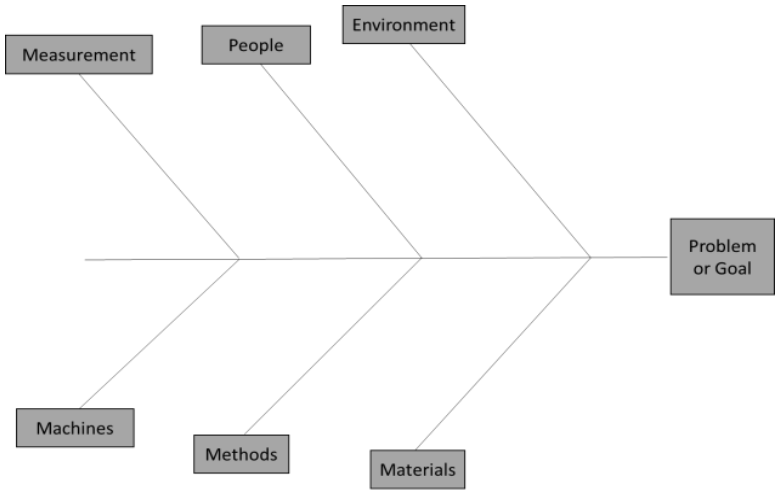

Figure 10.Fishbone scheme

Check Sheets [4], which is used to periodically collect information regarding deliverables, or processes' outcomes, in different phases of the project in order to identify characteristics that differentiate from the defined requirements.

CHECK SHEET						
No.	Problem	Weekly Status				Total
		1	2	3	4	
1	Network	||		|||		5
2	Server		|||			3
3	Email				|	1
4	Access	|||||	|	|||		9
Total		7	4	6	1	

Figure 11.Check Scheme example

Kanban [5] methodology is an agile method that aims at continuous improvement, flexibility in task management, and enhanced workflow. With this illustrative approach, the progress of the whole project can be easily understood in a glance. Kanban revolves around Kanban board, which is a tool that visualizes the entire project. Through this graphical approach, it is easy to control the tasks and deliverables of the project, since the graph includes the ongoing tasks, tasks completed and future tasks.

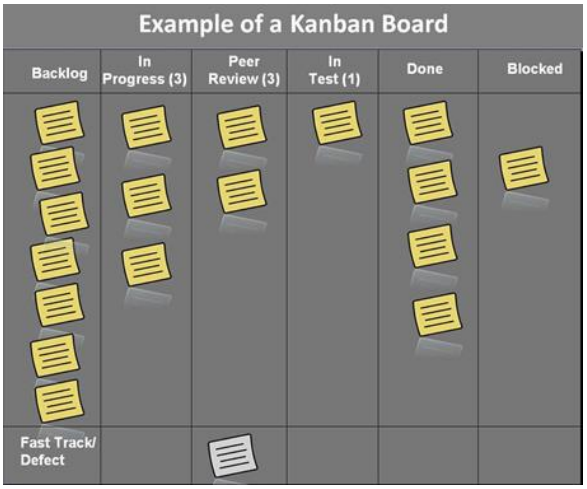

Figure 12.KanBan board example

The quality assurance for the deliverables of TALON project includes a review plan. Two consortium partners are tasked with reviewing each deliverable's final draft for each deliverable. The reviewers are partners who have not been involved in making the deliverable and who must have backgrounds that differ from one another, with one reviewer coming from an academic institution and the other from an industry organization. The General Assembly will designate these reviewers, the deliverables will contain a history of the modifications along with the tracking of the evaluations.

The steps of the review process are:

A complete copy of the deliverable is sent to the reviewers by the task leader and person in charge of it.

In order to meet the deliverable criteria, the reviewers verify the deliverable and offer comments, recommendations, and adjustments. The delivery should receive the reviewers' approval. If the

deliverable is of poor quality, the reviewers may ask that it be checked periodically while it is being updated. They receive both an early draft and a final draft of the deliverable, which the reviewers must approve.

When submitting the final version of the document to the QM and the PC, the task leader for the deliverable should incorporate all review comments.

The last quality acceptance test is a review of the deliverable's final version by the QM and PC. The deliverable is prepared for submission to the EC site once the deliverable quality has been approved. The third step is continued until the deliverable passes the quality acceptance check if it fails the quality check and returns to the task leader.

The Project coordinator submits the deliverable to the EC portal.

Figure 13.Quality assurance steps

6.5 Quality Planning

6.5.1 Purpose of Quality Planning

Quality Planning (QP) [6] is of significant importance during a project, due to the fact that if requirements and quality standards are not met, the project *may be at risk*, regardless of if it was finished on budget, and/or on time. More precisely, QP defines all the proper mechanisms and processes required, in order to ensure that the outcomes and deliverables are in-line with the requirements. Overall, Quality Planning focuses on:

1. Identifying the quality standards of the project
2. Figuring out how to satisfy these standards.
3. Defining metrics to measure quality.
4. Setting recovery mechanisms in case of a deviation

All the above is general information on the purpose of the Quality Plan. Due to how different every project is, we defined certain quality procedures and metrics that will be used in order to measure

TALON's quality that will be implemented throughout the whole project's lifecycle. In the next section, these procedures and metrics are defined and described.

6.5.2 Quality Plan for Software

The software quality strategy outlines the standards that each partner creating software components must adhere to. Through the use of quality assurance techniques, protocols, and processes, timely delivery of the software that satisfies the required specifications while utilizing the project's available resources is ensured. To guarantee that the prototype software developed meets an acceptable and quantifiable standard of quality, widely accepted current software engineering approaches will be applied.

Since each partner may have a unique internal quality system for developing software, all software components created by distinct partners and delivered for integration must adhere to quality levels that have been mutually agreed upon by the consortium. These quality levels are expressed in terms of established criteria that are applicable to a set of indicators pertinent for each individual software update and conform to the TRL level promised in the GA.

Figure 9 presents the different review levels and procedures applied in the project in order to deliver high-quality software.

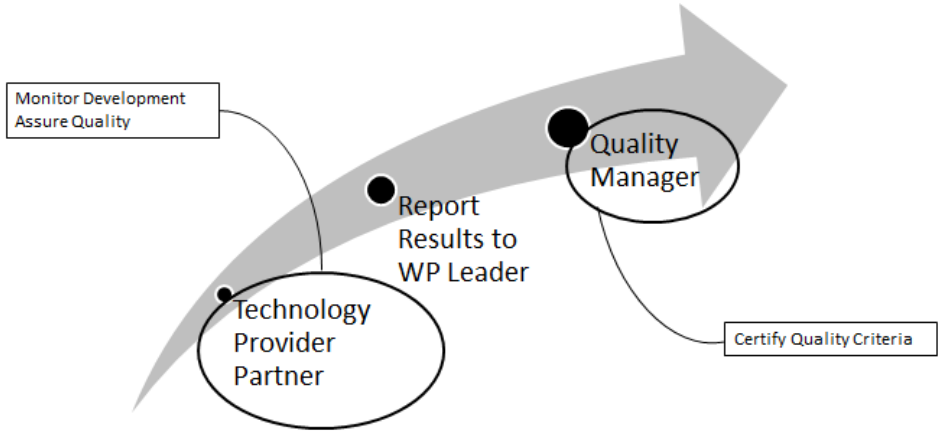

Figure 14.Software Quality Review Process

Technology Provider: Each technology provider partner shall continuously monitor the software development process and assure that it meets the internal quality control procedures. Before submission for integration in the common platform, each release of the software shall be reviewed, and the internally measured quality level should match to the measured quality level of the relevant indicators as defined by the Work Package Leader and the technology partners in order to meet the TRL promised in the GA. The results shall be reported to the Work Package Leader. The definition of the quality indicators takes place in the beginning of the project, and it is agreed upon between the WPL and the responsible partners in the current WP.

Work Package Leaders: The WP leaders will examine the reports from the technology provider partners, record the degree of software quality attained, and verify to the QM that the established standards have been satisfied for the pertinent indicators. If any of the criteria are not satisfied, the WP leader will communicate with the appropriate partner and modify the program until all the requirements are met. The QM must be informed of the review's findings and any deviations by WP leasers.

Quality Manager (QM): The QM is in charge of making sure that the overall review procedures are followed in accordance with the established principles and guidelines.

6.5.3 Quality Plan for Dissemination

The quality plan includes the principles and best practices to be followed in the dissemination strategy that have been successfully tested in previous projects, such as (a) research products will be thoroughly reviewed before being published or distributed; (b) Public results will be accessible from the project website, (c) effective dissemination is essential to ensure that research results are well-tailored for target audiences, and (d) research will be carried out in accordance with good analysis and scientific practice norms; reports will make reference to previous research initiatives and expand on the results and material already available. All participants in the project will be fully informed of the project's final conclusions and any ramifications that follow.

6.6 Quality Control

6.6.1 Purpose of Quality Control

In Quality Control (QC) [7], the goal is, through the definition of proper actions and mechanisms, to monitor and control the various factors that can affect the quality of the project. This can involve identifying and addressing issues at various stages of the project. Furthermore, QC is a method to try to maintain or raise the quality of the deliverables. The establishment of a culture of excellence among partners and management is necessary for quality control. This is accomplished by the development of deliverables quality benchmarks and evaluating the process results to check for statistically significant differences.

The implementation of well specified controls is a crucial component of quality control. These regulations, which outline which production tasks should be carried out by which partner, assist standardize responses to quality issues and limiting room for error.

More Specific, Quality Control:

- is a procedure used to maintain or improve the quality of their deliverables.
- It entails testing outcomes to assess whether they meet the requirements for the final report.
- is heavily reliant on the delivery components, and there are several methods for evaluating quality.
- develops safeguards that may be placed, in order to ensure that inadequate outcomes do not show up in the deliverables.

Concluding QC is important because preparing deliverables is costly, time-consuming, and can be unsafe without controls in place and if defective deliverables are produced, they can be fatal for the project. Thus, quality control ensures that issues that can rise through the project are identified and corrected. In bottom line the TALON project has quality control in place to assist assure the success of the project overall and the quality of the deliverables. There are several ways to perform quality control, from physical inspection to using data-driven tools to assess delivering results and establish standards.

6.6.2 Deliverable Reviewers

Del Rel. Nr	Del Nr	Title	Lead Beneficiary	Type	Dissemination Level	Due Date(Month)	REV1	REV2
D1	D1.1	Project Administrative, Technical & Data Management Handbook	ENG	R	PU	6	8BELLS	TEI
D2	D1.2	Data Management Plan	ENG	DMP	SEN	6	MINDS	KU
D22	D7.1	OEI - Requirement No. 1	ENG	ETHICS	SEN	6	UBITECH	IC
D20	D6.1	Dissemination, Standardisation, Regulation & Business Plan	8BELLS	R	PU	8	UL	UPV
D5	D2.1	Use Case, KPIs, Requirements, Specification, Slices & Technology Enablers Definition Report	UBITECH	R	PU	10	ENG	IHU
D7	D3.1	Architecture & Platform Design Blueprint	ENG	R	PU	12	FACT	UL
D8	D3.2	NG-SDN & Distributed Intelligence Functions Toolkit	UBITECH	DEM	PU	15	EXOS	UPV
D13	D4.1	Initial Reusability, Explainability,Trustworthiness Report	SID	R	PU	17	FACT	EXOS
D3	D1.3	Ethics Advisor Report V2	ENG	R	SEN	18	UBITECH	IC
D6	D2.2	Experimental Verified & Optimized AI Theoretical Framework	UBITECH	R	PU	19	INTRA	IHU
D16	D5.1	Installation & Demonstration Planning, Evaluation Methodology & KPIs Definition Report	INTRA	R	PU	20	8BELLS	ENG
D17	D5.2	Initial TALON Platform Setup, Operation, Continuous Integration & Maintenance Report	INTRA	R	PU	22	UL	IC
D10	D3.4	Self-Healing, Self-Recovery & Self-Correcting Mechanisms Toolkit	UPV	DEM	PU	23	IHU	MINDS
D9	D3.3	Initial Overall E2C AI & Resource Orchestrator	ENG	DEM	PU	24	CERTH	PROBO
D18	D5.3	Pilot Specific TALON Platform Setup, Operation, Continuous Integration & Maintenance Report	INTRA	R	PU	25	SID	KU
D14	D4.2	Lightweight Decentralized Blockchain Toolbox	SID	DEM	PU	26	UBITECH	8BELLS
D11	D3.5	Smart Pricing Policy Report	8BELLS	R	PU	27	TEI	CERTH
D12	D3.6	Overall Architecture & Platform	ENG	DEM	PU	33	KU	IC
D15	D4.3	Final Reusability, Explainability, Trustworthiness, Security & Privacy mechanisms	SID	DEM	PU	35	IC	UBITECH
D4	D1.4	Ethics Advisor Report V3	ENG	R	SEN	36	UBITECH	IC
D19	D5.4	Final TALON Platform Setup, Operation,Continuous Integration & Maintenance Report	INTRA	R	PU	36	MINDS	UBITECH
D21	D6.2	Dissemination, Standardisation, Regulation & Business Report	8BELLS	R	PU	36	INTRA	ENG

Table 12. Summary table with reviewers for each deliverable

7. Risk Assement and Management

7.1 Introduction

In the scientific and industrial domains, risk management is a fundamental necessity and a core component [8]. Every project has different possibilities and hazards, creating a complicated and frequently connected mix that the consortium must deal with. The first step in risk management is risks identification and analysis, and next comes an estimation of the likelihood that the incident or exposure will occur, and the process is completed with a statement of risk. An organization's potential risks are identified, evaluated, and prioritized as part of the risk management process. Next, efforts are taken to reduce or eliminate those risks. The most recent developments in risk management include a variety of cutting-edge methods and instruments that businesses may employ to more precisely detect and control risks. These technologies may be used by organizations to examine vast volumes of data and spot trends that could point to possible problems. Organizations may use predictive modelling to foresee potential hazards and create mitigation plans. Overall, the use of technology to automate and expedite the risk management process is also considered to be state-of-the-art in this field. Advanced methods and tools for detecting and managing risks are also included.

7.2 Risk Management Plan

TALON's needs have led to the selection of five discrete stages of risk management which are defined next:

Risk Identification: The first stage that identifies a potential risk and report its characteristics that are available by the time the risk is identified.

Risk Quantification: The second stage is concerned with the evaluation of risks by trying to define their relationships and interactions with the project, and, simultaneously, assigning probabilities of occurrence, and possible consequences.

Risk Response Development: The third stage is focused on the development of response plans, and mitigation strategies. These strategies include the planning of corrective actions that need to be taken in order to reduce, or even eliminate, the impact of a risk.

Risk Monitoring & Control: The fourth stage involves the periodically monitoring of risks and implementing correction strategies that were designed during stage three.

Risk Documentation: The final stage is concerned with creating a risk registry in order to keep track of the risks identified, their current status regarding their likelihood, and if any corrective actions were applied.

At this point, it is important to note that these five stages are part of a continuing process that it is going on throughout the project's lifecycle. Currently, there are several techniques in the literature that can be used for Risk Analysis. In the context of TALON, the techniques "What-if" and "Risk Assessment Decision Matrix Analysis (RADM)" are defined, and then TALON's Risk Registry is presented along with the description of each field is used.

7.3 Risk Analysis Methods & Techniques

As it was noted above, there are many Risk Analysis techniques that are currently implemented. In general, the selection of tools and methods for identifying, reporting, quantifying, and monitoring risks is based on the project's needs, complexity, size, and budget. For TALON, the methods "What-if", and "Risk Assessment Decision Matrix Analysis (RADM)" were selected.

7.3.1 What-if Analysis

What-if analysis [9] involves creating different scenarios and evaluating the potential consequences of each. This process helps to identify potential risks and opportunities, and to make decisions that are informed by a clear understanding of the potential outcomes. By using what-if analysis, decision-makers can better prepare for different possible outcomes and make decisions that are informed by this preparation. The process can be as simple or complex as needed, depending on the decision being made and the level of detail required. For example, it may simply involve brainstorming potential outcomes. Regardless of the level of detail involved, the goal of what-if analysis is always the same: to help individuals and organizations make better decisions by providing them with a clearer understanding of the potential consequences of their choices.

7.3.2 Risk Assessment Decision Matrix Analysis

The Risk Assessment Decision Matrix Analysis (RADM) [10] is a widely used tool in the field of risk management for evaluating and prioritizing potential risks. This matrix provides a simple and straightforward way to represent the likelihood and impact of a particular risk, making it easier for decision-makers to determine which risks require the most attention and resources. The RADM is typically used in combination with other risk assessment methods such as What-if analysis. The RADM can be used in a variety of contexts, including project management, milestone achievement, and deliverables submission. It is a useful tool for organizations that need to make informed decisions about how to allocate resources and manage risks effectively. By providing a clear and simple representation of the risks, the RADM helps decision-makers to prioritize their efforts and respond to the most critical risks in a timely and effective manner.

7.3.3 TALON Risk Analysis Methods

Regarding the Risk Analysis methods for TALON, RADM method will be mainly used for the reporting, the quantification, and the close monitoring of the risks in combination with What-if analysis in order to identify any possible risks that can harm project's successful completion either in terms of time, quality, or budget.

7.4 TALON Risk Registry

For the TALON project, a Risk Registry Template was developed in order to identify and keep track of the potential risk within the project. The information needed to describe every risk is shown in Table 2, Table 3 and Table 4. This template is oriented toward collecting and monitoring all the useful information of a risk in order to prevent and, if the risk materializes, mitigate possible consequences that might have a negative impact to the project's development.

In order to aid the effort of collecting and filling in the respective information of possible risks identified in each step of the project's development, an excel file has been created to gather the risks.

- The Risk Registry incorporates a list of fields in three separate categories:
- Risk Information: documents details and summarises the relative risk in question
- Current Risk Assessment: aims at including updates on a certain risk

Risk Materialisation: concerns the materialisation of a given risk and its mitigation. If a risk materialises then the Risk Materialisation of that risk will also be monitored and updated regularly until the mitigation actions are complete and the risk is voided.

The Risk Registry is designed to evaluate the project's hazards both qualitatively and quantitatively. Although the information is entered into the register qualitatively to facilitate the smoother input of potential hazards and to discretely define their severity and effect, the information is converted into

quantitative values. This is done to aid with risk monitoring by giving a sufficient description and comparison of the hazards.

To gather the Risk information, need from each partner a Risk Elicitation Template was created. The template also includes a set of attributes that are calculated dynamically. For example, the PI Percentage which is the normalised product of the Probability and Impact of a certain risk is calculated through the formula below. This provides a quantitative measure to monitor the overall severity of the respective risk.

The following formula calculates the PI percentage of the risk by computing the normalised product of the probability and impact of that risk*:*

$$PI\ percentage_i = \frac{Probability_i * Impact_i}{3} * 100$$

$$Probability = \{Very\ Low: 0.2;\ Low: 0.4;\ Medium: 0.6;\ High: 0.8;\ Very\ High: 1\}$$

$$Impact = \{Low: 1;\ Medium: 2;\ High: 3\}$$

With main goal the close monitoring of risks to reduce their probability of occurrence, and/or their impact, there are two views designed. The first one contains all the details for every possible risk that is identified (Figure 15, Figure 17). The second one is a simple, short view (Figure 18) that holds only the essential information on every risk, such as risk id, risk title, risk owner, and its impact. The second view gives the capability to every partner to have a quick and immediate update on every risk any given time, without the need to search the whole Risk Registry. The partners of TALON project created an Excel Sheet in order to gather and organize the potential risks of each WP. The figure below shows part of the Excel file.

RISK INFORMATION													
RISK ID	DATE OF IDENTIFICATION (DD-MM-YY)	RELATED WPs & Tasks	RISK TITLE	RISK DESCRIPTION	RISK OWNER	RISK TRIGGER	RISK CATEGORY (Technical/Business/Administrative)	PROBABILITY OF OCCURENCE (Very Low - Low - Medium - High - Very High)	IMPACT (Low-Medium-High)	PI PERCENTAGE (PROB x IMPACT)	RISK RESPONSE	RISK RESPONSE/ MITIGATION PLAN	RESPONSE TRIGGER
WP1-01	10/1/2022	WP1	Insufficient Consortium Coordination	Project Management may be ineffective	ENG	does not respond to the requests of the consortium participants or to the	Administrative	Low	High	#NAME?	Mitigate	with the appropriate Project Management (Section 3.2.1). If the need arises, ORG01 will assign a deputy to assist the PC. In the unlikely event of the PCC receiving complaints about the quality of the coordination activities, the consortium will	At least one General Assembly each year is set.
WP1-02	10/1/2022	WP1	Lack of communication among partners	The communication between partners may be insufficient and project's milestones, and deliverables are prone to be influenced	ENG	No recurrent telcos have been set for a WP	Administrative	Medium	High	#NAME?	Mitigate	safeguard smooth technical activities and communication among partners. Insufficient communication will be escalated to the PC, who will try to encourage	After M04, all active WPs must have a recurrent meeting set.
WP1-03	10/1/2022	WP1	Shortage of resources and/or change of personnel	During project, partners may have allocated a small number of resources for the work that needs to be done	ENG	Coordinator complains about a lack of commitment and results from	Administrative	Medium	Medium	#NAME?	Avoid	of personnel substitution, the new member must demonstrate comparable competencies. The same applies for the shortage of personnel resources. Shortage of financial resources will be	Milestones and delivery deadlines met
WP1-04	10/1/2022	WP1	Partner Withdrawal	During Project's lifetime a Partner may withdraw from TALON	ENG	es withdrawal to the coordinator or does not actively participate	Administrative	Low	Medium	#NAME?	Accept	another partner, from existing research partnerships or through dissemination activities. The establishment of the TALON Technology Adopters Industrial Focus Group Liaison (TTA-IFGL) will help	the General Assembly will decide: (a) reallocation of the requesting Party's work and contribution in order that the aims and objectives of the Action can still be met after the proposed withdrawal, and submitting details of it to the Funding Authority; or (b) the drafting of a restructured Action Plan and submitting it to the Funding Authority. (See CA for further details)

Figure 15. Risk Information– Deep View

CURRENT RISK ASSESSMENT											RISK MATERIALISATION			
DATE OF LAST EVALUATION (DD-MM-YYYY)	CURRENT RISK STATUS	CURRENT PROBABILITY OF OCCURRENCE (Very Low - Low - Medium - High - Very High)	CURRENT IMPACT	CURRENT PI PERCENTAGE	PI DIFFERENCE BETWEEN INITIAL PI AND CURRENT PI SCORE	CURRENT ACTIONS ON THE RISK (IF APPLICABLE)	APPLICATION OF MITIGATION MEASURES (YES/NO)	RESULTS OF MITIGATION MEASURES (IF APPLICABLE)	WHY MITIGATION MEASURES COULDN'T/WEREN'T APPLIED	RISK MATERIALISATION (YES/NO)	DATE OF MATERIALISATION (DD-MM-YYYY)	REASONS OF MATERIALISATION	CONSEQUENCES (SHORT DESCRIPTION)	CORRECTIVE ACTIONS

Figure 16. Current Risk Assessment / Risk Materialisation - Deep View

RISK INFORMATION				CURRENT RISK ASSESSMENT				
RISK ID	RISK TITLE	RISK OWNER	PI PERCENTAGE(PROB x IMPACT)	DATE OF LAST EVALUATION (DD-MM-YYYY)	CURRENT RISK STATUS	CURRENT PI PERCENTAGE	PI DIFFERENCE BETWEEN INITIAL PI AND CURRENT PI SCORE	RISK MATERIALISATION (YES/NO)
WP1-01	Insufficient Consortium Coordination	ENG	40,00%					
WP1-02	Lack of communication among partners	ENG	60,00%					
WP1-03	Shortage of resources and/or change of personnel	ENG	40,00%					
WP1-04	Partner Withdrawal	ENG	26,67%					
WP1-05	Failures to meet milestones	ENG	40,00%					

Figure 17. Risk Information / Current Risk Assessment - Simple View

Table 13 shown below provides a description of all the pre-set qualitative features contained within the Risk Registry.

Table 13. Risk Registry pre-set qualitative features

Field Name	Categories	Description
Risk Category	Technical	A Risk that influences the technical Implementation of the project
	Business	A Risk concerned with the Business aspect of the project
	Administrative	A Risk concerned with the Administrative of the Project
PROBABILITY OF OCCURRENCE	Very Low	0 – 20%
	Low	21 – 40%
	Medium	41 – 60%
	High	61 – 80%
	Very High	81 – 100%
IMPACT	Low	1
	Medium	2
	High	3
Risk Response	Accept	Acknowledge the risk and choose not to resolve
	Mitigate	Reduce the Likelihood/Impact of risk
	Transfer	Assign the risk to a third-party
	Avoid	Completely Eliminate the risk
Risk Response	Active	The risk is active
	Voided	The risk can no longer influence the project

The format and fields of the Risk Registry are shown in Table 14 and Table 15. Each of the fields listed below is intended to provide a thorough description of each recognized rink.

Table 14. Risk Registry fields(1)

Field Name	Description
RISK ID	*The identification number of every Risk (RX)*
DATE OF IDENTIFICATION	*The date that the risk was identified*
RELATED WPs & TASK	*Which WP(s) and Task(s) are related to the risk*

RISK INFORMATION	RISK TITLE	*A short, descriptive title for the risk*
	RISK DESCRIPTION	*A short description for the risk (100-150 words)*
	RISK OWNER	*The partner that is responsible for monitoring the risk*
	RISK TRIGGER	*An event that will possibly trigger the occurrence of the risk*
	RISK CATEGORY (Technical/Business/Management)	*The category of the risk*
	PROBABILITY OF OCCURENCE (Very Low - Low – Medium - High - Very High)	*The risk's probability of occurrence. For the numerical representation of the categories, see the appropriate Table*
	IMPACT (Low-Medium-High)	*The impact of the risk*
	PI PERCENTAGE (PROB x IMPACT)	*PI Score = Probability x Impact (NOT FILLED BY PARTNERS)*
	RISK RESPONSE	*The response to the risk*
	RISK RESPONSE/ MITIGATION PLAN	*Description of the Response Plan*
	RESPONSE TRIGGER	*An event that will possibly trigger the implementation of Response Plan*

Table 15: Risk Registry fields(2)

CURRENT RISK ASSESSMENT	**DATE OF LAST EVALUATION**	*The Date of Last Evaluation*
	CURRENT RISK STATUS	*The current status of the risk*
	CURRENT PROBABILITY OF OCCURRENCE (Very Low - Low - Medium - High - Very High)	*The risk's current probability of occurrence*
	CURRENT IMPACT	*The current impact of the risk*
	CURRENT PI PERCENTAGE	*Current PI Score*

	PI PERCENTAGE DIFFERENCE	*How PI Score changed: Current PI Score - Initial PI Score*
	CURRENT ACTIONS ON THE RISK (IF APPLICABLE)	*What actions are currently implemented in the risk*
	APPLICATION OF MITIGATION MEASURES (YES/NO)	*Are the mitigation measures applied*
	RESULTS OF MITIGATION MEASURES (IF APPLICABLE)	*What were the results of the application of mitigation measures*
	WHY MITIGATION MEASURES COULDN'T/WEREN'T APPLIED	*The reasons of why mitigation reasons did/could not be applied*
	RISK MATERIALISATION (YES/NO)	*If the risk materialised*
RISK MATERIALISATION	DATE OF MATERIALISATION	*The date of materialisation*
	REASONS OF MATERIALISATION	*Why the risk has been materialised*
	CONSEQUENCES (SHORT DESCRIPTION)	*The consequences of the materialization*
	CORRECTIVE ACTIONS	*The corrective actions that will be taken*

8. Administrative and financial reporting

8.1 Reporting to EC

During the Project, regular updates on the status of the Project must be provided: the continuous reporting.

The **continuous reporting** includes:

- progress in achieving milestones
- deliverables
- updates to the publishable summary
- response to critical risks, publications, communications activities, IPRs

The Continuous Reporting folder is accessible in the Project Repository.

In order to receive payments, the Consortium must submit **periodic reports** (following the schedule set out in the Grant Agreement). These reports must be submitted directly in the Periodic Reporting Module of the Portal Grant Management System at the latest within 60 days after the end of the reporting period (including the last reporting period).

TALON is divided into two reporting periods of the following duration:

- P1: from month 1 to month 18
- P2: from month 19 to month 36.

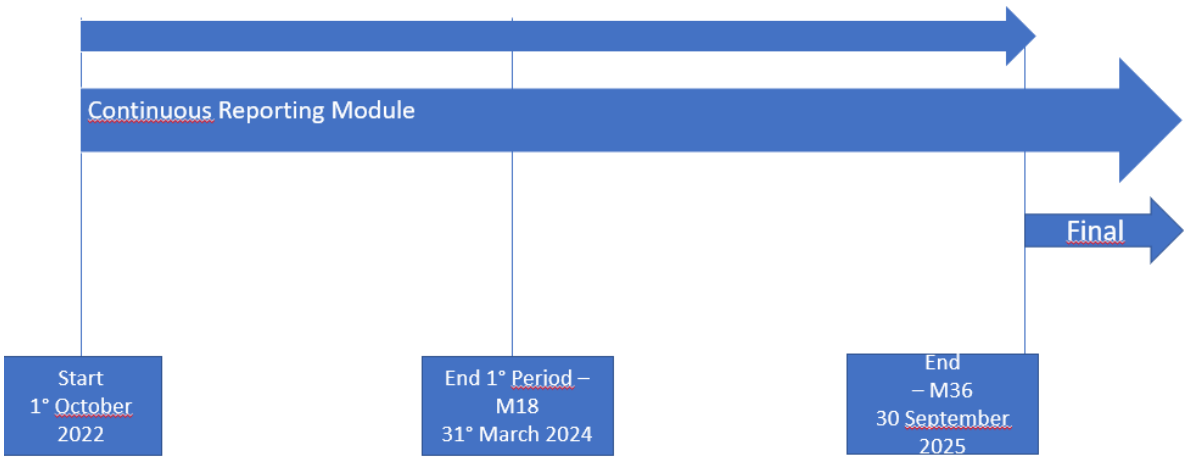

Figure 18.Periodic Reporting

8.2 Internal Effort Monitoring

Internal effort monitoring will be done periodically to assure the proper development of the project. These reports are intended for internal use, therefore, they won't be delivered to the EC. Every partner will be requested every six months to provide the effort consumed in the corresponding period in a specific template.

8.3 Periodic reports

The Periodic technical report consists of two parts: Technical Report and Financial Report described below.

1) Technical Report

The Technical Report consists of two parts:

- **Part A** is completed online, filling structured tables from the grant management system. The structure of part A consists of:
    - cover page
    - publishable summary
    - web-based tables covering issues related to the Project implementation (e.g., work packages, deliverables, milestones, etc.)
    - answers to the questionnaire about the economic and social impact.
- **Part B**, the core part of the report as free text, submitted as a separate PDF document in the Grant Management System. Part B should provide:
    - explanations justifying the differences between work expected to be carried out in accordance with the Description of the Action and that actually carried out.
    - an overview of the progress towards the Project objectives, justifying the differences between work expected under the Description of the Action and the work actually performed, if any.

2) Financial Report

Consists of structured forms from the grant management system, including:

- the financial statements (individual and consolidated; for all beneficiaries/affiliated entities)
- the explanation on the use of resources (or detailed cost reporting table, if required)
- the certificates on the financial statements (CFS) (if required)

The technical report Part A and the Financial Report are generated automatically on the basis of the data in the Grant Management System; Part B needs to be prepared outside the tools (using the template downloaded from the system) and then uploaded as PDF (together with Annexes, if any).

The Project Coordinator is responsible for the preparation of these reports and shall receive the data provided by the partners and consolidate them in a common report. Partners must complete and return draft versions of their individual reports to Coordinator at the latest within 25 days after the end of the reporting period.

By signing the financial statements (directly in the Portal Periodic Reporting tool), the beneficiaries confirm that:

- the information provided is complete, reliable and true
- the costs and contributions declared are eligible
- the costs and contributions can be substantiated by adequate records and supporting documents that will be produced upon request or in the context of checks, reviews, audits and investigations

8.3.1 Final report

The Periodic Reporting Module (and periodic reports) are also used for the final report (report for the last reporting period, to close the grant). The system behaviour, screens and documents used are the same.

8.4 Budget and payments

The estimated budget for the Project is set out in Annex 2 of the Grant Agreement.

It contains the estimated eligible costs and contributions for the action, broken down by participant and budget category.

Payments will be made in accordance with the schedule and modalities set out in the Grant Agreement. They will be made in euro to the bank account indicated by the Coordinator and then will be distributed without unjustified delay to the partners. The table below reports the reporting periods and the payments schedule of the Project.

Table 16. Reporting and payment schedule

Reporting					**Payments**	
Reporting periods			**Type**	**Deadline**	**Type**	**Deadline**
RP No	**Month from**	**Month to**				
					Initial prefinancing	30 days from entry into force/10 days before starting date – whichever is the latest
1	1	18	Periodic report	60 days after end of reporting period	Interim payment	90 days from receiving periodic report
2	19	36	Periodic report	60 days after end of reporting period	Final payment	90 days from receiving periodic report

9. Ethics Management Plan

The TALON consortium is aware of the ethical aspects pertinent to the scope of TALON project, which are addressed under the Work Package 7 on "Ethics Requirements''.

In particular, Work Package 7 (WP7) puts particular emphasis on two aspects pertinent to the scope of TALON: (i) the involvement of research participants; and (ii) the protection of the personal data to be collected and further processed for the purpose of TALON project. Work Package 7, thus, focuses on the Demonstrators' activities by capturing, for instance, the procedures for onboarding research participants and by producing an overview of the technical and organizational measures for the protection of personal data of the research participants.

Additionally, consortium partners are committed to comply with the ethical principles as set out in article 14 of the GA and their Annex V. All the activities must be carried out in compliance with the European Code of Conduct for Research Integrity of ALLEA[1].

Data integrated into the DMP should be non-personal data, in compliance with Regulation EU 2018/1807, which allows for the free processing of such information throughout the EU. To ensure compliance, necessary precautions will be taken to exclude the application of personal data regulations, mainly GDPR.

Human participants will be voluntarily involved in TALON activities, during the evaluation and validation demonstration 4 (HRC) (WP5). The main objective of the foreseen research activity is to test, assess, and evaluate the proposed solution and its effectiveness. All human participants will be healthy adults, being able to provide their informed consent, while no use of deception or any activities that will create psychological stress, anxiety, or humiliation is foreseen under any circumstances. Consortium members will be responsible for their voluntary recruitment and further participation, while no activity that pose a physical, emotional, social, economic, or legal risk for the responsible researchers will be developed. Any personal data derived from the participants (name, surname, e-mail address, image, video, audio, footages, etc.) will abide to the data minimization principle, ensuring that there will be well-rounded and sufficient explanation on the reasons that urge the project to collect the said personal data per case and for the purpose of the project. After the end of the demonstration, all personal data will be immediately transferred to encrypted and/or secure and password protected servers or devices. Before data can be used, they will be depersonalised, unless there is an explicit agreement with the research participant that says otherwise, e.g., in the case of photos. The transcripts will delete/modify any information that would enable you to be identified (names, locations, etc.) directly, by inference or by association. This Anonymisation will be complete and irreversible as the original audios will be destroyed. Furthermore, the Consortium will be careful in the way they formulate and publish their research findings to avoid the stigmatization or stereotyping of any of the involved groups. No environmental damage, political or financial adverse consequences and misuse are foreseen as potential outcomes of the TALON activities. Due to the human involvement and personal data collection, the project will comply with all the relevant legislation, e.g., the General Data Protection Regulation (Regulation (EU) 2016/679), the free movement of such data, the Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications), as well as all the specific national legislations on the protection of personal data. Informed consents and information sheets including specific information on data management and participants' personal data protection

[1] *European Code of Conduct for Research Integrity of ALLEA (All European Academies).*

rights will be developed during the lifespan of the project, adjusted to the needs of the foreseen activities, and communicated in understandable language and terms. In addition, TALON will draft an Incidental Findings policy, describing all potential unexpected findings not being related to the purpose of the research and concerning disclosure of info around the commission of any unlawful act critical for the safety and the security, that subsequently require immediate disclosure. Dedicated statements informing the participants involved in the research activities regarding incidental finding policy along with specific examples per country will be included in the provided information sheet.

Each participant of dissemination & communication activities will be considered as data subject, having the right to exercise control over their personal data, determining the extent to which it can be gathered/re-used and eventually processed (compliant with chapter III of the GDPR). Furthermore, our website will be fully compliant with the GDPR including a legal notice, privacy policy statement and cookies warning. With these provisions visitors of the website will be aware about our use of their personal data in the project.

No additional information about the informed consent procedures for data sharing and long-term preservation regarding the use of personal data, can be provided now (month 6), but it will included in D1.3 (M18) and D1.4 (M36) dealing with other ethical issues or even the official periodic report, requesting to provide an explanation of the human skill assessment, presumably to be done in an automated way, and raising some issues of human assessment by algorithms.

10. Data Management Plan

In addition to what is expressed in this document in terms of management of the various artifacts, please refer to the TALON DMP (D1.2 - Data Management Plan). DMP is a key element of good data management and describes the data management life cycle for the data to be collected, processed and/or generated by a Horizon Europe project. As part of making research data findable, accessible, interoperable and re-usable (FAIR), the TALON DMP includes information on:

- the handling of research data during & after the end of the project
- what data will be collected, processed and/or generated
- which methodology & standards will be applied
- whether data will be shared/made open access and
- how data will be curated & preserved (including after the end of the project).

11. References

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12. Annex I – WP and tasks list

WP/Task	WP/Task Title	Lead
WP1	**Project, Innovation & Data Management**	**1 - ENG**
T1.1	Administrative & Financial Coordination	ENG
T1.2	Technical, Scientific & Innovation Management	UBITECH
T1.3	Quality & Risk Management	MINDS
T1.4	TALON Data Management	INTRA
WP2	**Usage Scenarios & Theoretical Framework Development**	**10 - UBITECH**
T2.1	Use Case, KPIs, Requirements, Specification, Slices & Technology Enablers Definition	UBITECH
T2.2	AI Theoretical Framework	UBITECH
T2.3	Performance Assessment via Modelling & Real-World Result	UBITECH
WP3	**TALON Architecture & Platform**	**1 - ENG**
T3.1	Overall Architecture & Platform Design	ENG
T3.2	Enabling Common NG-SDN & Distributed Intelligence Functionalities	UBITECH
T3.3	Zero-Touch AI-Orchestrator	ENG
T3.4	AI-based Resource Coordination Through Computation Offloading & Social Aware Caching	UL
T3.5	Self-Healing & Self-Correcting Mechanisms	UPV
T3.6	Smart Pricing Policies for Non-Commercial Devices Participation	8BELLS
WP4	**Reusability, Explainability, Trustworthiness, Security & Privacy**	**11 - SID**
T4.1	AI Cognition & Transfer Learning Functionalities	UL
T4.2	Few-Shot & Hybrid Learning Approaches	UPV
T4.3	XAI, Monitoring & Visualisation mechanisms	SID
T4.4	Security & Privacy Blockchain Mechanisms	SID
WP5	**Integration, Validation & Demonstration**	**4 - INTRA**
T5.1	Installation & Demonstration Planning, Evaluation Methodology & KPIs Definition	INTRA
T5.2	TALON Platform Setup, Operation, Continuous Integration & Maintenance	INTRA
T5.3	Automatic UATV Coordination	PROBO
T5.4	I5.0 Automation & Planning	FACT
T5.5	AR/VR for Training & Maintenance	KU
T5.6	Human Robot Collaboration	CERTH
WP6	**Dissemination, Standardisation, Regulation & Business Planning**	**9 - 8BELLS**
T6.1	Dissemination & Exploitation Activities	IC
T6.2	Standardisation, Regulation & Clustering Activities	8BELLS
T6.3	Business Planning & Market Analysis	8BELLS
WP7	**Ethics requirements**	**1 - ENG**
T7.1	Ethics requirements compliance	ENG

13. Annex II - Deliverable list

WP Nr	Del Rel. Nr	Del Nr	Title	Lead Beneficiary	Type	Submission Deadline (date)
WP1	D1	D1.1	Project Administrative, Technical & Data Management Handbook	ENG	R	31/03/2023
WP1	D2	D1.2	Data Management Plan	ENG	DMP	31/03/2023
WP7	D22	D7.1	OEI - Requirement No. 1	ENG	ETHICS	31/03/2023
WP6	D20	D6.1	Dissemination, Standardisation, Regulation & Business Plan	8BELLS	R	31/05/2023
WP2	D5	D2.1	Use Case, KPIs, Requirements, Specification, Slices & Technology Enablers Definition Report	UBITECH	R	31/07/2023
WP3	D7	D3.1	Architecture & Platform Design Blueprint	ENG	R	30/09/2023
WP3	D8	D3.2	NG-SDN & Distributed Intelligence Functions Toolkit	UBITECH	DEM	22/12/2023
WP4	D13	D4.1	Initial Reusability, Explainability,Trustworthiness Report	SID	R	29/02/2024
WP1	D3	D1.3	Ethics Advisor Report V2	ENG	R	29/03/2024
WP2	D6	D2.2	Experimental Verified & Optimized AI Theoretical Framework	UBITECH	R	30/04/2024
WP5	D16	D5.1	Installation & Demonstration Planning, Evaluation Methodology & KPIs Definition Report	INTRA	R	31/05/2024
WP5	D17	D5.2	Initial TALON Platform Setup, Operation, Continuous Integration & Maintenance Report	INTRA	R	31/07/2024
WP3	D10	D3.4	Self-Healing, Self-Recovery & Self-Correcting Mechanisms Toolkit	UPV	DEM	30/08/2024
WP3	D9	D3.3	Initial Overall E2C AI & Resource Orchestrator	ENG	DEM	30/09/2024
WP5	D18	D5.3	Pilot Specific TALON Platform Setup, Operation, Continuous Integration & Maintenance Report	INTRA	R	31/10/2024
WP4	D14	D4.2	Lightweight Decentralized Blockchain Toolbox	SID	DEM	29/11/2024
WP3	D11	D3.5	Smart Pricing Policy Report	8BELLS	R	20/12/2024
WP3	D12	D3.6	Overall Architecture & Platform	ENG	DEM	30/06/2025
WP4	D15	D4.3	Final Reusability, Explainability, Trustworthiness, Security & Privacy mechanisms	SID	DEM	29/08/2025
WP1	D4	D1.4	Ethics Advisor Report V3	ENG	R	30/09/2025

WP5	D19	D5.4	Final TALON Platform Setup, Operation,Continuous Integration & Maintenance Report	INTRA	R	30/09/2025
WP6	D21	D6.2	Dissemination, Standardisation, Regulation & Business Report	8BELLS	R	30/09/2025

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